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Exploring Cognitively Accessible Academic Lessons for Students with Intellectual Disabilities Using the iPad

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EXPLORING COGNITIVELY ACCESSIBLE ACADEMIC LESSONS FOR STUDENTS WITH INTELLECTUAL DISABILITIES USING THE *IPAD*

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ABSTRACT

Exploring Cognitively Accessible Academic Lessons for Students with Intellectual Disabilities Using the *iPad*

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Students with intellectual disabilities often lack access to general education curricula. This is because many teachers struggle with adapting these curricula to meet the unique learning needs of these students. Technology, having the potential to facilitate access to general education curricula, has been successfully used as a tool to adapt curriculum for this population. The use of the *iPad* (Apple, 2010), which is easily programmed to support the unique needs of students with disabilities, is beginning to be explored as a tool for the learning and instruction of students with intellectual disabilities and results have been favorable. Further research is needed to evaluate the efficacy of using *iPad* (Apple, 2010) technology as a curricular support and methods for successfully incorporating this technology into instruction must also be explored.

This study focused on providing access to academic content aligned to general education content standards through the use of an *iPad* (Apple, 2010). Two instructional conditions were compared, traditional teaching involving paper and pencil and teaching involving *iPad* (Apple, 2010) technology. Data were compared to determine the effects of the intervention on the academic content knowledge, work completion, and engagement of students with intellectual disabilities. Student perceptions concerning the

use of *iPads* (Apple, 2010) as learning tools were collected and evaluated at the conclusion of the study.

The results indicated that although the *iPad* (Apple, 2010) did not have a significant effect on increasing the academic content knowledge or maintenance of knowledge over time, the *iPad* (Apple, 2010) did have a significant effect on the work completion and engagement of students with intellectual disabilities. Moreover, students participating in the study responded favorably about using the *iPad* (Apple, 2010) as a learning tool.

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Dedicated to Papa.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER ONE

INTRODUCTION

Significant limitations in intellectual and adaptive functioning as well as poor conceptual, social, and practical skills, tend to be universal among students identified as having an intellectual disability (ID) (Lukasson et al., 2002; Schalock et al., 2010). Limitations in memory, attention, focus, reasoning, processing, problem solving, generalization, and abstract conceptualization also are common characteristics of this population (Agran & Wehmeyer, 2005; Downing, 2010; Munde, Vlaskamp, Rullssenaars, & Nakken, 2009). These limitations can inhibit: (a) language and communication skills, (b) reading and writing skills, and (c) math skills, ultimately contributing to academic underachievement (Browder, Spooner, Ahlgrim-Delzell, Harri, & Wakeman, 2008; Ratz & Lenhard, 2013; Schuit, Segers, Balkom, & Verhoeven, 2011). However, the literature maintains that students with ID can, and do, learn academic skills with the application of direct and systematic instruction (Agran, Cavin, Wehmeyer, & Palmer, 2006; Bradford, Alberto, Houchins, Shippen, & Flores, 2006; Browder, Wakeman, Spooner, Ahlgrim-Delzell, & Algozzine, 2006; Downing, 2008). Furthermore, research indicates that these students can learn academic tasks through small group instruction (Falkenstine, Collins, Schuster, & Kleinert, 2009; Farmer, Gast, Wolery, & Winterling, 1991). Both points lend support to the belief that instruction for students with ID, including any adaptations or modifications, should be aligned to academic content and occur in typical or natural settings (Agran et al., 2006; Downing, 2010).

Despite research and federal policies (e.g., Individuals with Disabilities Education Act [IDEA, 1997], the reauthorization amendments [IDEA, 2004], the No Child Left

Behind Act [NCLB, 2001]) mandating that students with disabilities have access to general education curricula and environments, these students continue to receive their education in segregated and specialized classrooms (Peetsma, Vergeer, Roeleveld, & Karsten, 2010; Smith, 2007; Williamson, McLeskey, Hoppey, & Rentz, 2006). This segregation limits the potential for learning interactions with peers without disabilities (Downing, 2010; Peetsma et al., 2010). Unfortunately, separate learning environments for this population are not reflective of the general education classroom in which all students are expected to achieve (Downing, 2010). Moreover, most of these segregated or self-contained environments maintain lower learning expectations for these students (Karagiannis, Stainback, & Stainback, 1996).

Current research supports that both functional and academic curricula are central to educating and meeting the needs of students with ID (Downing, 2010). However, instruction for these students often lacks a focus on academics (e.g., reading, writing, math) fundamental to the mandates for general education curricular alignment (Browder et al., 2008; Browder, Spooner, Wakeman, Trela, & Baker, 2006). This has resulted in an increased demand for curricular modifications to facilitate greater academic as well as functional access for students with ID (Spooner, Dymond, Smith, & Kennedy, 2006; Wehmeyer, 2006; Wehmeyer, Smith, & Davies, 2005).

Access to the General Education Curriculum

While research supports the belief that students with ID are capable of progressing within general education curricula, barriers to access remain (Soukup, Wehmeyer, Bashinski, & Bovaird, 2007). Students educated in self-contained settings continue to lack access to curricula and instruction aligned to current academic content standards (Soukup et al., 2007; Wehmeyer, Latin, Lapp-Rinker, & Agran, 2003). Typically, this occurs because: (a) educators experience difficulty identifying modifications needed to support diverse learning needs, and (b) school districts have not aligned adapted curricula to current content standards (Spooner et al., 2006). Other factors impeding student access include lack of teacher preparation, low teacher retention in the field, and the deterrent of standardized testing accountability (Spooner et al., 2006; Wehmeyer, 2006). Unfortunately, even under the best learning conditions (e.g., peer supports, curricular modifications, curricula alignment), appropriate application is infrequent and results in a lack of access to general education curricula (Lee, Wehmeyer, Soukup, & Palmer, 2010; Wehmeyer, Lattin, & Agran, 2001; Wehmeyer, Sands, Knowlton, & Kozleski, 2002).

Curricular Adaptations for Students with Intellectual Disabilities

Students with ID require individualized supports, curricular modifications, adapted materials, and differentiated instruction to be successful when general education curricula are used (Agran et al., 2006; Downing, 2010; Spooner et al., 2006; Wehmeyer, 2006). The research is replete with evidence-based instructional strategies and modifications that are successful with students with ID. These include teaching learning-to-learn strategies, meta-cognitive skills, task analysis, and self-determination strategies to facilitate active participation and engagement (Agran et al., 2006; Spooner, Knight, Browder, & Smith, 2011; Lee et al., 2006; Lee, Wehmeyer, Palmer, Soukup, & Little, 2008; Shogren, Palmer, Wehmeyer, Williams-Diehm, & Little, 2012). However, research indicates that teachers seldom make curricular adaptations or augmentations in self-contained classrooms and appropriately adapted curricular materials are rarely provided

(Lee et al., 2010). This restricts students with ID to curricula that are: (a) cognitively inaccessible, and (b) not aligned to the general education content standards (Lee, Soukup, Little, & Wehmeyer, 2009; Soukup et al., 2007; Wehmeyer et al., 2003). In order to generate standards-aligned curricula that are cognitively accessible for students with ID, individualized curricular adaptations are required (Wehmeyer et al., 2002). These adaptations modify the presentation and representation of information without altering content (Lee et al., 2010; Wehmeyer, Lance, & Bashinski, 2002; Wehmeyer et al., 2001).

Theoretical Framework of Universal Design for Learning

Research concerning the curricular limitations for students with ID focuses on the implementation of Universal Design for Learning (UDL) principles (Doyle & Giangreco, 2009; Lee et al., 2010; Wehmeyer, 2006). These principles support accessibility by providing levels of knowledge acquisition, a variety of options, and alternatives for demonstrating learning (Gordon, Gravel, & Schifter, 2009). Research indicates that UDL can impact motivation and increase student engagement (Dymond et al., 2006). The application of UDL in the creation of curricula for students with ID to eradicate learning barriers is supported in the literature (Wehmeyer, 2006; Wehmeyer et al., 2005). However, UDL, originally designed to support diverse learners in general education, requires further adaptations to meet the needs of students with ID (Edyburn, 2013). These adaptations (e.g., literacy supports, adapted materials, technology) can be implemented to support the learning limitations of these students (Downing, 2010; Wehmeyer, Palmer, Smith, Davies, & Stock, 2008; Wehmeyer et al., 2001).

Technology is a medium for incorporating UDL into the curricular adaptation process (Wehmeyer et al., 2001; Wehmeyer et al., 2008; Wehmeyer, Palmer, Smith, Parent, Davies, & Stock, 2006). Through technology, various components of UDL (e.g., representation, expression, engagement) may be customized and used as tools to increase access, enhance instruction, and address learner limitations (Dymond et al., 2006; Edyburn, 2013; Wehmeyer et al., 2005).

Technology and Students with Intellectual Disabilities

The potential of technology to factor positively into the quality of life for people with ID is well established in the literature (Braddock, Rizzolo, Thompson, & Bell, 2004; Palmer, Wehmeyer, Davies, & Stock, 2012; Tanis et al., 2012). For individuals with ID, technology often serves as a bridge between their abilities and contextual demands (Wehmeyer, Tasse, Davies, & Stock, 2012). Technology also has the power to impact the educational success, socialization, and independent living skills of people with ID, when used appropriately (Palmer et al., 2012; Wehmeyer et al., 2012).

Efficacy of Technological Use by Individuals with Intellectual Disabilities

Overall, research confirms technology is an effective learning tool for students with ID (Wehmeyer et al., 2008; Wehmeyer et al., 2012). The use of technology to promote self-determination, literacy, vocation, and community skills has proved effective for this population (Davies, Stock, Holloway, & Wehmeyer, 2010; Mechling & O'Brien, 2010; Stock, Davies, Wehmeyer, & Lachapelle, 2011). Research exploring the use of computers (i.e., desktops, laptops, handhelds), *SMARTboards,* and cell phones with this population yields positive results (Bramlett, Ayres, Douglas, & Cihak, 2011; Bryen, Carey, Friedman, & Taylor, 2007; Mechling, Gast, & Thompson, 2008; Stock, Davies, Wehmeyer, & Palmer, 2008). Though in its infancy, research examining the learning implications of the *iPod Touch* (Apple, 2007) for individuals with disabilities has generated promising results (Hammond, Whatley, Ayres & Gast, 2010; Kelley, Test, & Cooke, 2013; Van Laarhoven, Johnson, Van Laarhoven-Myers, Grider, & Grider, 2009).

Access to and Utilization of Technology

Even with the research indicating that technology contributes to a better quality of life for individuals with ID, access limitations and underutilization continue to be documented by family members, educators, and researchers, (Palmer et al., 2012; Tanis et al., 2012; Wehmeyer, Smith, Palmer, & Davies, 2004). When surveyed, individuals with ID report access barriers as a hindrance to their technology use (Carey, Friedman, & Bryen, 2005; Tanis et al., 2012). The barriers indentified in the literature are cost, availability, training, maintenance, and device complexity (Stock, Davies, Davies, & Wehmeyer, 2006; Wehmeyer, 1999). In addition to extant access barriers (e.g., underutilization, technology abandonment), the belief exists that students with ID cannot or will not become proficient users of sophisticated technology (Alper & Raharinirina, 2006; Carey et al., 2005; Wehmeyer et al., 2012). This prediction often leads to technology not being placed in self-contained classrooms for these students as well as little provision of technology to these students on a school-wide basis (Wehmeyer et al., 2004).

Though usage trends for students with ID remain lower than that of the general population, surges in the use of cell phones, digital cameras, and email by people with ID are occurring (Palmer et al., 2012; Stock et al., 2011; Stock et al., 2008). In a recent survey by Tanis et al. (2012), over two-thirds of respondents with ID indicated that they used email and nearly half reported using cell phones. However, cognitively accessible design remains an obstacle to the successful utilization of technology by this population (Palmer et al., 2012; Tanis et al., 2012; Wehmeyer et al., 2012).

Considerations for Cognitively Accessible Technology

Cognitive accessibility is a major hindrance to technological access and learning because the conceptual skills required to navigate and operate many technologies can be complex and confusing (Wehmeyer et al., 2008; Wehmeyer et al., 2004). Deficits in memory, attention, abstract conceptualization, and generalization along with limitations in problem solving, language, communication, and literacy skills also impact technological usage for these students (Wehmeyer et al., 2005; Wehmeyer et al., 2004).

Students with ID experience difficulty with device navigation (e.g., recalling program menus, features, and operations) and technological operations involving language, communication, or literacy skills (e.g., keyboarding, internet browsing, understanding computer terminology) (Davies, Stock, & Wehmeyer, 2001; Douglas, Ayres, Langone, Bell, & Mead, 2009; Wehmeyer et al., 2004). In addition, problem solving limitations and attention deficits prevent these students from successfully correcting technological errors (e.g., error messages, program failure, device malfunction) before losing interest or becoming distracted by other interface options (Wehmeyer et al. 2005). Other technological problems for students with ID include difficulty conceptualizing mouse-to-screen operations and a limited capacity for meaningful and sustained engagement (Davies et al., 2001; Wehmeyer et al., 2005; Wehmeyer et al., 2004).

Conceptual Framework of Universally Designed Technology

More specific to special education technology, the Universal Design (UD) principles are a framework for accessible technological design and include: (a) access for a variety of users (i.e., equitable use), (b) accommodations for a range of abilities (i.e., flexible use), (c) ease of understanding (i.e., simple and intuitive use), (d) communication of essential information (i.e., perceptible information), (e) provisions for mistakes (i.e., tolerance for error), (f) minimal effort requirements (i.e., low physical effort), and (g) provisions for independent access (i.e., size, space) (Gordon et al., 2009; Wehmeyer et al., 2008; Wehmeyer et al., 2005). Incorporating the UD principles into technological design can support learning limitations and has the potential to remove traditional barriers to general education curricula for students with disabilities (Edyburn, 2013; Gordon et al., 2009). By eliminating these barriers, technology can become a catalyst for increasing access to general education curricula for students with ID (Wehmeyer et al., 2008; Wehmeyer et al., 2006; Wehmeyer et al., 2012). While exploration of the impact of UD technology is limited, the current literature supports research in this area to increase the usage of a wide array of technologies by this population of students (Edyburn, 2013; Tanis et al., 2012).

Specific technological considerations for students with intellectual disabilities. The conceptual framework for UD technology provides a starting point for addressing the technological access needs of students with ID (Edyburn, 2013; Wehmeyer et al., 2012). However, more specific considerations are needed to facilitate cognitive accessibility. Literacy support, consistent operation, and the capacity for individualization all impact cognitive accessibility and must be considered in technological design (Stock et al., 2006; Stock et al., 2008; Wehmeyer et al., 2006). Using specific student characteristics in the evaluation and selection of educational and assistive technology may increase the likelihood that the technology will be cognitively accessible and successfully used (Wehmeyer, et al., 2004). Specific to students with ID, considerations for cognitively accessible technology include: (a) simple and consistent operation and navigation, (b) intuitive interfaces, (c) error tolerance, (d) flexible use features and literacy supports, (e) access to information across environments, and (f) the capacity for customization and individualization (Davies et al., 2001; Stock et al., 2006; Stock et al., 2008). These specific considerations correlate to the theoretical and conceptual frameworks of UDL and UD technology (Wehmeyer et al., 2005).

Current research describes the specific technological cognitive accessibility features (e.g., digital materials, picture-based menus, touch screen interfaces) as fundamental requisites to accessible technology for students with ID (Davies et al., 2001; Stock et al., 2006; Stock et al., 2008). With the capacity for customization, digital materials can alter characteristics such as font size, color, or background to meet individual student needs and preferences (Douglas et al., 2009; Dymond et al., 2006). As a strong support for learning and independence, the use of picture-based menus provides essential reinforcement to a user with reading problems and is essential to cognitive accessibility (Davies et al., 2001; Stock et al., 2008). Research also indicates that touch screen interfaces are more intuitive and easily accessed by users with ID (Stock et al., 2011; Stock et al., 2008). With the potential to offer a less complicated technological experience, touch screen interfaces provide the functionality of a mouse without requiring the conceptualization of abstract spatial concepts (Davies, Stock, & Wehmeyer, 2002; Wehmeyer et al., 2005).

The *iPad* as a Cognitively Accessible Tool for Students with Intellectual Disabilities

Since its release in 2010, the *iPad* (Apple, 2010) has gained popularity among students, educators, and parents (Mellhuish & Falloon, 2010). In an interesting paradigm shift, school districts are investing heavily in *iPad* (Apple, 2010) technology, though little research supporting the efficacy of the device has been conducted (Newton & Dell, 2011). This may be due to the social popularity of the device peaking the interest of many teachers, parents, and students with disabilities (Banister, 2010; Cumming & Strnadova, 2012).

Even though the research has provided a plethora of strategies and interventions to increase access for students with ID, many technologies used with this population do not have the capacity to provide cognitive accessibility features to support the learning limitations of this population (Wehmeyer et al., 2008). However, the *iPad* (Apple, 2010) includes a variety of features that may directly support the learning limitations of students with ID and increase the potential for cognitive accessibility (Cumming & Strnadova, 2012; Palmer et al., 2012). These features include: (a) simple and consistent operation and navigation (e.g., touch screen, single home-button navigation, repetitive device operation through taps and gestures), (b) the capacity to limit or restrict options and prevent error (e.g. guided access, restrictions, *iTunes*, *iCloud* backup), (c) literacy supports (e.g., picture-supported icons, voice over, speak selection, audio and video playback, text-to-speech, voice recognition capabilities), and (d) the capacity for individualization and customization to meet learner needs (e.g., font size, invert colors, home screen customization, assistive touch, downloadable applications).

While research on the efficacy of *iDevice* technology with students with ID is just beginning, it appears that the *iPad* (Apple, 2010) has the potential to support a variety of learning limitations and increase access to general education curricula (Cumming, & Strnadova, 2012; Herlihy, 2011; Kagohara et al., 2013; O'Malley et al., 2013). Continued research in this area will provide information concerning the efficacy of this technology and may have implications for classroom application (Kagohara et al., 2013; O'Malley et al., 2013).

Statement of the Problem

Students with ID lack access to both the general education curricula and technology primarily because these learning tools are cognitively inaccessible (Lee et al., 2010; Palmer et al., 2012; Spooner et al., 2006). These students, already at risk for academic underachievement, typically are not provided materials that support learning limitations or align to the general education curricula (Lee et al., 2006; Wehmeyer, 2006). Thus, it is critical to investigate possible instructional interventions to promote both curricular and technological cognitive accessibility.

This study designed and implemented an instructional intervention (i.e., curriculum adaption) for students with ID that aligned to the Common Core State Standards (CCSS) through the use of an *iPad* (Apple, 2010). The goals of this study were to: (a) introduce students with ID to the general education curricula, and (b) examine the impact of *iPad* (Apple, 2010) technology on the acquisition of knowledge by this population. Through a comparison of two instructional groups, specific questions regarding student achievement and engagement were addressed. The specific research questions addressed by this study were:

Research Question One. Does the content knowledge of students (i.e., K-2, 3-5, 6-8) with intellectual disabilities increase with the use of the *iPad* (Apple, 2010) when compared to traditional teaching methods?

Research Question Two. Is the content knowledge of students (i.e., K-2, 3-5, 6-8) with intellectual disabilities better maintained with the use of the *iPad* (Apple, 2010) when compared to traditional teaching methods?

Research Question Three. Does the work completion of students (i.e., K-2, 3-5, 6-8) with intellectual disabilities differ with the use of digital worksheets on the *iPad* (Apple, 2010) when compared to traditional worksheets?

Research Question Four. Do teacher perceptions of student engagement differ with the use of the *iPad* (Apple, 2010) when compared to traditional teaching methods?

Research Question Five. For the *iPad* (Apple, 2010) group, what are the student attitudes and beliefs concerning using the *iPad* (Apple, 2010) as a learning tool?

Significance

Facilitating access to general education curricula for students with ID is both mandated by federal law and supported throughout the research (IDEA, 2004; NLCB, 2001; Soukup et al., 2007). However, an academic instructional focus is rarely observed in self-contained special education classrooms (Browder et al., 2006; Browder et al., 2008). As such, addressing the need and methods for academic instruction for students with ID is critical, regardless of the environment in which services are delivered (Downing, 2010).

Determining the efficacy of the *iPad* (Apple, 2010) as a learning tool to teach an adapted curriculum (i.e., aligned to general education curricula) may positively impact academic achievement for students with ID (O'Malley et al., 2013). This study compared the use of an adapted curriculum, aligned to the Common Core State Standards (CCSS), taught through two instructional formats (i.e., *iPad*, traditional teaching) to determine the most effective method for providing students with ID access to the general education curricula. The findings of this study contribute to the research of effective instructional strategies for students with ID related to the efficacy of cognitively accessible technology (e.g., *iPad*) and accessing the general education curricula.

Limitations

The limitations of this study are:

1. Classrooms were selected through convenience sampling and may not be a true reflection of other classrooms in which students with ID are taught.
2. Instructional interventions were implemented with students with ID in self-contained special education classrooms and cannot be generalized to other disability groups or classroom types (e.g., general education, resource room).
3. The instructional interventions were implemented five days a week for four weeks. A longer intervention period may produce different results.

Summary

While technology has long been recognized as having the potential to enhance the education of students with ID, it is only recently that researchers have begun to explore the implications of *iPad* (Apple, 2010) technology (Kagohara et al., 2013; Palmer et al., 2012; Wehmeyer et al., 2012). Determining the efficacy of this cognitively accessible technology may result in progress for individuals with ID in the classroom, home, and community (O'Malley et al., 2013; Palmer et al., 2012; Tanis et al., 2012; Wehmeyer et al., 2012). Additionally, students with ID continue to lack access to general education curricula (Soukup et al., 2007). Thus, it is critical to begin teaching these students via instruction aligned to the general education curricula (i.e., Common Core State Standards). Using an appropriately adapted curriculum to teach this population academic content aligned to the CCSS will provide students access to a cognitively accessible version of the general education curricula. Ultimately, the goals of this study are to teach students with ID using general education curricula and increase content knowledge acquisition within those curricula. This will impact the academic achievement of students with ID and may facilitate greater independence for life.

Definition of Terms

The following list is representative of the terms used in this study. It is important to understand the use of these terms to clearly understand their meaning within the context of this study.

Academic instruction. Academic instruction consists of instruction with a focus on reading, writing, and mathematics (Browder et al., 2006).

Software application (*app*). A piece of software designed for a mobile technology device, including the *iPad* (Apple, 2010), which allows the user to perform specific tasks (e.g., learning, recreation, shopping). An *app* can be downloaded onto an *iPad* (Apple, 2010) or other iDevice.

Cognitive accessibility. Cognitive accessibility is the degree to which students with ID are able to understand the concepts of the general education curricula or the features of technology (Wehmeyer et al., 2004; Wehmeyer et al., 2005).

Common Core State Standards (CCSS). The Common Core State Standards (CCSS) are the nationally adopted set of academic learning standards for student education (i.e., kindergarten through grade 12) and focus on career and college readiness (National Governors Association Center for Best Practice, 2010).

Curricular adaptation. Curricular adaptations consist of strategies that modify curricula to better support learning limitations without altering content (Wehmeyer et al., 2002; Wehmeyer et al., 2001).

Digital worksheet. A digital worksheet is a digital listing of questions or tasks to be completed by students. Digital worksheets can be completed using an *iPad* (Apple, 2010).

Dropbox. *Dropbox* (Dropbox Inc, 2013) is an app that allows teachers to securely upload lesson fidelity videos directly from the iPad (Apple, 2010).

iBooks. *iBooks* (Apple, 2013) is an *app* that allows students to access the Unique Learning System (ULS) digital books on the *iPad* (Apple, 2010).

Intellectual disability (ID). A student who exhibits significantly below average intellectual functioning including limitations in at least two of the following areas: (a) communication skills, (b) self-care, (c) home living, (d) use of community, (e) social skills, (f) self-direction, (g) health and safety, (h) functional academics, (i) leisure, or (j) work, is present before the age of 18, and adversely affects educational performance (NAC 388.055, 2011).

iPad (Apple, 2010). The *iPad* (Apple, 2010) is a tablet computer with a touch screen interface. This dynamic display device is compatible with downloadable *apps* and is equipped with many accessibility features (e.g., touch screen, guided access) (Apple, 2010).

iPad guided access. Guided access is an accessibility feature of the *iPad* (Apple, 2010) that prevents students from navigating out of an active *app*, and can be used by an adult to disable access to *app* settings.

News-2-you (n2y, 2013). *News-2-you* (n2y, 2013) is an adapted newspaper designed for students with significant cognitive disabilities. The *news-2-you* (n2y, 2013) newspaper is available via the internet and *app*.

Notability. *Notability* (Ginger Labs, 2013) is an *app* that allows students to complete digital worksheets using the *iPad* (Apple, 2010).

Paper worksheet. A paper worksheet is a listing of questions or tasks to be completed by students using a pencil or writing apparatus.

Small group, direct instruction. Small group (e.g., 2-5 students), direct instruction consists of teacher-led instruction focused on reinforcement of recently taught information (Downing, 2010).

Special education teacher. A special education teacher is a person who holds a degree in teaching students with intellectual disabilities and currently meets the state licensure requirements to teach.

Unique Learning System (ULS) (n2y, 2013). The *Unique Learning System (ULS)* (n2y, 2013) is an adapted curriculum designed for students with significant cognitive disabilities. The *ULS* curriculum is aligned to the CCSS (National Governors Association Center for Best Practice, 2010).

Whole group, direct instruction. Instruction engaging all students, performed by a teacher (Hall, 2002).

CHAPTER TWO

REVIEW OF LITERATURE

Access to general education curricula for students with ID is supported throughout the research (Soukup et al., 2007; Wehmeyer et al., 2003). However, academic instruction (i.e., aligned to general education curricula) is rarely observed in self-contained special education classrooms (Browder et al., 2008; Browder et al., 2006) and accommodations, adaptations, or modifications to the curricula are rarely applied for students with ID (Soukup et al., 2007; Wehmeyer et al., 2003). A variety of observational studies (Dymond & Russell, 2004, Lee et al., 2009; Lee et al., 2010; Soukup et al., 2007; Wehmeyer et al., 2003) have come to similar conclusions, calling for a need to utilize curricular modifications.

Researchers and educators of students with ID are exploring curricular modifications, including augmentation and adaptation, as a tool to increase academic achievement for this population (Agran et al., 2006; Browder et al., 2007). Preliminary findings support the use of teaching self-determination or learning to learn strategies, adapting content and materials, and providing task-analytic instruction to students with ID when they are participating in general education curricula (Courtrade,, Browder, Spooner, & DiBiase, 2010; Jimenez, Browder, Spooner, & DiBiase, 2012; Shogren et al., 2011). Another avenue considered for exploration is the role technology can play in adapting materials and instruction to meet the needs of students with ID (Lee et al., 2006).

The literature strongly supports the use of technology as an instructional tool for students with ID (Mechling & Hunnicutt, 2011; Mechling & O'Brien, 2010). Findings suggest that technology can be used as an effective curricular support and instructional tool (Coleman, Hurley, & Cihak, 2012). Much of this research tends to focus on using technology to enhance or increase the functional academic skills of students with ID (Hansen & Morgan, 2008; Mechling & O'Brien, 2010; Ozkan, Oncul, & Kaya, 2013) with little research examining the impact on grade-aligned instruction for this population (Mechling & Hunnicutt, 2011). Though gaining in popularity, instruction incorporating the use of technology, most specifically *iDevice* (i.e., *iPod, iPad*) technology, is not widely available to students with ID.

To date, limited research is available on the use of *iDevice* (i.e., *iPod, iPad*) technology for the instruction and learning of children with ID. However, preliminary single-case studies are promising. The *iPad* (Apple, 2010), equipped with accessibility features, restriction settings, intuitive interfaces, and interactive content, is being used more frequently in the research with students with disabilities. Determining the efficacy of *iPad* (Apple, 2010) technology as a learning tool may positively impact the academic access and achievement of students with ID (Palmer et al., 2012; O'Malley et al., 2013). Early research is promising concerning the use of technology in general and the specific use of *iPads* (Apple, 2010) with students with ID as a vehicle for enhancing participation in general education curricula.

Access to General Education Curricula

Research concerning the instruction of students with ID historically focused on functional living skills rather than academic instruction (Browder et al., 2008; Browder et al., 2006). However, educators and researchers, working with this population, have begun to explore more meaningful academic skills that have the potential for increasing academic achievement for these students (Lee et al., 2009; Lee et al., 2010; Soukup et al., 2007). Unfortunately, many students with ID are educated in self-contained classrooms and are not exposed to general education curricula (Peetsma et al., 2007; Wehmeyer et al., 2003).

Dymond and Russell (2004) studied the impact of grade and disability on the inclusion in instruction aligned to general education curricula. The purpose of the study was to evaluate general education instructional contexts for students with mild and severe disabilities. The study was conducted at an inclusion-focused elementary school. Student groupings were established based on grade level (i.e., grades 1-2, grades 3-5) and disability (i.e., mild, severe). Students with disabilities who spent more than 50% of their academic school day in the special education classroom were grouped in the severe category and students with disabilities who spent more than 50% of their day in the general education classroom were grouped in the mild category. Once the groups were established, three students from each group were selected randomly as participants. A total of 12 students (i.e., three students from each of the four groups) participated in the study.

An observational coding system was used to collect data on the following items; (a) activity of target student, (b) activity of peers without disabilities, (c) curricula, (d) instructional format, (e) partner (i.e., paraprofessional, peer), (f) location, and (g) student response. Students were observed on three occasions for 30-minutes. The observer used a time-sampling technique to record observations in one-minute cycles (e.g., one-minute of observation, one-minute of recording data).

Observational data were analyzed using descriptive statistics. Each data collection form was summarized and the frequency count for each descriptor totaled. These data were aggregated by both grade (i.e., grades 1-2, grades 3-5) and disability (i.e., mild, severe) (Dymond & Russell, 2004). The data showed significant differences among disability group in the areas of curriculum, instructional format, and partner. The data indicated that curricular adaptations were present during only 1% of the observations for students with mild disabilities, and during over 50% of the observations for students with severe disabilities (Dymond & Russell, 2004). It is important to note that the assistance of a paraprofessional was counted as a curricular adaptation and students with severe disabilities interacted significantly more (i.e., 79% of the observations) with paraprofessionals than did the students with mild disabilities (Dymond & Russell, 2004). In fact, the students with severe disabilities were rarely included in the general education classroom without adult assistance and either a paraprofessional or special education teacher provided most of the instruction individually for these students.

Dymond and Russell (2004) concluded that curricular modifications were essentially nonexistent for students with mild disabilities though sometimes used with students with more significant disabilities in the form of adult assistance. They suggested that longitudinal research is needed to determine the lasting impact of grade and disability on inclusionary practices. They recommended replication of this study in other inclusion-focused elementary schools in order to generalize the findings.

Employing an observational study, Wehmeyer, Lattin, Lapp-Rincker, and Agran (2003) examined the extent to which students with ID had access to general education curricula. Thirty-three middle school students with ID participated in the study. Much like the Dymond & Russell (2004) study, these students were categorized into two groups based on the amount of exposure they had to the general education setting. Students who participated in at least one general education class were categorized as having access to the general education classroom and students who participated in classrooms solely for students with disabilities were classified as not having access to the general education classroom.

The students were observed in the classrooms they regularly attended and the observations were coded by both subject (i.e., language arts, functional academics, life skill instruction, social studies/ history, math, science/ health, computer/typing, speech, art/music) and environment (i.e., special education, general education). Each student was observed for a 15-minute period, for a minimum of eight occasions. Access to general education curricula was examined using an observational coding sheet that recorded the following situations: (a) all students working on a task aligned to district standards, (b) all students working on a task not aligned to district standards, (c) a target student working on a task aligned to the IEP, (d) accommodations being provided to the target student working on a task aligned to district standards, (e) a target student working on a similar or adapted task aligned to district standards, and (f) a target student working on a task that augments the curriculum. During the 15-minute observations, the students were observed for 20 seconds and data recorded for 10 seconds. This process was repeated so that each 15-minute observation cycle included 30 observation intervals.

Analysis of the data included calculating the number of observation intervals and conducting an analysis of variance (ANOVA) on student access to general or special education environments. The data indicated that students who received instruction in the general education classroom were engaged in tasks aligned to general education curricula during 90% of the observational intervals. The students who were observed in special education classrooms engaged in tasks related to general education curricula during only 50% of the observational intervals (Wehmeyer et al., 2003). Overall, students who participated in inclusive settings (e.g., general education) engaged in tasks aligned to general education curricula for 40% more of the observational intervals than students in self-contained settings. Additionally, the findings indicated that during only 2.78% of the observational intervals were the students with ID provided some type of curricular adaptation (Wehmeyer et al., 2003).

Wehmeyer et al. (2003) maintained that the results of this study indicated that students with ID, who have access to the general education classroom, are more likely to receive instruction aligned to the general education curricula. They concluded that the findings suggest that general education curricula should be expanded to include a variety of instructional methods in order for students with ID to demonstrate knowledge. Recommendations for further research included the creation of instructional methods and strategies to provide students with ID access to general education curricula within the special education setting, suggesting that access could occur outside of the general education classroom.

In a follow-up observational study, Soukup, Wehmeyer, Bashinski, and Bovaird (2007) conducted a study to ascertain the impact of various classroom variables (i.e., supplementary aids and services, curricular modifications, education and assistive technology, adult and peer support) on the general education curricular access of students with ID. The purpose of the study was to expand the findings of Wehemeyer et al. (2003)

by measuring specific variables related to curricular access. Nineteen elementary students participated in the study and seventeen were classified as having ID. Each participant's teacher was interviewed and information collected on the student's needed level of support and the percentage of time they spent in the general education environment (Soukup et al., 2007). Based on this information, students were: (a) assigned a support score ranging from 1 (no support needed) to 5 (full physical support needed), and (b) assigned to a group based on the time they spent in the general education environment, ranging from high inclusion (75 - 100% of time spent in general education) to low inclusion (0 - 50% of time spent in general education).

The students were observed during science or social studies lessons and a total of three 20-minute observations were conducted. A computer-based time sampling data collection program (Access CISSAR) was used to collect data on the variables previously examined by Wehmeyer et al. (2003). The variables studied included: (a) engagement in a task aligned to a general education standard, (b) engagement in a task aligned to a grade level standard, (c) engagement of peers on a task aligned to a general education standard, d) engagement of peers on a task aligned to a grade level standard, (e) engagement on a task aligned to an IEP goal, (f) provision of accommodations, (g) provision of curricular adaptations, (h) provision of curricular augmentations, and (i) environment (i.e., special education, general education).

Data were analyzed using a general linear mixed model and fixed and random effects obtained (Soukup et al., 2007). The results indicated that students who spent 50 – 100% of their instructional time in the general education environment worked on tasks aligned to grade level standards (during 60% of observations). Conversely, students who spent less than 50% of their instructional time in the general education classroom were never observed working on tasks aligned to a grade level standard. The students who participated more in the general education environment were provided more accommodations than participants who had minimal participation in the general education environment. Additionally, students who spent most of their instructional time outside of the general education classroom were more likely to be working on tasks aligned to IEP goals (during 58% of observations), while participants who spent most of the their instructional time in the general education environment were less likely to be working on tasks aligned to IEP goals (during 10% of observations) (Soukup et al., 2007).

Soukup et al., (2007) concluded that students who receive a majority of instruction outside of the general education environment experience instruction and IEP goals that do not align to general education standards. They also maintained that their findings were similar to the findings of Wehmeyer et al. (2003) in that students with ID are less likely to have access to general education curricula if their instruction takes place in the special education or self-contained setting. They recommended three practices for improving access to general education curricula: (a) students with ID should be educated alongside their peers without disabilities, (b) students with ID should be included in the same seating pattern as their peers without disabilities, and (c) one-on-one instruction should be provided when working with students with ID. They also suggested further investigation of various accommodations (e.g., assistive and instructional technology) to examine potential learning supports for students with ID.

Lee, Soukup, Little, and Wehmeyer (2009) designed a study to identify and explore instructional and ecological variables impacting general education curricular access for students with ID. The purpose of this study was to evaluate the extent to which the student and teacher variables forecast access to general education curricula. Nineteen elementary students, seventeen of which were classified as having ID, participated in the study. Prior to the study, each participant's level of support needs were determined by their teachers using the *Supports Intensity Scale* (SIS) (Thompson, Bryant, Campbell, Craig, Hughes, Rotholz, et al., 2004) and all students were categorized as having moderate to heavy support needs (Lee et al., 2009).

The identified students were observed on three 20-minute intervals during science or social studies instruction. Of the observations conducted, 65.7% were during instruction in the general education environment, 28.7% were conducted during instruction in special education settings, and 5.6% of occured in areas outside of the classroom (e.g., library, hall) (Lee et al., 2009). Similar to Soukup et al. (2007), a computer program (MS-CISSAR) designed to collect time-sampled observational data during 60-second intervals was used. Data were collected on: (a) engagement in a task aligned to a general education standard, (b) engagement in a task aligned to a grade level standard, (c) engagement of peers on a task aligned to a general education standard, (d) engagement of peers on a task aligned to a grade level standard, (e) engagement on a task aligned to an IEP goal, (f) provision of accommodations, (g) provision of curricular adaptations, (h) provision of curricular augmentations, and (i) environment (i.e., special education, general education). During the observations, points were assigned for each observed variable (e.g., 1 point if a curriculum modification was observed) and totaled to provide an overall access score.

The data were analyzed using a repeated measures observational design with multilevel modeling and simple regression computed. The findings indicated that teacher focus negatively impacted access to general education curricula. Teachers removed their focus from students with ID during instruction aligned to grade level standards. The data also showed that general education teachers were less likely to focus on students with ID when tasks aligned to their IEP goals were being taught. Additionally, the behaviors of students with ID were observed to be less favorable during tasks that were increasingly difficult and aligned to grade level standards.

Lee et al. (2009) concluded that the manner in which students with ID and their teachers interact are “strong predictors of access” to general education curricula (Lee et al., 2009, p.40) and the interactions are influenced by the classroom environment (i.e., difficulty of task, setting, degree of disability). Lee et al. (2009) suggested that educators must provide supports (i.e., curriculum adaptations, modifications, augmentation) to more successfully engage students with ID in complex academic tasks. They recommended further research to determine the types of curricular modifications and interventions to best support the needs of students with ID when they participate in general education curricular activities.

Lee, Wehmeyer, Soukup, and Palmer (2010) conducted a study to replicate their previous research and extend knowledge on the impact of curricular modifications on the academic progress of students with disabilities. Forty-five high school students, who received both special education services and core content instruction within the general education environment, participated in this study. In a replication of the Soukup et al. (2007) study, the teachers were asked to determine each student's level of support using a likert-type scale prior to the study. The students were observed during one of their core content classes within the general education classroom (i.e., science, math, English, social studies).

Once again, a computer-based time sampling data collection program (Access CISSAR) was used. Data were collected on variables previously explored by Wehmeyer et al. (2003), Soukup et al. (2007), and Lee et al. (2009) with specific attention paid to the presence of curricular modifications (e.g., adjusted readability of text, modification of content, use of technology). Each student was observed for a total of 30-minutes. Data, examining the role of curricular modification on the student progress within general education curricula, were analyzed using a multilevel regression. Data evaluating student behavior as a function of the availability of curricular modifications were analyzed using both descriptive statistics and an ANOVA (Lee et al., 2010). The findings indicated significant differences between the participants who were provided curricular modifications and those who were not provided modifications. The presence of curricular modifications had a positive effect on the academic engagement of the students, as they were more likely to respond academically and be engaged in tasks linked to content standards and less likely to require behavioral re-direction (Lee et al., 2010).

Lee et al. (2010) concluded that the results of this study indicated the importance of providing curricular modifications to support the academic progress of students with disabilities in general education curricula. They maintained that curricular modifications are effective in enhancing access to general education curricula for students with disabilities. Lee et al. (2010) recommended that additional teacher and support staff training on appropriate methods to provide curricular modifications to better facilitate access to general education curricula be implemented.

Students with ID require curricular modifications in order to progress within general education curricula (Dymond & Russell, Lee et al., 2009, Lee et al., 2010, Soukup et al., 2007, Wehmeyer et al., 2003). Effective academic instruction is paramount to the success of this population and there is an increasing need to provide supports (i.e., curriculum adaptations, modifications, augmentation) to more successfully engage students with ID in more complex academic tasks (Lee et al., 2009, Soukup et al. 2007). Unfortunately, curricular modifications, most specifically adaptations to academic content, are rarely present despite the fact that they are considered a best practice (Dymond & Russell, 2004, Lee et al., 2009, Wehmeyer et al., 2003). Though current focus is on including students with ID in the general education setting to increase access to general education curricula, Wehmeyer et al. (2003) argue that a student with ID could have access to general education curricula while participating in a special education setting if the curriculum was appropriately adapted. Further investigation is needed to determine the types of curricular modifications and instructional interventions (e.g., technology) that will best support the needs of students with ID when they participate in general education curricula (Lee et al., 2010, Wehmeyer et al., 2003).

Providing Curricular Modifications to General Education Curricula

The literature is replete with evidence that students with ID are often excluded from access to general education curricula (Dymond & Russell, 2004; Soukup et al., 2007). As a result, educators are asking for curricular adaptations to facilitate greater academic access for these students (Lee et al., 2009; Lee et al., 2010; Soukup et al., 2007). Unfortunately, applications of curricular adaptations to general education curricula are infrequent and inconsistently applied for students with ID (Lee et al., 2009; Lee et al., 2010). However, recent research supports a variety of strategies that can be effective in increasing participation in general education curricula for this population (Lee et al., 2010).

In a study designed to investigate the effects of an empirically evaluated instructional model on the academic learning of students with ID in the middle school setting, Agran, Cavin, Wehmeyer, and Palmer (2006) used the *Self-Determined Learning Model of Instruction* (SDLMI). The goal of the study was to evaluate the use of SDLMI on academic skill performance aligned to general education curricula. Three middle school students with ID participated in the study. Participating students were receiving some content instruction in a general education classroom.

Each student, with help from their special education teacher or special education assistant, identified both a curricular area and a student-directed strategy. Curricular areas were aligned to the general education content standards of the student's grade level. The curricular areas chosen were: (a) practicing scientific inquiry, (b) understanding different types of maps, and (c) learning about the organ systems of the body. The selected student-directed strategies included: (a) self-instruction, (b) self-monitoring, and (c) goal setting. Instruction for each student was designed to embed the student's selected learning strategy. One special education teacher and two special education assistants were trained to collect data. Data were collected two to four times per week. The types of data collected were: (a) frequency of correct responses, and (b) percent of correct responses to content test questions. Though data differed across participants, all data were converted into percentages for comparison (Agran et al., 2006).

A multiple baseline across subjects design was used to examine the effects of the intervention and included baseline, intervention, and maintenance phases. During baseline, all participants were observed in the general education environment and data were collected on the target behavior prior to receiving instruction. Additionally, the student-directed learning strategies were explained and participants selected a strategy to use. After baseline, the intervention phase of the study was initiated. The SDLMI, a problem-solving model, teaches students to self-regulate, set goals, develop action plans, and self-evaluate performance was used as the intervention for this study. The students received structured training on their selected student-directed strategy. Training included modeling and demonstration of examples and non-examples by the trainer, student performance of the strategy with trainer cues, and independent student performance. During the training phase, the students were observed in the general education classroom and once criteria of 80% correct responding were reached, the participants moved into the maintenance condition (Agran et al., 2006). Maintenance data were collected one to two times per week for two to three months.

The data were analyzed by converting the number of correct responses into a percentage for comparison across phases. It was reported that all students established stable patterns during baseline, increased their performance using the student-directed strategy during the intervention, and maintained the behaviors at acceptable levels during the maintenance phase. During the intervention, Student A's performance mean was 67%, Student B's performance mean was 87%, and Student C's performance mean was

53%. Throughout the maintenance phase, Student A increased performance with a mean of 85%, Student B increased performance with a mean of 99%, and Student C increased performance with a mean of 80% (Agran et al., 2006).

Agran et al. (2006) maintained that the results indicate that the participants were able to learn, maintain, and increase performance in content material aligned to general education curricula using a student-directed strategy. They concluded that students with intellectual disabilities can obtain academic skills aligned to general education standards when those curricula are augmented with strategies that promote self-monitoring, self-instruction, and goal setting. They recommended further investigation into strategies and instructional techniques to facilitate the learning of general education curricula by students with intellectual disabilities.

In a follow-up study designed to examine the relationship of using the *Self-Determined Learning Model of Instruction* (SDLMI) on access to general education curricula, Shogren, Palmer, Wehmeyer, Williams-Diehm, and Little (2012), replicated and extended the work of Agran and colleagues (2006). The purpose of the study was to expand the research on the effects of SDLMI implementation on academic goal attainment. The participants included 312 high school students with learning and intellectual disabilities. Students were divided into two groups (i.e., treatment, control) with the treatment group receiving the intervention (i.e., implementation of the SDLMI).

The teachers participating in the treatment group received training on the implementation of the SDLMI prior to baseline. During baseline, all students were observed during instruction and an access score was calculated. The intervention, consisting of the implementation of the SDLMI, lasted for the remainder of the school year for the treatment group (Shogren et al., 2011). At the end of the intervention phase, access scores were recalculated for students in both groups (i.e., treatment, control).

Once again, a computer-based data collection system (Access CISSAR) was used. Data were collected through observations during instruction. Each student was observed twice (i.e., during baseline, at the end of the intervention phase), for a total of 60-minutes. The data (i.e., student access scores during baseline and intervention) were analyzed using multilevel model and fixed and random estimates obtained. The findings, when compared across groups (i.e. treatment, control), indicated that student access scores increased when the SDLMI was used to augment instruction. The implementation of the SDLMI had a positive effect on access to general education curricula for students with ID (Shogren et al., 2011).

Shogren et al. (2011) concluded that the results of the study indicated that students with ID increased their access to general education curricula when the SDLMI was implemented to augment the curricula. They maintained that the SDLMI was effective in supporting the needs of students with ID when they were engaging in general education learning. Shogren et al. (2011) recommended that future research explore strategies for supporting students with ID within the general education classroom.

Using a multiple probe across participants design, Browder, Trela, and Jimenez (2007) evaluated the effects of using a task-analytic teaching method with adapted grade-level materials on the academic responding of students with ID. The purpose of the study was to use this instructional strategy and measure the effects on the acquisition of literacy skills for students with ID. The participants were: (a) three middle school teachers of students with ID, and (b) six middle school students with ID who were unable to read

(Browder et al., 2007). The study took place during reading instruction within the self-contained setting and included pre-baseline, baseline, and intervention phases.

The pre-baseline phase consisted of observations to determine the level of literacy instruction taking place prior to training. Following the pre-baseline phase, the teachers received training and adapted novels (i.e., picture-supported summaries of grade level literature) to use with their students with ID. During the intervention phase, task analyses were provided to the teachers to use as lesson plan templates as they began teaching with the adapted materials.

The data were analyzed by: (a) recording the number of steps on the task analysis that the teachers completed across conditions (i.e., baseline, intervention), and (b) recording the number of independent and accurate student responses during the literacy lessons. These data were graphed and visual inspection used to interpret the results. The results indicated that: (a) the teachers followed the task-analytic lessons with increasing fidelity, and (b) the students increased the number of academic responses when the task-analytic instruction and adapted materials were used.

Browder et al. (2007) concluded that the task-analytic instructional method was an effective lesson delivery format for students with ID. They maintained that this instruction paired with appropriately adapted lesson materials positively affected both the academic responding and participation in grade level literature for students with ID. Browder et al. (2007) recommended that future research using this instructional method be conducted in other academic areas (e.g., science, social studies, math). They also suggested that this methodology be expanded to include examination of the effect on the reading comprehension skills of students with ID.

Courtrade, Browder, Spooner, and DiBiase (2010) designed a study to explore the use of a task-analytic instructional approach to teach scientific inquiry to students with ID. The purpose of the study was to examine the effects of task-analytic instruction on the acquisition of scientific inquiry skills for students with ID. Participants included: (a) four middle school teachers of students with ID, and (b) eight middle school students with ID. The study took place in self-contained classrooms and included a pre-baseline, baseline, and intervention phases.

During pre-baseline, the teachers participated in a one-day training that included an overview of middle school science curriculum. Following the pre-baseline, the baseline phase consisted of observing teachers and students a total of three times during science instruction of lessons that were created by the teachers without any feedback regarding the intervention (i.e., task analysis of lesson components). During the intervention phase, the teachers were provided an instructional that included a fidelity checklist (i.e., task analysis) and training manual of lesson components, a videotaped model of an inclusive science lesson, and an opportunity, during training, to develop and receive feedback on a science lesson (Courtrade et al., 2010).

The data were analyzed for both teachers and students by calculating the total number of accurately completed steps on the task analysis (i.e., number of lesson components correctly implemented by teachers, number of inquiry skills independently completed by students). These data were compared across baseline and intervention conditions. The results indicated that the use of the task-analytic instructional method had a positive effect on teacher lesson delivery, as more lesson components were included when task-analytic methods were used. Additionally, students with ID increased the number of inquiry skills independently completed when task-analytic instruction was applied.

Courtrade et al. (2010) concluded that training teachers to employ task-analytic instruction increased meaningful student participation in science lessons. They maintained that the results showed a positive functional relationship between training teachers to use task-analytic instruction and student participation in science instruction (i.e., aligned to general education curricula). Courtrade et al. (2010) recommended that future research be conducted to measure the effects on both the acquisition of academic concepts and the generalization of skills of students with ID.

Employing a single subject multiple probe design, Jimenez, Browder, Spooner, and DiBiase (2012) examined the effects of peer-mediated instruction on the scientific responding of students with ID. The purpose of this study was to explore peer-mediated instruction as a possible option for including students with ID in general education science instruction. The participants were: (a) six middle school general education students, and (b) five middle school students with ID. The study was conducted during science instruction in the general education setting and included a baseline phase, an intervention phase, and maintenance probes.

The baseline phase consisted of probing students with ID on concepts from the upcoming science units as well as providing training to the general education students who served as peer instructors. During the intervention phase, instruction began on the science units and the general education students (peer instructors), implemented a time-delay procedure (i.e., gradually increasing wait time between responses) for the science vocabulary and concept statements related to the unit lessons. Once the students with ID showed mastery (i.e., correctly responding to two of the eight probes) of the unit concepts, maintenance probes were conducted. The maintenance probes allowed students with ID an opportunity to continue to demonstrate mastery of the previously learned material.

The data were analyzed by calculating the total number of accurate responses during the science lessons and compared across baseline and intervention conditions. The findings indicated that the use of peer-mediated instruction had a positive effect on the academic responding of students with ID participating in science lessons within the general education setting. All of the students with ID increased their number of independent and accurate responses. Additionally, students without disabilities reported that they enjoyed the intervention and would like to serve as a peer instructor with other students with disabilities.

Jimenez, Browder, Spooner, and DiBiase (2012) concluded that the use of peer-mediated instruction positively influenced both knowledge acquisition of scientific vocabulary and concepts, and access to general education curricula. They maintained that implementing peer-mediated in the general education setting was effective in increasing participation of the students with ID. Jimenez, Browder, Spooner, and DiBiase (2012) recommended replication of this study in other academic subjects (e.g., math, social studies).

Though many students with ID are not exposed to the general education curricula, evidence suggests that inclusion is possible with the appropriate instructional strategies and curricular modifications (Lee et al., 2010). Augmentation of the curricula by increasing self-determination skills as well as providing both task-analytic or peer-mediated instruction have proved successful in facilitating access to general education curricula (Agran et al., 2006; Courtrade et al., 2010; Jimenez et al., 2012; Shogren et al., 2011). Researchers continue to maintain that adapting materials and curricula to meet the unique learning needs of students with ID is best practice (Browder et al., 2007). Recently, research on curricular adaptation for students with ID has begun to focus on the promising role technology can play in promoting access to universally designed materials (Lee et al., 2006).

Technology Use to Provide Access to General Education Curricula

The exploration of technology as a tool to enhance the instruction of students with ID is gaining popularity in the literature (Mechling & O'Brien, 2010; Ozkan, Oncul & Kaya, 2013). Research concerning the use of computers to enhance instruction has shown favorable results for students with ID (Hansen & Morgan, 2008). Incorporating technology, more specifically computers, in the instruction of students with ID has increased engagement, skill capacity, and functional academic achievement (Coleman, Hurley, & Cihak, 2012; Hansen & Morgan, 2008; Ozkan, Oncul, & Kaya, 2013). The use of technology to enhance grade-aligned academic achievement, though limited, is also promising (Mechling & Hunnicutt, 2011)

Hansen and Morgan (2008) designed a study to evaluate the effects of computer-based instruction on the acquisition of grocery shopping skills. The purpose of the study was to determine if computer-based instruction was an effective means for teaching purchasing skills to students with ID. The participants were three high school students with ID who scored low (0-40%) on a pre-test to assess purchasing skills. The study occurred in a high school computer lab with weekly probes taking place at a local grocery store. A multiple baseline across participants design inclusive of a baseline phase, a treatment phase, a generalization phase, and a maintenance phase was used (Hansen & Morgan, 2008).

A five-step purchasing task analysis was developed that included: (a) checkout stand selection, (b) placing items on the conveyor belt at the checkout stand, (c) correctly purchasing items, (d) requesting a paper or plastic bag, and (e) collecting change, receipt, and groceries. This task analysis was used in both computer-based assessments and weekly grocery store probes. Each step was counted as 20% of the overall score and student scores were graphed for visual analysis during all phases of the study (Hansen & Morgan, 2008). The baseline phase consisted of grocery store probes during which no feedback was provided to the students. Next, the intervention (i.e., computer-based instruction) was introduced and data collected on both computer-based assessment and weekly grocery store probes. During the generalization phase, grocery store probes were conducted at unfamiliar grocery stores in the area. The maintenance probe was conducted for each student 30-days after the intervention concluded (Hansen & Morgan, 2008).

Data were collected on both computer-based assessments and weekly grocery store probes using the 5-step task analysis. The results indicated that the use of computer-based instruction had a positive effect on the acquisition of grocery purchasing skills for the students with ID as all students significantly increased the number of correct steps from baseline to intervention. The students also were able to generalize the purchasing skills to other grocery stores and maintained those skills during the 30-day probe. The students and their parents rated their purchasing skills prior to and at the conclusion of the study. Both the students and parents rated student purchasing skills higher at the conclusion of the study (Hansen & Morgan, 2008).

Hansen and Morgan (2008) concluded that the use of computer-based instruction was effective at teaching purchasing skills to students with ID. In addition, the intervention was helpful in enhancing the generalization of purchasing skills across a variety of grocery stores. They maintained that the use of computer-based instruction could be an effective tool for teaching community skills to students with ID. Hansen and Morgan (2008) recommended future research to examine the effects of computer-based instruction on other purchasing skills (i.e., purchasing different quantities of items, purchasing items of different values).

Mechling and O'Brien (2010) designed a study to evaluate the effects of computer-based video instruction on the acquisition of public bus transportation skills for students with ID. The purpose of the study was to determine whether computer-based video instruction was an effective means for teaching transportation skills. The participants were three young adults (i.e., ages 19-20 years) with ID who attended a transition-focused program. The study was conducted in a classroom, with generalization probes occurring on a bus route within the community. A multiple probe across participants design was used (Mechling & O'Brien, 2010).

Prior to the intervention, each student's ability to correctly request a stop on a bus route was evaluated. The students were directed to take the bus to a specified location, but received no additional feedback. Next, landmarks (i.e., signs, business locations) were identified as cues for requesting a stop and computer-based video modeling introduced to teach the students when to request a bus stop using the landmarks as cues.

The computer-based video modeling instruction landmarks mirrored the community bus route landmarks used during generalization probes. Two to three computer-based video instruction sessions occurred and were followed by generalization probes on a bus route within the community (Mechling & O'Brien, 2010). This cycle (i.e., computer-based video modeling sessions followed by a probe on a community bus route) was repeated several times with each participant.

Data were collected on the percentage of correct responses during computer-based video modeling sessions and generalization probes within the community. These data were graphed and inspected visually. The results indicated that computer-based video modeling sessions had a positive effect on the acquisition of public bus transportation skills of the students with ID. The students were able to generalize these skills to actual bus routes within the community and maintain the skills after the conclusion of the computer-based video modeling sessions (Mechling & O'Brien, 2010).

Mechling and O'Brien (2010) concluded that computer-based video modeling was an effective tool for teaching students with ID public bus transportation skills. They maintained that this instructional method also was an efficient means of providing the instruction in lieu of actual community instruction, which they argued could be expensive and time consuming. Mechling and O'Brien (2010) recommended that future research evaluate more complex public bus transportation tasks (i.e., multiple locations, transferring routes, handling unexpected events) and explore more innovative technologies (e.g., portable technological devices) that could be used to provide cues in real time.

Mechling and Hunnicutt (2011) designed a study to evaluate the effects of computer-based video self-modeling on the receptive understanding of prepositions of students with ID. The purpose of the study was to determine whether computer-based video self-modeling was an effective means for teaching prepositions to students with ID. The participants were three elementary students with ID. The study took place in a self-contained classroom for students with ID. A multiple probe across participant design was used that included computer-based video self-modeling sessions and generalizations probes (i.e., positioning of objects, positioning of self) (Mechling & Hunnicutt, 2011).

The experimental condition began with probes to evaluate the students' knowledge of prepositions by placing objects according to the targeted preposition (e.g., object placed under the table, object placed next to the student). Following object placement sessions, probes sessions were conducted in which the student was instructed to position him or herself according to the targeted preposition (e.g., student sits under the table, student sits next to the teacher). The object and self placement probes were followed by computer-based video self-modeling instruction during which the students viewed videos of themselves correctly placing themselves or objects according to the targeted preposition pairs. This cycle was repeated across targeted preposition pairs (i.e., in front of/ behind, in/next to, on/under).

Data were collected on the percentage of correct responses across the three pairs of prepositions and graphed across experimental conditions (i.e. object placement, self placement, computer-based video self-modeling). These data were inspected visually. The results indicated that computer-based video self-modeling had a positive effect on the receptive understanding of prepositions by the students. The students increased their ability to correctly place themselves or objects according to the targeted preposition after the computer-based video self-modeling sessions (Mechling & Hunnicutt, 2011).

Mechling and Hunnicutt (2011) concluded that computer-based video self-modeling was an effective tool for teaching prepositions to students with ID. They maintained that instruction using computer-based video self-modeling could be used to teach a variety of language-based skills to students with ID. Mechling and Hunnicutt (2011) recommended that future research evaluate the expressive understanding of prepositions and other language-based concepts for this population.

Coleman, Hurley, and Cihak (2012) designed a study to compare the effects of teacher-directed and computer-assisted instruction on the acquisition of functional sight words by students with ID. The purpose of the study was to determine the most effective and efficient method for teaching functional sight words to students with ID. The participants were three elementary students. The study took place in a self-contained classroom for students with ID and an alternating treatment design inclusive of two instructional conditions (i.e., teacher-directed, computer-assisted) was used (Coleman, Hurley & Cihak, 2012).

During baseline, all students were assessed on their recognition of 40 functional words (i.e., words found in recipes) and eleven unknown words were selected for use during the intervention. The intervention phase consisted of alternating treatments (i.e., teacher-directed instruction, computer-assisted instruction). During the intervention phase, the students participated in alternating phases of teacher-directed instruction of the unknown words (i.e., flashcards) and computer-assisted instruction of the unknown words (i.e., *Powerpoint*). Following the intervention, instruction on the unknown words continued in the preferred instructional condition (i.e., the instructional condition in which 90% criterion was reached in the fewest number of trials) until 90% accuracy of word reading was established across three sessions. Next, the picture cues on the flashcards and *Powerpoint* were removed and the condition resumed until 90% accuracy was reached across three sessions. The generalization probes were conducted in which students read the words and performed a task associated with the words (e.g., making a snack) while the number of words used correctly were recorded using a task analysis.

Data were collected on the number of functional words read correctly and results calculated for each student across sessions and conditions. These data were visually inspected. The results indicated that both teacher-directed and computer-assisted instructions were effective at teaching functional words to students with ID. However, the teacher-directed condition seemed more efficient as the number of trials to reach criterion was less than the computer-assisted condition. The students increased their ability to correctly read functional sight words across conditions (i.e., teacher-directed instruction, computer-assisted instruction) (Coleman, Hurley, & Cihak, 2012).

Coleman, Hurley, and Cihak (2012) concluded that both teacher-directed and computer-assisted instruction could be used to teach functional words to students with ID. They maintained that instruction, involving technology, might be effective in teaching a variety of skills to students with ID. They recommended that future research focus on the use of computer-assisted instruction to teach other functional academic tasks (i.e., money skills, community survival words) to students with ID.

Ozkan, Oncul, and Kaya (2013) designed a study to evaluate the effects of computer-based instruction on teaching students with ID what emergency service to call in an emergency situation. The purpose of the study was to determine if computer-based instruction would be effective in teaching students with ID what emergency service to call in a given situation and recalling the corresponding telephone number for the appropriate service. The participants were five elementary and middle school students with ID. The study took place in self-contained classrooms for students with ID. A multiple probe design inclusive of baseline probes, intervention, and maintenance probes was used (Ozkan, Oncul, & Kaya, 2013).

During the initial probes (3 sessions), the students were presented with a scenario (e.g., who do you call if you fall off your bike and break your leg) and were asked to identify the correct emergency service (e.g., ambulance). Following these probes, intervention began and consisted of the introduction of a computer program that presented an emergency scenario and asked the students to identify the appropriate emergency service (e.g., police, fire, medical). Maintenance probes were conducted at four, eight, and twelve weeks after the intervention and mirrored the initial probes (Ozkan, Oncul, & Kaya, 2013).

Data were collected on the percentage of correct responses for each student and graphed across conditions. These data were visually inspected. The results indicated that computer-based instruction was effective at teaching the appropriate emergency service and corresponding phone number to the students with ID. The data also indicated that the students maintained these skills at four, eight, and twelve weeks, suggesting that students with ID could discern which emergency service to call for a specific situation (Ozkan, Oncul, & Kaya, 2013).

Ozkan, Oncul, and Kaya (2013) concluded that computer-based instruction was effective at teaching the appropriate emergency service to contact in a specific emergency situation to students with ID. They maintained that computer-based instruction could favorably contribute to enhancing the safety and quality of life of these students. Ozkan, Oncul, and Kaya (2012) recommended that future research focus on the use of computer-based instruction to teach other functional daily living skills to this population.

Current research supports the use of computer-based instruction as an effective instructional method (Coleman, Hurley, & Cihak, 2012; Ozkan, Oncul & Kay, 2012). Though limited, the research concerning the impact of computer technology on the academic learning of children with ID is promising (Mechling & Hunnicutt, 2011), but further research is needed. With much of the research focusing on functional or daily living skills, more research is needed to examine the implications of technology on grade-aligned academic skills.

iDevice **Technology to Provide Access to General Education Curricula**

Technology, considered a curricular adaptation, is gaining popularity in educational settings (Edyburn, 2013). Current *iDevice* (i.e., *iPad, iPod*) research shows positive implications for instructional use with students with disabilities, including students with ID (Cumming & Strnadova, 2012). Research on the impact of *iPad* (Apple, 2010) technology is limited, but encouraging (O'Malley et al., 2013). The *iPad* (Apple, 2010) may have the capacity to support learning for students with ID of its accessibility and interface features are: (a) more intuitive (i.e., interactive, guided access), (b) easy to use (i.e., touch screen), (c) customizable to support individual student needs (e.g., display settings, restrictions, accessibility features), and (d) engaging (Burton et al., 2013; Hart & Whalon, 2012: O'Malley et al., 2013).

Hammond, Whatley, Ayres, and Gast (2010) conducted a study designed to measure the effects of video modeling on a student with ID learning to use an *iPod* (Apple, 2007). The purpose of this study was to use a video modeling strategy to teach students with ID how to independently use an *iPod* (Apple, 2007) to search for music, photos, and videos. Three middle school students with ID, who received their education in self-contained classrooms and had a history of using visual schedules, participated in the study. The study took place within a self-contained classroom during independent work time. Task analyses were developed on how to access: (a) music, (b) videos, and (c) photos. Tasks were video taped and the students viewed the videos during intervention sessions. Sessions were conducted four times a week for 15-minutes (Hammond et al., 2010).

A multiple probe design including initial probe trials, video modeling sessions, and maintenance probe trials were conducted. Data were collected during the initial probe trial on each student's ability to select the required stimuli (i.e., videos, photos, music) to ascertain if the participant could navigate the *iPod* (Apple, 2007). Once it was determined that the students were able to navigate the *iPod* (Apple, 2007), video modeling sessions began. Participants were shown video clips modeling *iPod* (Apple, 2007) navigation to movies, music, or photos and probes immediately followed to address recall of the steps in the task analyses. Once a student could successfully navigate the steps in the task analysis, maintenance probes were conducted to determine if they had maintained the *iPod* (Apple, 2007) navigation skills (Hammond et al., 2010).

Data were calculated by recording the number of correct (i.e., student initiated) steps in the task analysis. A percentage of completed steps was calculated by dividing the number of correct steps by the total number of steps in the task analysis and multiplying by 100. In addition, social validity data were collected upon the conclusion of the study using surveys completed by adults familiar with the participants. These adults reported that the students demonstrated an increasing ability to independently navigate an *iPod* (Apple, 2007).

Hammond et al., (2010) maintained that the results of this study indicated that students with ID can learn to navigate *iPods* (Apple, 2007). They also concluded that the *iPods* (Apple, 2007) engaged the students as they all expressed "pride in their learning and excitement at the prospect of having and using a piece of technology their same-age peers in regular education often used" (Hammond et al., 2010, p. 536). They recommended that future research be focused on: (a) the generalization of technological skills to new or upgraded technology (e.g., next generation *iPod*, *iPad*), and (b) modifying settings of the *iPod* (Apple, 2007) to further control task selection.

In a follow-up study, Kagohara, Sigafoos, Achmadi, van der Meer, O'Reilly, and Lancioni (2011) evaluated the effects of video modeling (VM) on the capacity of students with ID capacity to independently use the *iPod* (Apple, 2007). The purpose of the study was to use the video modeling strategy to teach the students to independently use an *iPod* (Apple, 2007) to search for and listen to music. Three high school students with ID, who received their education in special education schools for students with disabilities, participated in the study. The study took place within the self-contained classroom. An 8-step task analysis was developed that included the steps needed to access and listen to music on the *iPod* (Apple, 2007). Tasks were video taped and loaded onto the *iPod* (Apple, 2007).

A delayed multiple probe design including baseline, intervention (i.e., video modeling), fading, and follow-up phases was used. During the baseline phases, the participants were given the *iPod* (Apple, 2007) and instructed to turn it on and listen to music. No prompting was provided and the number of steps in the task analysis completed accurately and independently were recorded (Kagohara et al., 2011). During the intervention (i.e., video modeling) phase, the students watched a video illustrating the steps to access and listen to music on the *iPod* (Apple, 2007). They were then given the *iPod* (Apple, 2007) and instructed to access and listen to music. Each student was given 10-seconds to complete each step and steps completed accurately and independently were recorded. The fading phase followed in which the video was not shown to the students. Similar to the intervention phase, the students were then given the *iPod* (Apple, 2007) and instructed to access and listen to music and had 10-seconds to complete each step. The data collected was accuracy and independence in completing the steps. During the follow-up sessions (i.e., 4 and 9 weeks after intervention), the students were given the *iPod* (Apple, 2007) and instructed to turn it on and listen to music. No prompting was provided and the number of steps in the task analysis that were completed accurately and independently were recorded (Kagohara et al., 2011).

The results were calculated by recording the number of accurate and independently performed steps in the task analysis. A percentage of completed steps were calculated by dividing the number of correct steps by the total number of steps in the task analysis and multiplying by 100. The results indicated that the percentage of steps completed accurately and independently increased for all participants from baseline to the intervention phases. The skills were maintained, even with the fading of the intervention, and the students were able to successfully and independently access music during the follow-up sessions (Kagohara et al., 2011).

Kagohara et al., (2011) maintained that the results of this study indicated that students with ID have the potential to independently learn new skills with the use of video modeling on *iPods* (Apple, 2007) (Kagohara et al., 2011). They also concluded that the *iPod* (Apple, 2007) provided an avenue for the students to engage in activities similar to their same-age peers and may encourage inclusion by providing individuals with ID opportunities to "share common interests with others" (Kagohara et al., 2011, p. 2991). They suggested that future research be conducted to replicate the intervention (i.e., video-modeling using the *iPod*) with more difficult skills.

Employing a single subject ABAB reversal design, Hart and Whalon (2012) evaluated the effects of video self-modeling (VSM) using an *iPad* (Apple, 2010) on the academic responding of a student with Autism (ASD) and ID. The purpose of the study was to employ a non-stigmatizing technology in an effort to better engage the student in science-focused academic discussions. The participant was a high school student with ASD and ID who spent less than 40% of the academic school day in the general education environment. When the student spent time in the general education or resource setting, he was supported by one-on-one assistance (Hart & Whalon, 2012). The study took place during science instruction within the resource room setting and included a baseline phase, intervention phase, a return to baseline condition, and a second intervention phase.

The initial baseline phase consisted of six sessions, 25-minutes each, over a period of two weeks and measured the student's unprompted academic responses. Following baseline, the first intervention phase consisted of twenty sessions, 25-minutes each, over a period of five weeks. During the intervention phase and prior to teacher-led discussion, the student viewed a short one-minute video of himself answering content questions on the *iPad* (Apple, 2010). A return to baseline condition followed the intervention in which the *iPad* (Apple, 2010) and VSM videos were removed from the instructional condition. The second baseline lasted a total of eight, 25-minute each, sessions over two weeks. A return to intervention phase followed and the *iPad* (Apple, 2010) and VSM videos were used for six additional 25-minute sessions (Hart & Whalon, 2012).

The data were analyzed by collecting frequency counts on the total number of unprompted academic responses across all conditions. The results indicated that the *iPad* (Apple, 2010) paired with the VSM videos had a positive effect on the amount of unprompted academic responses from the student (Hart & Whalon, 2012). When he viewed videos of himself engaging in the target behavior prior to teacher-led discussion, the frequency of accurate academic responses (i.e., response associated to the content objectives) increased. Increases of 4% were observed during the first baseline phase and increased to 6% during the second baseline phase. Increases of 24% were observed during the first intervention phase and increased to 42% during the second intervention phase (Hart & Whalon, 2012).

Hart and Whalon (2012) concluded that the use of the *iPad* (Apple, 2010) and VSM were effective in increasing the frequency of accurate academic responding by the student with ID and autism. They maintained that pairing evidence-based strategies (i.e., VSM) with innovative technology (i.e., *iPad*) positively affected the academic responding of the students. In addition, the student's teacher completed a social validity checklist that indicated the intervention (i.e., *iPad*) was easily implemented and beneficial to the student (Hart & Whalon, 2012). Hart and Whalon (2012) recommended a replication of this study with students of different ages and in different settings (i.e., general education environments).

Using a multiple-baseline-across-participants design, Burton, Anderson, Prater, and Dyches (2013) examined the effects of VSM using an *iPad* (Apple, 2010) on the academic math skills of students with ASD and ID. The purpose of the study was to determine if a relationship existed between the use VSM on an *iPad* (Apple, 2010) and participant performance of mathematics objectives (i.e., money word problems). The participants were four middle school students (i.e., one with ASD, two with ASD and ID, one with ID) who were taught in a self-contained classroom (Burton et al., 2013). The study took place in the self-contained classroom during math instruction and included baseline, intervention, and post-intervention phases.

Prior to the study, academic math skills (i.e., reading story problems involving money) were assessed and five VSM videos per student were created based on their present skills and anticipated curricular targets related to Common Core State Standards (CCSS). All videos were available for viewing on the *iPad* (Apple, 2010). Task analyses were developed to measure student accuracy. The teachers recorded the number of steps completed correctly and converted that number to a percentage. The teachers also recorded the number of times the participants accessed the VSM video on the *iPad* (Apple, 2010) to aid in tasks.

During the baseline phase, each student was presented five story problems and told to read and follow directions. No additional instruction or feedback was given and the percentage of accurate steps in the task analysis was calculated for each student. The *iPad* (Apple, 2010), with VSM videos, was introduced during the intervention phase. The students were able to view themselves working through the steps of the word problems and could rewind, pause, or fast-forward as needed while they completed a similar word problem on paper. During the intervention phase, the students completed five word problems and their performance was recorded by calculating a percentage of accurate steps in the task analysis. Post-intervention consisted of six phases in which the VSM videos on the *iPad* (Apple, 2010) were gradually removed until each student was required to solve five word problems without the support of the VSM videos on the *iPad* (Apple, 2010) (Burton et al., 2013).

The data were analyzed visually with special attention paid to changes in level and trends across phases (Burton et al., 2013). Averages of correct responses were calculated for baseline, intervention, post-intervention, and compared across conditions. The data indicated that the use of VSM videos on the *iPad* (Apple, 2010) resulted in a functional relationship between the dependent variable (percentage of correct responses) and the independent variable (VSM) as evidenced by a systematic change in student performance (Burton et al., 2013).

Burton et al. (2013) maintained that the results of this study indicated that the use of the *iPad* (Apple, 2010) was a means of providing VSM videos to students with ASD and ID to positively impact students' accuracy and independence during multi-step mathematics tasks. They concluded that this instructional strategy, paired with the innovative technology (i.e., *iPad*), supported both learning and access to general education curricula. They suggested further research replicate this intervention across settings and students of varying ages. Additionally, they recommended future research examine the effects of the *iPad* (Apple, 2010) on academic instruction (i.e., science, reading, writing) (Burton et al., 2013).

O'Malley, Jenkins, Wesley, and Donehower (2013) studied the impact of the *iPad* (Apple, 2010) on the increase in basic math fluency (i.e., simple addition and subtraction) for students with Autism (ASD) and ID. The purpose of the study was to investigate the effects of a math application using an *iPad* (Apple, 2010) on the learning of basic math fluency. Ten middle school students with moderate to severe ID or ASD participated in the study. The study was conducted in a special education school within a self-contained classroom and included two baseline and intervention phases.

The study lasted four weeks used a single-case ABAB design. Prior to the study, pretest data were collected on basic math skills of the students. During the initial baseline phase, the students completed a paper and pencil, timed, simple addition and subtraction test consisting of 20 problems. In the intervention phases, *iPads* (Apple, 2010) with timed, simple addition and subtraction math applications (apps) were used and the participants completed 20 problems. A return to baseline (i.e., timed, paper and pencil assessment) condition was followed by a return to intervention (i.e., *iPad* with math app) condition, and a posttest was completed.

The data were analyzed both visually and statistically. Dependent *t*-tests were used to compare means between phases. Visual inspections of data points were used to determine effect by noting differences in level and trend. The data indicated that: (a) the *iPad* (Apple, 2010) was an effective instructional tool, and (b) the *iPad* (Apple, 2010) and math app had a positive impact on the learning of students with ASD and ID. Pre and posttest data indicated a significant increase in basic math fluency and visual inspection showed an increase in the number of accurately answered problems per minute during the intervention phases.

O'Malley et al. (2013) concluded that the *iPad* (Apple, 2010) could be an effective instructional tool for student with disabilities. Additionally, they asked both teachers and parents about the use of the *iPad* (Apple, 2010) and both groups agreed that the *iPad* (Apple, 2010) was an innovative, effective, and appropriate learning and instructional tool for students with ASD and ID. They suggested that future research examine the integration of *iPad* (Apple, 2010) technology into academic curricula for students with ASD or ID.

Current research, while initial in nature, supports the use of the *iPad* (Apple, 2010) as an instructional tool. Though limited, the research concerning effect of *iPad* (Apple, 2010) technology on the learning of children with ID is promising (Burton et al., 2013; Hart & Whalon, 2012; O'Malley et al., 2013), and given the rapid expansion of *iPad* (Apple, 2010) technology in school districts (Mellhuish & Falloon, 2010; Newton & Dell, 2011), further research is needed. With much of the research focused on the use of the *iPad* (Apple, 2010) as a vehicle for displaying video interventions, other instructional interventions should be explored.

Summary

The literature highlights a need to improve the current practices of supporting access to general education curricula for students with ID. In particular, the research is beginning to focus on technology as a catalyst for change (Lee et al., 2010; O'Malley et al., 2013; Wehmeyer et al., 2003). Educators indicate that students with ID find technology to be engaging (Burton et al., 2013; Hart & Whalon, 2012; O'Malley et al., 2013), however most of the research involving technology has focused on enhancing functional skills rather than the academic skills of students with ID (Hansen & Morgan, 2008; Mechling & O'Brien, 2010; Ozkan, Oncul, & Kaya, 2013). In addition, the majority of technology research for this population focuses on the use of computers (Coleman, Hurley, & Cihak, 2012; Hansen & Morgan, 2008; Mechling & Hunnicutt, 2011; Mechling & O'Brien, 2010; Ozkan, Oncul, & Kaya, 2013), while limited research exists on the use of more innovative technologies (e.g., *iPod*, *iPad*) that may have the capacity to better support students with ID (Hammond et al., 2010; O'Malley et al., 2013).

This study was designed to: (a) develop an instructional method that supported access to general education curricula for students with ID, and (b) evaluate the effectiveness of the *iPad* (Apple, 2010) on the academic instruction of students with ID. This study compared academic instruction using traditional teaching methods to academic instruction using *iPads* (Apple, 2010). Data were compared on four measures: (a) student acquisition of content knowledge, (b) student maintenance of content knowledge, (c) student work-completion, (d) teacher perceptions of student engagement, and (e) consumer (i.e., student) satisfaction to evaluate the effects of the *iPad* (Apple, 2010) on the learning of students with ID.

CHAPTER THREE

METHODOLOGY

Though access to general education curricula is essential to the academic achievement of students with intellectual disabilities (ID) and mandated by federal law (IDEA, 2004; NCLB, 2001; Soukup et al., 2007), an academic instructional focus is rarely observed in self-contained special education classrooms (Browder et al., 2006). Research suggests that both adapted curricula and cognitively accessible technology can support the learning limitations of students with ID (Lee et al., 2010, Palmer et al., 2012). However, research involving students with ID and *iPad* (Apple, 2010) technology is in its initial stages (Kagohara et al., 2013).

This study compared academic instruction using traditional teaching methods to academic instruction using *iPads* (Apple, 2010). The participants were elementary and middle school students with ID. Although both interventions were designed to increase student knowledge, the two interventions were compared on four measures: (a) student acquisition of content knowledge, (b) maintenance of content knowledge, (c) student work-completion, and (d) teacher perceptions of student engagement. Consumer (i.e., student) satisfaction data were collected and analyzed for the *iPad* (Apple, 2010) group only.

Fourteen self-contained classrooms for students with ID were identified and randomly assigned to either the experimental (*iPad*) or control (traditional teaching) group. Seven classrooms used the *Unique Learning System (ULS)* (n2y, 2013) curriculum via traditional teaching methods and seven used the *ULS* (n2y, 2013) curriculum and *iPads* (Apple, 2010). All teachers were trained on the *ULS* (n2y, 2013) curriculum prior to implementation. Copyright permission to use all materials was obtained (see Appendix A).

Students in both intervention groups received daily instruction using the *ULS* (n2y, 2013) curriculum for 50-minutes, five days a week for a total of four weeks. Data were collected pre and post-intervention using an *ULS* (n2y, 2013) monthly checkpoint assessment related to content knowledge (see Appendix B) and the results compared across instructional groups (i.e., *iPad*, traditional teaching). Maintenance data were collected through re-administration of the *ULS* (n2y, 2013) monthly checkpoint assessment two weeks after instruction ended (see Appendix B). Student work completion data were collected using a checklist (see Appendix C) and compared across instructional groups (i.e., *iPad*, traditional teaching). Teacher perception data concerning student engagement were collected post-intervention using a survey (see Appendix D) and compared across instructional groups (i.e., *iPad*, traditional teaching). Data examining student attitudes and beliefs concerning the use of the *iPad* (Apple, 2010) for learning were collected post-intervention via questionnaire for the *iPad* (Apple, 2010) group only (see Appendix E).

Research Questions

This research study was designed to answer five primary research questions. They are:

Research Question One. Does the content knowledge of students (i.e., K-2, 3-5, 6-8) with intellectual disabilities increase with the use of the *iPad* (Apple, 2010) when compared to traditional teaching methods?

It was predicted that *iPad*-based instruction would result in increased student knowledge of content when compared to traditional teaching methods.

Research Question Two. Is the content knowledge of students (i.e., K-2, 3-5, 6-8) with intellectual disabilities better maintained with the use of the *iPad* (Apple, 2010) when compared to traditional teaching methods?

It was predicted that students would demonstrate improved maintenance of content knowledge in the *iPad*-based instructional group when compared to the traditional teaching group.

Research Question Three. Does the work completion of students (i.e., K-2, 3-5, 6-8) with intellectual disabilities differ with the use of digital worksheets on the *iPad* (Apple, 2010) when compared to traditional worksheets?

It was predicted that the use of *iPad*-compatible worksheets would result in increased student work completion when compared to traditional worksheets.

Research Question Four. Do teacher perceptions of student engagement differ with the use of the *iPad* (Apple, 2010) when compared to traditional teaching methods?

It was predicted that teachers would report a higher level of engagement by students participating in instruction with the *iPads* (Apple, 2010) when compared to students in the traditional teaching group.

Research Question Five. For the *iPad* (Apple, 2010) group, what are the student attitudes and beliefs concerning using the *iPad* (Apple, 2010) as a learning tool?

It was predicted that students with intellectual disabilities would report satisfaction with using the *iPad* (Apple, 2010) as a learning tool.

Participants

Students participating in this study attended elementary (ages 5-11) and middle schools (ages 12-14) in a large urban school district located in the Southwestern United States. Prior to participation in the study, parents signed an informed consent form (see Appendix F) and students signed a student assent form (see Appendix G). The consent forms were available in both English and Spanish. The assent form was picture-supported to enhance cognitive accessibility for the students. The students who did not assent or for whom parental consent was not obtained were allowed to participate, but their data was not included in this study.

Students with Intellectual Disabilities

Students who participated in this study were identified by a multidisciplinary team as having an intellectual disability or developmental delay and received services in a self-contained special education classroom for students with this classification. Self-contained classrooms were targeted for this study, as a majority of students with ID are educated in this environment in the targeted school district. Typically, these classrooms have between five and twelve students. A total of 72 students with ID participated in this study. According to the Nevada Administrative Code, a student is classified as having an intellectual disability if they exhibit a significantly below average intellectual functioning including limitations in at least two of the following areas: (a) communication skills, (b) self-care, (c) home living, (d) use of the community, (e) social skills, (f) self-direction, (g) health and safety, (h) functional academics, (i) leisure, or (j) work (NAC 388.055, 2011).

Students assigned to the *iPad* group. Students enrolled in classrooms assigned to the *iPad* (Apple, 2010) group were taught using the *ULS* (n2y, 2013) curriculum and completed worksheets on the *iPad* (Apple, 2010). They completed a paper version of the pre, post, and maintenance assessments related to content knowledge (see Appendix B). Students in this group also completed a questionnaire related to attitudes and beliefs about using the *iPad* (Apple, 2010) for learning at the completion of this study (see Appendix E). The questionnaire was picture-supported to enhance cognitive accessibility. A total of 41 students with ID participated in the *iPad* (Apple, 2010) group (see Table 1).

Table 1

Demographics of Students (iPad Group)

Characteristics	Primary K-2	Intermediate 3-5	Secondary 6-8
Gender			
Male	8	10	9
Female	2	3	9
Total	10	13	18
Ethnicity			
Caucasian	3	4	4
African American	1	0	3
Latino	4	7	10
Asian/ Pacific Islander	1	1	1
Other	1	1	0
Total	10	13	18

Students assigned to the traditional teaching group. Students enrolled in classrooms assigned to the traditional teaching group were taught using the *ULS* (n2y, 2013) curriculum via traditional teaching methods and completed worksheets using paper materials. They completed a paper version of the pre, post, and maintenance assessments related to content knowledge (see Appendix B). A total of 31 students with ID participated in the traditional teaching group (see Table 2).

Table 2

Demographics of Students (Traditional Teaching Group)

Characteristics	Primary K-2	Intermediate 3-5	Secondary 6-8
Gender			
Male	8	5	2
Female	7	4	5
Total	15	9	7
Ethnicity			
Caucasian	3	3	3
African American	4	1	0
Latino	7	4	2
Asian/ Pacific Islander	1	1	1
Other	0	0	1
Total	15	9	7

Teachers

Fourteen licensed special education teachers participated in this study. All teachers signed an informed consent form prior to participation (see Appendix H). The teachers were randomly assigned using the *app, Group Builder* (Paradise Cay Software, 2012), to one of two instructional groups (i.e., *iPad*, traditional teaching).

Teachers assigned to the *iPad* group. Teachers assigned to the *iPad* (Apple, 2010) group attended a three-hour training on the *ULS* (n2y, 2013) curriculum. This training included a brief tutorial of the *iPad* (Apple, 2010) device (e.g., features, implementation). At this training, the teachers practiced teaching *ULS* (n2y, 2013) lessons using the *iPad* (Apple, 2010) and received feedback in accordance with the teaching fidelity checklist used in the study (see Appendix I). Teachers assigned to the *iPad* (Apple, 2010) group were responsible for *ULS* (n2y, 2013) lesson implementation using the *iPad* (Apple, 2010). Daily lessons were videotaped to assess instructional fidelity. The teachers were responsible for videotaping these lessons using the provided *iPad* (Apple, 2010) and uploading these videos to a secured *Dropbox* account (i.e., via *Dropbox app)* for assessment. The teachers also administered the assessments (i.e., pre, post, maintenance) and completed a work completion checklist for each student (see Appendices A & C). Teachers in this group completed a post-intervention survey concerning student engagement (see Appendix D) (see Table 3).

Table 3

Demographics of Teachers (iPad Group)

Characteristics	Primary K-2 Teachers	Intermediate 3-5 Teachers	Secondary 6-8 Teachers
Gender			
Male	0	1	0
Female	2	1	3
Total	2	2	3
Education			
Licensed: Special Ed.	2	2	3
Licensed: ID	1	2	3

Teachers assigned to the traditional teaching group. Teachers assigned to the traditional teaching group attended a three-hour training on the *ULS* (n2y, 2013) curriculum. At this training, the teachers practiced teaching lessons and received feedback in accordance with the teaching fidelity checklist used in the study (see Appendix I). Teachers assigned to the traditional teaching group were responsible for teaching lessons from the *ULS* (n2y, 2013) curriculum using traditional teaching methods and paper materials. Daily lessons were videotaped to assess instructional fidelity. The teachers were responsible for videotaping these lessons using the provided *iPad* (Apple, 2010) and uploading these videos to a secured *Dropbox* (Dropbox Inc, 2013) account (i.e., via *Dropbox app)* for assessment. The teachers administered the assessments (i.e., pre, post, maintenance) and completed a work completion checklist (see Appendices A & C) for each student. Teachers in this group were required to complete a post-intervention survey concerning student engagement (see Appendix D) (see Table 4).

Table 4

Demographics of Teachers (Traditional Teaching Group)

Characteristics	Primary K-2 Teachers	Intermediate 3-5 Teachers	Secondary 6-8 Teachers
Gender			
Male	0	0	0
Female	3	2	2
Total	3	2	2
Education			
Licensed: Special Ed.	3	2	2
Licensed: ID	2	2	2

Teacher Fidelity Observer

The teacher fidelity observer scored the recorded daily lessons (downloaded from participating teachers) using the teaching fidelity checklist (see Appendix I). Corrective feedback was provided to individuals whose lesson fidelity fell below 100%. Lessons were scored daily for fidelity.

Interrater Observer of Teacher Fidelity

One assistive technology specialist with technological experience conducted reliability checks for teacher fidelity in this study. The interrater observer of teacher fidelity randomly selected 25% of the videotaped lessons and rescored the teaching fidelity checklist (see Appendix I). The interrater observer of teacher fidelity was trained on the required data collection instruments. The percentage of agreement was calculated using the following formula: [agreements/(agreements + disagreements) x 100 = percentage agreement].

Interrater Scorer

An assistive technology specialist with technological experience conducted the reliability checks for data collected in this study. The interrater scorer randomly selected 25% of the pre, post, and maintenance measures and rescored the assessments. The interrater scorer was trained on all data collection instruments. The percentage of agreement was calculated using the following formula: [agreements/(agreements + disagreements) x 100 = percentage agreement].

Setting

This study was conducted in fourteen self-contained special education classrooms in a large urban school district. Consent for access to this school district had been received prior to implementation (see Appendix J). The schools selected for this study represent the economic, cultural, ethnic, and linguistic diversity of the school district. The self-contained classrooms selected for this study were located on elementary and middle school campuses. The principal at each school signed a school access consent form (see Appendix K).

Classrooms

The fourteen self-contained special education classrooms participating in this study provided educational services to students with intellectual disabilities and developmental disabilities. The primary focus of instruction in these classrooms was on functional academics (e.g., self-help skills, communication, daily living skills). Students assigned to these classrooms spent more than 80% of their school day in the self-contained classroom setting. Classrooms were selected using convenience sampling (i.e., based on availability and administrative permission). Each of these classrooms had one 50-minute period of daily reading instruction and the study was conducted during this period.

Instrumentation

In an effort to answer the research questions, assessment instruments were used to collect data in the following areas: (a) acquisition of knowledge (i.e., general education content), (b) knowledge maintenance, (c) student work completion, (d) teacher perceptions of student engagement, and (e) student attitudes and beliefs about using the *iPad* (Apple, 2010) for learning. A description of each of the data collection materials is included below.

Pretest, Posttest, and Maintenance Assessments

For this study, pretest, posttest, and maintenance assessments were used to assess content knowledge (see Appendix B). These data were compared across instructional groups (i.e., *iPad*, traditional teaching). Assessment scores were calculated using the following formula: (number correct/12 X 100 = percent of questions correct).

The assessments used in this study are included in the *Unique Learning System (ULS)* (n2y, 2013) curriculum. All students (regardless of instructional group) took the paper version of the pre, post, and maintenance assessments. The assessments (i.e., pre, post, maintenance) contained questions aligned to instructional targets of the *ULS* (n2y, 2013) lessons and were administered individually. Assessments consisted of six questions that assessed the depth of knowledge relating to the first four cognitive domains of Bloom's taxonomy (i.e., remembering, understanding, applying, analyzing) (Anderson et al., 2000; Pohl, 2000). Two questions assessed recall and recognition (i.e., remembering), two questions assessed interpretation (i.e., understanding), one question assessed transfer of knowledge to new situations (i.e., applying), and one question assessed the break down of information into parts (i.e., analyzing) (n2y, 2013). The questions were read aloud by the teacher and the student selected an answer from a field of three choices.

Student Work Completion Checklist and Data-Collection Form

Participating teachers tracked student work completion via the work completion checklist (see Appendix C). Each teacher checked off completed worksheets for both instructional groups, recording the total number of worksheets completed by each student. Data were compared between instructional groups (i.e., *iPad*, traditional teaching). Only worksheets that were 100% completed were recorded.

Teacher Perceptions of Student Engagement Survey

Participating teachers completed a post-intervention survey (see Appendix D). The survey consisted of three questions designed to assess teacher perceptions of student engagement. Teachers selected the answer that best represented their perception of student engagement during the study. Survey data were compared between instructional groups (i.e., *iPad*, traditional teaching).

Student Attitudes and Beliefs Questionnaire

Students participating in the *iPad* (Apple, 2010) group completed a post-intervention questionnaire (see Appendix F). The questionnaire assessed student attitudes and beliefs about using the *iPad* (Apple, 2010) for learning. The questionnaire used a Likert-type scale to measure student opinions regarding the use of the *iPad* (Apple, 2010). Teachers read each statement aloud and students ranked their agreement with the statements using a picture-supported scale of 1-3, with 1 representing agree and 3 representing disagree.

Materials

Several materials were required for the implementation of this study. These materials were: (a) *iPads* (Apple, 2010), (b) the *ULS* (n2y, 2013) curriculum, (c) the *News-2-you* (2013) newspaper (i.e., digital, paper), (d) the *Notability app* (Ginger Labs, 2013), (e) the *iBooks app* (Apple, 2013), and (f) the *Dropbox app* (Dropbox Inc, 2013). A description of each of these materials is included below.

iPads **(Apple, 2010)**

A total of 84 *iPads* (Apple, 2010) were provided by Assistive Technology Services Department of the participating school district. The *iPads* (Apple, 2010) were programmed with the *News-2-you* (2013) *app, Notability app* (Ginger Labs, 2013), *iBooks app* (Apple, 2013), and *Dropbox app* (Dropbox Inc, 2013) for training and instructional materials. Each classroom in the *iPad* (Apple, 2010) instructional group received five *iPads* (Apple, 2013) at the beginning of the study. Each classroom assigned to the traditional teaching group received five *iPads* (Apple, 2010) upon conclusion of this study. All participating classrooms received a separate *iPad* (Apple, 2013) to record and upload lessons to assess teaching fidelity. This *iPad* (Apple, 2013) was turned in and all information and data erased at the conclusion of the study.

The Unique Learning System Curriculum (n2y, 2013)

This study implemented a cloud-based adapted curriculum. The *Unique Learning System (ULS)* (n2y, 2013) curriculum is aligned to the Common Core State Standards (CCSS) and is designed for students with significant cognitive disabilities. All classrooms have access to the *ULS* (n2y, 2013) online curriculum and each teacher created an individual login to access lessons and instructional materials (see Appendix L). These materials were used during the study. Copyright permission was granted to use these materials in this study (see Appendix A).

News-2-you Newspaper (2013)

This study incorporated the *News-2-you* (n2y, 2013) newspaper. The *News-2-you* (n2y, 2013) newspaper is a picture-supported newspaper adapted for students with significant cognitive deficits and aligned to the instructional targets of the *ULS* (n2y, 2013) curriculum. The newspaper includes six activity sheets (i.e., game page, review, crossword puzzle, picture-suduko, think page) that focus on social studies, comprehension, and writing. This study utilized the *News-2-you* newspaper (n2y, 2013) in two versions (i.e., paper, *app*). The content of both versions was identical and students in both groups (i.e., *iPad*, traditional teaching) were given ten-minutes daily to work on the material. Copyright permission was granted to use these materials in this study (see Appendix A).

Traditional newspaper. Students participating in the traditional teaching group were given a paper copy of the *News-2-you* (n2y, 2013) newspaper with paper worksheets (see Appendix M). Each day, the teachers read the newspaper in small groups of two-to-five students. Students would then work for ten minutes with the paper newspaper and a pencil. At the end of each day, teachers collected the *News-2-you* (n2y, 2013) packets and recorded completed work on the work completion checklist (see Appendix C).

***iPad* (Apple, 2010) *app* newspaper.** Students participating in the *iPad* (Apple, 2010) group accessed the *News-2-you* (n2y, 2013) newspaper via *iPad app* (Apple, 2010) (see Appendix N). Each day, the teachers read the newspaper via the *iPad* (Apple, 2010) in small groups of two-to-five students. Students would then work for ten minutes with the digital newspaper. Students would press the play button to read the pages of the newspaper and select answers on the activity sheets via touch. At the end of each day, teachers would login to the *News-2-you app* (n2y, 2013) to view each student's work and record completed work onto the work completion checklist (see Appendix C). Students were trained on the *News-2-you* (n2y, 2013) *app*.

***Notability* (Ginger Labs, 2013)**

Students in the *iPad* (Apple, 2010) group used the *Notability app*. *Notability* (Ginger Labs, 2013) is a digital note-taking app that allowed students to complete *ULS* (n2y, 2013) worksheets using the *iPad* (Apple, 2010). Students were trained on the use of *Notability* (Ginger Labs, 2013).

iBooks (Apple, 2013)

Students in the *iPad* (Apple, 2010) group used the *iBooks app. iBooks* (Apple, 2013) allowed students digital access to *ULS* (n2y, 2013) books. These books were incorporated into the *ULS* (n2y, 2013) lessons and were used throughout the study. Students were trained on the use of *iBooks* (Apple, 2013).

Dropbox (Dropbox Inc, 2013)

Teachers in the *iPad* (Apple, 2010) group used the *Dropbox* (Dropbox Inc, 2013) *app. Dropbox* (Dropbox Inc, 2013) allowed teachers to securely upload lesson fidelity videos directly from the *iPad* (Apple, 2010). Teachers were trained on the use of *Dropbox* (Dropbox Inc, 2013).

Training

All participating teachers as well as students participating in the *iPad* (Apple, 2010) group received targeted training. Additionally, the interrater observer and interrater scorer received training specific to their roles in the study.

Unique Learning System Curriculum Training

In order to ensure fidelity of the two interventions, participating teachers attended a three-hour training on the *Unique Learning System (ULS)* (n2y, 2013) curriculum specific to their assigned instructional group (i.e., *iPad*, traditional teaching).

Teachers assigned to the traditional teaching group. Teachers assigned to the traditional teaching group received training on how to implement the *ULS* (n2y, 2013) curriculum using paper materials. The training focused on the following topics: (a) website navigation, (b) lessons and materials, and (c) data collection. During the training, all teachers practiced various tasks required in the *ULS* (n2y, 2013) curriculum (e.g., completing the *ULS* student profile, *ULS* lesson delivery, assessment administration) (see Appendix O). Participants were required to reach 100% accuracy in the presentation of lesson components as outlined in the teaching fidelity checklist (see Appendix I). Teachers were also trained on how to use the *iPad* (Apple, 2010) to videotape and upload lessons to the secured *Dropbox* (Dropbox Inc, 2013) account for assessment.

Teachers assigned to the *iPad* group. Teachers assigned to the *iPad* (Apple, 2010) group received training on how to implement *the ULS* (n2y, 2013) curriculum using the *iPad* (Apple, 2010). The training focused on the following topics: (a) *ULS* (n2y, 2013) website navigation, (b) lessons and materials, and (c) data collection. During the training, all teachers practiced various tasks required in the *ULS* (n2y, 2013) curriculum (e.g., completing the *ULS* student profile, *ULS* lesson delivery, assessment administration) (see Appendix P). Participants were required to reach 100% accuracy in the presentation of lesson components as outlined in the teaching fidelity checklist (see Appendix I). A brief tutorial of the *iPad* (Apple, 2010) device was provided. This tutorial focused on: (a) *iPad* (Apple, 2010) controls and navigation, (b) *iPad* (Apple, 2010) accessibility features (e.g., *Guided Access*), and (c) required apps (i.e., News-2-you *app, iBooks, Notability, Dropbox*). At the conclusion of this tutorial, teachers were given an opportunity to practice each task using the *iPad* (Apple, 2010). Participants were required to demonstrate 100% accuracy in (a) identifying *iPad* (Apple, 2010) controls, and (b) enabling and disabling *Guided Access* (see Appendix P). Teachers were also trained on how to use the *iPad* (Apple, 2010) to videotape and upload lessons to the secured *Dropbox* (Dropbox Inc, 2013) account for assessment.

Student Training

Students assigned to the *iPad* (Apple, 2010) instructional group received a total of 50-minutes (10 minutes per day for 5 days) of in-class training on the *iPad* (Apple, 2010). This training, administered by the teacher, taught students how to use the basic *iPad* (Apple, 2010) controls (e.g., home button, touch screen), the *News-2-you app* (n2y, 2013)*,* the *iBooks app* (Apple Inc, 2013), and the *Notability app* (Ginger Labs, 2013) (see Appendix Q). Students were required to demonstrate that they were able to touch the screen and select an object independently to 100% accuracy to participate in this study.

Interrater Observer of Teacher Fidelity Training

One assistive technology specialist attended a two-hour training session that provided an overview of the *ULS* (n2y, 2013) lesson plans and materials as well as instruction on the use of the teaching fidelity checklist (see Appendix I). During this training, the interrater observer of teacher fidelity was given an opportunity to practice using the teacher fidelity checklist and sample lessons. These checklists were reviewed and corrective feedback provided. Training concluded after interrater agreement reached 100% as calculated by the following formula [(agreements/ (agreements/disagreements) X 100 = percent of teacher fidelity agreement)]. Additionally, the interrater observer of teacher fidelity attended a *ULS* (n2y, 2013) curriculum training.

Interrater Scorer Training

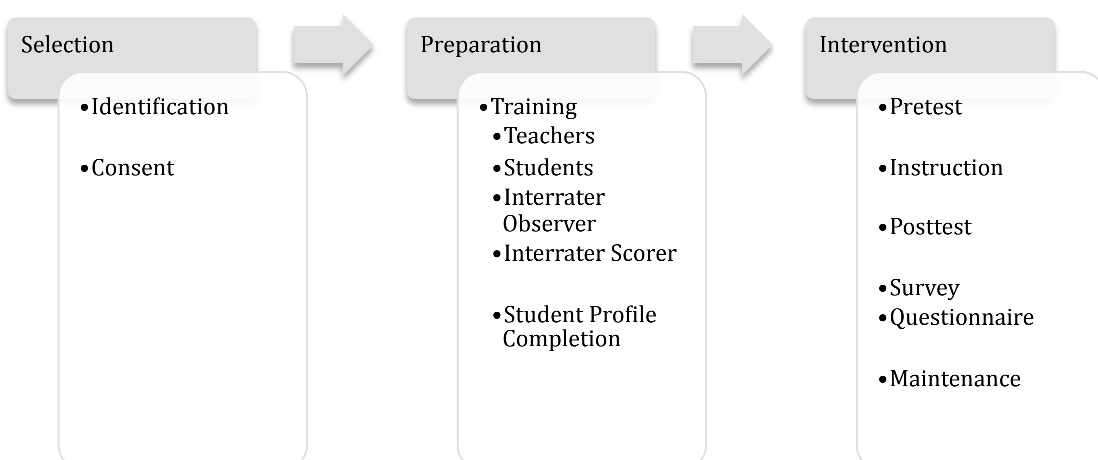
One assistive technology specialist served as the interrater scorer and rescored 25% of the pretest, posttest, and maintenance assessments. The interrater scorer attended a two-hour training session on the data collection instruments used in this study (i.e., pre, post, and maintenance assessments). The interrater scorer reviewed a scoring demonstration for each instrument and then scored two of the assessments. The interrater scorer's scores were compared to data collected during the pretesting phase. Training concluded after interrater agreement with the pre-test data reached 100% as calculated by the following formula [(agreements/ (agreements/disagreements) X 100 = percent of interrater agreement)].

Design and Procedures

This study was conducted over a nine-week period and consisted of three phases. These phases included selection, preparation, and intervention. See Figure 1 for a diagram of the phases.

Figure 1

Phases of the Study



Phase One

In phase one, schools were recruited for the study. Meetings were arranged with the executive director of special education for the participating school district to explain the study and obtain support for the research. Once support was obtained at the district level, school principals were contacted to solicit school sites. Elementary and middle schools with self-contained programs for students with intellectual disabilities were the foci for this study and principals of these schools were contacted via email. Fourteen classrooms were secured for participation. Consent was obtained from participants (i.e., teacher, students) and parents of participants.

Teacher consent. Informed consent forms were distributed to teachers of students with ID (see Appendix H). A description of the study including the training and data collection requirements was provided in writing to each teacher. Consent was obtained prior to the first training.

Parental consent. Informed consent forms were distributed to parents of students with ID (see Appendix F). A letter describing the study and a consent form was sent home with each student. Letters were available in English and Spanish. All students in the classroom participated in this study, but only data from students whose parents provided a signed consent form were analyzed.

Student participants. Students in this study were: (a) identified as having an intellectual disability or developmental delay, (b) had an individualized education plan (IEP) in the state of Nevada, and (c) attended a self-contained program for students with ID. Parents reviewed the study with their child and student assent for participation was obtained (see Appendix G).

Phase Two

Phase Two included providing training to teachers, the interrater observer of teacher fidelity, and the interrater scorer. Training specific to the *iPad* (Apple, 2010) also was provided to students assigned to the *iPad* (Apple, 2010) group. Teachers completed a *ULS* (n2y, 2013) student profile for each student during this phase to determine the level of instructional and assessment materials to use with each student.

Teacher training. All participating teachers attended a three-hour training on the *ULS* (n2y, 2013) curriculum specific to their assigned instructional group (i.e., *iPad*, traditional teaching). Training consisted of a review of the lesson and data collection materials used during the study (see Appendix O). Seven of the classroom teachers (randomly assigned to the *iPad* group) received a tutorial of the *iPad* (Apple, 2010) (e.g., device controls and navigation, accessibility features, required apps) (see Appendix P).

Interrater observer training. The interrater observer of teacher fidelity attended a two-hour training at which she learned to use the fidelity checklist and *ULS* (n2y, 2013) lesson materials. During this training, the interrater observer of teacher fidelity had an opportunity to practice using the teaching fidelity checklist (see Appendix I). Additionally, the observer attended a three-hour *ULS* (n2y, 2013) curriculum training with the teachers.

Interrater scorer training. The interrater scorer attended a two-hour training focused on the pre, post, and maintenance assessments. Opportunities for the interrater scorer to practice scoring each instrument were provided. Additionally, the scorer attended a three-hour *ULS* (n2y, 2013) curriculum training with the teachers.

Student training. Students assigned to the *iPad* (Apple, 2010) group were trained by their teachers to use the *iPad* (Apple, 2010). The training focused on the *News-2-you* (n2y, 2013) *app, iBooks app* (Apple, 2013), and *Notability app* (Ginger Labs, 2013) (see Appendix Q).

Completion of Unique Learning System student profiles. All participating teachers completed a *ULS* (n2y, 2013) student profile for each of their students. This profile contained a series of student-centered questions that teachers answered independently. This profile was specifically designed to provide guidance to the teacher on the appropriate material and assessment adaptations to be utilized during lesson implementation. Upon completion of the *ULS* (n2y, 2013) student profile, each student was assigned a differentiation level (i.e., level 1, level 2, level 3) that corresponded to the lesson materials that were most appropriately adapted for that individual.

Phase Three

Phase three of this study took place over the course of six weeks. This phase consisted of administering pretests, the instructional intervention, posttests, and maintenance assessments. This phase also included the post-intervention survey and questionnaire.

Pretest. A paper version of the pretest from the *ULS* (n2y, 2013) curriculum was given to each student, regardless of instructional group, on the first day of Phase Three. This assessment was used to measure the content knowledge of all students prior to instruction. This assessment, consisting of six questions, was read to each student. The students selected their answer choice from a field of three choices (see Appendix B).

Instructional implementation. Once pretesting was completed, teachers began implementing *ULS* (n2y, 2013) lessons (see Appendix L). All lessons were provided to teachers based on instructional grouping (i.e., lessons provided on paper or lessons provided digitally on the *iPad*) and structured in a 50-minute period. The 50-minute lesson period included 15-minutes of whole group instruction and 30-minutes of small group instruction (e.g., 3 groups, 10-minutes per group). During whole group instruction, students were provided differentiated lesson materials (i.e., *ULS* books, worksheets) based on information gathered from the *ULS* (n2y, 2013) student profile (i.e., student differentiation level). Content of the lesson materials was identical but divided into three differentiation levels (i.e., independent, supported, participation) and aligned to the CCSS, more specifically reading for informational text standards. After whole group instruction, students were divided into smaller groups and received 10-minutes of instruction on the *News-2-you* newspaper (n2y, 2013) and completed corresponding worksheets. Each teacher recorded the number of completed worksheets on the worksheet completion checklist daily (see Appendix C). This structured lesson format was implemented for four weeks. Students in the traditional teaching group participated in lessons and completed worksheets using paper materials while students in the *iPad* (Apple, 2010) group participated in lessons and completed worksheets using the *iPad* (Apple, 2010). Fidelity of instruction was monitored via videotaped lessons on a daily basis to ensure accurate implementation of the interventions.

Posttest and maintenance assessment. Following the four-week instructional implementation of the *ULS* (n2y, 2013) lessons, a paper version of the posttest was administered to all students (see Appendix B). After two weeks of no instructional intervention (maintenance phase), the maintenance assessments were administered following the same pretest and posttest format for all participants.

Post-intervention teacher survey. Following the posttest, all teachers completed an online survey regarding their perceptions of student engagement (see Appendix D). This survey asked a series of questions designed to analyze teacher perceptions of student engagement.

Post-intervention student questionnaire. After the implementation of the intervention and the collection of all related data, students assigned to the *iPad* (Apple, 2010) group were asked to complete a post-intervention questionnaire (see Appendix E). The questionnaire was designed to assess student attitudes and beliefs concerning using the *iPad* (Apple, 2010) as a learning tool. This questionnaire was picture-supported to enhance cognitive accessibility for participating students.

Data Collection

Data were collected throughout the study in order to answer the research questions. Data collection forms related to: (a) pre, post, and maintenance assessments, (b) work completion, (c) teacher perceptions of student engagement, (d) student attitudes and beliefs about using the *iPad* (Apple, 2010) as a learning tool, and (e) teacher fidelity to the intervention were used.

Pre, Post, and Maintenance Assessments

The pre, post, and maintenance assessments were collected for both instructional groups (i.e., *iPad*, traditional teaching) using assessments included in the *Unique Learning System (ULS)* (n2y, 2013) curriculum (see Appendix B). These data were entered into SPSS for analysis and compared within and between instructional groups (i.e., *iPad*, traditional teaching).

Work Completion

Work completion data were collected using a checklist for both instructional groups (i.e., *iPad*, traditional teaching) (see Appendix C). These data were entered into SPSS for analysis and compared across instructional groups (i.e., *iPad*, traditional teaching).

Teacher Perceptions of Student Engagement

Teacher perceptions of student engagement were collected post-intervention via an online survey (see Appendix D). Responses were entered into SPSS for analysis and compared across instructional groups (i.e., *iPad*, traditional teaching).

Student Attitudes and Beliefs

Data concerning student attitudes and beliefs about using the *iPad* (Apple, 2010) as a learning tool were collected post-intervention through questionnaire (see Appendix E). Responses were entered into SPSS for analysis and evaluated.

Teacher Fidelity Data

Teacher fidelity data were collected using the teaching fidelity checklist (see Appendix I). At the end of each lesson, teacher fidelity was determined using the following formula [lesson components implemented appropriately/ (lesson components implemented appropriately + lesson components implemented inappropriately) X 100 = percent of teacher fidelity]. This information was communicated to teachers daily.

Interrater Reliability

Interrater reliability was calculated for the scoring of pre, post, and maintenance assessments and the student and teacher satisfaction questionnaires. Interrater reliability was calculated by comparing the original data collection with the interrater observers' data collection using the following formula [agreements/(agreements + disagreements) X 100 = percent of reliability].

Treatment of Data

Data from the pre, post, and maintenance measures were used to answer the following questions:

Research Question One. Does the content knowledge of students (i.e., K-2, 3-5, 6-8) with intellectual disabilities increase with the use of the *iPad* (Apple, 2010) when compared to traditional teacher methods?

Analysis: In order to determine if significant differences exist between the *iPad* (Apple, 2010) group and the traditional teaching group, a 2 (group) X 2 (measure) mixed-model ANOVA was used to compare groups. Alpha was set at .05.

Research Question Two. Is the content knowledge of students (i.e., K-2, 3-5, 6-8) with intellectual disabilities better maintained with the use of the *iPad* (Apple, 2010) when compared to traditional teacher methods?

Analysis: In order to determine if significant differences exist between the *iPad* (Apple, 2010) group and the traditional teaching group, an Independent *t*-test was used to compare groups. Alpha was set at .05.

Data from the work completion checklist were used to answer the following question:

Research Question Three. Does the work completion of students (i.e., K-2, 3-5, 6-8) with intellectual disabilities differ with the use of digital worksheets on the *iPad* (Apple, 2010) when compared to traditional worksheets?

Analysis: In order to determine if significant differences exist between the *iPad* (Apple, 2010) group and the traditional teaching group, an Independent *t*-test was used to compare groups. Alpha was set at .05.

Data from the post-intervention survey were used to answer the following question:

Research Question Four. Do teacher perceptions of student engagement differ with the use of the *iPad* (Apple, 2010) when compared to traditional teaching methods?

Analysis: In order to determine if significant differences exist between the *iPad* (Apple, 2010) group and the traditional teaching group, an Independent *t*-test was used to compare groups. Alpha was set at .05.

Data from the teacher and student questionnaires were used to answer the following questions:

Research Question Five. For the *iPad* (Apple, 2010) group, what are the student attitudes and beliefs concerning using the *iPad* (Apple, 2010) as a learning tool?

Analysis: In order to examine student attitudes and beliefs about using the *iPad* (Apple, 2010), descriptive analyses were used.

CHAPTER FOUR

RESULTS

The literature highlights a need to improve the support for accessing general education curricula for students with intellectual disabilities (ID) and research supports technology (i.e., *iPad*) as a catalyst for this change (Lee et al., 2010; O'Malley et al., 2013; Wehmeyer et al., 2003). Recently, the use of the *iPad* (Apple, 2010) as an instructional tool is emerging as a potential support to access general education curricula for these students (Burton et al., 2013; Hart & Whalon, 2012; O'Malley et al., 2013). However, more research is needed to explore the instructional impact of the *iPad* (Apple, 2010) in specific curricular areas (e.g., reading, math for students with ID (Burton et al., 2013; Hart & Whalon, 2012; O'Malley et al., 2013).

The purpose of this study was to explore the efficacy of *iPad* (Apple, 2010) technology on the teaching and learning of students with ID. This study examined the learning of academic content aligned to the Common Core State Standards (CCSS) using traditional teaching methods (i.e., paper, pencil) compared to the use of the *iPad* (Apple, 2010). Additionally, the study measured student engagement through a teacher perception questionnaire and work completion across instructional groups (i.e., *iPad*, traditional teaching). Student perceptions of the *iPad* (Apple, 2010) as a learning tool were examined for the students assigned to the *iPad* (Apple, 2010) group. Seventy-two students with ID and fourteen special education teachers participated in the study (see Tables 1, 2, 3 and 4).

Classrooms were randomly assigned to one of two instructional groups (i.e., traditional teaching, *iPad*). Seven classrooms used the *Unique Learning System (ULS)* (n2y, 2013) curriculum using traditional teaching methods and seven classrooms used the *ULS* (n2y, 2013) curriculum and *iPads* (Apple, 2010). Prior to the implementation of *ULS* (n2y, 2013) lessons, all students completed a pretest designed to measure prior knowledge of lesson objectives (see Appendix B). Students in both intervention groups received daily instruction using the *ULS* (n2y, 2013) curriculum for 50-minutes, five days a week for a total of four weeks. Students in the experimental group (n = 41) received their instructional materials on the *iPad* (Apple, 2010) while students in the control group (n = 31) received paper instructional materials. Teachers recorded the number of worksheets each student completed throughout the intervention (see Appendix C). Fidelity observations were conducted and scored daily (see Appendix I).

Following the four weeks of instructional intervention, the students completed a posttest that measured their knowledge of lesson objectives (see Appendix B). No instructional intervention occurred for two weeks. At the conclusion of the instructional intervention, a maintenance assessment, focused on student knowledge retention of the lesson objectives, was completed (see Appendix B). All teachers completed a post-intervention survey to measure their perceptions of student engagement. The students who participated in the *iPad* (Apple, 2010) group completed a questionnaire to examine their attitudes and beliefs concerning the use of the *iPad* (Apple, 2010) as a learning and instructional tool.

Teacher Fidelity to Instruction

Teacher fidelity checklists were developed to measure teacher adherence to the instructional intervention (see Appendix I). An assistive technology specialist with experience working with students with ID reviewed and scored each lesson using the checklist. Fidelity was calculated using the following formula: [(number of steps implemented correctly)/(total number of steps in lesson) x 100 = percent of fidelity for each lesson]. The average of all lessons was calculated to determine the fidelity to intervention for each teacher (see Table 5). Overall fidelity measures for each group (i.e., *iPad*, traditional teaching) were determined by calculating the fidelity averages for all teachers. The *iPad* (Apple, 2010) teachers had a fidelity percentage of 96.24 and the traditional teaching group had a fidelity percentage of 96.60. These data indicate that participating teachers in each instructional group (i.e., *iPad*, traditional teaching) had a high level of instructional fidelity to the intervention used (see Table 6).

Table 5

Individual Teacher Fidelity to Intervention Scores

Teacher	Group	Percent of Fidelity
A	Traditional Teaching	97.50%
B	Traditional Teaching	97.50%
C	Traditional Teaching	98.75%
F	Traditional Teaching	91.25%
G	Traditional Teaching	93.75%
J	Traditional Teaching	97.50%
K	Traditional Teaching	100.00%
D	iPad	90.00%
E	iPad	92.50%
H	iPad	90.00%
I	iPad	100.00%
L	iPad	97.50%
M	iPad	98.75%
N	iPad	100.00%

Table 6

Group Fidelity to Intervention Scores

Group	Percent of Fidelity
iPad	96.24
Traditional Teaching	96.60

Interrater Observer

An assistive technology specialist with knowledge of the research protocol was selected to rescore 25% of the videotaped lessons. This interrater observer rescored the lessons for both the *iPad* (Apple, 2010) and traditional teaching group. The scores were compared and interrater agreement was calculated using the following formula: [agreements/(agreements + disagreements)] x 100 = percent of agreement. Overall, interrater agreement for the scoring of teacher fidelity was 99.28%. These findings indicate a high level of interrater agreement related to the scoring of teacher fidelity videos in this study. Interrater agreement scores for teacher fidelity are found in Table 7.

Table 7

Interrater Observer Reliability for Teacher Fidelity

Source	Agreements	Disagreements	Total	Percentage of Agreement
Lesson Steps	1112	8	1112/1120	(1112/1120) x 100 = 99.28%
Interrater Reliability for Teacher Fidelity Scores = 99.28%				

Reliability of Assessments

An assistive technology specialist with knowledge of the research protocol was selected to rescore 25% of the assessments administered (i.e., pretest, posttest, maintenance). The interrater scorer rescored 25% the three assessments for both the *iPad* (Apple, 2010) and traditional teaching group. The scores were compared and interrater agreement was calculated using the following formula: [agreements/ (agreements + disagreements)] x 100 = percent of agreement. Overall, interrater agreement for assessment scoring was 99.12%. These findings indicate a high level of interrater agreement related to the scoring of the assessments used in this study. Interrater agreement scores for student assessment data are found in Table 8.

Table 8

Interrater Reliability for Student Assessment Scores

Source	Agreements	Disagreements	Total	Percentage of Agreement
Student Assessments	339	3	339/342	(339/342) x 100 = 99.12%
Interrater Reliability for Student Assessment Scores = 99.12%				

Research Questions and Related Findings

The research questions associated with this study were designed to analyze: (a) academic student knowledge, (b) work completion, (c) student engagement as perceived by teachers, and (d) student beliefs concerning *iPad* (Apple, 2010) technology. Statistical analyses and a summary of findings are included below.

Analysis of Academic Student Knowledge

The students who participated in this study were administered an assessment that consisted of six questions designed to measure knowledge of *ULS* (n2y, 2013) lesson objectives (see Appendix B). The students completed this assessment three times throughout the study: (a) prior to implementation of the *ULS* (n2y, 2013) lessons as a pretest, (b) upon completion of the four-week *ULS* (n2y, 2013) lessons as a posttest, and (c) after a two-week maintenance period without instruction. Each question was scored and the scores added together to determine an overall assessment score. The scores were analyzed to compare the effectiveness of the *iPad* (Apple, 2010) or the traditional instruction at increasing the knowledge of academic content of students with ID. Descriptive and inferential statistics were used to compare scores on these assessments. Descriptive statistics are presented in Table 9.

Data from the pretest and posttest assessments were used to answer the following research question:

Research Question 1: Does the content knowledge of students (i.e., K-2, 3-5, 6-8) with intellectual disabilities increase with the use of the *iPad* (Apple, 2010) when compared to traditional teacher methods?

It was predicted that *iPad*-based instruction would result in increased student content knowledge when compared to traditional teaching methods.

Individual student pretest and posttest scores were combined to determine the group means and a 2 (group) X 2 (measure) mixed-model ANOVA was conducted to test for significant differences between the instructional groups (i.e., *iPad*, traditional teaching). Alpha was set at .05. The results were analyzed by grade band (i.e., primary K-2, intermediate 3-5, middle school 6-8).

Table 9

Summary of Means and Standard Deviations For Pre and Post Assessments

Assessment	Mean	Standard Deviation	N
Primary Pretest			
iPad	7.40	3.65	10
Traditional Teaching	6.06	3.21	15
Primary Posttest			
iPad	10.40	1.83	10
Traditional Teaching	7.60	3.56	15
Intermediate Pretest			
iPad	5.84	1.51	13
Traditional Teaching	8.44	3.43	9
Intermediate Posttest			
iPad	8.46	3.17	13
Traditional Teaching	9.11	2.47	9
Middle School Pretest			
iPad	7.33	2.47	18
Traditional Teaching	7.14	5.01	7
Middle School Posttest			
iPad	9.11	2.92	18
Traditional Teaching	8.00	5.03	7

Primary (K-2 grades). The F test of within-subjects effects was significant [F(1,23) = 11.830, p = .002)]. This indicates that there was a significant difference between the scores related to student knowledge of *ULS* (n2y, 2013) lesson objectives between the pretest and posttest (see Table 10). The F test of between-subjects effects was not significant [F(1,23) = 3.335, p = .081)]. This indicates that there was not a significant difference between the posttest scores of the *iPad* (Apple, 2010) group when compared to the traditional teaching group (see Table 11). This means that one intervention was not significantly better at teaching academic content to students with ID for this grade band.

Table 10

Tests of Within-Subjects Effects for Primary Student Knowledge of Academic Content

Source	Type III Sum of Squares	df	Mean Squared	F	Sig.
Test	61.653	1	61.653	11.830	.002*
Error (Test)	119.867	23	5.212		

Note. * $p < .05$.

Table 11

Tests of Between-Subjects Effects for Primary Student Knowledge of Academic Content

Source	Type III Sum of Squares	df	Mean Squared	F	Sig.
Group	51.253	1	51.253	3.335	.081
Error	353.467	23	15.368		

Intermediate (3-5 grades). The F test of within-subjects effects was significant [$F(1,20) = 5.642$, $p = .028$)]. This indicates that there was a significant difference between the scores related to student knowledge of *ULS* (n2y, 2013) lesson objectives between the pretest and posttest (see Table 12). However, the F test of between-subjects effects was not significant [$F(1,20) = 2.945$, $p = .102$)]. This indicates that there was not a significant difference between the posttest scores of the *iPad* (Apple, 2010) group when compared to the traditional teaching group (see Table 13). This means that one intervention was not significantly better at teaching academic content to students with ID in the intermediate grade band.

Table 12

Tests of Within-Subjects Effects for Intermediate Student Knowledge of Academic Content

Source	Type III Sum of Squares	df	Mean Squared	F	Sig.
Test	28.643	1	28.643	5.642	.028*
Error (Test)	101.538	20	5.077		

Note. * $p < .05$.

Table 13

Tests of Between-Subjects Effects for Intermediate Student Knowledge of Academic Content

Source	Type III Sum of Squares	df	Mean Squared	F	Sig.
Group	28.050	1	28.050	2.945	.102
Error	190.496	20	9.525		

Middle school (6-8 grades). The F test of within-subjects effects was significant [F(1,23) = 6.822, p = .016)]. This indicates that there was a significant difference between the scores related to student knowledge of *ULS* (n2y, 2013) lesson objectives between the pretest and posttest (see Table 14). However, the F test of between-subjects effects was not significant [$F(1,23) = .199$, $p = .660$)]. This indicates that there was not a significant difference between the posttest scores of the *iPad* (Apple, 2010) group when compared to the traditional teaching group (see Table 15). This means that one intervention was not significantly better at teaching academic content to students with ID in the middle school grade band.

Table 14

Tests of Within-Subjects Effects for Middle School Student Knowledge of Academic Content

Source	Type III Sum of Squares	df	Mean Squared	F	Sig.
Test	17.496	1	17.496	6.822	.016*
Error (Test)	58.984	23	2.565		

Note. * $p < .05$.

Table 15

Tests of Between-Subjects Effects for Middle School Student Knowledge of Academic Content

Source	Type III Sum of Squares	df	Mean Squared	F	Sig.
Group	4.269	1	4.269	.199	.660
Error	493.651	23	21.463		

Knowledge Maintenance

The 4-week instructional intervention for both groups was followed by a 2-week period of maintenance (i.e., no instruction). Upon conclusion of the maintenance period, students were given an assessment intended to measure retention (see Appendix B). Descriptive and inferential statistics were used to compare scores on these assessments. Descriptive statistics are presented in Table 16.

Table 16

Summary of Means and Standard Deviations For Maintenance Assessments

Assessment	Mean	Standard Deviation	N
Primary Maintenance			
iPad	9.40	1.89	10
Traditional Teaching	9.73	3.45	15
Intermediate Maintenance			
iPad	8.61	3.09	13
Traditional Teaching	8.66	3.00	9
Middle School Maintenance			
iPad	10.11	2.78	18
Traditional Teaching	8.00	3.82	7

Data from the maintenance assessments were used to answer the following research question:

Research Question 2: Is the content knowledge of students (i.e., K-2, 3-5, 6-8) with intellectual disabilities better maintained with the use of the *iPad* (Apple, 2010) when compared to traditional teacher methods?

It was predicted that students would demonstrate a better maintenance of content knowledge in the *iPad*-based instructional group when compared to the traditional teaching group.

Individual student maintenance assessment scores were combined to determine the group means and an independent *t*-test was conducted to test for significant differences between the instructional groups (i.e., *iPad*, traditional teaching). Alpha was set at .05. The results were analyzed by grade band (i.e., primary K-2, intermediate 3-5, middle school 6-8).

Primary (K-2 grades). The *t*-test was not significant [$t_{(23)} = .277$, $p = .784$] for the maintenance scores of the primary students (see Table 17). This indicates that there was not a significant difference in the maintenance of learned concepts between the *iPad* (Apple, 2010) and traditional teaching groups. The use of the *iPad* (Apple, 2010) did not have a significant effect on the knowledge maintenance of the students with ID in the primary grade band.

Table 17

Independent Samples Test of Maintenance Assessment for Primary Students

	Mean Difference	Std. Error Difference	t	df	Sig. (2-tailed)
Maintenance Assessment	.3333	1.20185	.277	23	.784

Intermediate (3-5 grades). The *t*-test was not significant [$t_{(20)} = .039$, $p = .970$] for the maintenance scores of the intermediate students (see Table 18). This indicates that there was no significant difference in the maintenance of learned concepts between the *iPad* (Apple, 2010) and traditional teaching groups. The use of the *iPad* (Apple, 2010) did not have a significant effect on the knowledge maintenance of the students with ID in the intermediate grade band.

Table 18

Independent Samples Test of Maintenance Assessment for Intermediate Students

	Mean Difference	Std. Error Difference	t	df	Sig. (2-tailed)
Maintenance Assessment	.05128	1.32621	.039	20	.970

Middle school (6-8 grades). The *t*-test was not significant [$t_{(23)} = -1.533$, $p = .139$] for the maintenance scores of the middle school students (see Table 19). This indicates that there was no significant difference in the maintenance of learned concepts between the *iPad* (Apple, 2010) and traditional teaching groups. The use of the *iPad* (Apple, 2010) did not have a significant effect on the knowledge maintenance of students with ID in the middle school grade band.

Table 19

Independent Samples Test of Maintenance Assessment for Middle School Students

	Mean Difference	Std. Error Difference	t	df	Sig. (2-tailed)
Maintenance Assessment	-2.11111	1.37693	-1.533	23	.139

Analysis of Student Work Completion

Each student who participated in this study was assigned either a digital or paper worksheet to complete each day. A total of twenty worksheets were assigned to each student. Teachers recorded completed worksheets on the worksheet completion checklist (see Appendix C). A worksheet was considered complete if an answer was selected, either digitally or by using a pencil for each question. At the end of the study, the number of completed worksheets was tabulated for each student and the numbers analyzed across groups (i.e., *iPad*, traditional teaching). Descriptive and inferential statistics were used to compare worksheet completion across groups. Descriptive statistics are presented in Table 20.

Table 20

Summary of Means and Standard Deviations for Worksheet Completion

Group	Mean	Standard Deviation	N
Primary			
Digital	10.50	4.55	10
Traditional	7.13	5.70	15
Intermediate			
Digital	13.53	3.71	13
Traditional	8.77	3.76	9
Middle School			
Digital	17.50	2.85	18
Traditional	13.57	6.87	7

Data from the work completion checklists were used to answer the following research question:

Research Question 3: Does the work completion of students (i.e., K-2, 3-5, 6-8) with intellectual disabilities differ with the use of digital worksheets on the *iPad* (Apple, 2010) when compared to traditional worksheets?

It was predicted that the use of *iPad*-compatible worksheets would result in increased student work completion when compared to traditional worksheets.

Individual student worksheet completion scores were combined to determine the group means and an independent *t*-test conducted to test for significant differences between the worksheets (i.e., digital, traditional). The results were analyzed by grade band (i.e., primary K-2, intermediate 3-5, middle school 6-8).

Primary (K-2 grades). The *t*-test was not significant [$t_{(23)} = -1.561$, $p = .132$] for worksheet completion by students in the primary grade band (see Table 21). This indicates that there was not a significant difference in the mean work completion scores between the digital and traditional worksheets. The use of the digital worksheets on the *iPad* (Apple, 2010) did not have a significant effect on the amount of worksheets students with ID completed in the primary grade band.

Table 21

Independent Samples Test of Worksheet Completion for Primary Students

	Mean Difference	Std. Error Difference	t	df	Sig. (2-tailed)
Work Completion	-3.36667	2.15728	-1.561	23	.132

Intermediate (3-5 grades). The *t*-test was significant [$t_{(20)} = -2.941$, $p = .008$] for the worksheets completed by students with ID in the intermediate grade band (see Table 22). This indicates that there was a significant difference in the mean worksheet completion scores between the digital worksheets on the *iPad* (Apple, 2010) and traditional worksheet groups. The use of the digital worksheets on the *iPad* (Apple, 2010) had a significant effect on the amount of worksheet students with ID completed in the intermediate grade band. For the intermediate grade band, students with ID participating in the *iPad* (Apple, 2010) group completed more digital worksheets than students with ID using traditional paper worksheets.

Table 22

Independent Samples Test of Worksheet Completion for Intermediate Students

	Mean Difference	Std. Error Difference	t	df	Sig. (2-tailed)
Work Completion	-4.76068	1.61897	-2.941	20	.008*

Note. * $p < .05$.

Middle School (6-8 grades). The *t*-test was significant [$t_{(23)}$= -2.058, p = .05] for the worksheets completed by students with ID in the middle school grade band (see Table 23). This indicates that there was a significant difference in the mean worksheet completion scores between the digital worksheets on the *iPad* (Apple, 2010) and traditional worksheet groups. The use of the digital worksheets on the *iPad* (Apple, 2010) had a significant effect on the amount of worksheet students with ID completed in the middle school grade band. For the middle school grade band, students with ID participating in the *iPad* (Apple, 2010) group completed more digital worksheets than students with ID using traditional paper worksheets.

Table 23

Independent Samples Test of Worksheet Completion for Middle School Students

	Mean Difference	Std. Error Difference	t	df	Sig. (2-tailed)
Work Completion	-3.92857	1.90848	-2.058	23	.05*

Note. * $p < .05$.

Analysis of Student Engagement

The teachers participating in this study completed a post-intervention survey consisting of three questions designed to assess their perceptions of student engagement (see Appendix D). Each question was scored and the scores analyzed to compare the engagement of students across instructional groups (i.e., *iPad*, traditional teaching). Descriptive and inferential statistics were used to compare survey question scores. Descriptive statistics are presented in Table 24.

Table 24

Summary of Means and Standard Deviations for Student Engagement

Engagement	Mean	Standard Deviation	N
Level of engagement in ULS lessons.			
iPad	2.71	.488	7
Traditional Teaching	1.86	.378	7
Level of engagement in ULS assessments			
iPad	2.71	.488	7
Traditional Teaching	1.86	.690	7
Level of independence in completing News-2-you worksheets.			
iPad	2.29	.488	7
Traditional Teaching	1.57	.535	7

Data from the teacher perception survey were used to answer the following research question:

Research Question 4: Do teacher perceptions of student engagement differ with the use of the *iPad* (Apple, 2010) when compared to traditional teaching methods?

It was predicted that teachers would report a higher level of engagement by students participating in the instruction with the *iPads* (Apple, 2010) when compared to students in the traditional teaching group.

Teacher rating scores were combined for each survey question to determine the group means and an independent *t*-test conducted to test for significant differences between the instructional groups (i.e., *iPad*, traditional teaching).

Student engagement during lessons. The *t*-test was significant [$t_{(12)}$= 3.674, p = .003] for perceived student engagement during instruction (see Table 25). This indicates that there was a significant difference in teacher perceptions of the engagement of students with ID between the *iPad* (Apple, 2010) and traditional teaching groups. The teachers perceived that students with ID in the *iPad* (Apple, 2010) group showed more engagement during lessons in which the *iPad* (Apple, 2010) was used than did the teachers when traditional instruction was used.

Table 25

Independent Samples Test of Teacher Perceptions of Student Engagement During Lessons

	Mean Difference	Std. Error Difference	t	df	Sig. (2-tailed)
Lesson Engagement	.857	.223	3.674	12	.003*

Note. * $p < .05$.

Student engagement during assessments. The *t*-test was significant [$t_{(12)}$= 2.683, p = .020] for perceived student engagement during assessments (see Table 26). This indicates that there was a significant difference in the teacher perceptions of the engagement of the students with ID between the *iPad* (Apple, 2010) and traditional teaching groups. The teachers perceived that students with ID in the *iPad* (Apple, 2010) group showed more engagement during assessments than did the teachers when traditional instruction was used.

Table 26

Independent Samples Test of Teacher Perceptions of Student Engagement During Assessments

	Mean Difference	Std. Error Difference	t	df	Sig. (2-tailed)
Assessment Engagement	.857	.223	2.683	12	.020*

Note. * $p < .05$.

Student independence in completing worksheets. The *t*-test was significant [$t_{(12)}$= 2.611, p = .023] for teacher perceptions of student independence in worksheet completion (see Table 27). This indicates that there was a significant difference in the perceptions of teachers concerning the independence of students with ID in completing worksheets between the *iPad* (Apple, 2010) and traditional teaching groups. The teachers perceived that the students with ID independently completed more worksheets when materials were provided via the *iPad* (Apple, 2010) than did the teachers for the students taught via traditional instruction.

Table 27

Independent Samples Test of Teacher Perceptions of Student Independence

	Mean Difference	Std. Error Difference	t	df	Sig. (2-tailed)
Student Independence	.714	2.611	3.674	12	.023*

Note. * $p < .05$.

Analysis of Student Beliefs Concerning the Use of iPad Technology

At the conclusion of the study, the students who worked with the *iPad* (Apple, 2010) completed questionnaires designed to assess their attitudes and beliefs about using the *iPad* (Apple, 2010) as a learning tool (see Appendix E). The student questionnaire asked students to rate their perceptions about using the *iPad* (Apple, 2010) to complete assignments. The students ranked each statement on the questionnaire using a Likert scale, with 1 being agree and 3 being disagree. Data from the student questionnaires were analyzed and descriptive statistics are presented in Table 28. Descriptive statistics indicate that students with ID assigned to the *iPad* (Apple, 2010) group reported that the *iPad* (Apple, 2010) had a positive influence on their learning.

Table 28

Summary of Percentage of Agreement for Student Questionnaire

Statement	Percentage of Student Agreement	N
I like to use the *iPad* at school.	92.7%	41
The *iPad* helps me learn.	95.1%	41
It is easy to do my work on the *iPad*.	87.8%	41
I want to use the *iPad* more at school.	95.1%	41
I think the *iPad* is fun.	92.7%	41

CHAPTER FIVE

DISCUSSION

Students with intellectual disabilities (ID) are often limited in their access to general education curricula (Browder et al., 2006; Browder et al., 2008). Facilitating such access for students with ID is both mandated by federal law and supported in recent research (IDEA, 2004; NLCB, 2001; Soukup et al., 2007). Technology, having the potential to enhance the learning for this population, is beginning to catch the interest of both researchers and educators (Cumming & Strnadova, 2012; Edyburn, 2013). Initial research involving the *iPad* (Apple, 2010) and the learning of students with disabilities is promising (Hart & Whalon, 2012; O'Malley et al., 2013). Determining the efficacy of the *iPad* (Apple, 2010) as a learning tool to teach an adapted curriculum (i.e., aligned to general education curricula) may positively impact academic achievement for students with ID (Palmer et al., 2012).

This purpose of this study was to compare the use of an adapted curriculum, aligned to the Common Core State Standards (CCSS), taught through two instructional formats (i.e., *iPad*, traditional teaching methods) to determine the most effective method for providing students with ID access to general education curricula. It was predicted that students would exhibit a higher knowledge of academic content, a higher rate of independent work completion, and an increased level of engagement with the use of the *iPad* (Apple, 2010) when compared to the traditional teaching group. Student beliefs concerning the use of the *iPad* (Apple, 2010) as a learning tool also were measured at the conclusion of the study. It was predicted that students would favor the use of the *iPad* (Apple, 2010) within the classroom.

This study involved 72 students from fourteen self-contained classrooms for students with intellectual disabilities. Student participants ranged in age from 5 to 13, were from diverse backgrounds, and were identified as having an intellectual disability. Fourteen teachers participated in the study.

Prior to the beginning of the study, classrooms were randomly assigned to one of two instructional groups (i.e., traditional teaching, *iPad*). Seven classrooms used the *Unique Learning System (ULS)* (n2y, 2013) curriculum via traditional teaching methods and seven used the *ULS* (n2y, 2013) curriculum and *iPads* (Apple, 2010). Prior to the implementation of *ULS* (n2y, 2013) lessons, all students completed a pretest designed to measure prior knowledge of lesson objectives. Students in both intervention groups received daily instruction using the *ULS* (n2y, 2013) curriculum for 50-minutes, five days a week for a total of four weeks. Students in the experimental group received instructional materials on the *iPad* (Apple, 2010) while students in the control group received paper instructional materials. Teachers recorded the number of worksheets each student completed throughout the intervention. Fidelity observations were conducted and scored daily.

Following the four weeks of instructional intervention, the students completed a posttest that again measured their knowledge of lesson objectives. No instructional intervention occurred for two weeks. A maintenance assessment focused on student knowledge of the lesson objectives, was given at the end of the two-week period. All teachers completed a post-intervention survey designed to measure perceived student engagement. Students who participated in the *iPad* (Apple, 2010) group completed a questionnaire to examine attitudes and beliefs on the *iPad* (Apple, 2010) as a learning tool.

Analysis of Academic Student Knowledge

All students (regardless of instructional group) took the paper version of the pre, post, and maintenance assessments. The assessments contained questions aligned to instructional targets of the *ULS* (n2y, 2013) lessons and were administered individually. Assessments consisted of six questions that were read aloud by the teacher and students selected an answer from a field of three picture choices. Prior to the implementation of the intervention (i.e., *ULS* lessons), all students completed a pretest designed to measure prior knowledge of instructional targets. Following the four weeks of instructional intervention, the students completed a posttest that again measured their knowledge of instructional targets. Two weeks of no instructional intervention followed the posttest, and students then completed a maintenance assessment.

Primary (Grades K-2)

Following the instructional intervention (i.e., *ULS* lessons), the student mean scores from pretest to posttest increased (the *iPad* group increased by 3.00 points, the traditional group increased by 1.53 points) for the students in the primary grade band. The data indicated that there was not a significant difference in the scores between the two groups. Thus, the use of the *iPad* (Apple, 2010) was not more effective in teaching the academic objectives of the *ULS* (n2y, 2013) lessons for the primary groups. Finally, the *t*-test analysis of maintenance assessment scores indicated that there was not a significant difference between the instructional groups (i.e., *iPad*, traditional teaching). This indicates that neither group outperformed the other after a two-week maintenance period (the primary *iPad* group mean was 9.40 points, the primary traditional group mean was 9.73 points). Thus, the use of the *iPad* (Apple, 2010) did not have a significant effect on the knowledge maintenance of students with ID in the primary grade band.

Intermediate (Grades 3-5)

Following the instructional intervention (i.e., *ULS* lessons), the student mean scores from pretest to posttest increased (the *iPad* group increased by 2.62 points, the traditional group increased by .67 points) for the students in the intermediate grade band. The data indicated that there was not a significant difference in the scores between the two groups. The use of the *iPad* (Apple, 2010) was not more effective in teaching the academic objectives of the *ULS* (n2y, 2013) lessons for the intermediate groups. Finally, the *t*-test analysis of maintenance assessment scores indicated that there was not a significant difference between the instructional groups (i.e., *iPad*, traditional teaching). This indicates that neither group outperformed the other after a two-week maintenance period (the intermediate *iPad* group mean was 8.61 points, the intermediate traditional group mean was 8.66 points). Thus, the use of the *iPad* (Apple, 2010) did not have a significant effect on the knowledge maintenance of students with ID in the intermediate grade band.

Middle School (Grades 6-8)

Following the instructional intervention (i.e., *ULS* lessons), the student mean scores from pretest to posttest increased (the *iPad* group increased by 1.78 points, the traditional group increased by .86 points) for the students in the middle school grade band. The data indicated that there was not a significant difference in the scores between the two groups. The use of the *iPad* (Apple, 2010) was not more effective in teaching the academic objectives of the *ULS* (n2y, 2013) lessons for the middle school groups. Finally, the *t*-test analysis of maintenance assessment scores indicated that there was not a significant difference between the instructional groups (i.e., *iPad*, traditional teaching). This indicates that neither group outperformed the other after a two-week maintenance period (the middle school *iPad* group mean was 10.11 points, the middle school traditional group mean was 8.00 points). Thus, the use of the *iPad* (Apple, 2010) did not have a significant effect on the knowledge maintenance of students with ID in the middle school grade band.

Overall, for student academic knowledge, the increase in mean scores, as well as the performance of individual students, indicates that the learning of academic instructional targets did occur across both instructional groups. The lack of significance between intervention scores between the two groups (i.e., *iPad*, traditional teaching) may be explained by a number of factors. First, the number of students in each classroom varied from four to fourteen. This may have impacted the instructional intervention as the number of participants varied by group, a factor not easily controlled. Another factor related to the lack of significance may be the cognitive diversity of participating students with ID. The students in the study were identified as having an intellectual disability (ID) and were being educated in self-contained classrooms. However, they were not grouped based on their IQ scores. Students with ID have varying degrees of cognitive deficit that may interfere with their overall academic success (Downing, 2010). This variance could not be controlled in this study and may have skewed the assessment data.

Analysis of Student Work Completion

In order to determine if there was a difference in student work completion across instructional groups (i.e., *iPad*, traditional teaching) the participating teachers tracked student work completion using the work completion checklist (see Appendix C). Each teacher checked off completed worksheets for both instructional groups, recording the total number of worksheets completed by each student.

Primary (Grades K-2)

The mean scores for the students with ID in the *iPad* (Apple, 2010) group were higher following the instructional intervention. The *iPad* (Apple, 2010) group mean was 10.50 completed worksheets, and the traditional instructional group mean was 7.13 completed worksheets. However, inferential analysis of the data indicated that there was not a significant difference in the means of the two instructional groups. The use of the *iPad* (Apple, 2010) did not result in an increased number of worksheets independently completed by the students with ID in the primary grade band.

Intermediate (Grades 3-5)

The mean scores for the students with ID in the *iPad* (Apple, 2010) group were higher following the instructional intervention. The *iPad* (Apple, 2010) group mean was 13.53 completed worksheets, and the traditional instructional group mean was 8.77 completed worksheets. Inferential analysis of the data indicated that there was a significant difference in the means of the two instructional groups. The use of the *iPad* (Apple, 2010) did result in significantly more worksheets being completed independently by the students with ID than did traditional instruction.

Middle School (Grades 6-8)

The mean scores for the students with ID in the *iPad* (Apple, 2010) group were higher following the instructional intervention. The *iPad* (Apple, 2010) group mean was 17.50 completed worksheets, and the traditional instructional group mean was 13.57 completed worksheets. Inferential analysis of the data indicated that there was a significant difference in the means of the two instructional groups. The use of the *iPad* (Apple, 2010) did result in significantly more worksheets being completed independently by the students with ID than did traditional instruction.

In review, the lack of significance for the students with ID in the primary grade band may be explained by a number of factors, primarily attention and fine motor development. Students in the primary grade band were much younger than the students in the intermediate and middle school grade bands and may be lacking the requisite skills to use the *iPad* (Apple, 2010) proficiently (i.e., attention, distractibility, fine motor development). Even the training to use the *iPad* (Apple, 2010) may not have compensated for the developmental delays in these areas. Two of the primary grade band teachers, assigned to the *iPad* (Apple, 2010) group, mentioned that their students were excited to use the *iPads* (Apple, 2010), however, they became very distracted (e.g., repeatedly touching the screen to select and deselect answers). This non-purposeful touching may have inhibited the independent worksheet completion by the primary students. This is supported by observation wherein the younger students required some form of prompting or verbal redirection when they used the *iPads* (Apple, 2010).

Analysis of Student Engagement

In order to determine if there was a difference in student engagement across instructional groups (i.e., *iPad*, traditional teaching), participating teachers completed a survey (see Appendix D) following the instructional intervention. This survey asked a series of questions designed to analyze teacher perceptions of student engagement.

The survey focused on student engagement in three areas: (a) lessons, (b) assessments, and (c) worksheet completion. The mean scores for teachers in the *iPad* (Apple, 2010) group were higher following the instructional intervention for student lesson engagement (*iPad* group mean was 2.71, traditional group mean was 1.86), student assessment engagement (*iPad* group mean was 2.71, traditional group mean was 1.86), and student worksheet engagement (*iPad* group mean was 2.29, traditional group mean was 1.57). Inferential analysis of the data indicated that there was a significant difference in the means of the two instructional groups for all analyzed areas. The teachers who used the *iPad* (Apple, 2010) believed their students were more engaged during lessons, assessments, and worksheets than did the teachers in the traditional instructional group. This significance may be explained by the presence of the *iPad* (Apple. 2010) technology as students with ID who used the *iPad* (Apple, 2010) reported favorable opinions concerning the use of this technology for learning. Students with ID in the *iPad* (Apple. 2010) instructional group may have been more motivated to use novel technology than students with ID who used traditional instructional materials.

Analysis of Student Beliefs Concerning the Use of *iPad* Technology

After implementation of the intervention and the collection of all related data, students assigned to the *iPad* (Apple, 2010) group were asked to complete a post-intervention questionnaire. This questionnaire was designed to assess student beliefs concerning using the *iPad* (Apple, 2010) as a learning tool. Data concerning student attitudes and beliefs about using the *iPad* (Apple, 2010) as a learning tool were collected through a questionnaire. Overall, 87.8% of students agreed that the *iPad* (Apple, 2010) made it easier to complete their work, 95.1% of students agreed that the *iPad* (Apple 2010) helped them learn, 92.7% of students reported enjoying the use of *iPad* (Apple, 2010) technology, 95.1% of students reported that they would like to use the *iPad* (Apple, 2010) more at school, and 92.7% of students believed that *iPad* (Apple, 2010) was fun to use for learning. The students with ID who used the *iPad* (Apple, 2010) during academic instruction reported positive experiences with this technology.

Conclusions

There are five conclusions that may be drawn from this study. They are based on the quantitative data that were collected. The limitations of this study should be considered when evaluating these conclusions.

1. Although the student mean scores on pre, post, and maintenance assessments increased following the instructional intervention, there was no significant difference between the two instructional groups. This indicates that the use of the *iPad* (Apple, 2010) was as effective as traditional teaching at teaching academic concepts to students with ID.

2. Although the student mean scores for worksheet completion were not significant for the primary grade band, student mean scores for worksheet completion in the intermediate and middle school grade bands were significant.

This indicates that the use of the *iPad* (Apple, 2010) was more effective in terms of work completion than traditional worksheets for students in the intermediate and middle school grade bands.

3. The primary students with ID who used the *iPads* (Apple, 2010) appeared to be more distracted than the intermediate and middle school students who used the *iPad* (Apple, 2010). This indicates that the use of the *iPad* (Apple. 2010) may be more appropriate and effective for older (i.e., intermediate, middle school) students with ID.
4. The data from the study indicated that the students with ID in the *iPad* (Apple, 2010) instructional groups were perceived by their teachers to be significantly more engaged during lessons, assessments, and worksheet completion than students in the traditional teaching group. This indicates that the use of the *iPad* (Apple, 2010) was perceived by the teachers to be a more effective learning tool than traditional teaching in engaging students with ID during instruction.
5. The students with ID reported that the *iPad* (Apple, 2010) had a positive influence on their learning. This indicates that students with ID enjoyed the use of the *iPad* (Apple, 2010).
6. The use of the *ULS* (n2y, 2013) curriculum facilitated an increase in academic achievement (i.e., aligned to CCSS) for students with ID.

Recommendations for Further Research

Research suggests that both adapted curricula and cognitively accessible technology can support the learning limitations of students with ID (Palmer et al., 2012).

However, research involving students with ID and *iPad* (Apple, 2010) technology is only emerging (Kagohara et al., 2013). More research is needed to determine the best method for teaching these students using *iPad* (Apple, 2010) technology. Based on the results of this study, the following areas are suggested for further study.

1. A replication of the present study should be conducted that includes a larger sample size to determine if a greater number of participants will produce different results.
2. A replication of this study should be conducted over a longer period of time to determine the impact of prolonged exposure to the *iPad* (Apple, 2010) on the learning and maintenance of academic concepts of students with ID.
3. Further research should focus on the development of teacher training with regard to incorporating *iPad* (Apple, 2010) technology into instruction for students with ID.
4. Additional research should be conducted with younger (i.e., primary grades) students with ID to determine effective strategies (e.g., guided access, training, accessibility) that can enhance the use of *iPad* (Apple, 2010) technology for this age and disability group.
5. A replication of the present study should be conducted focusing on controlling cognitive disparity across groups to determine if there is a difference between the acquisition and maintenance of academic skills, engagement, and work completion between IQ scores.
6. Further research should be conducted to collect more concrete and quantitative student engagement data (i.e., frequency of interactions with

technology and curriculum). The *ULS* (n2y, 2013) curriculum could feasibly incorporate this feature into the curriculum design. This will enhance the curriculum and allow for both researchers and teachers to examine student engagement more thoroughly.

Summary

Access to general education curricula is essential to the academic achievement of students with intellectual disabilities (ID) and mandated by federal law (IDEA, 2004; NCLB, 2001; Soukup et al., 2007). Though an academic instructional focus is rarely observed in self-contained special education classrooms (Browder et al., 2006), research suggests that both adapted curricula and cognitively accessible technology can support the learning limitations of students with ID (Palmer et al., 2012). This study incorporated academic instruction using *iPads* (Apple, 2010) to determine effective methods for teaching children with intellectual disabilities academic concepts aligned to the Common Core State Standards (CCSS).

Results of this study demonstrated that the use of the *iPad* (Apple, 2010) enhances the learning experience for students with ID with regards to work completion and engagement. This study also demonstrated that students with ID are able to participate appropriately in grade-aligned academic instruction. Further, this study highlighted the use of the *ULS* (n2y, 2013) curriculum for students with ID. Suggestions for expansion of the design of this curriculum include incorporating a learner-engagement feature in which interactions with the curriculum are counted for further analysis. This feature would quantify student engagement data, a task that would provide teachers of students with ID valuable learning information.

This study contributes to the research in that it appears to be one of the first studies designed to measure the impact of the *iPad* (Apple, 2010) on the learning of students with ID. The present study lays the foundation for further research into providing access to both *iPad* (Apple, 2010) technology and adapted curricula aligned to general education curricula for this population. This access will allow students with ID to participate in more rigorous and academically-focused curricula and will ultimately enhance their educational success.

APPENDIX A

ULS and n2y Copyright Permission

UNLV
UNIVERSITY OF NEVADA LAS VEGAS

November 21, 2013

n2y
PO Box 550
Huron, OH 44839

Dear John Standal:

I am completing a doctoral dissertation at the University of Nevada, Las Vegas entitled Exploring Cognitively Accessible Academic Lessons for Students with Intellectual Disabilities Using the *iPad*. I would like your permission to use lessons, materials, and assessments from the Unique Learning System and News-2-you newspaper.

The requested permission extends to any future revision and editions of my dissertation including non-exclusive rights in all language and to the prospective publication of my dissertation by ProQuest Information and Learning (ProQuest) through its UMI® Dissertation Publishing business. ProQuest may produce and sell copies of my dissertation on demand and may make my dissertation available for free internet download at my request. These rights will in no way restrict republication of the material in any form by you or by others authorized by you. Your signing of this letter will also confirm that you own [or your company owns] the copyright to the above-described material.

If these arrangements meet with your approval, please sign the letter where indicated below and return it to me at the address below. Thank you very much.

Sincerely,
Jamie Gunderson
Assistive Technology Services
2551 Vegas Dr.
Las Vegas, NV 89106

PERMISSION GRANTED FOR THE USE REQUESTED ABOVE:

______________________ Date: 7/8/14
John Standall

APPENDIX B

Pre, Post, and Maintenance Assessment

Grade Band: **Elementary**
Unit Target: *Physical Science*
Unit Topic: **Paper, Rock, Scissors**

Unit 22
Unique GPS
Level 1 Checkpoints

Unique Learning System Elementary Level 1 Checkpoints Score Sheet

Student Name: ______________________ **Date:** ______________

This score sheet is provided for teachers who do not complete the checkpoints online. After the score sheet is completed, the results may be entered online into the Unique GPS in order to track student scores.

Scoring Instructions: The student will have two attempts to answer each question. On the student's first attempt, indicate if they responded to the stimulus question by circling *Yes* or *No* in the "Responded" column. If the student responded, circle the response given in the "Answer Given" column. If the student's response is correct, drop down to the second attempt and indicate that a second attempt was not needed by circling *No* in the "Attempt Needed" column. On the student's first attempt, if they did not respond or responded with an incorrect answer, indicate a second attempt was needed by circling *Yes* in the "Attempt Needed" column. Continue to score the second attempt using the same instructions used for the first. Once testing is complete, enter recorded results into the Unique GPS Level 1 Checkpoint area for the corresponding month to receive scores and test performance interpretations. A notes box is provided at the end of the assessment where prompting types and levels or other related information may be described.

Item 1

Attempt	Needed?	Responded?	Answer Given (record only if student responded)
1	Yes / No	Yes / No	a / b / c
2	Yes / No	Yes / No	a / b / c

Item 2

Attempt	Needed?	Responded?	Answer Given (record only if student responded)
1	Yes / No	Yes / No	a / b / c
2	Yes / No	Yes / No	a / b / c

Item 3

Attempt	Needed?	Responded?	Answer Given (record only if student responded)
1	Yes / No	Yes / No	a / b / c
2	Yes / No	Yes / No	a / b / c

Grade Band: **Elementary**
Unit Target: *Physical Science*
Unit Topic: **Paper, Rock, Scissors**

Unit 22
Unique GPS
Level 1 Checkpoints

Item 4

Attempt	Needed?	Responded?	Answer Given (record only if student responded)
1	Yes / No	Yes / No	a / b / c
2	Yes / No	Yes / No	a / b / c

Item 5

Attempt	Needed?	Responded?	Answer Given (record only if student responded)
1	Yes / No	Yes / No	a / b / c
2	Yes / No	Yes / No	a / b / c

Item 6

Attempt	Needed?	Responded?	Answer Given (record only if student responded)
1	Yes / No	Yes / No	a / b / c
2	Yes / No	Yes / No	a / b / c

Notes & Special Accommodations:

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Grade Band: **Elementary**
Unit Target: *Physical Science*
Unit Topic: **Paper, Rock, Scissors**

Unit 22
Unique GPS
Level 1 Checkpoints

Continue assessment after incorrect responses.

Content, Reading and Mathematics (Continue assessment on next page.)

	Attempts	Teacher Prompt	Response Options (correct in bold)	**Special Accommodations** *For students with vision, hearing, physical or communication impairments, special accommodations that are typically afforded during instruction may be applied to the administration of these checkpoints.*
Item 1	Attempt 1	**Present 3 pictures (with text).** *Lee has a rock. Who is Lee?*	a. **Lee** b. paper c. mouse	Response options may be presented verbally. No additional prompts.
	Attempt 2 (If Needed)	**Present 2 pictures (with text).** *Who is Lee?*		Add verbal, gestural or physical prompts. Score 0 if no response or refuses to respond.
Item 2	Attempt 1	**Present 3 pictures (with text).** *Lee keeps his rock in his bedroom. Where does Lee keep his rock?*	a. umbrella b. shoe store c. **bedroom**	Response options may be presented verbally. No additional prompts.
	Attempt 2 (If Needed)	**Present 2 pictures (with text).** *Where does Lee keep his rock?*		Add verbal, gestural or physical prompts. Score 0 if no response or refuses to respond.
Item 3	Attempt 1	**Present 3 pictures (with text).** *Fire begins with the letter f. Find the fire.*	a. **fire** b. bear c. vet	Response options may be presented verbally. No additional prompts.
	Attempt 2 (If Needed)	**Present 2 pictures (with text).** *Find the fire.*		Add verbal, gestural or physical prompts. Score 0 if no response or refuses to respond.

Grade Band: **Elementary**
Unit Target: *Physical Science*
Unit Topic: **Paper, Rock, Scissors**

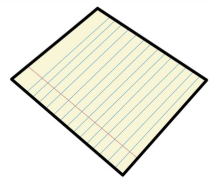
Unit 22
Unique GPS
Level 1 Checkpoints

Continue assessment after incorrect responses.

Content, Reading and Mathematics (continued)

	Attempts	Teacher Prompt	Response Options (correct in bold)	**Special Accommodations** *For students with vision, hearing, physical or communication impairments, special accommodations that are typically afforded during instruction may be applied to the administration of these checkpoints.*
Item 4	Attempt 1	**Present 3 pictures (with text).** *Shantel will cut the paper. What will Shantel do?*	a. look b. **cut** c. skip	Response options may be presented verbally. No additional prompts.
	Attempt 2 (If Needed)	**Present 2 pictures (with text).** *What will Shantel do?*		Add verbal, gestural or physical prompts. Score 0 if no response or refuses to respond.
Item 5	Attempt 1	**Present 3 pictures (no text).** *Paige has 2 ice cubes. Show me 2 ice cubes.*	a. **2 ice cubes** b. 5 logs c. 1 egg	Response options may be presented verbally. No additional prompts.
	Attempt 2 (If Needed)	**Present 2 pictures (no text).** *Show me 2 ice cubes.*		Add verbal, gestural or physical prompts. Score 0 if no response or refuses to respond.
Item 6	Attempt 1	**Present 6 pieces of paper. Present 3 numbers.** *Drew has 6 pieces of paper. How many pieces of paper does Drew have?*	a. 3 b. **6** c. 8	Response options may be presented verbally. No additional prompts.
	Attempt 2 (If Needed)	**Present 2 numbers.** *How many pieces of paper does Drew have?*		Add verbal, gestural or physical prompts. Score 0 if no response or refuses to respond.

Content Item 1

Lee	paper	mouse
		

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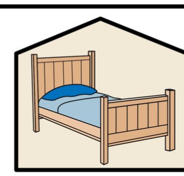
ELEM, Unit 22, *Physical Science*, Paper, Rock, Scissors
Unique GPS, Level 1 Checkpoints

Content Item 2

umbrella	shoe store	bedroom
		

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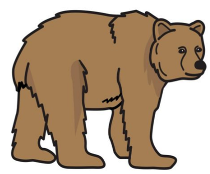
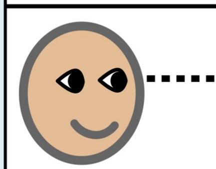
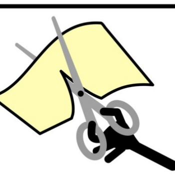
ELEM, Unit 22, *Physical Science*, Paper, Rock, Scissors
Unique GPS, Level 1 Checkpoints

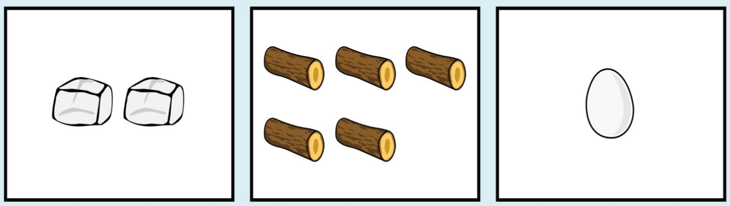
Reading
Item 3

fire	bear	vet
		

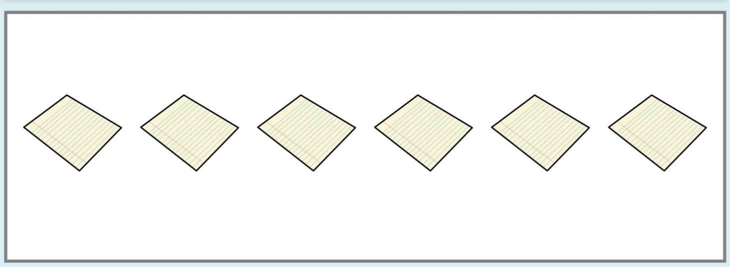
Reading
Item 4

look	cut	skip
		

Mathematics
Item 5



Mathematics
Item 6



3	**6**	**8**

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ELEM, Unit 22, *Physical Science*, Paper, Rock, Scissors
Unique GPS, Level 1 Checkpoints

Grade Band: **Elementary**
Unit Target: *Physical Science*
Unit Topic: **Paper, Rock, Scissors**

Unit 22
Unique GPS
Level 2–3 Checkpoints

Unique Learning System Elementary Level 2–3 Checkpoints Score Sheet

Student Name: ______________________________ **Date:** ____________________

This score sheet is provided for teachers who do not complete the checkpoints online. After the score sheet is completed, the results may be entered online into the Unique GPS in order to track student scores.

Content Understanding	
	Answer (circle one)
Item 1	a / b / c / no response
Item 2	a / b / c / no response
Item 3	a / b / c / no response
Item 4	a / b / c / no response
Item 5	a / b / c / no response
Item 6	a / b / c / no response

Notes & Special Accommodations

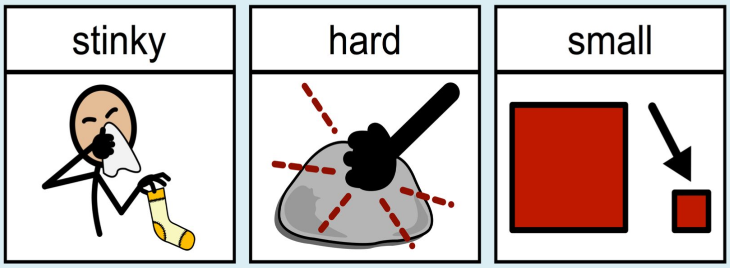
Grade Band: **Elementary**
Unit Target: *Physical Science*
Unit Topic: **Paper, Rock, Scissors**

Unit 22
Unique GPS
Level 2–3 Checkpoints

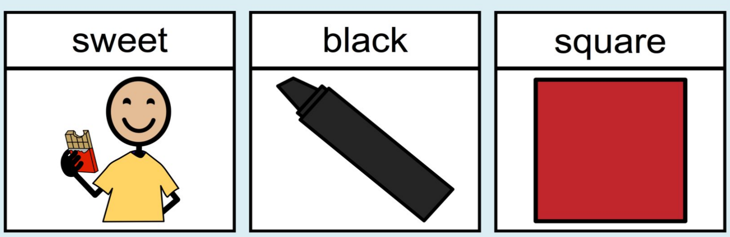
Content Understanding/Physical Science: Sort and describe objects and materials according to recognizable properties; observe changes in materials.

	Teacher Prompt	**Response Options** (correct in bold)	**Special Accommodations** *For students with vision, hearing, physical or communication impairments, special accommodations that are typically afforded during instruction may be applied to the administration of these checkpoints.*
Item 1	**Present 3 pictures (with text).** *Lee has a rock. He tells about its size.* *Which word tells about size?*	a. stinky b. hard c. **small**	Response options may be presented verbally.
Item 2	**Present 3 pictures (with text).** *Lee has a rock. He tells about its color.* *Which word tells about color?*	a. sweet b. **black** c. square	Response options may be presented verbally.
Item 3	**Present 3 pictures (with text).** *Lee's rock is hard.* *Which is hard like a rock?*	a. teddy bear b. **book** c. pillow	Response options may be presented verbally.
Item 4	**Present picture of Lee with a rock and a ball.** **Present 3 phrases/sentences (with pictures).** *Lee's rock is round. A ball is round.* *How are Lee's rock and a ball the same?*	a. **They are both round.** b. They both taste good. c. They are both heavy.	Response options may be presented verbally.
Item 5	**Present picture of Shantel and her dad.** **Present 3 phrases/sentences (no pictures).** *Shantel has an old newspaper.* *What would happen if Shantel and her dad put the old newspaper in the fire?*	a. It would tell a story. b. It would turn into a book. c. **It would change to ash.**	Response options may be presented verbally.
Item 6	**Present picture of an ice cube.** **Present 3 phrases/sentences (no pictures).** *Shantel likes ice cubes in her water.* *How does an ice cube compare to water?*	a. It is tasty water. b. It is hot water. c. **It is frozen water.**	Response options may be presented verbally.

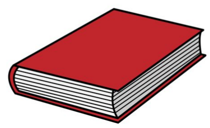
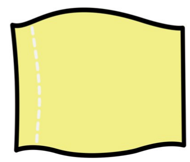
Content Understanding
Item 1



Content Understanding
Item 2



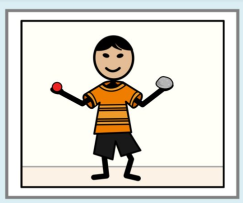
Content Understanding
Item 3

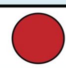
teddy bear	book	pillow
		

ULS, March 2014

ELEM, Unit 22, *Physical Science*, Paper, Rock, Scissors
Unique GPS, Level 2–3 Checkpoints

Content Understanding
Item 4



	They are both round.
	They both taste good.
	They are both heavy.

ULS, March 2014

ELEM, Unit 22, *Physical Science*, Paper, Rock, Scissors
Unique GPS, Level 2–3 Checkpoints

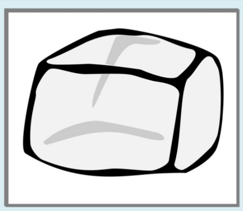
Content Understanding
Item 5

It would tell a story.

It would turn into a book.

It would change to ash.

Content Understanding
Item 6



It is tasty water.

It is hot water.

It is frozen water.

Grade Band: **Intermediate**
Unit Target: *Physical Science*
Unit Topic: **Make It Move**

Unit 22
Unique GPS
Level 1 Checkpoints

Unique Learning System Intermediate Level 1 Checkpoints Score Sheet

Student Name: ______________________________ **Date:** ______________

This score sheet is provided for teachers who do not complete the checkpoints online. After the score sheet is completed, the results may be entered online into the Unique GPS in order to track student scores.

Scoring Instructions: The student will have two attempts to answer each question. On the student's first attempt, indicate if they responded to the stimulus question by circling *Yes* or *No* in the "Responded" column. If the student responded, circle the response given in the "Answer Given" column. If the student's response is correct, drop down to the second attempt and indicate that a second attempt was not needed by circling *No* in the "Attempt Needed" column. On the student's first attempt, if they did not respond or responded with an incorrect answer, indicate a second attempt was needed by circling *Yes* in the "Attempt Needed" column. Continue to score the second attempt using the same instructions used for the first. Once testing is complete, enter recorded results into the Unique GPS Level 1 Checkpoint area for the corresponding month to receive scores and test performance interpretations. A notes box is provided at the end of the assessment where prompting types and levels or other related information may be described.

Item 1

Attempt	Needed?	Responded?	Answer Given (record only if student responded)
1	Yes / No	Yes / No	a / b / c
2	Yes / No	Yes / No	a / b / c

Item 2

Attempt	Needed?	Responded?	Answer Given (record only if student responded)
1	Yes / No	Yes / No	a / b / c
2	Yes / No	Yes / No	a / b / c

Item 3

Attempt	Needed?	Responded?	Answer Given (record only if student responded)
1	Yes / No	Yes / No	a / b / c
2	Yes / No	Yes / No	a / b / c

Grade Band: **Intermediate**
Unit Target: *Physical Science*
Unit Topic: **Make It Move**

Unit 22
Unique GPS
Level 1 Checkpoints

Item 4

Attempt	Needed?	Responded?	Answer Given (record only if student responded)
1	Yes / No	Yes / No	a / b / c
2	Yes / No	Yes / No	a / b / c

Item 5

Attempt	Needed?	Responded?	Answer Given (record only if student responded)
1	Yes / No	Yes / No	a / b / c
2	Yes / No	Yes / No	a / b / c

Item 6

Attempt	Needed?	Responded?	Answer Given (record only if student responded)
1	Yes / No	Yes / No	a / b / c
2	Yes / No	Yes / No	a / b / c

Notes & Special Accommodations:

Grade Band: **Intermediate**
Unit Target: *Physical Science*
Unit Topic: **Make It Move**

Unit 22
Unique GPS
Level 1 Checkpoints

Continue assessment after incorrect responses.

Content, Reading and Mathematics (Continue assessment on next page.)

	Attempts	Teacher Prompt	Response Options (correct in bold)	Special Accommodations *For students with vision, hearing, physical or communication impairments, special accommodations that are typically afforded during instruction may be applied to the administration of these checkpoints.*
Item 1	Attempt 1	**Present 3 pictures (with text).** *Betsy is dancing. Who is Betsy?*	a. **Betsy** b. toy car c. wagon	Response options may be presented verbally. No additional prompts.
	Attempt 2 (If Needed)	**Present 2 pictures (with text).** *Who is Betsy?*		Add verbal, gestural or physical prompts. Score 0 if no response or refuses to respond.
Item 2	Attempt 1	**Present 3 pictures (with text).** *Betsy dances on the playground. Where does Betsy dance?*	a. door b. gym c. **playground**	Response options may be presented verbally. No additional prompts.
	Attempt 2 (If Needed)	**Present 2 pictures (with text).** *Where does Betsy dance?*		Add verbal, gestural or physical prompts. Score 0 if no response or refuses to respond.
Item 3	Attempt 1	**Present 3 pictures (with text).** *Feather begins with the letter f. Find the feather.*	a. **feather** b. deer c. bed	Response options may be presented verbally. No additional prompts.
	Attempt 2 (If Needed)	**Present 2 pictures (with text).** *Find the feather.*		Add verbal, gestural or physical prompts. Score 0 if no response or refuses to respond.

ULS, March 2013

Grade Band: **Intermediate**
Unit Target: *Physical Science*
Unit Topic: **Make It Move**

Unit 22
Unique GPS
Level 1 Checkpoints

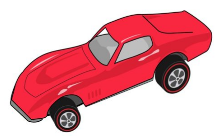
Continue assessment after incorrect responses.

Content, Reading and Mathematics (continued)

	Attempts	Teacher Prompt	Response Options (correct in bold)	Special Accommodations *For students with vision, hearing, physical or communication impairments, special accommodations that are typically afforded during instruction may be applied to the administration of these checkpoints.*
Item 4	Attempt 1	**Present 3 pictures (with text).** *Jacob will push the cart. What will Jacob do?*	a. make b. **push** c. help	Response options may be presented verbally. No additional prompts.
	Attempt 2 (If Needed)	**Present 2 pictures (with text).** *What will Jacob do?*		Add verbal, gestural or physical prompts. Score 0 if no response or refuses to respond.
Item 5	Attempt 1	**Present 3 pictures (no text).** *Emily has 8 books. Show me 8 books.*	a. **8 books** b. 7 logs c. 5 race cars	Response options may be presented verbally. No additional prompts.
	Attempt 2 (If Needed)	**Present 2 pictures (no text).** *Show me 8 books.*		Add verbal, gestural or physical prompts. Score 0 if no response or refuses to respond.
Item 6	Attempt 1	**Present 3 numbers.** *Chris has 6 rocks. How many rocks does Chris have?*	a. 5 b. 7 c. **6**	Response options may be presented verbally. No additional prompts.
	Attempt 2 (If Needed)	**Present 2 numbers.** *How many rocks does Chris have?*		Add verbal, gestural or physical prompts. Score 0 if no response or refuses to respond.

ULS, March 2013

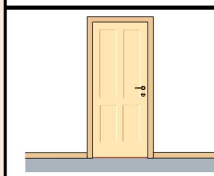
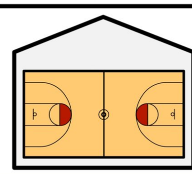
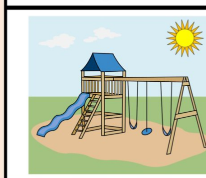
Content
Item 1

Betsy	toy car	wagon
		

ULS, March 2014

INT, Unit 22, *Physical Science*, Make It Move
Unique GPS, Level 1 Checkpoints

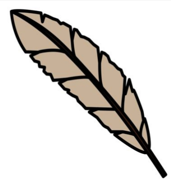
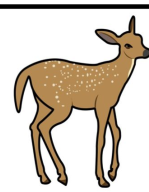
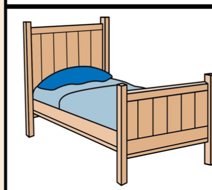
Content
Item 2

door	gym	playground
		

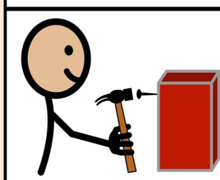
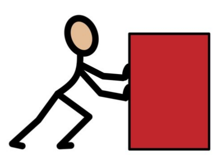
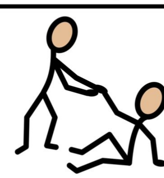
ULS, March 2014

INT, Unit 22, *Physical Science*, Make It Move
Unique GPS, Level 1 Checkpoints

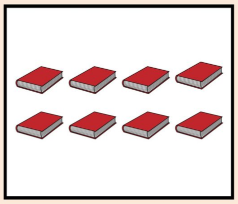
Reading
Item 3

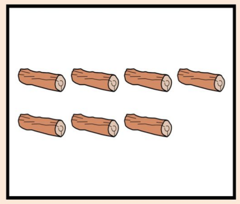
feather	deer	bed
		

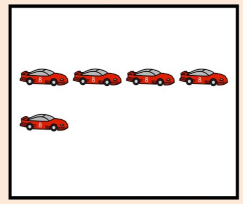
Reading
Item 4

make	push	help
		

Mathematics
Item 5







ULS, March 2014

INT, Unit 22, *Physical Science*, Make It Move
Unique GPS, Level 1 Checkpoints

Mathematics
Item 6

5	7	6

ULS, March 2014

INT, Unit 22, *Physical Science*, Make It Move
Unique GPS, Level 1 Checkpoints

Grade Band: **Intermediate**
Unit Target: *Physical Science*
Unit Topic: **Make It Move**

Unit 22
Unique GPS
Level 2–3 Checkpoints

Unique Learning System Intermediate Level 2–3 Checkpoints Score Sheet

Student Name: ______________________ **Date:** ______________

This score sheet is provided for teachers who do not complete the checkpoints online. After the score sheet is completed, the results may be entered online into the Unique GPS in order to track student scores.

Content Understanding	
	Answer (circle one)
Item 1	a / b / c / no response
Item 2	a / b / c / no response
Item 3	a / b / c / no response
Item 4	a / b / c / no response
Item 5	a / b / c / no response
Item 6	a / b / c / no response

Notes & Special Accommodations

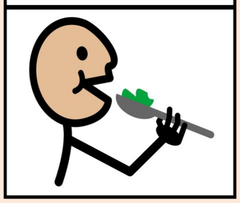
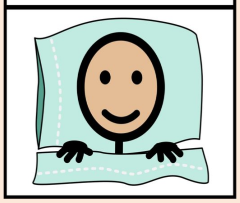
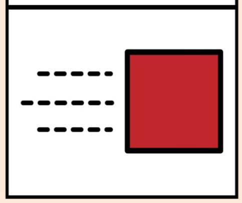
Grade Band: **Intermediate**
Unit Target: *Physical Science*
Unit Topic: **Make It Move**

Unit 22
Unique GPS
Level 2–3 Checkpoints

Content Understanding/Physical Science: Describe the motion of objects.

	Teacher Prompt	Response Options (correct in bold)	Special Accommodations *For students with vision, hearing, physical or communication impairments, special accommodations that are typically afforded during instruction may be applied to the administration of these checkpoints.*
Item 1	**Present 3 pictures (with text).** *Betsy and her friends can dance.* *What do they do when they dance?*	a. eat b. rest c. **move**	Response options may be presented verbally.
Item 2	**Present 3 pictures (with text).** *Betsy and her friends move their bodies.* *What do their bodies need to move?*	a. friends b. **energy** c. gas	Response options may be presented verbally.
Item 3	**Present 3 pictures (with text).** *Betsy and her friends move in many different ways.* *What is one way they can move?*	a. shiny b. **fast** c. cold	Response options may be presented verbally.
Item 4	**Present picture of pull.** **Present 3 phrases/sentences (with pictures).** *Jacob sees a girl pulling a wagon.* *What is another example of pulling?*	a. **playing tug of war** b. putting a book on a shelf c. ringing a doorbell	Response options may be presented verbally.
Item 5	**Present picture of toy truck.** **Present 3 phrases/sentences (no pictures).** *Jacob has a toy truck.* *What would happen if Jacob gave his toy truck a push?*	a. The truck would stay the same. b. The truck would break. c. **The truck would move.**	Response options may be presented verbally.
Item 6	**Present picture of run.** **Present 3 phrases/sentences (no pictures).** *Jacob is late for school.* *Why might Jacob run, not walk, to school?*	a. Running is better than walking. b. Running is slower than walking. c. **Running is faster than walking.**	Response options may be presented verbally.

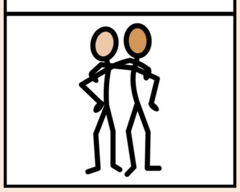
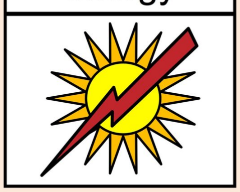
Content Understanding
Item 1

eat	rest	move
		

ULS, March 2014

INT, Unit 22, *Physical Science*, Make It Move
Unique GPS, Level 2–3 Checkpoints

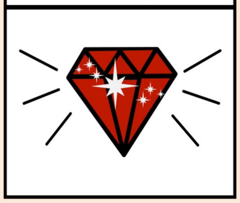
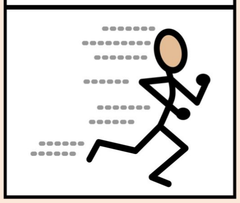
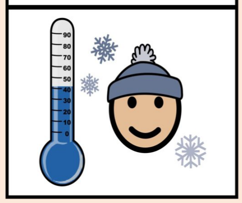
Content Understanding
Item 2

friends	energy	gas
		

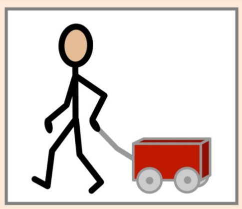
ULS, March 2014

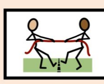
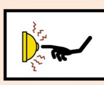
INT, Unit 22, *Physical Science*, Make It Move
Unique GPS, Level 2–3 Checkpoints

Content Understanding
Item 3

shiny	fast	cold
		

Content Understanding
Item 4



	playing tug of war
	putting a book on a shelf
	ringing a doorbell

Content Understanding
Item 5

The truck would stay the same.

The truck would break.

The truck would move.

INT, Unit 22, *Physical Science*, Make It Move
Unique GPS, Level 2–3 Checkpoints

Content Understanding
Item 6

Running is better than walking.

Running is slower than walking.

Running is faster than walking.

INT, Unit 22, *Physical Science*, Make It Move
Unique GPS, Level 2–3 Checkpoints

Grade Band: **Middle School**
Unit Target: *Physical Science*
Unit Topic: **Is It Hot? Is It Cold?**

Unit 22
Unique GPS
Level 1 Checkpoints

Unique Learning System Middle School Level 1 Checkpoints Score Sheet

Student Name: ______________________________ **Date:** ______________

This score sheet is provided for teachers who do not complete the checkpoints online. After the score sheet is completed, the results may be entered online into the Unique GPS in order to track student scores.

Scoring Instructions: The student will have two attempts to answer each question. On the student's first attempt, indicate if they responded to the stimulus question by circling *Yes* or *No* in the "Responded" column. If the student responded, circle the response given in the "Answer Given" column. If the student's response is correct, drop down to the second attempt and indicate that a second attempt was not needed by circling *No* in the "Attempt Needed" column. On the student's first attempt, if they did not respond or responded with an incorrect answer, indicate a second attempt was needed by circling *Yes* in the "Attempt Needed" column. Continue to score the second attempt using the same instructions used for the first. Once testing is complete, enter recorded results into the Unique GPS Level 1 Checkpoint area for the corresponding month to receive scores and test performance interpretations. A notes box is provided at the end of the assessment where prompting types and levels or other related information may be described.

Item 1

Attempt	Needed?	Responded?	Answer Given (record only if student responded)
1	Yes / No	Yes / No	a / b / c
2	Yes / No	Yes / No	a / b / c

Item 2

Attempt	Needed?	Responded?	Answer Given (record only if student responded)
1	Yes / No	Yes / No	a / b / c
2	Yes / No	Yes / No	a / b / c

Item 3

Attempt	Needed?	Responded?	Answer Given (record only if student responded)
1	Yes / No	Yes / No	a / b / c
2	Yes / No	Yes / No	a / b / c

Grade Band: **Middle School**
Unit Target: *Physical Science*
Unit Topic: **Is It Hot? Is It Cold?**

Unit 22
Unique GPS
Level 1 Checkpoints

Item 4

Attempt	Needed?	Responded?	Answer Given (record only if student responded)
1	Yes / No	Yes / No	a / b / c
2	Yes / No	Yes / No	a / b / c

Item 5

Attempt	Needed?	Responded?	Answer Given (record only if student responded)
1	Yes / No	Yes / No	a / b / c
2	Yes / No	Yes / No	a / b / c

Item 6

Attempt	Needed?	Responded?	Answer Given (record only if student responded)
1	Yes / No	Yes / No	a / b / c
2	Yes / No	Yes / No	a / b / c

Notes & Special Accommodations:

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ULS, March 2014

Grade Band: **Middle School**
Unit Target: *Physical Science*
Unit Topic: **Is It Hot? Is It Cold?**

Unit 22
Unique GPS
Level 1 Checkpoints

Continue assessment after incorrect responses.

Content, Reading and Mathematics (Continue assessment on next page.)				
	Attempts	**Teacher Prompt**	**Response Options** (correct in bold)	**Special Accommodations** *For students with vision, hearing, physical or communication impairments, special accommodations that are typically afforded during instruction may be applied to the administration of these checkpoints.*
Item 1	**Attempt 1**	**Present 3 pictures (with text).** *Jonah is washing dishes. Who is Jonah?*	a. cat b. **Jonah** c. grandma	Response options may be presented verbally. No additional prompts.
	Attempt 2 (If Needed)	**Present 2 pictures (with text).** *Who is Jonah?*		Add verbal, gestural or physical prompts. Score 0 if no response or refuses to respond.
Item 2	**Attempt 1**	**Present 3 pictures (with text).** *Jonah makes cookies in the kitchen. Where does Jonah make cookies?*	a. **kitchen** b. bathroom c. store	Response options may be presented verbally. No additional prompts.
	Attempt 2 (If Needed)	**Present 2 pictures (with text).** *Where does Jonah make cookies?*		Add verbal, gestural or physical prompts. Score 0 if no response or refuses to respond.
Item 3	**Attempt 1**	**Present 3 pictures (with text).** *Jonah bakes a cookie. Find the cookie.*	a. book b. dog c. **cookie**	Response options may be presented verbally. No additional prompts.
	Attempt 2 (If Needed)	**Present 2 pictures (with text).** *Find the cookie.*		Add verbal, gestural or physical prompts. Score 0 if no response or refuses to respond.

Grade Band: **Middle School**
Unit Target: *Physical Science*
Unit Topic: **Is It Hot? Is It Cold?**

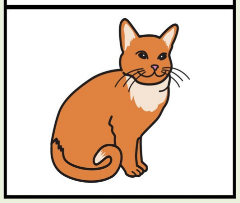
Unit 22
Unique GPS
Level 1 Checkpoints

Continue assessment after incorrect responses.

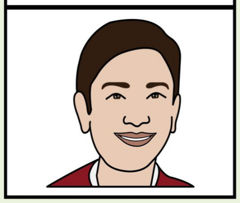
Content, Reading and Mathematics (continued)				
	Attempts	**Teacher Prompt**	**Response Options** (correct in bold)	**Special Accommodations** *For students with vision, hearing, physical or communication impairments, special accommodations that are typically afforded during instruction may be applied to the administration of these checkpoints.*
Item 4	**Attempt 1**	**Present 3 pictures (with text).** *Jonah pours the juice into cups. What does Jonah do?*	a. walk b. **pour** c. read	Response options may be presented verbally. No additional prompts.
	Attempt 2 (If Needed)	**Present 2 pictures (with text).** *What does Jonah do?*		Add verbal, gestural or physical prompts. Score 0 if no response or refuses to respond.
Item 5	**Attempt 1**	**Present 3 pictures (no text).** *Jonah eats 2 cookies. Show me 2 cookies.*	a. **2 cookies** b. 4 shoes c. 1 flower	Response options may be presented verbally. No additional prompts.
	Attempt 2 (If Needed)	**Present 2 pictures (no text).** *Show me 2 cookies.*		Add verbal, gestural or physical prompts. Score 0 if no response or refuses to respond.
Item 6	**Attempt 1**	**Present 3 numbers.** *Jonah has 4 cookies. How many cookies does Jonah have?*	a. 3 b. **4** c. 2	Response options may be presented verbally. No additional prompts.
	Attempt 2 (If Needed)	**Present 2 numbers.** *How many cookies does Jonah have?*		Add verbal, gestural or physical prompts. Score 0 if no response or refuses to respond.

Content Item 1

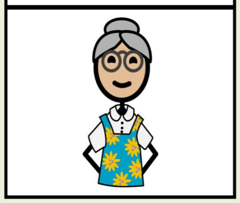
cat



Jonah



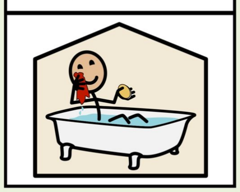
grandma



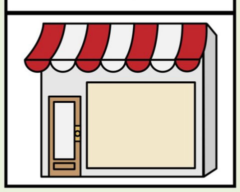
Content Item 2

kitchen

bathroom



store



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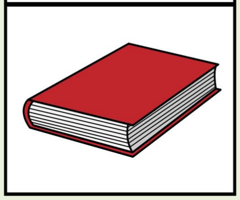
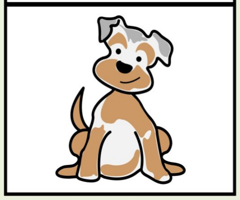
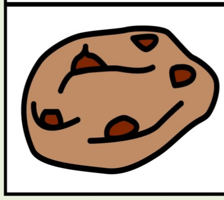
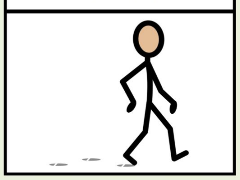
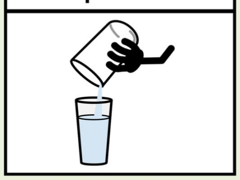
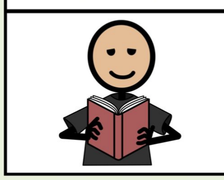
MIDDLE, Unit 22, *Physical Science*, Is It Hot? Is It Cold?
Unique GPS, Level 1 Checkpoints

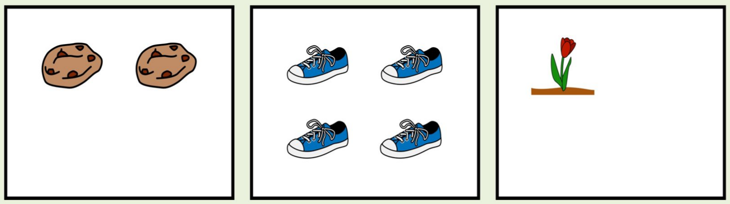
Reading
Item 3

book	dog	cookie
		

Reading
Item 4

walk	pour	read
		

Mathematics
Item 5



Mathematics
Item 6

3	4	2

Unique Learning System Middle School Level 2–3 Checkpoints Score Sheet

Student Name: ______________________________ **Date:** ______________

This score sheet is provided for teachers who do not complete the checkpoints online. After the score sheet is completed, the results may be entered online into the Unique GPS in order to track student scores.

Content Understanding	
	Answer (circle one)
Item 1	a / b / c / no response
Item 2	a / b / c / no response
Item 3	a / b / c / no response
Item 4	a / b / c / no response
Item 5	a / b / c / no response
Item 6	a / b / c / no response

Notes & Special Accommodations

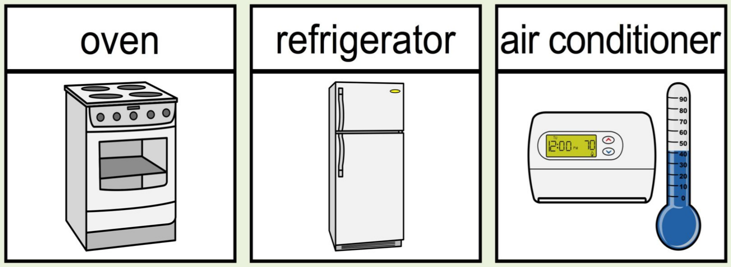
Grade Band: **Middle School**
Unit Target: *Physical Science*
Unit Topic: **Is It Hot? Is It Cold?**

Unit 22
Unique GPS
Level 2–3 Checkpoints

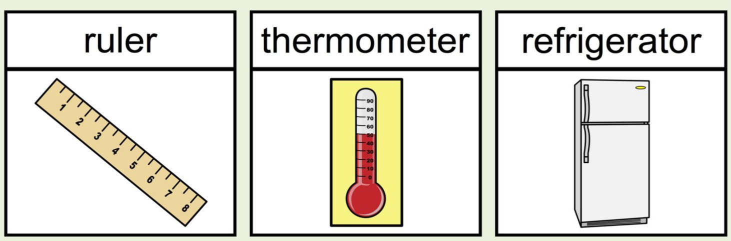
Content Understanding/Physical Science:
- Identify ways that energy is transferred (electrical energy to light, sound, etc.).
- Explore applications of state of matter, including physical and chemical changes in real-world situations.

	Teacher Prompt	Response Options (correct in bold)	Special Accommodations *For students with vision, hearing, physical or communication impairments, special accommodations that are typically afforded during instruction may be applied to the administration of these checkpoints.*
Item 1	**Present 3 pictures (with text).** *Jonah bakes sugar cookies. Where does he bake the cookies?*	a. **oven** b. refrigerator c. air conditioner	Response options may be presented verbally.
Item 2	**Present 3 pictures (with text).** *Temperatures can be hot or cold. What measures temperature?*	a. ruler b. **thermometer** c. refrigerator	Response options may be presented verbally.
Item 3	**Present 3 pictures (with text).** *Jonah freezes juice in cups in the freezer. What does the juice do?*	a. heat b. water c. **freeze**	Response options may be presented verbally.
Item 4	**Present picture of sun. Present 3 phrases/sentences with pictures.** *It is important to be safe in the hot sun. Give an example of how to be safe in the sun.*	a. **wear sunscreen** b. lie down c. eat fruit	Response options may be presented verbally.
Item 5	**Present picture of ice cube. Present 3 phrases/sentences (no pictures).** *Jonah knows not to leave ice out of the freezer. What will happen to ice left out of the freezer?*	a. The ice will fall. b. **The ice will melt.** c. The ice will stay frozen.	Response options may be presented verbally.
Item 6	**Present picture of soda can. Present 3 phrases/sentences (no pictures).** *Jonah is at a beach party on a hot day. He takes cans of soda to the beach. How can Jonah keep his soda cans cold at the beach?*	a. Keep the cans in a paper bag. b. Keep the cans near the campfire. c. **Keep the cans in a cooler with ice.**	Response options may be presented verbally.

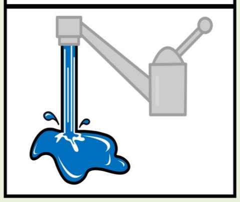
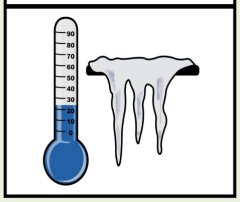
Content Understanding
Item 1



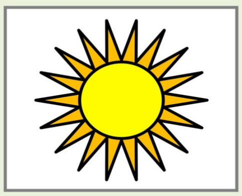
Content Understanding
Item 2

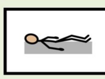
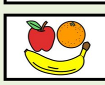


Content Understanding
Item 3

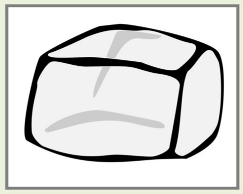
heat	water	freeze
		

Content Understanding
Item 4



	wear sunscreen
	lie down
	eat fruit

Content Understanding
Item 5



The ice will fall.

The ice will melt.

The ice will stay frozen.

Content Understanding
Item 6

Keep the cans in a paper bag.

Keep the cans near the campfire.

Keep the cans in a cooler with ice.

APPENDIX C

Work Completion Checklist

Work Completion Checklist

Student	Game Page	Review Page	Puzzle Page	Sudoku Page	Think Page	Total

Directions: Copy all students to the checklist. Record with a ✔ the completed News-2-you worksheets for the week. At the end of each week, tally and record the total number of completed worksheets.

APPENDIX D

Teacher Perceptions of Engagement Survey

Please provide the following information:

Teacher ID #

Rate your students' level of engagement in ULS (n2y, 2013) lessons:

- no engagement during lessons
- adequate engagement during lessons
- total engagement during lessons

Rate your students' level of engagement during assessments:

- no engagement during lessons
- adequate engagement during lessons
- total engagement during lessons

Rate your students' level of independence in completing News-2-you (2013) worksheets:

- one to one assistance required
- frequent assistance required
- no assistance required, independent

APPENDIX E

Student Attitudes and Beliefs Questionnaire

Student Attitudes and Beliefs Questionnaire

Directions. Read each statement to the student. Have the student choose agree, disagree, or not sure.

I like to use the *iPad* at school.



Agree **Disagree** **Not Sure**

The *iPad* helps me learn.



Agree **Disagree** **Not Sure**

It is easy to do my work on the *iPad*.



Agree **Disagree** **Not Sure**

I want to use the *iPad* more at school.

Agree

Disagree

Not Sure

I think the *iPad* is fun.

Agree

Disagree

Not Sure

APPENDIX F

Parent Informed Consent

UNLV
UNIVERSITY OF NEVADA LAS VEGAS

PARENT PERMISSION FORM

Department of Education and Clinical Studies

TITLE OF STUDY: Exploring Cognitively Accessible Academic Lessons for Students with Intellectual Disabilities Using the *iPad*

INVESTIGATOR(S): Kyle Higgins and Jamie Gunderson

CONTACT PHONE NUMBER: For questions or concerns about the study, you may contact **Kyle Higgins at 895-3205**

Purpose of the Study
Your child is invited to participate in a research study. The purpose of this study is to research the learning effects of traditionally based academic instruction and academic instruction using the *iPad* (Apple, 2010) on the teaching and learning of elementary and middle school students with intellectual disabilities.

Participants
Your child is being asked to participate in the study because his or her teacher has agreed to use a portion of class instruction to support this study. Your child is either in a classroom that will receive instruction with the use of an iPad (Apple 2010) at the start of this study, or a classroom that will receive the same instruction without an iPad at the start of this study. After the study, all students will be provided an opportunity to use the iPad (Apple, 2010) technology.

Procedures
A portion of your child's normal classroom instruction has been modified as a result of the teacher's choice to participate in this study. If you allow your child to volunteer to participate in this study, your child will take one assessment of their academic content knowledge before and one assessment after the study instruction for a total of two assessments. The work that your child completes during instruction time will also be provided to researchers for analysis.

Benefits of Participation
There may be direct benefits to your child as a participant in this study, such as an increase in their academic content knowledge. However, we hope to learn which type of instruction increases student knowledge acquisition and knowledge maintenance.

Risks of Participation
There are risks involved in all research studies. This study may include only minimal risks. This study involves the unobtrusive observation of teachers via videotape. Because of this, there are minimal risks to teachers from participation. Minimal risks include breach of confidentiality, however numerous steps will be taken to prevent this.

Participant Initials _____

1 of 2

Approved by the UNLV IRB. Protocol #1401-4688M
Received: 03-04-14Approved: 03-06-14Expiration: 03-05-15

TITLE OF STUDY: Exploring Cognitively Accessible Academic Lessons for Students with Intellectual Disabilities Using the *iPad*

Cost /Compensation
There will be no financial cost for your child to participate in this study because instruction will occur in your child's classroom during the typical school day. Your child will not be compensated for their time.

Contact Information
If you or your child have any questions or concerns about the study, you may contact **Kyle Higgins at 895-3205.** For questions regarding the rights of research subjects, any complaints or comments regarding the manner in which the study is being conducted you may contact **the UNLV Office of Research Integrity – Human Subjects at 702-895-2794, toll free at 877-895-2794, or via email at IRB@unlv.edu.**

Voluntary Participation
Your decision to allow your child to participate or not will not change the instruction your child receives by their teacher. Participation is completely voluntary and you or your child may refuse to participate, or withdraw at any time without consequences. If you or your child decide not to participate, or withdraw early, then your child will not take the before and after academic content knowledge assessment and your child's class work will not be provided to researchers. You and your child are encouraged to ask questions about this study at the beginning or any time during the research study.

Confidentiality
All information gathered in this study will be kept completely confidential. No reference will be made in written or oral materials that could link your child to this study. All records will be stored in a locked facility at UNLV for three years after completion of the study. After the storage time the information gathered will be destroyed.

Participant Consent:
I have read the above information and agree to allow my child to participate in this study. I am at least 18 years of age. A copy of this form has been given to me.

Signature of Parent	Child's Name (Please print)
Parent Name (Please Print)	Date

Participant Initials _____

Approved by the UNLV IRB. Protocol #1401-4688M
Received: 03-04-14Approved: 03-06-14Expiration: 03-05-15

APPENDIX G

Student Informed Assent

UNLV
UNIVERSITY OF NEVADA LAS VEGAS

ASSENT TO PARTICIPATE IN RESEARCH

Exploring Cognitively Accessible Academic Lessons for Students with Intellectual Disabilities Using the iPad

My name is Jamie Gunderson.

We are asking you to take part in a research study because we are trying to learn more about using iPads to help kids learn. If you agree to be in this study you will participate in daily lessons and take three short tests.

There are minimal risks involved in this study. Since we are videotaping your teacher, there is a chance that you could be seen in the frame and you might not remain confidential.

As a result of these daily lessons, you may learn more about science.

Approved by the UNLV IRB. Protocol #1401-4688M
Received: 03-04-14Approved: 03-06-14Expiration: 03-05-15

Please talk this over with your parents before you decide whether or not to participate. We will also ask your parents to give their permission for you to take part in this study. But even if your parents say yes, you can still decide not to do this. If you do not want to be in this study, you do not have to participate. If you choose not to participate, your data will not be provided to the researchers and we will make sure that you are not seen on the teaching video. Remember, being in this study is up to you and nobody will be upset if you do not want to participate or even if you

Approved by the UNLV IRB. Protocol #1401-4688M
Received: 03-04-14Approved: 03-06-14Expiration: 03-05-15

change your mind later and want to stop.

You can ask any questions that you have about the study.

If you have a question later that you did not think of now, you can call me or ask me next time.

Circling yes means that you agree to be in this study.

Do you agree to be in this study?

Yes or No

______________________________ ________________

Print your name Date

____

Sign your name

Approved by the UNLV IRB. Protocol #1401-4688M
Received: 03-04-14Approved: 03-06-14Expiration: 03-05-15

APPENDIX H

Teacher Informed Consent

UNLV
UNIVERSITY OF NEVADA LAS VEGAS

INFORMED CONSENT

Department of Education and Clinical Studies

TITLE OF STUDY: Exploring Cognitively Accessible Academic Lessons for Students with Intellectual Disabilities Using the *iPad*

INVESTIGATOR(S): Kyle Higgins and Jamie Gunderson

For questions or concerns about the study, you may contact **Kyle Higgins at 895-3205.**

For questions regarding the rights of research subjects, any complaints or comments regarding the manner in which the study is being conducted, contact **the UNLV Office of Research Integrity – Human Subjects at 702-895-2794, toll free at 877-895-2794 or via email at IRB@unlv.edu.**

Purpose of the Study
You are invited to participate in a research study. The purpose of this study is to research the learning effects of traditionally based academic instruction and academic instruction using the *iPad* (Apple, 2010) on the teaching and learning of elementary and middle school students with intellectual disabilities.

Participants
You are being asked to participate in the study because you fit the following criteria: You are a licensed special education teacher in a self-contained classroom for students with intellectual disabilities.

Procedures
If you volunteer to participate in this study, your classroom will be randomly assigned to one of two instructional groups (i.e., iPad, traditional teaching) and you will be asked to do the following: (a) participate in training sessions to learn how to administer lessons, (b) be videotaped while administering classroom lessons, (c) administer pre, post, and maintenance assessments, and (d) participate in assessment regarding your perceptions of student engagement. It is anticipated that the study will last for nine weeks.

Benefits of Participation
There may not be benefits to you as a participant in this study. We hope to learn which type of instruction increases student knowledge acquisition and knowledge maintenance.

Risks of Participation
There are risks involved in all research studies. This study may include only minimal risks. This study involves the unobtrusive observation of teachers via videotape. Because of this, there are minimal risks to teachers from participation. Minimal risks include breach of confidentiality, however numerous steps will be taken to prevent this.

Approved by the UNLV IRB. Protocol #1401-4688M
Received: 03-04-14Approved: 03-06-14Expiration: 03-05-15

TITLE OF STUDY: Exploring Cognitively Accessible Academic Lessons for Students with Intellectual Disabilities Using the *iPad*

Cost /Compensation
There will be no financial cost to you to participate in this study because instruction will occur in your classroom during the typical school day. The study will take 50 minutes per day, 5 days a week, and the study will last for nine weeks. In addition, 3 hours of training is required for participation. You will not be compensated for your time. .

Confidentiality
All information gathered in this study will be kept as confidential as possible. No reference will be made in written or oral materials that could link you to this study. All records will be stored in a locked facility at UNLV for three years after completion of the study. After the storage time the information gathered will be destroyed.

Voluntary Participation
Your participation in this study is voluntary. You may refuse to participate in this study or in any part of this study. You may withdraw at any time without prejudice to your relations with UNLV. You are encouraged to ask questions about this study at the beginning or any time during the research study.

Participant Consent:
I have read the above information and agree to participate in this study. I have been able to ask questions about the research study. I am at least 18 years of age. A copy of this form has been given to me.

Signature of Participant ______________________ Date ____________

Participant Name (Please Print) ______________________

Video Consent:
I agree to be audio or video taped for the purpose of this research study.

Signature of Participant ______________________ Date ____________

Participant Name (Please Print) ______________________

Approved by the UNLV IRB. Protocol #1401-4688M
Received: 03-04-14Approved: 03-06-14Expiration: 03-05-15

APPENDIX I

Teaching Fidelity Checklist

Teaching Fidelity Checklist (Traditional Teaching)

Teacher ID: _________ Rater Name: ____________________
Class ID: ____________ Date: ____________________

Lesson: #___

The teacher…	Yes	No	Rater Notes
Set up iPad to video-record the lesson.			
Whole Group ULS Lesson (15 minutes)			
Provided each student the proper materials for their differentiation level.			
Conducted ULS lesson (15 minutes). *Outlined in the classroom activities section of each ULS lesson plan.*			
Stayed within the 15-minute time limit for whole group instruction.			
Small Group Rotations (2-5 students; 3 groups X 10-minute)			
Provided each student a paper-copy of the News-2-you newspaper.			
Read the News-2-you newspaper aloud to the students.			
Instructed students to complete the News-2-you paper worksheets, providing assistance as needed.			
Stayed within the 10-minute time limit for each group.			
Recorded any completed worksheets on the Worksheet Completion Checklist.			

Total ____ ____
Yes No

Teaching Fidelity Checklist (*iPad*)

Teacher ID: _________ Rater Name: ____________________
Class ID: ____________ Date: ____________________

Lesson: #___

The teacher…	Yes	No	Rater Notes
Set up iPad to video-record the lesson.			
Whole Group ULS Lesson (15 minutes)			
Provided each student the proper materials for their differentiation level via the *iPad*.			
Conducted ULS lesson (15 minutes). *Outlined in the classroom activities section of each ULS lesson plan.*			
Stayed within the 15-minute time limit for whole group instruction.			
Small Group Rotations (2-5 students; 3 groups X 10-minute)			
Provided each student an *iPad* with *Guided Access* in the News-2-you *app*.			
Used the *iPad* (News-2-you *app*) to read the News-2-you newspaper aloud to the students.			
Instructed students to complete the News-2-you worksheets via the *iPad*, providing assistance as needed.			
Stayed within the 10-minute time limit for each group.			
Recorded any completed worksheets on the Worksheet Completion Checklist.			

Total ____ ____
Yes No

APPENDIX J

School District Access Consent

STUDENT SERVICES DIVISION

5100 W. SAHARA AVENUE • LAS VEGAS, NV 89146 • (702) 799-5472

CCSD
CLARK COUNTY
SCHOOL DISTRICT

Clark County School District
Student Support Services Division
5100 W. Sahara Avenue
Las Vegas, Nevada 89146

Subject: Letter of Acknowledgement of a Research Project at a CCSD Facility

Dear Dr. Campbell and Members of the CCSD IRB Team:

This letter will acknowledge that I have reviewed a request by Jamie Gunderson to conduct a research project entitled, *Exploring Cognitively Accessible Social Studies Lessons for Students with Intellectual Disabilities Using the iPad* in the Clark County School District.

When the research project has received approval from the UNLV Institutional Review Board and the Department of Research of the Clark County School District, and upon presentation of the approval letter to me by the approved researcher, as the Assistant Superintendent of the Student Services Division, I agree to allow access for the approved research project.

If we have any concerns or need additional information, the project researcher will be contacted or we will contact the UNLV Office of Research Integrity – Human Subjects at 895-2794.

Sincerely,

Signature of Principal/Division/Department Head

12/17/13
Date

Kristine Minnich, Assistan Supt. , Student Services Division
Print Name and Title

Main Office: 5100 WEST SAHARA AVENUE • LAS VEGAS, NEVADA 89146 • TELEPHONE (702) 799-5000

APPENDIX K

Principal Informed Consent

O.K. Adcock Elementary School
6350 Hyde Avenue Las Vegas, NV 89107
Ph# (702)799-4185 Fax# (702) 799-4172

Lea Chua, Principal

Office of Research Integrity – Human Subjects
University of Nevada, Las Vegas
4505 S. Maryland Parkway, Box 451047
Las Vegas, NV 89154-1047

Subject: Letter of Acknowledgement of a Research Project at a CCSD Facility

Dear ORI – Human Subjects:

This letter will acknowledge that I have reviewed a request by Jamie Gunderson to conduct a research project entitled, *Exploring Cognitively Accessible Social Studies Lessons for Students with Intellectual Disabilities Using the iPad* at Adcock Elementary School.

When the research project has received approval from the UNLV Institutional Review Board and the Department of Research of the Clark County School District, and upon presentation of the approval letter to me by the approved researcher, as site administrator for Adcock Elementary School, I agree to allow access for the approved research project.

If we have any concerns or need additional information, the project researcher will be contacted or we will contact the UNLV Office of Research Integrity – Human Subjects at 895-2794.

Sincerely,

Lea Chua ____________________ 12/9/13 ____________
Signature of Principal/Division/Department Head   Date

LEA CHUA ____________________
Print Name and Title

"We will empower all students to succeed in a challenging world by promoting academic and social excellence."

William H. "Bob" Bailey Middle School

CLARK COUNTY SCHOOL DISTRICT

2500 N. Hollywood Blvd. Las Vegas NV, 89156 Phone (702) 799-4811/ Fax (702) 799-4807

Terri K. Knepp
Principal

Daphne L. Brownson
Assistant Principal
Lakeisha O. Myers
Dean of Students

Bailey Middle School

Education is the Key

Office of Research Integrity – Human Subjects
University of Nevada, Las Vegas
4505 S. Maryland Parkway, Box 451047
Las Vegas, NV 89154-1047

Subject: Letter of Acknowledgement of a Research Project at a CCSD Facility

Dear ORI – Human Subjects:

This letter will acknowledge that I have reviewed a request by Jamie Gunderson to conduct a research project entitled, *Exploring Cognitively Accessible Social Studies Lessons for Students with Intellectual Disabilities Using the iPad* at Bailey Middle School.

When the research project has received approval from the UNLV Institutional Review Board and the Department of Research of the Clark County School District, and upon presentation of the approval letter to me by the approved researcher, as site administrator for Bailey Middle School, I agree to allow access for the approved research project.

If we have any concerns or need additional information, the project researcher will be contacted or we will contact the UNLV Office of Research Integrity – Human Subjects at 895-2794.

Sincerely,

Terri Knepp — 12/10/13

Signature of Principal/Division/Department Head — Date

Terri Knepp principal

Print Name and Title

J. HAROLD BRINLEY MIDDLE SCHOOL

BRUINS

2480 Maverick St * Las Vegas, Nevada 89108 * (702) 799-4550

Travis Warnick, Principal

To Whom It May Concern:

Office of Research Integrity – Human Subjects
University of Nevada, Las Vegas
4505 S. Maryland Parkway, Box 451047
Las Vegas, NV 89154-1047

Subject: Letter of Acknowledgement of a Research Project at a CCSD Facility

Dear ORI – Human Subjects:

This letter will acknowledge that I have reviewed a request by Jamie Gunderson to conduct a research project entitled, *Exploring Cognitively Accessible Social Studies Lessons for Students with Intellectual Disabilities Using the iPad* at Brinley Middle School.

When the research project has received approval from the UNLV Institutional Review Board and the Department of Research of the Clark County School District, and upon presentation of the approval letter to me by the approved researcher, as site administrator for Brinley Middle School, I agree to allow access for the approved research project.

If we have any concerns or need additional information, the project researcher will be contacted or we will contact the UNLV Office of Research Integrity – Human Subjects at 895-2794.

Sincerely,

Travis Warnick

Signature of Principal/Division/Department Head

12-9-13

Date

Travis Warnick - Principal

Print Name and Title

Marion Cahlan-Edison Elementary School

Amy Negrete, Principal

Office of Research Integrity – Human Subjects
University of Nevada, Las Vegas
4505 S. Maryland Parkway, Box 451047
Las Vegas, NV 89154-1047

Subject: Letter of Acknowledgement of a Research Project at a CCSD Facility

Dear ORI – Human Subjects:

This letter will acknowledge that I have reviewed a request by Jamie Gunderson to conduct a research project entitled, *Exploring Cognitively Accessible Social Studies Lessons for Students with Intellectual Disabilities Using the iPad* at Cahlan Elementary School.

When the research project has received approval from the UNLV Institutional Review Board and the Department of Research of the Clark County School District, and upon presentation of the approval letter to me by the approved researcher, as site administrator for Cahlan Elementary School, I agree to allow access for the approved research project.

If we have any concerns or need additional information, the project researcher will be contacted or we will contact the UNLV Office of Research Integrity – Human Subjects at 895-2794.

Sincerely,

Signature of Principal/Division/Department Head   12/20/13 Date

Amy Negrete, Principal
Print Name and Title

ARTURO CAMBEIRO ELEMENTARY SCHOOL
2851 East Harris Avenue
Las Vegas, Nevada 89101
Telephone: (702) 799-1700 Fax: (702) 799-1706
Dr. Pamela Simone, Principal
Rick C. Perry, Assistant Principal

Office of Research Integrity – Human Subjects
University of Nevada, Las Vegas
4505 S. Maryland Parkway, Box 451047
Las Vegas, NV 89154-1047

Subject: Letter of Acknowledgement of a Research Project at a CCSD Facility

Dear ORI – Human Subjects:

This letter will acknowledge that I have reviewed a request by Jamie Gunderson to conduct a research project entitled, *Exploring Cognitively Accessible Social Studies Lessons for Students with Intellectual Disabilities Using the iPad* at Cambiero Elementary School.

When the research project has received approval from the UNLV Institutional Review Board and the Department of Research of the Clark County School District, and upon presentation of the approval letter to me by the approved researcher, as site administrator for Cambiero Elementary School, I agree to allow access for the approved research project.

If we have any concerns or need additional information, the project researcher will be contacted or we will contact the UNLV Office of Research Integrity – Human Subjects at 895-2794.

Sincerely,

Pam Simone 12/09/2013

Signature of Principal/Division/Department Head Date

Pam Simone, Principal
Print Name and Title

CCSD
CLARK COUNTY SCHOOL DISTRICT
5100 W. Sahara Ave.
Las Vegas, NV 89146

Changing Young Lives Changing Young Lives Changing Young Lives Changing Young Lives Changing Young Lives Changing Young Lives Changing Young

ORIS FRENCH ELEMENTARY SCHOOL
3235 E. HAC*IENDA AVE.*
LAS VEGAS, NV 89120

Mrs. Tammy R. Villarreal-Crabb (702) 799-7730
Principal FAX (702) 799-0757

Office of Research Integrity – Human Subjects
University of Nevada, Las Vegas
4505 S. Maryland Parkway, Box 451047
Las Vegas, NV 89154-1047

Subject: Letter of Acknowledgement of a Research Project at a CCSD Facility

Dear ORI – Human Subjects:

This letter will acknowledge that I have reviewed a request by Jamie Gunderson to conduct a research project entitled, *Exploring Cognitively Accessible Social Studies Lessons for Students with Intellectual Disabilities Using the iPad* at French Elementary School.

When the research project has received approval from the UNLV Institutional Review Board and the Department of Research of the Clark County School District, and upon presentation of the approval letter to me by the approved researcher, as site administrator for French Elementary School, I agree to allow access for the approved research project.

If we have any concerns or need additional information, the project researcher will be contacted or we will contact the UNLV Office of Research Integrity – Human Subjects at 895-2794.

Sincerely,

Tammy R. Villarreal-Crabb *12/18/13*
Signature of Principal/Division/Department Head Date

Tammy R. Villarreal-Crabb, Principal
Print Name and Title

FRANK F. GARSIDE JUNIOR HIGH SCHOOL

300 South Torrey Pines Drive · Las Vegas, Nevada 89107 · Phone (702)799-4245 · Fax (702)799-4296
Area 3 · Performance Zone 13 · Scarlett Perryman, Principal

Office of Research Integrity – Human Subjects
University of Nevada, Las Vegas
4505 S. Maryland Parkway, Box 451047
Las Vegas, NV 89154-1047

Subject: Letter of Acknowledgement of a Research Project at a CCSD Facility

Dear ORI – Human Subjects:

This letter will acknowledge that I have reviewed a request by Jamie Gunderson to conduct a research project entitled, *Exploring Cognitively Accessible Social Studies Lessons for Students with Intellectual Disabilities Using the iPad* at Garside Middle School.

When the research project has received approval from the UNLV Institutional Review Board and the Department of Research of the Clark County School District, and upon presentation of the approval letter to me by the approved researcher, as site administrator for Garside Middle School, I agree to allow access for the approved research project.

If we have any concerns or need additional information, the project researcher will be contacted or we will contact the UNLV Office of Research Integrity – Human Subjects at 895-2794.

Sincerely,

12-13-13

Signature of Principal/Division/Department Head

Date

SCARLETT PERRYMAN Principal

Print Name and Title

CLARK COUNTY SCHOOL DISTRICT

Daniel Goldfarb Elementary School

Dr. Jacqueline Gillespie, Principal *Ms. Rebecka Christensen, Assistant Principal*

Offi[illegible]arch Integrity – Human Subjects
University of Nevada, Las Vegas
4505 S. Maryland Parkway, Box 451047
Las Vegas, NV 89154-1047

Subject: Letter of Acknowledgement of a Research Project at a CCSD Facility

Dear ORI – Human Subjects:

This letter will acknowledge that I have reviewed a request by Jamie Gunderson to conduct a research project entitled, *Exploring Cognitively Accessible Social Studies Lessons for Students with Intellectual Disabilities Using the iPad* at Goldfarb Elementary School.

When the research project has received approval from the UNLV Institutional Review Board and the Department of Research of the Clark County School District, and upon presentation of the approval letter to me by the approved researcher, as site administrator for Goldfarb Elementary School, I agree to allow access for the approved research project.

If we have any concerns or need additional information, the project researcher will be contacted or we will contact the UNLV Office of Research Integrity – Human Subjects at 895-2794.

Sincerely,

Jacqueline Gillespie | 1/10/2014
Signature of Principal/Division/Department Head | Date

Jacqueline Gillespie Principal
Print Name and Title

CCSD
CLARK COUNTY SCHOOL DISTRICT
5100 West Sahara Ave.
Las Vegas, NV 89146

Achieve, Learn, and Grow!

1651 Orchard Valley Dr. • Las Vegas, NV 89142 • Telephone 799-1550 • Fax 799-1556

HAL SMITH ELEMENTARY SCHOOL

5150 E. Desert Inn Rd. • Las Vegas, NV 89122 • (702) 799-3700 • Fax (702) 799-3711

Mrs. Shannon Williamson, Principal

Office of Research Integrity – Human Subjects
University of Nevada, Las Vegas
4505 S. Maryland Parkway, Box 451047
Las Vegas, NV 89154-1047

Subject: Letter of Acknowledgement of a Research Project at a CCSD Facility

Dear ORI – Human Subjects:

This letter will acknowledge that I have reviewed a request by Jamie Gunderson to conduct a research project entitled, *Exploring Cognitively Accessible Social Studies Lessons for Students with Intellectual Disabilities Using the iPad* at Hal Smith Elementary School.

When the research project has received approval from the UNLV Institutional Review Board and the Department of Research of the Clark County School District, and upon presentation of the approval letter to me by the approved researcher, as site administrator for Hal Smith Elementary School, I agree to allow access for the approved research project.

If we have any concerns or need additional information, the project researcher will be contacted or we will contact the UNLV Office of Research Integrity – Human Subjects at 895-2794.

Sincerely,

Shannon L Williamson　　　　12-9-13

Signature of Principal/Division/Department Head　　　　Date

CCSD
CLARK COUNTY SCHOOL DISTRICT 5100 W. Sahara Avenue Las Vegas, Nevada 89146

CARROLL M. JOHNSTON MIDDLE SCHOOL

5855 Lawrence Street, North Las Vegas, Nevada 89081
Phone: 702/799-7001 Fax: 702/799-7010

Mrs. Lisa Rustand	Mrs. Shannon Johansen	Ms. Krystal Childress
Principal	Assistant Principal	Dean

Office of Research Integrity – Human Subjects
University of Nevada, Las Vegas
4505 S. Maryland Parkway, Box 451047
Las Vegas, NV 89154-1047

Subject: Letter of Acknowledgement of a Research Project at a CCSD Facility

Dear ORI – Human Subjects:

This letter will acknowledge that I have reviewed a request by Jamie Gunderson to conduct a research project entitled, Exploring Cognitively Accessible Social Studies Lessons for Students with Intellectual Disabilities Using the iPad at Johnston Middle School.

When the research project has received approval from the UNLV Institutional Review Board and the Department of Research of the Clark County School District, and upon presentation of the approval letter to me by the approved researcher, as site administrator for Johnston Middle School, I agree to allow access for the approved research project.

If we have any concerns or need additional information, the project researcher will be contacted or we will contact the UNLV Office of Research Integrity – Human Subjects at 895-2794.

Sincerely,

Lisa Rustand

Lisa Rustand
Principal

Jack & Terry
MANNION MIDDLE SCHOOL
155 E. Paradise Hills Drive, Henderson, NV 89002 • (702) 799-3020 • Fax (702) 799-3501

Office of Research Integrity – Human Subjects
University of Nevada, Las Vegas
4505 S. Maryland Parkway, Box 451047
Las Vegas, NV 89154-1047

Subject: Letter of Acknowledgement of a Research Project at a CCSD Facility

Dear ORI – Human Subjects:

This letter will acknowledge that I have reviewed a request by Jamie Gunderson to conduct a research project entitled, *Exploring Cognitively Accessible Social Studies Lessons for Students with Intellectual Disabilities Using the iPad* at Mannion Middle School.

When the research project has received approval from the UNLV Institutional Review Board and the Department of Research of the Clark County School District, and upon presentation of the approval letter to me by the approved researcher, as site administrator for Mannion Middle School, I agree to allow access for the approved research project.

If we have any concerns or need additional information, the project researcher will be contacted or we will contact the UNLV Office of Research Integrity – Human Subjects at 895-2794.

Sincerely,

David W Erbach

Signature of Principal/Division/Department Head

12-13-13

Date

DAVID W. ERBACH PRINCIPAL

Print Name and Title

CCSD
CLARK COUNTY
SCHOOL DISTRICT

CLARK COUNTY SCHOOL DISTRICT
MARTHA P. KING
888 ADAMS BLVD. BOULDER CITY, NV 89005

ELEMENTARY SCHOOL
PHONE (702)799-8260 FAX (702)799-8269
Anthony Gelsone, Principal

Office of Research Integrity – Human Subjects
University of Nevada, Las Vegas
4505 S. Maryland Parkway, Box 451047
Las Vegas, NV 89154-1047

Subject: Letter of Acknowledgement of a Research Project at a CCSD Facility

Dear ORI – Human Subjects:

This letter will acknowledge that I have reviewed a request by Jamie Gunderson to conduct a research project entitled, *Exploring Cognitively Accessible Social Studies Lessons for Students with Intellectual Disabilities Using the iPad* at Martha King Elementary School.

When the research project has received approval from the UNLV Institutional Review Board and the Department of Research of the Clark County School District, and upon presentation of the approval letter to me by the approved researcher, as site administrator for Martha King Elementary School, I agree to allow access for the approved research project.

If we have any concerns or need additional information, the project researcher will be contacted or we will contact the UNLV Office of Research Integrity – Human Subjects at 895-2794.

Sincerely,

Anthony Gelsone
Signature of Principal/Division/Department Head

12/10/13
Date

Anthony Gelsone, Principal
Print Name and Title

Thomas J. O'Roarke Elementary School

Kody Barto, Principal
Brenda Swann, Asst. Principal

Office of Research Integrity – Human Subjects
University of Nevada, Las Vegas
4505 S. Maryland Parkway, Box 451047
Las Vegas, NV 89154-1047

Subject: Letter of Acknowledgement of a Research Project at a CCSD Facility

Dear ORI – Human Subjects:

This letter will acknowledge that I have reviewed a request by Jamie Gunderson to conduct a research project entitled, *Exploring Cognitively Accessible Social Studies Lessons for Students with Intellectual Disabilities Using the iPad* at O'Roarke Elementary School.

When the research project has received approval from the UNLV Institutional Review Board and the Department of Research of the Clark County School District, and upon presentation of the approval letter to me by the approved researcher, as site administrator for O'Roarke Elementary School, I agree to allow access for the approved research project.

If we have any concerns or need additional information, the project researcher will be contacted or we will contact the UNLV Office of Research Integrity – Human Subjects at 895-2794.

Sincerely,

Kody Barto 12/9/13
Signature of Principal/Division/Department Head Date

Kody Barto Principal
Print Name and Title

8455 O'Hare Rd., Las Vegas, NV 89143 (702)799-6600 (702)799-6612 FAX

Park-Edison Elementary School
"Where kids come first for a world class education"
931 Franklin Ave.
Las Vegas, NV. 89104
(702) 799-7904 (702) 799-7949 FAX
Lorna James-Cervantes - Principal
Lori McGaughey - Assistant Principal

Office of Research Integrity – Human Subjects
University of Nevada, Las Vegas
4505 S. Maryland Parkway, Box 451047
Las Vegas, NV 89154-1047

Subject: Letter of Acknowledgement of a Research Project at a CCSD Facility

Dear ORI – Human Subjects:

This letter will acknowledge that I have reviewed a request by Jamie Gunderson to conduct a research project entitled, Exploring Cognitively Accessible Social Studies Lessons for Students with Intellectual Disabilities Using the iPad at Park Elementary School.

When the research project has received approval from the UNLV Institutional Review Board and the Department of Research of the Clark County School District, and upon presentation of the approval letter to me by the approved researcher, as site administrator for Park Elementary School, I agree to allow access for the approved research project.

If we have any concerns or need additional information, the project researcher will be contacted or we will contact the UNLV Office of Research Integrity – Human Subjects at 895-2794.

Sincerely,

Lorna M. James-Cervantes 12/10/13

Signature of Principal/Division/Department Head Date

Lorna James-Cervantes, Principal

Print Name and Title

RED ROCK
ELEMENTARY SCHOOL

408 Upland Blvd. ⋄ Las Vegas, NV 89107
Phone (702) 799-4223 ⋄ Fax (702) 799-4164

Stephanie Wong, Principal
Jeffrey Dahl, Assistant Principal

December 30, 2013

Office of Research Integrity – Human Subjects
University of Nevada, Las Vegas
4505 S. Maryland Parkway, Box 451047
Las Vegas, NV 89154-1047

Subject: Letter of Acknowledgement of a Research Project at a CCSD Facility

Dear ORI – Human Subjects:

This letter will acknowledge that I have reviewed a request by Jamie Gunderson to conduct a research project entitled, *Exploring Cognitively Accessible Social Studies Lessons for Students with Intellectual Disabilities Using the iPad* at Red Rock Elementary School.

When the research project has received approval from the UNLV Institutional Review Board and the Department of Research of the Clark County School District, and upon presentation of the approval letter to me by the approved researcher, as site administrator for Red Rock Elementary School, I agree to allow access for the approved research project.

If we have any concerns or need additional information, the project researcher will be contacted or we will contact the UNLV Office of Research Integrity – Human Subjects at 895-2794.

Sincerely,

Stephanie Wong

Stephanie Wong
Principal

Racing To Reach Our Goals

CCSD
CLARK COUNTY SCHOOL DISTRICT
5100 West Sahara Ave
Las Vegas, NV 89146

RICHARD J. RUNDLE ELEMENTARY SCHOOL
425 NORTH CHRISTY LANE, LAS VEGAS, NEVADA 89110
TELEPHONE: (702) 799-7380
FAX: (702) 799-7327

Office of Research Integrity – Human Subjects
University of Nevada, Las Vegas
4505 S. Maryland Parkway, Box 451047
Las Vegas, NV 89154-1047

Subject: Letter of Acknowledgement of a Research Project at a CCSD Facility

Dear ORI – Human Subjects:

This letter will acknowledge that I have reviewed a request by Jamie Gunderson to conduct a research project entitled, *Exploring Cognitively Accessible Social Studies Lessons for Students with Intellectual Disabilities Using the iPad* at Rundle Elementary School.

When the research project has received approval from the UNLV Institutional Review Board and the Department of Research of the Clark County School District, and upon presentation of the approval letter to me by the approved researcher, as site administrator for Rundle Elementary School, I agree to allow access for the approved research project.

If we have any concerns or need additional information, the project researcher will be contacted or we will contact the UNLV Office of Research Integrity – Human Subjects at 895-2794.

Sincerely,

Signature of Principal/Division/Department Head

12-11-13
Date

Jack Lund Schofield
Middle School
8625 Spencer Street • Las Vegas, Nevada 89123 • Telephone 702-799-2290 • Fax 702-799-5717

Office of Research Integrity – Human Subjects
University of Nevada, Las Vegas
4505 S. Maryland Parkway, Box 451047
Las Vegas, NV 89154-1047

Subject: Letter of Acknowledgement of a Research Project at a CCSD Facility

Dear ORI – Human Subjects:

This letter will acknowledge that I have reviewed a request by Jamie Gunderson to conduct a research project entitled, *Exploring Cognitively Accessible Social Studies Lessons for Students with Intellectual Disabilities Using the iPad* at Schofield Middle School.

When the research project has received approval from the UNLV Institutional Review Board and the Department of Research of the Clark County School District, and upon presentation of the approval letter to me by the approved researcher, as site administrator for Schofield Middle School, I agree to allow access for the approved research project.

If we have any concerns or need additional information, the project researcher will be contacted or we will contact the UNLV Office of Research Integrity – Human Subjects at 895-2794.

Sincerely,

Signature of Principal/Division/Department Head

1/6/14
Date

AJ. Alary, Principal
Print Name and Title

CCSD
CLARK COUNTY
SCHOOL DISTRICT
5100 West Sahara Ave.
Las Vegas, NV 89146

Lois & Jerry Tarkanian Middle School

5800 W. Pyle Ave. • Las Vegas, Nevada 89141 • 702 / 799-6801

Office of Research Integrity – Human Subjects
University of Nevada, Las Vegas
4505 S. Maryland Parkway, Box 451047
Las Vegas, NV 89154-1047

Subject: Letter of Acknowledgement of a Research Project at a CCSD Facility

Dear ORI – Human Subjects:

This letter will acknowledge that I have reviewed a request by Jamie Gunderson to conduct a research project entitled, *Exploring Cognitively Accessible Social Studies Lessons for Students with Intellectual Disabilities Using the iPad* at Tarkanian Middle School

When the research project has received approval from the UNLV Institutional Review Board and the Department of Research of the Clark County School District, and upon presentation of the approval letter to me by the approved researcher, as site administrator for Tarkanian Middle School, I agree to allow access for the approved research project.

If we have any concerns or need additional information, the project researcher will be contacted or we will contact the UNLV Office of Research Integrity – Human Subjects at 895-2794.

Sincerely,

12-9-13

Signature of Principal/Division/Department Head | Date

Darren Sweikert Principal

Print Name and Title

Empowering All Students To Achieve Success

CLARK COUNTY SCHOOL DISTRICT
Harriet Treem
1698 PATRICK LN., HENDERSON, NV 89014

Home of Da Bears
Success for kids

ELEMENTARY SCHOOL
PHONE (702)799-8760 FAX (702)799-0916
Lee H. Esplin, Principal
Nina Lawson, Assistant Principal

Office of Research Integrity – Human Subjects
University of Nevada, Las Vegas
4505 S. Maryland Parkway, Box 451047
Las Vegas, NV 89154-1047

Subject: Letter of Acknowledgement of a Research Project at a CCSD Facility

Dear ORI – Human Subjects:

This letter will acknowledge that I have reviewed a request by Jamie Gunderson to conduct a research project entitled, *Exploring Cognitively Accessible Social Studies Lessons for Students with Intellectual Disabilities Using the iPad* at Treem Elementary School.

When the research project has received approval from the UNLV Institutional Review Board and the Department of Research of the Clark County School District, and upon presentation of the approval letter to me by the approved researcher, as site administrator for Treem Elementary School, I agree to allow access for the approved research project.

If we have any concerns or need additional information, the project researcher will be contacted or we will contact the UNLV Office of Research Integrity – Human Subjects at 895-2794.

Sincerely,

Lee Esplin

Digitally signed by Lee Esplin
DN: cn=Lee Esplin, o=CCSD, ou=Harriet Treem ES, email=lesplin@interact.ccsd.net, c=US
Date: 2013.12.09 07:58:45 -08'00'

12/9/13

Signature of Principal/Division/Department Head | Date

Lee Esplin, Principal

Print Name and Title

12/9/2013

WOLFF PACK

Elise L. Wolff Elementary School

1001 Seven Hills Drive • Henderson, Nevada 89052 • (702) 799-2230 • Fax (702) 799-2257

Office of Research Integrity – Human Subjects
University of Nevada, Las Vegas
4505 S. Maryland Parkway, Box 451047
Las Vegas, NV 89154-1047

Subject: Letter of Acknowledgement of a Research Project at a CCSD Facility

Dear ORI – Human Subjects:

This letter will acknowledge that I have reviewed a request by Jamie Gunderson to conduct a research project entitled, *Exploring Cognitively Accessible Social Studies Lessons for Students with Intellectual Disabilities Using the iPad* at Wolff Elementary School.

When the research project has received approval from the UNLV Institutional Review Board and the Department of Research of the Clark County School District, and upon presentation of the approval letter to me by the approved researcher, as site administrator for Wolff Elementary School, I agree to allow access for the approved research project.

If we have any concerns or need additional information, the project researcher will be contacted or we will contact the UNLV Office of Research Integrity – Human Subjects at 895-2794.

Sincerely,

Deborah Harbin
Signature of Principal/Division/Department Head

12-20-13
Date

Deborah Harbin
Print Name and Title

CCSD
CLARK COUNTY SCHOOL DISTRICT
5100 W.Sahara Ave.
Las Vegas, NV 89146

APPENDIX L

ULS Lessons

Week ___ Determine if activities will be completed as a whole class or in small groups (times may vary depending on instructional format).

Day 1	Day 2	Day 3	Day 4	Day 5
Language Arts block: 50 minutes Pre-assessment Checkpoints Combined Content (Level 1) Content Understanding (2 & 3) (5-10 minutes/student)	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 1: Introduce book with picture walk and background building activities. Small Group (30 minutes) (3 groups x 10 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 2: Reread book and answer comprehension questions. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 6: Spelling Activities. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 9: Spelling Activities. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.
Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 3: Introduce book with picture walk and background building activities. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 4: Reread book and answer comprehension questions. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 7: Spelling Activities. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 4: Reread book and answer comprehension questions. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 19: Number Sense. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.

Instructional Guides
Elementary Suggested Monthly Plan

Week ___ Determine if activities will be completed as a whole class or in small groups (times may vary depending on instructional format).

Day 1	Day 2	Day 3	Day 4	Day 5
Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 1: Introduce book with picture walk and background building activities. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 2: Reread book and answer comprehension questions. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 6: Spelling Activities. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 2: Reread book and answer comprehension questions. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 10: Spelling Activities. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.
Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 3: Introduce book with picture walk and background building activities. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 4: Reread book and answer comprehension questions. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 7: Spelling Activities. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 4: Reread book and answer comprehension questions. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Post-assessment Checkpoints Combined Content (Level 1) Content Understanding (2 & 3) (5-10 minutes/student)

Grade Band: **Elementary** Unit 22
Unit Target: *Physical Science*
Unit Topic: **Paper, Rock, Scissors**

Lesson 1

Instructional Targets

Reading Standards for Literature

- ***Range and Level of Text Complexity:*** Experience grade level and age-appropriate literature materials, including stories and poems that are adapted to student reading level.

Reading Standards for Foundational Skills

- ***Print Concepts:*** Demonstrate understanding of print features (left to right, page to page, etc.).
- ***Fluency:*** Read appropriately leveled text with purpose and understanding.

Which of your state standards are aligned to these instructional targets?

Classroom Activities/Lesson Plan

Leveled Book: *Lee's Rock*

Lesson 1 provides a simple book in three distinct reading levels. Emerging readers may engage in the same content when selecting the appropriate level based on individual abilities, needs or reading goals. This Leveled Book is presented in three leveled formats: Level D, Level B and Level aa (captioned). Select the level appropriate for each student.

The content of the Leveled Book focuses on describing an object. When they have finished the book, students should be able to tell about some of the ways in which an object can be described, including size, shape and color.

- Introduce the story by reviewing with students the five senses—touch, smell, taste, sound and sight. Remind students that they can use their senses to learn about things. Ask, "What do you use to learn about how something smells? (nose) What do you use to learn about how something feels? (hands)" Continue in the same manner with sound/ears, look/eyes and taste/tongue.
- On the first reading, do a picture walk. Note pictures of Lee's rock. Emphasize the words in all capital letters and review their meanings.
- Read aloud to model fluency. After reading the story, ask questions about the size, shape, color, texture, weight and smell of Lee's rock.
- As a group, reread the story with pauses for key words to encourage participation. Encourage choral reading of the repeated line. Provide students with supports for page turning and interaction while they are reading.
- During independent or paired reading, focus on individual student reading abilities with text or supported-text versions. It is likely that students may read different levels for different purposes each day when building reading skills.
- Support student reading, using the communication board to do so.
- Follow up reading with discussion on other ways to describe objects. Ask, "What words describe temperature? (hot, cold, cool, etc.) What words describe what something is made of? (glass, metal, plastic, etc.)"

Extension: Play games that allow students to practice describing objects. For example, place an object in a brown paper bag. Have one student look in the bag and describe the object's shape, size, color and so on. While the student describes the object, have the rest of the class try to guess what the object is.

Standards Connection

- Use the book features and the pictures to continue interaction with the book.
- Have students locate the title, the author and the illustrator of the book.
- Invite students to identify and describe characters, setting and events from the story pictures.

Comprehension questions from Leveled Books are based on the highest level in the series. These books may be read aloud to help students at all levels to gain meaning.

Pre- and post-assessments are available through Monthly Checkpoints.

Differentiated Tasks

Level 3	*Level 2*	*Level 1*
• Students will independently read literature stories and poems that have been adapted to student reading level. • Students will independently demonstrate basic print concepts (tracking from left to right and from page to page, etc.) during shared story reading. • Students will independently read text stories that are selected at the personal reading level.	• Students will read supported and shared literature stories and poems that have been adapted to student reading level. • Students will participate in basic print concepts (page turning, pointing to words and pictures, etc.) during shared story reading. • Students will state a word or point to a picture of an omitted word during shared reading.	• Students will actively participate in supported reading of literature stories and poems that have been adapted to student ability level. • Students will attend to shared story reading, giving supported indicators to *turn the page* or *read more*. • Students will state a sentence from a story through an active participation response (e.g., voice output device, eye gaze choice board).

Resources and Materials	Notes
Leveled Book: *Lee's Rock* Communication board Standards Connection Lesson 1	

Grade Band: **Elementary** Unit 22
Unit Target: *Physical Science*
Unit Topic: **Paper, Rock, Scissors**

Lesson 2

Instructional Targets
Reading Standards for Literature • ***Key Ideas and Details:*** Answer questions about key details of a story. Retell a familiar story, including key details.
Which of your state standards are aligned to these instructional targets?

Classroom Activities/Lesson Plan

Read and Answer: ***Lee's Rock***

Comprehension activities extend beyond "checking" what students remember from reading. During instruction, students learn to refer to the book, using both illustrations and text, to locate answers to questions. Students recognize types of responses appropriate to *who*, *what* and *where* formats. Question responses may also provide students with a foundation for story retell. Reread the Leveled Books and repeat comprehension activities throughout the unit to increase students' skills in multiple areas of comprehension.

After reading (and rereading) *Lee's Rock,* use the comprehension worksheets as a guide for students to answer questions about the book. Choose the most appropriate worksheet on the basis of each student's needs. Level 3 is text only. Level 2 is symbol-supported. Level 1 is written in a sentence strip format, allowing students to select from multiple choices or one errorless picture choice.

1. What does Lee have? (shell, **rock**, flower)
2. What shape is Lee's rock? (**round**, square, triangle)
3. What color is on Lee's rock? (blue, pink, **gray**)
4. What does Lee's rock feel like? (**hard**, soft, bumpy)
5. What is round like Lee's rock? (doll, **ball**, block)

The questions on the comprehension worksheets provide picture and text support to identify the key details or sequence of events in the story. Use these questions to encourage students to retell the story. Talk about the story's main message or main ideas as outlined by the comprehension questions.

Standards Connection

- Use the format of this connection to build retelling skills. Build communication skills by using the augmentative supports needed for each student.

Comprehension questions from Leveled Books are based on the highest level in the series. These books may be read aloud as needed for students at all levels to gain meaning.

Pre- and post-assessments are available through Monthly Checkpoints.

Differentiated Tasks

Level 3	*Level 2*	*Level 1*
• Students will independently read *who*, *what*, *where*, *when* or *why* questions about a story and write, speak or select an answer. • Students will retell a story, including the main idea and key details.	• Students will point to or select a picture from a choice of three in response to a *who*, *what* or *where* question about a story. • Students will use picture supports to retell key details from a story.	• Students will respond to a *who* or *what* question by choosing a single option or an errorless picture. • Students will retell key details from a story through an active participation response (e.g., voice output device, eye gaze choice board).

Resources and Materials	Notes
Worksheets for Read and Answer Sentence strips and picture cards Standards Connection Lesson 2	

Grade Band: **Elementary** Unit 22
Unit Target: *Physical Science*
Unit Topic: **Paper, Rock, Scissors**

Lesson 3

Instructional Targets

Reading Standards for Literature
- ***Range and Level of Text Complexity:*** Experience grade level and age-appropriate literature materials, including stories and poems that are adapted to student reading level.

Reading Standards for Foundational Skills
- ***Print Concepts:*** Demonstrate understanding of print features (left to right, page to page, etc.).
- ***Fluency:*** Read appropriately leveled text with purpose and understanding.

Which of your state standards are aligned to these instructional targets?

Classroom Activities/Lesson Plan

Easy Read Book: *Something Different*

This lesson presents an Easy Read Book. The book follows a sequence to introduce beginning, middle and end concepts of story reading. It also presents the characters, setting and events of a story.

In this story, students will learn about ways that paper can be changed. This book is identified as a Level E.

Multiple readings of the book will provide students with repeated opportunities to build individual reading skills.
- Do a picture walk. Discuss the characters and actions from the pictures. Help students make predictions about what will happen next in the story. Introduce what will happen first, next and last.
- Introduce high-frequency words from the story.
- Read the story aloud to model fluency. Ask questions related to the characters, actions and events in the story.
- Read the story aloud, pausing for students to complete repetitive or predictable lines.
- During independent or paired reading, focus on the students' individual abilities and needs. Encourage students to use pictures to support reading words. Have students use decoding skills to identify unfamiliar words.
- Support student reading, using the communication board to do so.
- Follow up reading by discussing other common physical and chemical changes, such as water freezing to form ice and cooking an egg.

Standards Connection
- Use the book features and the pictures to continue interaction with the book.
- Have students locate the title, the author and the illustrator of the book.
- Invite students to identify and describe characters, setting and events from the story pictures.

Pre- and post-assessments are available through Monthly Checkpoints.

Differentiated Tasks

Level 3	*Level 2*	*Level 1*
• Students will independently read literature stories and poems that have been adapted to student reading level. • Students will independently demonstrate basic print concepts (tracking from left to right and from page to page, etc.) during shared story reading. • Students will independently read text stories that are selected at the personal reading level.	• Students will read supported and shared literature stories and poems that have been adapted to student reading level. • Students will participate in basic print concepts (page turning, pointing to words and pictures, etc.) during shared story reading. • Students will state a word or point to a picture of an omitted word during shared reading.	• Students will actively participate in supported reading of literature stories and poems that have been adapted to student ability level. • Students will attend to shared story reading, giving supported indicators to *turn the page* or *read more*. • Students will state a sentence from a story through an active participation response (e.g., voice output device, eye gaze choice board).

Resources and Materials	Notes
Easy Read Book: *Something Different* Communication board Standards Connection Lesson 3	

Grade Band: **Elementary** Unit 22
Unit Target: *Physical Science*
Unit Topic: **Paper, Rock, Scissors**

Lesson 4

Instructional Targets
Reading Standards for Literature • ***Key Ideas and Details:*** Answer questions about key details of a story. Retell a familiar story, including key details.
Which of your state standards are aligned to these instructional targets?

Classroom Activities/Lesson Plan

Read and Answer: *Something Different*

Comprehension activities extend beyond "checking" what students remember from reading. During instruction, students learn to refer to the book, using both illustrations and text, to locate answers to questions. Students recognize types of responses appropriate to *who*, *what* and *where* formats. Question responses may also provide students with a foundation for story retell. Activities should be repeated throughout the unit to increase students' skills in multiple areas of comprehension.

After reading (and rereading) *Something Different,* use the comprehension worksheets as a guide to answer questions about the book. Choose the most appropriate worksheet on the basis of each student's needs. Level 3 is text only. Level 2 is symbol-supported. Level 1 is written in a sentence strip format, allowing students to select from multiple choices or one errorless picture choice.

1. What does Shantel learn about? (scissors, **changes**, stars)
2. What does Shantel change? (**paper**, rocks, fruit)
3. What changes when Shantel cuts the paper? (color and shape, shape and smell, **size and shape**)
4. What do Shantel and her dad use to burn the paper? (**fire**, ice, crayons)
5. What does the paper change into when burned? (tree, **ash**, notebook)

Build on comprehension by having students retell the story.

Standards Connection

- With students, discuss the story's main message or main idea as outlined by the comprehension questions. The comprehension questions will provide picture and text support, enabling students to identify the key details or sequence of events from the story. Pictures from this lesson may be used in other lessons to support other learning activities.

Pre- and post-assessments are available through Monthly Checkpoints.

Differentiated Tasks

Level 3	*Level 2*	*Level 1*
• Students will independently read *who*, *what*, *where*, *when* or *why* questions about a story and write, speak or select an answer. • Students will retell a story, including the main idea and key details.	• Students will point to or select a picture from a choice of three in response to a *who*, *what* or *where* question about a story. • Students will use picture supports to retell key details from a story.	• Students will respond to a *who* or *what* question by choosing a single option or an errorless picture. • Students will retell key details from a story through an active participation response (e.g., voice output device, eye gaze choice board).

Resources and Materials	Notes
Worksheets for Read and Answer Sentence strips and picture cards Standards Connection Lesson 4	

Grade Band: **Elementary** Unit 22
Unit Target: *Physical Science*
Unit Topic: **Paper, Rock, Scissors**

Lesson 6

Instructional Targets
Reading Standards for Foundational Skills • ***Phonics and Word Recognition:*** Read high-frequency sight words. Apply basic phonics skills to read new words. **Standards for Language** • ***Conventions of Standard English:*** Correctly spell words with common spelling patterns.
Which of your state standards are aligned to these instructional targets?

Classroom Activities/Lesson Plan

High-Frequency Spelling List 1

Students need multiple and varied experiences with high-frequency words before they are automatically recognized and read. These lesson experiences include writing and spelling words within meaning-making sentences and as part of sound-symbol associations.

Spelling List 1: *her, not, or, some, that, how*

- Select spelling list appropriate for each student (text or pictures).
- With your students, review words from the story and the word wall.
- Students will practice writing words on dotted lines or letter fill-in worksheets.

Choose the most appropriate worksheet on the basis of each student's needs. Level 3 is text only. Level 2 is symbol-supported. Level 1 is written in a sentence strip format for students who may require alternative forms of responding.

Follow up spelling activities with a "spelling test." Encourage students to write and use words in other reading and writing contexts.
Additional ideas for word study instruction are provided in the **ULS Instructional Guides: Word Study**.

Fill-In	Word Study
• Students will practice writing words in sentences or fill in with cutout words or pictures. 1. Cora has _____ own rock collection. (**her**) 2. She found _____ new rocks at the beach. (**some**) 3. _____ should she sort the rocks? (**How**) 4. Should she sort them by size _____ shape? (**or**) 5. She decides _____ she will sort them by size. (**that**) 6. She will _____ sort them by shape. (**not**)	• Students will analyze the word to complete the word study. Students may write words or use cutout words or pictures. 1. What word starts like *them*? (**that**) 2. What word ends like *cow*? (**how**) 3. What word rhymes with *fur*? (**her**) 4. What word starts like *sand*? (**some**) 5. What word rhymes with *hot*? (**not**) 6. What word rhymes with *for*? (**or**)

Differentiated Tasks

Level 3	*Level 2*	*Level 1*
• Students will independently read high-frequency words. • Students will independently read and write words by applying letter-sound correspondences. • Students will read new words by decoding initial, final and vowel sound knowledge. • Students will spell and write words with common spelling patterns.	• Students will select or point to a named high-frequency word from a set of three words. • Students will select or point to a named word from a set of three words, using cues from letter-sound correspondence. • Students will spell common words with letter-sound matches.	• Students will select a named high-frequency word from a single option choice. • Students will attend to activities that apply letter-sound correspondence to the reading of words.

Resources and Materials	Notes
Worksheets and sentence strip cards Picture/Word cards and Word cards with high-frequency words: *her, not, or, some, that, how*	

Instructional Targets
Reading Standards for Foundational Skills • ***Phonics and Word Recognition:*** Read high-frequency sight words. Apply basic phonics skills to read new words. **Standards for Language** • ***Conventions of Standard English:*** Correctly spell words with common spelling patterns.
Which of your state standards are aligned to these instructional targets?

Classroom Activities/Lesson Plan	
High-Frequency Spelling List 2 Students need multiple and varied experiences with high-frequency words before they are automatically recognized and read. These lesson experiences include writing and spelling words within meaning-making sentences and as part of sound-symbol associations. **Spelling List 2:** *into, thing, change, does, small, paper* • Select spelling list appropriate for each student (text or pictures). • With your students, review words from the story and the word wall. • Students will practice writing words on dotted lines or letter fill-in worksheets. Choose the most appropriate worksheet on the basis of each student's needs. Level 3 is text only. Level 2 is symbol-supported. Level 1 is written in a sentence strip format for students who may require alternative forms of responding. Follow up spelling activities with a "spelling test." Encourage students to write and use words in other reading and writing contexts. Additional ideas for word study instruction are provided in the **ULS Instructional Guides: Word Study**.	
Fill-In	**Word Study**
• Students will practice writing words in sentences or fill in with cutout words or pictures. 1. What _____ Shantel have? (**does**) 2. She has three pieces of _____. (**paper**) 3. She can _____ the paper. (**change**) 4. She can change it _____ other things. (**into**) 5. One _____ Shantel can change is the size. (**thing**) 6. She can cut the paper into _____ pieces. (**small**)	• Students will analyze the word to complete the word study. Students may write words or use cutout words or pictures. 1. What word starts like *penguin*? (**paper**) 2. What word rhymes with *swing*? (**thing**) 3. What word starts like *ink*? (**into**) 4. What word starts like *cheese* (**change**) 5. What word rhymes with *hall*? (**small**) 6. What word ends like *was*? (**does**)

Differentiated Tasks		
Level 3	*Level 2*	*Level 1*
• Students will independently read high-frequency words. • Students will independently read and write words by applying letter-sound correspondences. • Students will read new words by decoding initial, final and vowel sound knowledge. • Students will spell and write words with common spelling patterns.	• Students will select or point to a named high-frequency word from a set of three words. • Students will select or point to a named word from a set of three words, using cues from letter-sound correspondence. • Students will spell common words with letter-sound matches.	• Students will select a named high-frequency word from a single option choice. • Students will attend to activities that apply letter-sound correspondence to the reading of words.

Resources and Materials	**Notes**
Worksheets and sentence-strip cards Picture/Word cards and Word cards with high-frequency words: *into, thing, change, does, small, paper*	

Grade Band: **Elementary** Unit 22
Unit Target: *Physical Science*
Unit Topic: **Paper, Rock, Scissors**

Lesson 9

Instructional Targets
Reading Standards for Foundational Skills • ***Phonological Awareness:*** Identify rhyming words. Blend onset and rime to identify a spoken word. Distinguish initial, medial and final sounds in a spoken word. • ***Phonics and Word Recognition:*** Use letter-sound matches to decode words. Apply basic phonics skills to read new words. **Standards for Language** • ***Conventions of Standard English:*** Correctly spell words with common spelling patterns.
Which of your state standards are aligned to these instructional targets?

Classroom Activities/Lesson Plan

Word Rime Spelling List 3

In order to grow as readers, students need to learn skills for decoding unfamiliar words. Students gain skill confidence as instruction on onset and rime is applied into meaning-making sentences as well as word study activities.

Spelling List 3
- Word rimes: *mice, nice, rice, spice*
- Select a spelling list appropriate for each student (with text or pictures).
- Students will practice writing words on dotted lines or letter fill-in worksheets.

Choose the most appropriate worksheet on the basis of each student's needs. Level 3 is text only. Level 2 is symbol-supported. Level 1 is written in sentence strip format for students who may require alternative forms of responding.

Follow up spelling activities with a "spelling test." Encourage students to write and use words in other contexts.
Additional ideas for word study instruction are provided in the **ULS Instructional Guides: Word Study**.

Fill-In	Word Study
• Students will practice writing words in sentences or fill in with cutout words or pictures. 1. Cinnamon is a _____. (**spice**) 2. Cinnamon on applesauce tastes _____. (**nice**) 3. I like to eat white _____. (**rice**) 4. Do you think _____ like rice? (**mice**)	• Students will analyze words to complete the word study. Students may write words or use cutout words or pictures. 1. What word starts like *mitten*? (**mice**) 2. What word starts like *rain*? (**rice**) 3. What word starts like *sport*? (**spice**) 4. What word starts like *nickel*? (**nice**)

Differentiated Tasks

Level 3	*Level 2*	*Level 1*
• Students will blend onset and rime to state a series of rime words. • Students will independently read and write words by applying letter-sound correspondences. • Students will read new words by applying initial, final and vowel sound knowledge. • Students will spell and write words with common spelling patterns.	• Students will point to or select a named word rime. • Students will select or point to a named word from a set of three words, using cues from letter-sound correspondence. • Students will spell common words with letter-sound matches.	• Students will select a picture of a named word rime (single option choice). • Students will attend to activities that apply letter-sound correspondence to the reading of words.

Resources and Materials	Notes
Worksheets and sentence strips Picture/Word cards and Word cards with rime words: *mice, nice, rice, spice*	

Grade Band: **Elementary** Unit 22
Unit Target: *Physical Science*
Unit Topic: **Paper, Rock, Scissors**

Lesson 10

Instructional Targets
Reading Standards for Foundational Skills • ***Phonological Awareness:*** Identify rhyming words. Blend onset and rime to identify a spoken word. Distinguish initial, medial and final sounds in a spoken word. • ***Phonics and Word Recognition:*** Use letter-sound matches to decode words. Apply basic phonics skills to read new words. **Standards for Language** • ***Conventions of Standard English:*** Correctly spell words with common spelling patterns.
Which of your state standards are aligned to these instructional targets?

Classroom Activities/Lesson Plan

Word Rime Spelling List 4

In order to grow as readers, students need to learn skills for decoding unfamiliar words. Students gain skill confidence as instruction on onset and rime is applied into meaning-making sentences as well as word study activities.

Spelling List 4
- Word rimes: *name, game, came, flame*
- Select a spelling list appropriate for each student (with text or pictures).
- Students will practice writing words on dotted lines or letter fill-in worksheets.

Choose the most appropriate worksheet on the basis of each student's needs. Level 3 is text only. Level 2 is symbol-supported. Level 1 is written in sentence strip format for students who may require alternative forms of responding.

Follow up spelling activities with a "spelling test." Encourage students to write/use words in other contexts.
Additional ideas for word study instruction are provided in the **ULS Instructional Guides: Word Study**.

Fill-In	Word Study
• Students will practice writing words in sentences or fill in with cutout words and pictures. 1. Welcome, I'm glad you _____. (**came**) 2. Do you want to play a _____? (**game**) 3. What is that girl's _____? (**name**) 4. The fire has an orange _____. (**flame**)	• Students will analyze the words to complete the word study. Students may write words or use cutout words and pictures. 1. What word starts like *flag*? (**flame**) 2. What word starts like *goat*? (**game**) 3. What word starts like *cake*? (**came**) 4. What word starts like *nurse*? (**name**)

Differentiated Tasks

Level 3	*Level 2*	*Level 1*
• Students will blend onset and rime to state a series of rime words. • Students will independently read and write words by applying letter-sound correspondences. • Students will read new words by applying initial, final and vowel sound knowledge. • Students will spell and write words with common spelling patterns.	• Students will point to or select a named word rime. • Students will select or point to a named word from a set of three words, using cues from letter-sound correspondence. • Students will spell common words with letter-sound matches.	• Students will select a picture of a named word rime (single option choice). • Students will attend to activities that apply letter-sound correspondence to the reading of words.

Resources and Materials	Notes
Worksheets and sentence strips Picture/Word cards and Word cards with rime words: *name, game, came, flame*	

Grade Band: **Elementary** Unit 22
Unit Target: *Physical Science*
Unit Topic: **Paper, Rock, Scissors**

Lesson 19

Instructional Targets

Math Standards for Counting and Cardinality

- ***Know number names and the count sequence:*** Count by ones to 10, 20 and 100. Read and write numerals to 10 and 20.
- ***Count to tell the number of objects:*** Demonstrate one-to-one correspondence when counting. Count a number of objects to tell *how many*.
- ***Compare numbers:*** Indicate whether the number of objects in one group is *more*, *less* or *equal to* the number of objects in another group.

Math Standards for Operations and Algebraic Thinking

- ***Represent and solve problems involving addition and subtraction:*** Model putting together (addition, more, equal) and taking away (subtraction, less, equal) with objects and representations. Add and subtract within ranges of 1–10 and 1–20. Use objects, representations and numerals to solve real-life word problems. Understand and use +, – and = symbols when solving problems.

Which of your state standards are aligned to these instructional targets?

Classroom Activities/Lesson Plan

Number Sense: Ch-Ch-Changes

Number Sense activities address counting to 10 and 20, number recognition to 10 and 20, adding to 10 and 20 (no carrying), and subtracting to 10 and 20 (no borrowing). Manipulative pictures allow teachers to create additional scenarios. ULS Instructional Tools provide number cards that may be used to model problems. Mathematics instruction may be expanded beyond these lessons to include generalizations in related real-world applications. Use of a calculator for math computation is NOT recommended at the elementary grade band because concept understanding is critical. Appropriate activities should be selected on the basis of each student's needs. Level 3 is intended for students who can write numbers and solve problems at a more independent level. Students using Level 2 activities will need support, including manipulatives or teacher support. Tracing lines are available, but hand-over-hand assistance is appropriate. Numbers and manipulatives are available for Level 1 activities. Communication devices can be programmed to support students in counting pictures and manipulatives. Students may be given multiple choices or one errorless number choice. The scenarios in this lesson involve two characters, Paige and Drew, who are changing objects. Scenario cards are provided to address these skills. As you work through the scenarios talk with students about the types of changes taking place. The physical changes presented in the scenarios include making and melting ice cubes and tearing paper. The chemical changes include cooking eggs and burning logs.

Numbers and Counting

Number Sense 1, 2, 3: Counting to 10
Number Sense 4: Counting and Numbers to 10
Number Sense 5: Counting and Numbers to 20
Number Sense 6: How Many? 1–5
Number Sense 7: How Many? 6–10
Number Sense 8: How Many? 11–20

Number Recognition

- Show students a number of objects. Have students find the matching numeral.

Counting

- Present a number of objects. Have students count the number of items.
- Build on skills for one-to-one correspondence when counting. Have students count by matching objects to a template or by pointing or touching when counting.
- Present two groups of objects for counting. Ask: "Which group has *more* (or *less*) than the other? Are the groups equal?"

Addition and Subtraction

Number Sense 9: Adding to 10 Vertical
Number Sense 10: Adding to 10 Horizontal
Number Sense 11: Subtracting to 10 Vertical
Number Sense 12: Subtracting to 10 Horizontal
Number Sense 13: Adding to 20 Vertical
Number Sense 14: Adding to 20 Horizontal
Number Sense 15: Subtracting to 20 Vertical
Number Sense 16: Subtracting to 20 Horizontal

Addition

- Have students count and add the number of objects for problem scenarios.

Subtraction

- Demonstrate subtraction by taking away a number of objects. Then have students model.
- Create additional scenarios with multiple items.

Design lessons according to student abilities. Use manipulatives to simulate problem scenarios. Use a VELCRO®-sensitive board to model math problems. Number cards, symbol cards (+, - and =) and additional tools for math instruction are provided in the **ULS Instructional Tools: Math Pack/Numbers**.

Standards Connection

- A number chart (1–100) is provided to extend counting activities. The chart may be used to practice various levels of number recognition, counting and skip counting (by 2s, 5s or 10s).

Additional ideas for math instruction are provided in the **ULS Instructional Guides: Mathematics**.

Pre- and post-assessments are available through Monthly Checkpoints.

Differentiated Tasks

Level 3	*Level 2*	*Level 1*
• Students will count a number of objects and identify the associated numeral. • Students will count objects in two defined groups and determine which group contains more or less than the other or whether the groups are equal. • Students will add and subtract numbers within the context of a real-world scenario.	• Students will match objects to a corresponding number line (one-to-one match) to count and identify a number of objects. • Students will pair objects from two groups to determine which group has more or less than the other or whether the groups are equal. • Students will model addition and subtraction of two sets of objects in the context of a real-world scenario.	• Students will count to a given number through an active participation response (e.g., voice output device, eye gaze choice board). • Students will select numbers (errorless choice) to count and compare numbers within a math problem involving the concepts of *more* and *less.* • Students will count sets of objects through an active participation response (e.g., voice output device, eye gaze choice board).

Resources and Materials	Notes
Scenario cards Manipulative pictures for problems involving numbers 1–20 Standards Connection Lesson 19 Number line	Number cards and symbol cards (+, – and =) are provided in the **ULS Instructional Tools: Math Pack/Numbers**.

Week __ Determine if activities will be completed as a whole class or in small groups (times may vary depending on instructional format).

Day 1	Day 2	Day 3	Day 4	Day 5
Language Arts block: 50 minutes Pre-assessment Checkpoints Combined Content (Level 1) Content Understanding (2 & 3) (5-10 minutes/student)	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 1: Introduce book with picture walk and background building activities. Small Group (30 minutes) (3 groups x 10 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 2: Reread book and answer comprehension questions. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 8: Spelling Activities. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 5: Nonfiction Article Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.
Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 3: Introduce book with picture walk and background building activities. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 4: Reread book and answer comprehension questions. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 9: Spelling Activities. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 4: Reread book and answer comprehension questions. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 16: Number Sense. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.

Instructional Guides
Intermediate Suggested Monthly Plan

Week __ Determine if activities will be completed as a whole class or in small groups (times may vary depending on instructional format).

Day 1	Day 2	Day 3	Day 4	Day 5
Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 1: Introduce book with picture walk and background building activities. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 2: Reread book and answer comprehension questions. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 8: Spelling Activities. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 2: Reread book and answer comprehension questions. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 6: Nonfiction Article Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.
Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 3: Introduce book with picture walk and background building activities. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 4: Reread book and answer comprehension questions. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 9: Spelling Activities. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 4: Reread book and answer comprehension questions. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Post-assessment Checkpoints Combined Content (Level 1) Content Understanding (2 & 3) (5-10 minutes/student)

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Page 5 of 5

Grade Band: **Intermediate** Unit 22
Unit Target: *Physical Science*
Unit Topic: **Make It Move**

Lesson 1

Instructional Targets

Reading Standards for Literature
- ***Range and Level of Text Complexity:*** Experience grade level and age-appropriate literature materials, including stories, poems, plays, fiction and nonfiction works that are adapted to student reading level.

Reading Standards for Foundational Skills
- ***Fluency:*** Read appropriately leveled books with accuracy and fluency.

Which of your state standards are aligned to these instructional targets?

Classroom Activities/Lesson Plan

Leveled Book: *Make Your Body Move Now*
Lesson 1 provides a simple book in three distinct reading levels. Emerging readers may engage in the same content when selecting the appropriate level based on individual abilities, needs or reading goals. This Leveled Book is presented in three leveled formats: Level D, Level B and Level aa (captioned). Select the level appropriate for each student.
The content of the Leveled Book presents a song and dance. When they have finished the book, students should be able to describe some of the ways in which they can move their bodies.
- Introduce the story by talking about motion and movement. Ask, "Do you like to dance?" Explain that when people dance, they move, or create motion, with their bodies.
- On the first reading, do a picture walk. Note pictures of the characters' actions and movements. Emphasize that there are many different ways in which students can move their bodies. Discuss some of students' favorite dance moves. For example, ask, "What do you do when you hear music? Do you clap your hands or tap your toes? Do you have a favorite dance move you like to do?"
- Read the story aloud to model fluency. The Level C and B books can be read or sung to the tune of "The Loco-Motion." After reading the story, ask questions about the ways in which students moved specific body parts while following along with the dance. Explain and model less-familiar action words, such as *bob,* which means "to nod, or move up and down."
- As a group, reread the story with pauses for key words to encourage participation. Encourage choral reading of the repeated line. Provide students with supports for page turning and interaction while they are reading.
- During independent or paired reading, focus on individual student reading abilities with text or supported-text versions. It is likely that students may read different levels for different purposes each day when building reading skills.
- Support student reading, using the communication board to do so.
- Follow up reading with discussion on why things move. Explain that nothing starts moving on its own. Objects must be pushed or pulled by a force. Point out that when dancing, students' muscles push and pull on the bones in their bodies, making them move. Working together, brainstorm a list of other things that can be moved with a push or pull.

Standards Connection
- Use the book features and the pictures to continue interaction with the book.
- Have students locate the title, the author and the illustrator of the book.
- Invite students to identify and describe characters, setting and events from the story pictures.
- With students, read the text to determine whether this story is told by the author or by one of the characters in the story.

Comprehension questions from Leveled Books are based on the highest level in the series. These books may be read aloud to help students at all levels gain meaning.
Pre- and post-assessments are available through Monthly Checkpoints.

Differentiated Tasks

Level 3	*Level 2*	*Level 1*
• Students will independently read literature: stories, poems, plays, fiction and nonfiction works that have been adapted to student reading level. • Students will independently read text stories that are selected at the personal reading level.	• Students will read supported and shared literature: stories, poems, plays, fiction and nonfiction works that have been adapted to student reading level. • Students will state a word or point to a picture of an omitted word during shared reading. • Students will read leveled text that is supported with picture symbols.	• Students will actively participate in supported reading of literature: stories, poems, plays, fiction and nonfiction works that have been adapted to student ability level. • Students will state a sentence from a story through an active participation response (e.g., voice output device, eye gaze choice board).

Resources and Materials	Notes
Leveled Book: *Make Your Body Move Now* Communication board Standards Connection Lesson 1	

Grade Band: **Intermediate** Unit 22
Unit Target: *Physical Science*
Unit Topic: **Make It Move**

Lesson 2

Instructional Targets
Reading Standards for Literature • ***Key Ideas and Details:*** Answer questions and locate details in text to support an answer. Summarize a story to show understanding of the main theme and details.
Which of your state standards are aligned to these instructional targets?

Classroom Activities/Lesson Plan

Read and Answer: *Make Your Body Move Now*

Comprehension activities extend beyond "checking" what students remember from reading. During instruction, students learn to refer to the book, using both illustrations and text, to locate answers to questions. Students recognize types of responses appropriate to *who*, *what* and *where* formats. Question responses may also provide students with a foundation for story retell. Reread the Leveled Book and repeat comprehension activities throughout the unit to increase students' skills in multiple areas of comprehension.

After reading (and rereading) *Make Your Body Move Now,* use the comprehension worksheets as a guide for students to answer questions about the book. Choose the most appropriate worksheet on the basis of each student's needs. Level 3 is text only. Level 2 is symbol-supported. Level 1 is written in a sentence strip format, allowing students to select from multiple choices or one errorless picture choice.

1. What can Betsy and her friends do? (sit, **dance**, sing)
2. What do they do with their feet? (clap, wave, **stomp**)
3. What do they snap? (hips, **fingers**, nose)
4. Where do they wave their hands? (**up high**, down low, across)
5. How do they bob their heads? (high, slow, **fast**)

The questions on the comprehension worksheets provide picture and text support to identify key details or sequence of events in the story. Use these questions to encourage students to retell the story. Talk about the story's main message or main idea as outlined by the comprehension questions.

Standards Connection

- Use the format of this connection to build retelling and summarizing skills. Build communication skills by using the augmentative supports needed for each student.

Comprehension questions from Leveled Books are based on the highest level in the series. These books may be read aloud to help students at all levels gain meaning.

Pre- and post-assessments are available through Monthly Checkpoints.

Differentiated Tasks

Level 3	*Level 2*	*Level 1*
• Students will independently read questions about a story and write, speak or select an answer. • Students will retell a story, including the main idea and key details.	• Students will point to or select a picture from a choice of three in response to a *who*, *what* or *where* question about a story. • Students will use picture supports to retell key details from a story.	• Students will respond to a question by choosing a single option or errorless picture. • Students will retell key details from a story through an active participation response (e.g., voice output device, eye gaze choice board).

Resources and Materials	**Notes**
Worksheets for Read and Answer Sentence strips and picture cards Standards Connection Lesson 2	

Grade Band: **Intermediate** Unit 22
Unit Target: *Physical Science*
Unit Topic: **Make It Move**

Lesson 3

Instructional Targets
Reading Standards for Literature • ***Range and Level of Text Complexity:*** Experience grade level and age-appropriate literature materials, including stories, poems, plays, fiction and nonfiction works that are adapted to student reading level. **Reading Standards for Foundational Skills** • ***Fluency:*** Read appropriately leveled books with accuracy and fluency.
Which of your state standards are aligned to these instructional targets?

Classroom Activities/Lesson Plan

Easy Read Book: *Push and Pull on the Playground*

This lesson presents an Easy Read Book. The book follows a sequence to introduce beginning, middle and end concepts of story reading. It also presents the characters, setting and events of a story.

In this story, students will learn about the forces that make things move. This book is identified as a Level E.

Multiple readings of the book will provide students with repeated opportunities to build individual reading skills.

- Do a picture walk. Discuss the characters and actions from the pictures. Help students make predictions about what will happen next in the story. Introduce what will happen first, next and last.
- Introduce high-frequency words from the story.
- Read the story aloud to model fluency. Ask questions related to the characters, actions and events in the story.
- Read the story aloud, pausing for students to complete repetitive or predictable lines.
- During independent or paired reading, focus on the students' individual abilities and needs. Encourage students to use pictures to support reading words. Have students use decoding skills to identify unfamiliar words.
- Support student reading, using the communication board to do so.
- Follow up reading by discussing additional examples of pushing (e.g., kicking a ball, hitting a ball) and pulling (e.g., climbing on equipment, playing tug-of-war) on the playground. If time allows, set up a circuit of pushing and pulling activities. Then have students move through the activities in pairs or small groups, identifying the main force involved in each activity.

Standards Connection

- Use the book features and the pictures to continue interaction with the book.
- Have students locate the title, the author and the illustrator of the book.
- Invite students to identify and describe characters, setting and events from the story pictures.
- With students, read the text to determine whether this story is told by the author or by one of the characters in the story.

Pre- and post-assessments are available through Monthly Checkpoints.

Differentiated Tasks

Level 3	*Level 2*	*Level 1*
• Students will independently read literature: stories, poems, plays, fiction and nonfiction works that have been adapted to student reading level. • Students will independently read text stories that are selected at the personal reading level.	• Students will read supported and shared literature: stories, poems, plays, fiction and nonfiction works that have been adapted to student reading level. • Students will state a word or point to a picture of an omitted word during shared reading. • Students will read leveled text that is supported with picture symbols.	• Students will actively participate in supported reading of literature: stories, poems, plays, fiction and nonfiction works that have been adapted to student ability level. • Students will state a sentence from a story through an active participation response (e.g., voice output device, eye gaze choice board).

Resources and Materials	**Notes**
Easy Read Book: *Push and Pull on the Playground* Communication board Standards Connection Lesson 3	

Grade Band: **Intermediate** Unit 22
Unit Target: *Physical Science*
Unit Topic: **Make It Move**

Lesson 4

Instructional Targets
Reading Standards for Literature • ***Key Ideas and Details:*** Answer questions and locate details in text to support an answer. Summarize a story to show understanding of the main theme and details.
Which of your state standards are aligned to these instructional targets?

Classroom Activities/Lesson Plan

Read and Answer: *Push and Pull on the Playground*

Comprehension activities extend beyond "checking" what students remember from reading. During instruction, students learn to refer to the book, using both illustrations and text to locate answers to questions. Students recognize types of responses appropriate to *who*, *what* and *where* formats. Question responses may also provide students with a foundation for story retell. Reread the Easy Ready Book and repeat comprehension activities throughout the unit to increase students' skills in multiple areas of comprehension.

After reading *Push and Pull on the Playground* one or more times, use the comprehension worksheets to answer questions about the book. Choose the most appropriate worksheet on the basis of each student's needs. Level 3 is text only. Level 2 is symbol-supported. Level 1 is written in sentence strip format, allowing students to select from multiple choices or one errorless picture choice.

1. What does Jacob want to learn about? (**motion**, senses, animals)
2. Where do Jacob and his sister go? (library, **playground**, restaurant)
3. What makes things move? (**force**, length, temperature)
4. What does the girl do to her wagon? (pass, push, **pull**)
5. What does Jacob do to the ball? (**push**, pull, bounce)

Build on comprehension by having students retell the story.

Standards Connection

- With students, discuss the story's main message or main idea as outlined by the comprehension questions. The comprehension questions will provide picture and text support, enabling students to identify the key details or sequence of events from the story. Pictures from this lesson may be used in other lessons to support other learning activities.

Pre- and post-assessments are available through Monthly Checkpoints.

Differentiated Tasks

Level 3	*Level 2*	*Level 1*
• Students will independently read questions about a story and write, speak, or select an answer. • Students will retell a story, including the main idea and key details.	• Students will point to or select a picture from a choice of three in response to a *who*, *what* or *where* question about a story. • Students will use picture supports to retell key details from a story.	• Students will respond to a question by choosing a single option or errorless picture. • Students will retell key details from a story through an active participation response (e.g., voice output device, eye gaze choice board).

Resources and Materials	Notes
Worksheets for Read and Answer Sentence strips and picture cards Standards Connection Lesson 4	

Grade Band: **Intermediate** Unit 22
Unit Target: *Physical Science*
Unit Topic: **Make It Move**

Lesson 5

Instructional Targets
Reading Standards for Informational Text • ***Range and Level of Text Complexity:*** Read and use grade level and age-appropriate informational materials, including social studies and technical texts that are adapted to student reading level. • ***Key Ideas and Details:*** Answer questions to show understanding of text. **Reading Standards for Foundational Skills** • ***Fluency:*** Read appropriately leveled books with accuracy and fluency.
Which of your state standards are aligned to these instructional targets?

Classroom Activities/Lesson Plan

Nonfiction Article 1: "Our Bodies Can Move"

Students need exposure to both fictional and nonfictional materials. The unit article presents students with informational text related to the unit topic.

Read aloud the article, "Our Bodies Can Move." This article introduces the concept of energy and how energy affects our ability to move.

Articles are presented in advanced, higher and regular formats. The advanced article is in a text format. Higher and regular articles are presented in both a text-only and symbol-supported format. Fill-in comprehension questions are also in three formats. Level 3 is text only.
Level 2 is symbol-supported. Level 1 is written in sentence strip format, allowing students to select from multiple choices or one errorless picture choice. Choose the appropriate text and comprehension worksheet on the basis of each student's abilities and needs.

- Introduce the article by discussing ways students like to move. Ask, "Do you like to dance? Do you like to run or go for walks?"
- Read the article aloud to model fluency. Discuss energy and why we need it. Ask, "What do our bodies need to move? Where do we get energy?"
- Support reading by using the communication board.
- Use independent or paired reading to focus on individual student abilities in reading with text or supported-text versions.
- Build comprehension with questions and discussion of the topic.
- Have students complete the comprehension worksheet to reinforce content vocabulary.

Standards Connection

- Informational text has a purpose. In these articles, the purpose is to learn new facts and information. The connection activity teaches skills for identifying key details and main ideas. Students will also learn to locate and highlight these facts within the text.

Pre- and post-assessments are available through Monthly Checkpoints.

Differentiated Tasks

Level 3	*Level 2*	*Level 1*
• Students will independently read subject area and technical texts that have been adapted to student reading level. • Students will independently read questions about a story and write, speak or select an answer.	• Students will read supported and shared subject area and technical texts that have been adapted to student reading level. • Students will point to or select a picture from a choice of three in response to a question about a story.	• Students will actively participate in supported reading of subject area and technical texts that have been adapted to student ability level. • Students will respond to a question by choosing a single option or errorless picture.

Resources and Materials	**Notes**
Article 1: "Our Bodies Can Move" Comprehension worksheet Standards Connection Lessons 5 and 6	

Grade Band: **Intermediate** Unit 22
Unit Target: *Physical Science*
Unit Topic: **Make It Move**

Lesson 6

Instructional Targets
Reading Standards for Informational Text • ***Range and Level of Text Complexity:*** Read and use grade level and age-appropriate informational materials, including social studies and technical texts that are adapted to student reading level. • ***Key Ideas and Details:*** Answer questions to show understanding of text. **Reading Standards for Foundational Skills** • ***Fluency:*** Read appropriately leveled books with accuracy and fluency.
Which of your state standards are aligned to these instructional targets?

Classroom Activities/Lesson Plan

Nonfiction Article 2: "Only One Speed: FAST"

Students need exposure to both fictional and nonfictional materials. The unit article presents student with informational text related to the unit topic.

Read aloud the article, "Only One Speed: FAST." This article introduces speed as a measure of how fast something goes.

Articles are presented in advanced, higher and regular formats. The advanced article is in a text format. Higher and regular articles are presented in both a text-only and symbol-supported format. Fill-in comprehension questions are also in three formats. Level 3 is text only. Level 2 is symbol-supported. Level 1 is written in sentence strip format, allowing students to select from multiple choices or one errorless picture choice. Choose the appropriate text and comprehension worksheet on the basis of each student's abilities and needs.

- Introduce the article by discussing the words *fast* and *slow.* Model, or invite students to model, a fast movement and a slow movement.
- Read the article aloud to model fluency. Discuss the characters from the article. Ask, "How do the characters move? What can each character do fast?"
- Use independent or paired reading to focus on individual student abilities in reading with text or supported-text versions.
- Build comprehension with questions and discussion of the topic.
- Have students complete the comprehension worksheet to reinforce content vocabulary.

Standards Connection

- Research is a process that allows students to learn more about a topic. Extend learning through a short research project, using the connection guide form to do so.
- Use the Standards Connection from Lesson 5 to support comprehension in identifying key details in the article.

Pre- and post-assessments are available through Monthly Checkpoints.

Differentiated Tasks

Level 3	*Level 2*	*Level 1*
• Students will independently read subject area and technical texts that have been adapted to student reading level. • Students will independently read questions about a story and write, speak or select an answer.	• Students will read supported and shared subject area and technical texts that have been adapted to student reading level. • Students will point to or select a picture from a choice of three in response to a question about a story.	• Students will actively participate in supported reading of subject area and technical texts that have been adapted to student ability level. • Students will respond to a question by choosing a single option or errorless picture.

Resources and Materials	Notes
Article 2: "Only One Speed: FAST" Comprehension worksheet Standards Connection Lessons 5 and 6	

Grade Band: **Intermediate**
Unit Target: *Physical Science*
Unit Topic: **Make It Move**

Unit 22

Lesson 8

Instructional Targets
Reading Standards for Foundational Skills • ***Phonics and Word Recognition:*** Read common sight words (e.g., high-frequency items from Dolch/Fry list and commonly occurring words in the environment). Use letter-sound knowledge and patterns to decode words. **Standards for Language** • ***Conventions of Standard English:*** Generate a written sentence with appropriate capitalization, punctuation and spelling.
Which of your state standards are aligned to these instructional targets?

Classroom Activities/Lesson Plan	
High-Frequency Spelling List 1 Students need multiple and varied experiences with high-frequency words before they are automatically recognized and read. These lesson experiences include writing and spelling words within meaning-making sentences and as part of sound-symbol associations. **Spelling List 1:** *make, one, two, three, them, want* • Select spelling list appropriate for each student (text or pictures). • With your students, review words from the story and the word wall. • Students will practice writing words on dotted line or letter fill-in worksheets. Choose the most appropriate worksheet on the basis of each student's needs. Level 3 is text only. Level 2 is symbol-supported. Level 1 is written in sentence strip format for students who may require alternative forms of responding. Follow up spelling activities with a "spelling test." Encourage students to write and use words in other reading and writing contexts. Additional ideas for word study instruction are provided in the **ULS Instructional Guides: Word Study**.	
Fill-In	**Word Study**
• Students will practice writing words in sentences or fill in with cutout words or pictures. 1. I have _____ nose. (**one**) 2. I can _____ it move up and down. (**make**) 3. I have _____ hands. (**two**) 4. I can clap _____ together. (**them**) 5. One plus two equals _____. (**three**) 6. Do you _____ to move with me? (**want**)	• Students will analyze the word to complete the word study. Students may write words or use cutout words or pictures. 1. What word starts like *mouse*? (**make**) 2. What word rhymes with *shoe*? (**two**) 3. What word ends like *drum*? (**them**) 4. What word rhymes with *none*? (**one**) 5. What word rhymes with *see*? (**three**) 6. What word ends like *nut*? (**want**)

Differentiated Tasks		
Level 3	*Level 2*	*Level 1*
• Students will independently read high-frequency words. • Students will independently read and write words by applying letter-sound correspondences. • Students will demonstrate conventions of written language, including appropriate initial capitalization, ending punctuation and common spelling.	• Students will select or point to a named high-frequency word from a set of three words. • Students will select or point to a named word from a set of three words, using cues from letter-sound correspondence. • Students will spell familiar words with letter-sound matches.	• Students will select a named high-frequency word from a single option choice. • Students will attend to activities that apply letter-sound correspondence to the reading of words.

Resources and Materials	Notes
Worksheets and sentence strips for List 1	

Grade Band: **Intermediate**
Unit Target: *Physical Science*
Unit Topic: **Make It Move**

Unit 22

Lesson 9

Instructional Targets
Reading Standards for Foundational Skills • ***Phonics and Word Recognition:*** Read common sight words (e.g., high-frequency items from Dolch/Fry list and commonly occurring words in the environment). Use letter-sound knowledge and patterns to decode words. **Standards for Language** • ***Conventions of Standard English:*** Generate a written sentence with appropriate capitalization, punctuation and spelling.
Which of your state standards are aligned to these instructional targets?

Classroom Activities/Lesson Plan	
High-Frequency Spelling Lists 2 and 3 Students need multiple and varied experiences with high-frequency words before they are automatically recognized and read. These lesson experiences include writing and spelling words within meaning-making sentences and as part of sound-symbol associations. This lesson addresses words from Lists 2 and 3. Choose the most appropriate worksheet on the basis of each student's needs. Level 3 is text only. Level 2 is symbol-supported. Level 1 is written in sentence strip format for students who may require alternative forms of responding. Follow up spelling activities with a "spelling test." Encourage students to write and use words in other reading and writing contexts. Additional ideas for word study instruction are provided in the **ULS Instructional Guides: Word Study**.	
Spelling List 2: *that, ball, girl, high, over, fast*	**Spelling List 3:** *along, body, move, now, pull, really*
Fill-In	**Fill-In**
• Students will practice writing words in sentences or fill in with cutout words or pictures. 1. Joelle is a _____. (**girl**) 2. She likes to play _____. (**ball**) 3. Joelle can run _____. (**fast**) 4. She can throw the ball _____ in the sky. (**high**) 5. Do you see _____ big fence? (**that**) 6. Joelle can hit the ball _____ that fence. (**over**)	• Students will practice writing words in sentences or fill in with cutout words or pictures. 1. We are going for a walk _____. (**now**) 2. You should come _____. (**along**) 3. It will be _____ fun. (**really**) 4. We will _____ our legs. (**move**) 5. We will _____ our wagon behind us. (**pull**) 6. Walking is good for your _____. (**body**)
Word Study	**Word Study**
• Students will analyze the word to complete the word study. Students may write words or use cutout words or pictures. 1. What word starts like *game*? (**girl**) 2. What word starts like *bug*? (**ball**) 3. What word starts like *fun*? (**fast**) 4. What word rhymes with *sigh*? (**high**) 5. What word rhymes with *mat*? (**that**) 6. What word ends like *river*? (**over**)	• Students will analyze the word to complete the word study. Students may write words or use cutout words or pictures. 1. What word starts like *ring*? (**really**) 2. What word starts like *monkey*? (**move**) 3. What word starts like *baby*? (**body**) 4. What word rhymes with *wrong*? (**along**) 5. What word rhymes with *cow*? (**now**) 6. What word ends like *tool*? (**pull**)

Differentiated Tasks		
Level 3	*Level 2*	*Level 1*
• Students will independently read high-frequency words. • Students will independently read and write words by applying letter-sound correspondences. • Students will demonstrate conventions of written language, including appropriate initial capitalization, ending punctuation and common spelling.	• Students will select or point to a named high-frequency word from a set of three words. • Students will select or point to a named word from a set of three words, using cues from letter-sound correspondence. • Students will spell familiar words with letter-sound matches.	• Students will select a named high-frequency word from a single option choice. • Students will attend to activities that apply letter-sound correspondence to the reading of words.

Resources and Materials	**Notes**
Worksheets and sentence strips for Lists 2 and 3	

Grade Band: **Intermediate**
Unit Target: *Physical Science*
Unit Topic: **Make It Move**

Unit 22

Lesson 16

Instructional Targets
Math Standards for Numbers and Operations in Base Ten • ***Understand the place value system:*** Compare multi-digit numbers by use of symbols: >, < or =. • ***Use place value understanding and properties of operations to perform multi-digit arithmetic:*** Solve addition and subtraction problems up to 30, 50 and 100. Illustrate concepts of multiplication (equal shares) and division (equal groups) with multi-digit numbers. • ***Building Blocks to Counting and Cardinality:*** Read and write numerals. Count a number of objects.
Which of your state standards are aligned to these instructional targets?

Classroom Activities/Lesson Plan	
Number Sense: Pull the Wagon Number Sense activities include number recognition, counting and simple math calculations: addition, subtraction and early multiplication. Problems must be individualized for each student; however, all problems should be presented in the context of the simulated real-world scenarios of the lesson. Mathematics instruction may be expanded beyond these lessons to include generalization in related real-world applications. Choose the most appropriate activity on the basis of each student's needs. Level 3 is intended for students who can write numbers and solve problems at a more independent level. Students using Level 2 worksheets will need support, including manipulatives or teacher support. Tracing lines are available, but hand-over-hand assistance is appropriate. Numbers and manipulatives are available for Level 1 activities. Communication devices can be programmed to support students in counting the pictures and manipulatives. Students may be given multiple choices or one errorless number choice. In this lesson, Emily and Chris are putting things in a wagon and pulling the wagon around. Before working with these scenarios, explore with students how weight affects the force needed to move an object. If possible, bring in a wagon, or other type of container on wheels, and allow students to experiment with moving the wagon or container with various objects loaded inside. Emphasize that the more you put in the wagon or container, the heavier it is and the heavier it is, the harder it is to push or pull. Scenario cards are provided to address these skills.	
<u>**Numbers and Counting**</u> **Number Sense 1, 2, and 3:** Counting to 10 **Number Sense 4 and 5:** Counting and Numbers to 20 **Number Sense 6:** How Many? 1–10 **Number Sense 7:** How Many? 11–20 <u>**Addition**</u> **Number Sense 8:** Adding to 10 Vertical **Number Sense 9:** Adding to 10 Horizontal **Number Sense 10:** Adding to 20 Vertical **Number Sense 11:** Adding to 20 Horizontal **Number Sense 12:** Adding 3 Numbers to 20 Vertical **Number Sense 13:** Adding 3 Number to 20 Horizontal **Number Sense 14:** Adding 2-Digit Numbers to 50 - No Carrying **Number Sense 15:** Adding 2-Digit Numbers - Teaching & Learning How to Carry **Number Sense 16:** Adding 2 Digit Numbers to 50 - Carrying <u>**Subtraction**</u> **Number Sense 17:** Subtracting to 10 Vertical **Number Sense 18:** Subtracting to 10 Horizontal **Number Sense 19:** Subtracting to 20 - No Borrowing **Number Sense 20:** Subtracting 2-Digit Numbers to 50 - No Borrowing **Number Sense 21:** Subtracting 2-Digit Numbers - Teaching & Learning How to Borrow **Number Sense 22:** Subtracting 2-Digit Numbers to 50 - Borrowing	<u>**Using a Calculator**</u> **Number Sense 23:** Teaching How to Use a Calculator - Addition **Number Sense 24:** Using a Calculator - Adding to 50 **Number Sense 25:** Using a Calculator - Adding to 100 **Number Sense 26:** Teaching How to Use a Calculator - Subtraction **Number Sense 27:** Using a Calculator - Subtracting to 50 **Number Sense 28:** Using a Calculator - Subtracting to 100 <u>**Comparing Numbers**</u> **Number Sense 29:** Teaching Comparing Numbers **Number Sense 30:** Comparing Numbers to 50 **Number Sense 31:** Comparing Numbers to 100 <u>**Multiplication/Division**</u> **Number Sense 32:** Modeling Multiplication **Number Sense 33:** Modeling Division
Design lessons according to student abilities. Use manipulatives to simulate problem scenarios. Use a VELCRO®-sensitive board to model math problems. Number cards, symbol cards (+, - and =) and additional tools for math instruction are provided in the **ULS Instructional Tools: Math Pack/Numbers**. Additional ideas for math instruction are provided in the **ULS Instructional Guides: Mathematics**. *Pre- and post-assessments are available through Monthly Checkpoints.*	

Differentiated Tasks		
Level 3	*Level 2*	*Level 1*
• Students will count and read numbers to 100. • Students will compare numbers to 100 to determine *more*, *less* or *equal*. • Students will solve addition and subtraction problems to 50 and 100. • Students will model and solve simple multiplication and division problems in the context of a real-world scenario.	• Students will count and read one-digit and two-digit numbers. • Students will compare numbers to 20 with a model to determine *more*, *less* or *equal*. • Students will solve addition and subtraction problems to 20. • Students will model groups to multiply or divide.	• Students will use a sequencing voice output device to count to a given number. • Students will compare two sets of objects to determine *more*, *less* or *equal*. • Students will count sets of objects within addition or subtraction problems through an active participation response (e.g., voice output device, eye gaze choice board). • Students will count a set of objects in a group through an active participation response (e.g., voice output device, eye gaze choice board).

Resources and Materials	**Notes**
Scenario cards Manipulative pictures	Number cards and symbol cards (+, – and =) are provided in the **ULS Instructional Tools: Math Pack/Numbers**.

Instructional Guides
Middle School Suggested Monthly Plan

Week ___ Determine if activities will be completed as a whole class or in small groups (times may vary depending on instructional format).				
Day 1	**Day 2**	**Day 3**	**Day 4**	**Day 5**
Language Arts block: 50 minutes Pre-assessment Checkpoints Combined Content (Level 1) Content Understanding (2 & 3) (5-10 minutes/student)	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 1: Introduce book with picture walk and background building activities. Small Group (30 minutes) (3 groups x 10 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 2: Reread book and answer comprehension questions. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 3: Chapter 1- build background, comprehension. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 5: Chapter 2 – build background, comprehension Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.
Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 3: Chapter 1- build background, comprehension. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 5: Chapter 2 – build background, comprehension Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 7: Chapter 3 – build background, comprehension Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 9: Chapter 4 – build background, comprehension Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 19: Math Story Problems Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.

Instructional Guides
Middle School Suggested Monthly Plan

Week ___ Determine if activities will be completed as a whole class or in small groups (times may vary depending on instructional format).				
Day 1	**Day 2**	**Day 3**	**Day 4**	**Day 5**
Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 1: Introduce book with picture walk and background building activities. Small Group (30 minutes) (3 groups x 10 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 2: Reread book and answer comprehension questions. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 7: Chapter 3 – build background, comprehension Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 9: Chapter 4 – build background, comprehension Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 11: Chapter 5 – build background, comprehension Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.
Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 1: Introduce book with picture walk and background building activities. Small Group (30 minutes) (3 groups x 10 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 2: Reread book and answer comprehension questions. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 11: Chapter 5 – build background, comprehension Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 13: Chapter 6 – build background, comprehension Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Post-assessment Checkpoints Combined Content (Level 1) Content Understanding (2 & 3) (5-10 minutes/student)

Grade Band: **Middle School** Unit 22
Unit Target: *Physical Science*
Unit Topic: **Is It Hot? Is It Cold?**

Lesson 1

Instructional Targets
Reading Standards for Literature • ***Range and Level of Text Complexity:*** Experience grade level and age-appropriate literature materials, including poems, biographies, chapter books, fiction and nonfiction works that are adapted to student reading level.
Which of your state standards are aligned to these instructional targets?

Classroom Activities/Lesson Plan

Leveled Book: *Watch Your Sister!*

Lesson 1 provides a simple book in three distinct reading levels. Early readers may engage in the same content when selecting the appropriate level based on individual abilities, needs or reading goals. This Leveled Book is presented in three leveled formats: Level D, Level B and Level aa (captioned). Select the level appropriate for each student.

The content of the Leveled Book features a familiar theme of babysitting for a younger sibling. The unit topic of hot and cold is addressed as a curious toddler explores the house while her brother tries to keep her safe. When they have finished the book, students should be able to describe common things in a home that are hot or cold. They should be able to identify things that could be a danger to someone and why.

- Introduce the story by talking about things in each room of the house that are hot or cold. Ask, "What can you think of in the kitchen that is hot? What in the kitchen is cold?"
- On the first reading, do a picture walk. Note pictures of the items encountered in each room in the story. Emphasize that there is something hot or cold in every room of the house. Discuss safety issues when things are too hot or too cold. Ask, "Are there things in your house that can be too hot or too cold to touch?"
- Read the story aloud to model fluency. After reading the story, ask questions about safety for people of different ages.
- As a group, reread the story with pauses for key words to encourage participation. Encourage choral reading of the repeated line. Provide students with supports for page turning and interaction while they are reading.
- During independent or paired reading, focus on individual student reading abilities with text or supported-text versions. It is likely that students may read different levels for different purposes each day when building reading skills.
- Support student reading, using the communication board to do so.
- Follow up reading with discussion on responsibility. Ask, "Have you ever helped watch a small child or a baby? What makes it hard to do? What things in your house could be dangerous?" Emphasize those items that are hot or cold.

Word-recognition cards for this lesson support high-frequency words within the unit reading materials.
High Frequency Words:
List 1: *or, from, out, with, very, for*
List 2: *says, too, these, thing, tell, feel*
List 3: *goes, sometimes, change, different, water, body*

Standards Connection

- Students with reading challenges may acquire more information from text when it is read aloud. The connection lesson explores alternative ways to "read" by using the text-to-speech version of this story and the PowerPoint® show.

Additional ideas for word study instruction are provided in the **ULS Instructional Guides: Word Study**. For some students, the "learning to read" process continues in the higher grades. Word wall activities are included in this guide.

Comprehension questions from Leveled Books are based on the highest level in the series. These books may be read aloud to help students at all levels gain meaning.

Pre- and post-assessments are available through Monthly Checkpoints.

Differentiated Tasks

Level 3	*Level 2*	*Level 1*
• Students will independently read literature forms, including chapter books, biographies, poems, fiction and nonfiction works that have been adapted to student reading level.	• Students will read supported and shared literature forms, including chapter books, biographies, poems, fiction and nonfiction works that have been adapted to student reading level.	• Students will actively participate in supported reading of literature forms, including chapter books, biographies, poems, fiction and nonfiction works that have been adapted to student ability level.

Resources and Materials	Notes
Leveled Book: *Watch Your Sister!* Communication board Standards Connection Lesson 1	Additional ideas for word study instruction are provided in the **ULS Instructional Guides: Word Study**.

ULS, March 2014

Grade Band: **Middle School** Unit 22
Unit Target: *Physical Science*
Unit Topic: **Is It Hot? Is It Cold?**

Lesson 2

Instructional Targets

Reading Standards for Literature

- ***Key Ideas and Details:*** Answer questions to explain the main ideas, details and inferences of a story. Summarize the main theme and events of a story.

Which of your state standards are aligned to these instructional targets?

Classroom Activities/Lesson Plan

Read and Answer: *Watch Your Sister!*

Comprehension activities extend beyond "checking" what students remember from reading. During instruction, students learn to refer to the book, using both illustrations and text, to locate answers to questions. Students recognize types of responses appropriate to *who*, *what* and *where* formats. Question responses may also provide students with a foundation for story retell. Activities should be repeated throughout the unit to increase students' skills in multiple areas of comprehension.

After reading *Watch Your Sister!*, use the following comprehension activity. Students may respond to questions both orally and in writing. Choose the most appropriate worksheet on the basis of each student's needs. Level 3 is text only. Level 2 is symbol-supported. Level 1 is written in sentence strip format, allowing students to select from multiple choices or one errorless picture choice.

Build vocabulary knowledge of the identified words. Picture support cards are provided for reading recognition. Use the words in additional sentences for meaning. Make connections between vocabulary and each student's experiences.

sleep stove sister cold hot

1. Dan watches his _____. (**sister**)
2. The fire is too _____. (**hot**)
3. The ice is too _____. (**cold**)
4. Mera knocks over the _____. (**drink**)
5. Mera lies down to _____. (**sleep**)

Standards Connection

- Use the format of this connection to build retelling and summarizing skills. Build communication skills by using the augmentative supports needed for each student.

Comprehension questions from Leveled Books are based on the highest level in the series. These books may be read aloud to help students at all levels gain meaning.

Pre- and post-assessments are available through Monthly Checkpoints.

Differentiated Tasks

Level 3	*Level 2*	*Level 1*
• Students will independently read questions about a story and write, speak or select an answer. • Students will summarize a story, including the main idea, events and key details.	• Students will point to or select a picture from a choice of three in response to a question about a story. • Students will use picture supports to retell key details and events from a story.	• Students will respond to a question by choosing a single option or errorless picture. • Students will retell key details and events from a story through an active participation response (e.g., voice output device, eye gaze choice board).

Resources and Materials	Notes
Comprehension worksheets and sentence strips Standards Connection Lesson 2	

Grade Band: **Middle School** Unit 22
Unit Target: *Physical Science*
Unit Topic: **Is It Hot? Is It Cold?**

Lesson 3

Instructional Targets
Reading Standards for Literature • ***Range and Level of Text Complexity:*** Experience grade level and age-appropriate literature materials, including poems, biographies, chapter books, fiction and nonfiction works that are adapted to student reading level. • ***Key Ideas and Details:*** Answer questions to explain the main ideas, details and inferences of a story.
Which of your state standards are aligned to these instructional targets?

Classroom Activities/Lesson Plan

Chapter 1: Hot and Cold

The title of the Chapter Book is *Let's Learn About Hot and Cold.* The first chapter, Hot and Cold, describes how hot and cold temperatures are part of many aspects of everyday life. The chapter explains how temperature is a factor in everything from washing dishes to going outside. The concept of how items may change due to different temperatures is introduced in this chapter.

- Chapter books present a "reading to learn" experience. Therefore, students may read independently, in a shared reading experience or books may be read to them. Present students with one chapter at a time for reading and comprehension instruction.
- After each page is read, ask the discussion question that appears in italics at the bottom of the page. Focus on pictures to reinforce understanding. Repeated readings are encouraged.
- Suggested Reading Levels for this chapter include: Levels H/I, presented in a text format, and E, presented in both text and symbol-supported formats.

Read and Answer

Comprehension activities extend beyond "checking" what students remember from reading. During instruction, students learn to refer to the book, using both illustrations and text, to locate answers to questions. Students recognize types of responses appropriate to *who*, *what* and *where* formats. Question responses may also provide students with a foundation for story retell. Activities should be repeated throughout the unit to increase students' skills in multiple areas of comprehension.

- Select the level of comprehension questions appropriate to each student. Comprehension questions are also in three formats. Level 3 is text only. Level 2 is symbol-supported. Level 1 is written in sentence strip format, allowing students to select from multiple choices or one errorless picture choice.
- Build comprehension and vocabulary through discussions.

Standards Connection

- These standards connection lessons are designed to build summarizing skills and are applicable to all chapters. Using the first standards connection form, determine whether this book is a work of fiction or nonfiction. Select the additional standards connection lesson based on whether the chapter is a fictional format that has a story line or an informational text that includes facts and historical events.

The first two sets of comprehension questions are derived from the lower levels of text. An advanced level of mixed questions is provided in text-only format.

Pre- and post-assessments are available through Monthly Checkpoints.

Differentiated Tasks

Level 3	*Level 2*	*Level 1*
• Students will independently read literature forms, including chapter books, biographies, poems, fiction and nonfiction works that have been adapted to student reading level. • Students will independently read questions about a story and write, speak or select an answer.	• Students will read supported and shared literature forms, including chapter books, biographies, poems, fiction and nonfiction works that have been adapted to student reading level. • Students will point to or select a picture from a choice of three in response to a question about a story.	• Students will actively participate in supported reading of literature forms, including chapter books, biographies, poems, fiction and nonfiction works that have been adapted to student ability level. • Students will respond to a question by choosing a single option or errorless picture.

Resources and Materials	Notes
Chapter 1: Hot and Cold Communication board Comprehension worksheets and sentence strips (multiple-choice and fill-in); Advanced questions Standards Connection Lessons 3, 5, 7, 9, 11, 13	

Grade Band: **Middle School**
Unit Target: *Physical Science*
Unit Topic: **Is It Hot? Is It Cold?**

Unit 22

Lesson 5

Instructional Targets

Reading Standards for Literature

- ***Range and Level of Text Complexity:*** Experience grade level and age-appropriate literature materials, including poems, biographies, chapter books, fiction and nonfiction works that are adapted to student reading level.
- ***Key Ideas and Details:*** Answer questions to explain the main ideas, details and inferences of a story.

Which of your state standards are aligned to these instructional targets?

Classroom Activities/Lesson Plan

Chapter 2: Baking Cookies

The title of the Chapter Book is *Let's Learn About Hot and Cold.* The second chapter, Baking Cookies, focuses on the use of heat when baking cookies in an oven. The changes in the cookies being baked are described. Issues of safety are also emphasized.

- Chapter books present a "reading to learn" experience. Therefore, students may read independently, in a shared reading experience or books may be read to them. Present students with one chapter at a time for reading and comprehension instruction.
- After each page is read, ask the discussion question that appears in italics at the bottom of the page. Focus on pictures to reinforce understanding. Repeated readings are encouraged.
- Suggested Reading Levels for this chapter include: Levels H/I, presented in a text format, and E, presented in both text and symbol-supported formats.

Read and Answer

Comprehension activities extend beyond "checking" what students remember from reading. During instruction, students learn to refer to the book, using both illustrations and text, to locate answers to questions. Students recognize types of responses appropriate to *who*, *what* and *where* formats. Question responses may also provide students with a foundation for story retell. Activities should be repeated throughout the unit to increase students' skills in multiple areas of comprehension.

- Select the level of comprehension questions appropriate to each student. Comprehension questions are also in three formats. Level 3 is text only. Level 2 is symbol-supported. Level 1 is written in sentence strip format, allowing students to select from multiple choices or one errorless picture choice.
- Build comprehension and vocabulary through discussions.

Standards Connection

- These standards connection lessons are designed to build summarizing skills and are applicable to all chapters. Using the first standards connection form, determine whether this book is a work of fiction or nonfiction. Select the additional standards connection lesson based on whether the chapter is a fictional format that has a story line or an informational text that includes facts and historical events.

The first two sets of comprehension questions are derived from the lower levels of text. An advanced level of mixed questions is provided in text-only format.

Pre- and post-assessments are available through Monthly Checkpoints.

Differentiated Tasks

Level 3	Level 2	Level 1
• Students will independently read literature forms, including chapter books, biographies, poems, fiction and nonfiction works that have been adapted to student reading level. • Students will independently read questions about a story and write, speak or select an answer.	• Students will read supported and shared literature forms, including chapter books, biographies, poems, fiction and nonfiction works that have been adapted to student reading level. • Students will point to or select a picture from a choice of three in response to a question about a story.	• Students will actively participate in supported reading of literature forms, including chapter books, biographies, poems, fiction and nonfiction works that have been adapted to student ability level. • Students will respond to a question by choosing a single option or errorless picture.

Resources and Materials	Notes
Chapter 2: Baking Cookies Communication board Comprehension worksheets and sentence strips (multiple-choice and fill-in items); Advanced questions Standards Connection Lessons 3, 5, 7, 9, 11, 13	

Grade Band: **Middle School** Unit 22
Unit Target: *Physical Science*
Unit Topic: **Is It Hot? Is It Cold?**

Lesson 7

Instructional Targets
Reading Standards for Literature ***Range and Level of Text Complexity:*** Experience grade level and age-appropriate literature materials, including poems, biographies, chapter books, fiction and nonfiction works that are adapted to student reading level. ***Key Ideas and Details:*** Answer questions to explain the main ideas, details and inferences of a story.
Which of your state standards are aligned to these instructional targets?

Classroom Activities/Lesson Plan

Chapter 3: Got a Fever?

The title of the Chapter Book is *Let's Learn about Hot and Cold.* The third chapter, Got a Fever?, describes what happens when Jonah is ill with a fever. The difference in body temperature when someone is well and when someone is ill is discussed.

- Chapter books present a "reading to learn" experience. Therefore, students may read independently, in a shared reading experience or books may be read to them. Present students with one chapter at a time for reading and comprehension instruction.
- After each page is read, ask the discussion question that appears in italics at the bottom of the page. Focus on pictures to reinforce understanding. Repeated readings are encouraged.
- Suggested Reading Levels for this chapter include: Levels H/I, presented in a text format, and E, presented in both text and symbol-supported formats.

Read and Answer

Comprehension activities extend beyond "checking" what students remember from reading. During instruction, students learn to refer to the book, using both illustrations and text, to locate answers to questions. Students recognize types of responses appropriate to *who*, *what* and *where* formats. Question responses may also provide students with a foundation for story retell. Activities should be repeated throughout the unit to increase students' skills in multiple areas of comprehension.

- Select the level of comprehension questions appropriate to each student. Comprehension questions are also in three formats. Level 3 is text only. Level 2 is symbol-supported. Level 1 is written in sentence strip format, allowing students to select from multiple choices or one errorless picture choice.
- Build comprehension and vocabulary through discussions.

Standards Connection

- These standards connection lessons are designed to build summarizing skills and are applicable to all chapters. Using the first standards connection form, determine whether this book is a work of fiction or nonfiction. Select the additional standards connection lesson based on whether the chapter is a fictional format that has a story line or an informational text that includes facts and historical events.

The first two sets of comprehension questions are derived from the lower levels of text. An advanced level of mixed questions is provided in text-only format.

Pre- and post-assessments are available through Monthly Checkpoints.

Differentiated Tasks		
Level 3	*Level 2*	*Level 1*
• Students will independently read literature forms, including chapter books, biographies, poems, fiction and nonfiction works that have been adapted to student reading level. • Students will independently read questions about a story and write, speak or select an answer.	• Students will read supported and shared literature forms, including chapter books, biographies, poems, fiction and nonfiction works that have been adapted to student reading level. • Students will point to or select a picture from a choice of three in response to a question about a story.	• Students will actively participate in supported reading of literature forms, including chapter books, biographies, poems, fiction and nonfiction works that have been adapted to student ability level. • Students will respond to a question by choosing a single option or errorless picture.

Resources and Materials	**Notes**
Chapter 4: Got a Fever? Communication board Comprehension worksheets and sentence strips (multiple-choice and fill-in); Advanced questions Standards Connection Lessons 3, 5, 7, 9, 11, 13	

Grade Band: **Middle School** Unit 22
Unit Target: *Physical Science*
Unit Topic: **Is It Hot? Is It Cold?**

Lesson 9

Instructional Targets

Reading Standards for Literature
- ***Range and Level of Text Complexity:*** Experience grade level and age-appropriate literature materials, including poems, biographies, chapter books, fiction and nonfiction works that are adapted to student reading level.
- ***Key Ideas and Details:*** Answer questions to explain the main ideas, details and inferences of a story.

Which of your state standards are aligned to these instructional targets?

Classroom Activities/Lesson Plan

Chapter 4: Icy Juice Cups

The title of the Chapter Book is *Let's Learn About Hot and Cold.* The fourth chapter, Icy Juice Cups, describes the changes that occur when something is frozen. Changes from liquid to solid, as the result of cold, are described as Jonah freezes juice in cups.
- Chapter books present a "reading to learn" experience. Therefore, students may read independently, in a shared reading experience or books may be read to them. Present students with one chapter at a time for reading and comprehension instruction.
- After each page is read, ask the discussion question that appears in italics at the bottom of the page. Focus on pictures to reinforce understanding. Repeated readings are encouraged.
- Suggested Reading Levels for this chapter include: Levels H/I, presented in a text format and E, presented in both text and symbol-supported formats.

Read and Answer
Comprehension activities extend beyond "checking" what students remember from reading. During instruction, students learn to refer to the book, using both illustrations and text, to locate answers to questions. Students recognize types of responses appropriate to *who*, *what* and *where* formats. Question responses may also provide students with a foundation for story retell. Activities should be repeated throughout the unit to increase students' skills in multiple areas of comprehension.
- Select the level of comprehension questions appropriate to each student. Comprehension questions are also in three formats. Level 3 is text only. Level 2 is symbol-supported. Level 1 is written in sentence strip format, allowing students to select from multiple choices or one errorless picture choice.
- Build comprehension and vocabulary through discussions.

Standards Connection
- These standards connection lessons are designed to build summarizing skills and are applicable to all chapters. Using the first standards connection form, determine whether this book is a work of fiction or nonfiction. Select the additional standards connection lesson based on whether the chapter is a fictional format that has a story line or an informational text that includes facts and historical events.

The first two sets of comprehension questions are derived from the lower levels of text. An advanced level of mixed questions is provided in text-only format.

Pre- and post-assessments are available through Monthly Checkpoints.

Differentiated Tasks

Level 3	*Level 2*	*Level 1*
• Students will independently read literature forms, including chapter books, biographies, poems, fiction and nonfiction works that have been adapted to student reading level. • Students will independently read questions about a story and write, speak or select an answer.	• Students will read supported and shared literature forms, including chapter books, biographies, poems, fiction and nonfiction works that have been adapted to student reading level. • Students will point to or select a picture from a choice of three in response to a question about a story.	• Students will actively participate in supported reading of literature forms, including chapter books, biographies, poems, fiction and nonfiction works that have been adapted to student ability level. • Students will respond to a question by choosing a single option or errorless picture.

Resources and Materials	Notes
Chapter 3: Icy Juice Cups Communication board Comprehension worksheets and sentence strips (multiple-choice and fill-in); Advanced questions Standards Connection Lessons 3, 5, 7, 9, 11, 13	

Grade Band: **Middle School** Unit 22
Unit Target: *Physical Science*
Unit Topic: **Is It Hot? Is It Cold?**

Lesson 11

Instructional Targets
Reading Standards for Literature • ***Range and Level of Text Complexity:*** Experience grade level and age-appropriate literature materials, including poems, biographies, chapter books, fiction and nonfiction works that are adapted to student reading level. • ***Key Ideas and Details:*** Answer questions to explain the main ideas, details and inferences of a story.
Which of your state standards are aligned to these instructional targets?

Classroom Activities/Lesson Plan

Chapter 5: Beach Party

The title of the Chapter Book is *Let's Learn About Hot and Cold.* The fifth chapter, Beach Party, focuses on temperature during a hot day at the beach. The chapter includes discussion of how to keep drinks cold in a cooler, using a campfire for a cook-out and keeping safe in the sun by using sunscreen.

- Chapter books present a "reading to learn" experience. Therefore, students may read independently, in a shared reading experience or books may be read to them. Present students with one chapter at a time for reading and comprehension instruction.
- After each page is read, ask the discussion question that appears in italics at the bottom of the page. Focus on pictures to reinforce understanding. Repeated readings are encouraged.
- Suggested Reading Levels for this chapter include: Levels H/I presented in a text format, and E, presented in both text and symbol-supported formats.

Read and Answer

Comprehension activities extend beyond "checking" what students remember from reading. During instruction, students learn to refer to the book, using both illustrations and text, to locate answers to questions. Students recognize types of responses appropriate to *who*, *what* and *where* formats. Question responses may also provide students with a foundation for story retell. Activities should be repeated throughout the unit to increase students' skills in multiple areas of comprehension.

- Select the level of comprehension questions appropriate to each student. Comprehension questions are also in three formats. Level 3 is text only. Level 2 is symbol-supported. Level 1 is written in sentence strip format, allowing students to select from multiple choices or one errorless picture choice.
- Build comprehension and vocabulary through discussions.

Standards Connection

- These standards connection lessons are designed to build summarizing skills and are applicable to all chapters. Using the first standards connection form, determine whether this book is a work of fiction or nonfiction. Select the additional standards connection lesson based on whether the chapter is a fictional format that has a story line or an informational text that includes facts and historical events.

The first two sets of comprehension questions are derived from the lower levels of text. An advanced level of mixed questions is provided in text-only format.

Pre- and post-assessments are available through Monthly Checkpoints.

Differentiated Tasks

Level 3	*Level 2*	*Level 1*
• Students will independently read literature forms, including chapter books, biographies, poems, fiction and nonfiction works that have been adapted to student reading level. • Students will independently read questions about a story and write, speak or select an answer.	• Students will read supported and shared literature forms, including chapter books, biographies, poems, fiction and nonfiction works that have been adapted to student reading level. • Students will point to or select a picture from a choice of three in response to a question about a story.	• Students will actively participate in supported reading of literature forms, including chapter books, biographies, poems, fiction and nonfiction works that have been adapted to student ability level. • Students will respond to a question by choosing a single option or errorless picture.

Resources and Materials	Notes
Chapter 5: Beach Party Communication board Comprehension worksheets and sentence strips (multiple-choice and fill-in); Advanced questions Standards Connection Lessons 3, 5, 7, 9, 11, 13	

Grade Band: **Middle School** Unit 22
Unit Target: *Physical Science*
Unit Topic: **Is It Hot? Is It Cold?**

Lesson 13

Instructional Targets

Reading Standards for Literature

- ***Range and Level of Text Complexity:*** Experience grade level and age-appropriate literature materials, including poems, biographies, chapter books, fiction and nonfiction works that are adapted to student reading level.
- ***Key Ideas and Details:*** Answer questions to explain the main ideas, details and inferences of a story.

Which of your state standards are aligned to these instructional targets?

Classroom Activities/Lesson Plan

Chapter 6: Hot and Cold Safety

The title of the Chapter Book is *Let's Learn About Hot and Cold.* The sixth chapter, Hot and Cold Safety, describes common safety measures needed to address both hot and cold temperatures. Food preparation, food storage and weather are discussed in regards to safety.

- Chapter books present a "reading to learn" experience. Therefore, students may read independently, in a shared reading experience or books may be read to them. Present students with one chapter at a time for reading and comprehension instruction.
- After each page is read, ask the discussion question that appears in italics at the bottom of the page. Focus on pictures to reinforce understanding. Repeated readings are encouraged.
- Suggested Reading Levels for this chapter include: Levels H/I, presented in a text format, and E, presented in both text and symbol-supported formats.

Read and Answer

Comprehension activities extend beyond "checking" what students remember from reading. During instruction, students learn to refer to the book, using both illustrations and text, to locate answers to questions. Students recognize types of responses appropriate to *who*, *what* and *where* formats. Question responses may also provide students with a foundation for story retell. Activities should be repeated throughout the unit to increase students' skills in multiple areas of comprehension.

- Select the level of comprehension questions appropriate to each student. Comprehension questions are also in three formats. Level 3 is text only. Level 2 is symbol-supported. Level 1 is written in sentence strip format, allowing students to select from multiple choices or one errorless picture choice.
- Build comprehension and vocabulary through discussions.

Standards Connection

- These standards connection lessons are designed to build summarizing skills and are applicable to all chapters. Using the first standards connection form, determine whether this book is a work of fiction or nonfiction. Select the additional standards connection lesson based on whether the chapter is a fictional format that has a story line or an informational text that includes facts and historical events.

The first two sets of comprehension questions are derived from the lower levels of text. An advanced level of mixed questions is provided in text-only format.

Pre- and post-assessments are available through Monthly Checkpoints.

Differentiated Tasks

Level 3	Level 2	Level 1
• Students will independently read literature forms, including chapter books, biographies, poems, fiction and nonfiction works that have been adapted to student reading level. • Students will independently read questions about a story and write, speak or select an answer.	• Students will read supported and shared literature forms, including chapter books, biographies, poems, fiction and nonfiction works that have been adapted to student reading level. • Students will point to or select a picture from a choice of three in response to a question about a story.	• Students will actively participate in supported reading of literature forms, including chapter books, biographies, poems, fiction and nonfiction works that have been adapted to student ability level. • Students will respond to a question by choosing a single option or errorless picture.

Resources and Materials	Notes
Chapter 6: Hot and Cold Safety Communication board Comprehension worksheets and sentence strips (multiple-choice and fill-in); Advanced questions Standards Connection Lessons 3, 5, 7, 9, 11, 13	

Grade Band: **Middle School**
Unit Target: *Physical Science*
Unit Topic: **Is It Hot? Is It Cold?**

Unit 22

Lesson 19

Instructional Targets

Math Standards for Expressions and Equations

- ***Building Blocks to Expressions and Equations:*** Understand and use +, - and = symbols in problems. Solve addition and subtraction problems. Model and solve problems involving multiplication or division.
- ***Apply and extend previous understanding of arithmetic to algebraic expressions:*** Write, read and solve expressions in which letters stand for unknown numbers within a real-world scenario.

Math Standards for Operations in Base Ten

- ***Apply and extend previous understanding of operations with fractions to add, subtract, multiply and divide rational numbers*:** Use all operations to solve real-world problems with whole numbers to 100.
- ***Compute fluently with multi-digit numbers and find common factors and multiples:*** Add, subtract, multiply and divide multi-digit numbers with fluency.

Which of your state standards are aligned to these instructional targets?

Classroom Activities/Lesson Plan

Math Story Problems: Cookies and More Cookies!

The early grades build the foundational skills needed for later mathematical concepts. These skills include number recognition and use of numbers in operations to solve problems. Many students continue to require practice in adding and subtracting to build an understanding of multiplication and division concepts. The math story problems present real-world scenarios in which early skills are put to use. The scenarios in this lesson follow the unit theme by using scenarios about baking cookies.

- The scenarios provide early number recognition and counting.
- Although certain math concepts may appear complex to some students, involvement in this math topic is important for all students. Teaching and Learning Guides are provided to build foundational skills, including how to add with carrying and how to subtract with borrowing.
- Appropriate activities should be based on student needs. Level 3 differentiated task activities are intended for students who can write numbers and solve problems with little or no support. Level 2 differentiated task activities are intended for those students who may require some manipulative or teacher support. Although tracing lines are available, hand-over-hand assistance may be appropriate. Numbers and manipulatives are available for all Level 1 differentiated task activities. Voice output devices may be programmed to help students count pictures and manipulatives. Students may be given multiple choices or one errorless number choice.

<u>**Addition**</u>
Math Story 1 and 2: Adding to 10
Math Story 3 and 4: Adding to 20
Math Story 5 and 6: Adding 3 Numbers to 50
Math Story 7: Adding 2-Digit Numbers to 100 - No Carrying
Math Story 8: Adding 2-Digit Numbers - Teaching & Learning How to Carry
Math Story 9: Adding 2-Digit Numbers to 100 - Carrying
Math Story 10: Adding 2-Digit Numbers - With or Without Carrying
Math Story 11: Adding 3-Digit Numbers - Teaching & Learning How to Carry
Math Story 12: Adding 3-Digit Numbers - With or Without Carrying

<u>**Subtraction**</u>
Math Story 13 and 14: Subtracting to 10
Math Story 15 and 16: Subtracting to 20
Math Story 17: Subtracting 2-Digit Numbers to 50 - No Borrowing
Math Story 18: Subtracting 2-Digit Numbers - Teaching & Learning How to Borrow
Math Story 19: Subtracting 2-Digit Numbers to 50 - Borrowing
Math Story 20: Subtracting 2-Digit Numbers - With or Without Borrowing
Math Story 21: Subtracting 3-Digit Numbers - Teaching & Learning How to Borrow
Math Story 22: Subtracting 3-Digit Numbers - With or Without Borrowing
Math Story 23 and 24: Multi-Step Addition and Subtraction

<u>**Multiplication**</u>
Math Story 25: Single-Digit Multiplication
Math Story 26: Double-Digit Multiplication

<u>**Division**</u>
Math Story 27 and 28: Simple Division

- **Using a calculator simplifies the process for some students.**
- Create additional scenarios for further practice.
- Use Unique's math scenarios with other math methods, for example, Touch Math.

Standards Connection

- Teaching guides are provided to build foundational skills: How to use a calculator.
- Number comparisons may be drawn from this lesson's problem scenarios to determine greater than (>), less than (<) and equal to (=).

Pre- and post-assessments are available through Monthly Checkpoints.

Differentiated Tasks

Level 3	*Level 2*	*Level 1*
• Students will calculate addition and subtraction problems in the context of a real-world scenario. • Students will use a combination of operations to solve multi-step problems in the context of a real-world scenario. • Using objects and numbers showing equal groups, students will model multiplication and division in the context of a real-world scenario.	• Students will model addition and subtraction of two sets of objects in the context of a real-world scenario. • Students will solve a two-step problem, using operations and models in the context of a real-world scenario. • Students will count equal numbers of objects in selected groups or an array.	• Students will count a set of objects in an addition or subtraction problem through an active participation response (e.g., voice output device, eye gaze choice board). • Students will select numbers and count within a two-step problem in the context of a real-world scenario. • Students will count a set of objects in a group through an active participation response (e.g., voice output device, eye gaze choice board).

Resources and Materials	Notes
Math story problem scenarios Standards Connection Lesson 19	Number cards and symbol cards (+, – and =) are provided in the **ULS Instructional Tools: Math Pack/Numbers**. Additional ideas for math instruction are provided in the **ULS Instructional Guides: Mathematics**.

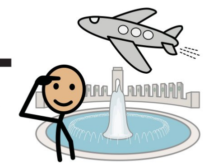
APPENDIX M

News-2-you Newspaper

news-2-you
Volume XVI, Edition 11 n2y.com November 4, 2013

WHAT ?

HONOR FLIGHT



Veterans Day is a holiday for all Americans.

Veterans Day is November 11.

America honors its military men and women.

One group, called Honor Flight, honors veterans.

http://www.honorflight.org/

news page

Honor Flight especially honors World War II veterans.

World War II was terrible !

Germany and Japan sent armies into many countries.

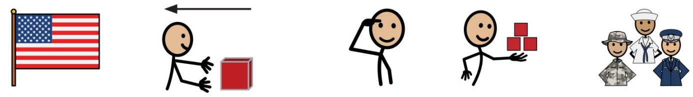
America and its friends wanted to stop them. *

The veterans won World War II for us all.

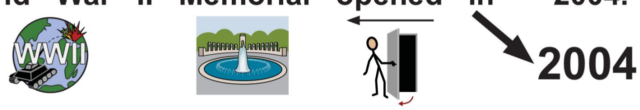
* America's friends included Canada, Australia and the United Kingdom.

news page

America wanted to honor these veterans.



The World War II Memorial opened in 2004.



The Memorial is in Washington, D.C.

Many veterans want to visit this special Memorial.

Honor Flight wants to help these veterans.

news page

World War II ended more than 60 years ago.

The veterans who won the war are now old.

Some need help going to Washington, D.C.

Many do not have the money for the trip.

These are the veterans Honor Flight helps.

news page

Honor Flight started in Ohio in 2005.

Earl Morse cared for military veterans in a hospital.

He wanted to help them visit the Memorial.

Earl is an airplane pilot.

He helped fly 12 veterans to Washington, D.C.

news page

Earl has a big dream.

He wants every living veteran to visit Washington, D.C.

Honor Flight makes the trip easy.

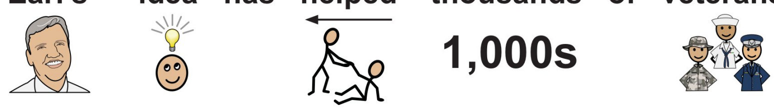
The veterans get the trip for free !

The veterans are welcomed everywhere they go !

November 4, 2013

news page

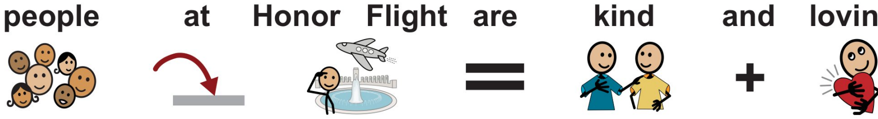
Earl's idea has helped thousands of veterans.



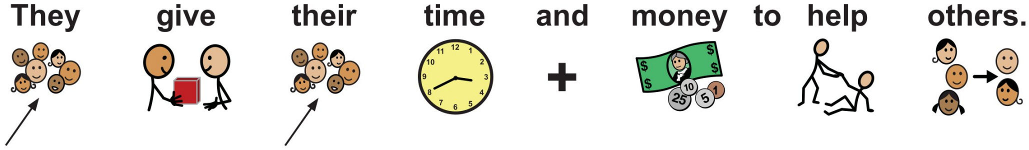
Today Honor Flight has 127 groups across America.

Each group flies veterans to Washington, D.C.

The people at Honor Flight are kind and loving.



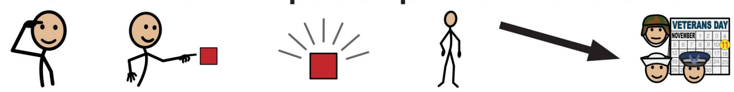
They give their time and money to help others.



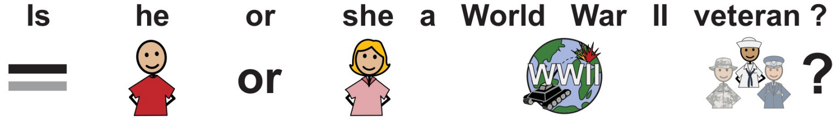
news page

Do you have a veteran in your family ?

Honor this special person on Veterans Day.

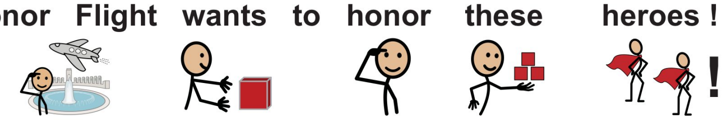


Is he or she a World War II veteran ?



Would they like to visit Washington, D.C. ?

Honor Flight wants to honor these heroes !



people in the news

WHO

THE WORLD WAR II VETERAN

A veteran is anyone who was in the U.S. military.

In World War II, veterans were in the Army, Navy, Marines or Coast Guard.

Veterans fought in America and all around the world.

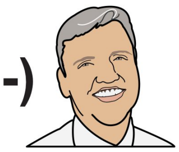
They fought on land, sea and in the air.

En.wikipedia.org/wiki/Veteran

people in the news

WHO

EARL MORSE (1959 -)



Earl lives in the town of Enon, in southwestern Ohio.

For 21 years, he was an officer in the U.S. Air Force.

Today Earl works in a veterans' hospital.

He loves to fly small airplanes.

Earl's Honor Flight has helped more than 100,000 veterans.

http://www.daytondailynews.com/news/news/local/honor-flight-founder-gets-national-honor/nX2yL/

November 4, 2013

WHERE

WORLD WAR II MEMORIAL

The World War II Memorial is in Washington, D.C.

The large Memorial is on the National Mall.

The Memorial has 56 tall pillars.

The name of a state or area is on each pillar.

The pillars surround a beautiful fountain.

www.worldwarii.com

places in the news

The Memorial has a big arch at each end.

The word "Atlantic" is on one arch.

The other arch has the word "Pacific."

Americans fought battles in both parts of the world.

The Memorial also has sculptures and 4,048 gold stars. *

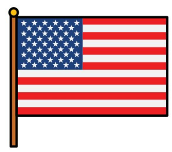
* One star is for every 100 Americans killed in WWII.

game page

Circle the pictures about HONOR FLIGHT.

Washington, D.C

America



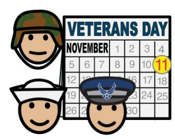
visit

arts and crafts

Memorial

dog

Veterans Day



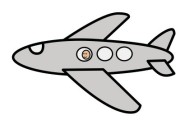
military

birthday cake

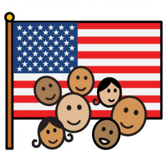
veterans

trip

airplane

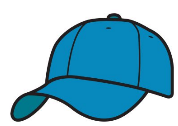


Americans

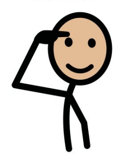


World War II

hat

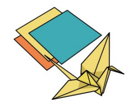


honor

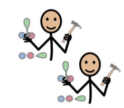


review page

1. WHAT is this paper about ?

Honor Flight	Fifth Harmony	Origami
		

2. WHO were in the U.S. military ?

veterans	inventors	Boy Scouts
		

3. WHO started the Honor Flight group ?

Jane Goodall	Flint Lockwood	Earl Morse
		

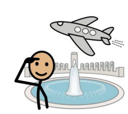
4. WHERE does Honor Flight take veterans ?

Germany	World War II Memorial	veteran's hospital
		

5. WHERE is the World War II Memorial ?

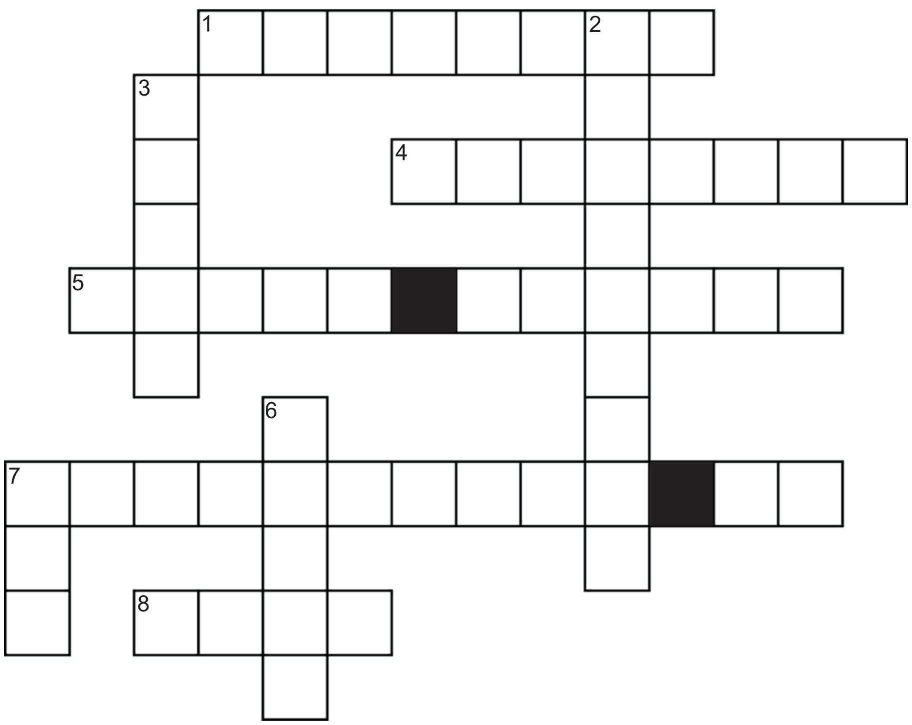
Enon, Ohio	Las Vegas, Nevada	Washington, D.C.
		

6. WHO pays for veterans to go to the Memorial ?

Earl Morse	Honor Flight	U.S. Army
		

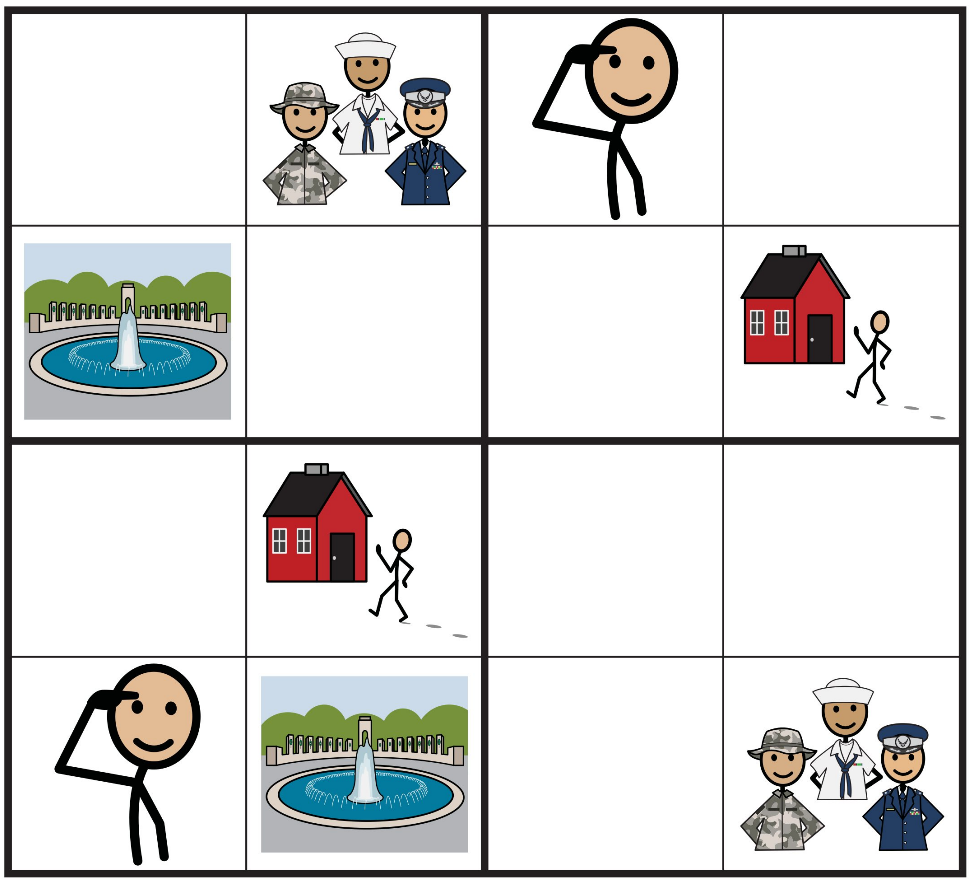
puzzle page

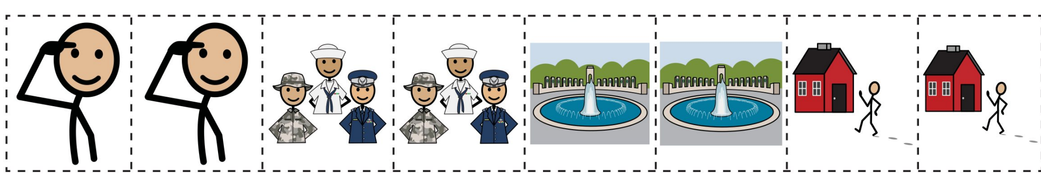
ACROSS		DOWN	
1	Memorial	2	Americans
4	veterans	3	honor
5	Honor Flight	6	visit
7	Washington, D.C.	7	war
8	trip		



sudoku page

Fill in the grid using the pictures below so that every row, every column and every large box contains the following four items:  .





think page ?

1. WHY would you like to visit the World War II Memorial ?

____

____

____

____

2. HOW do you think veterans feel at the Memorial ?

____

____

____

____

3. WHY was World War II terrible ?

____

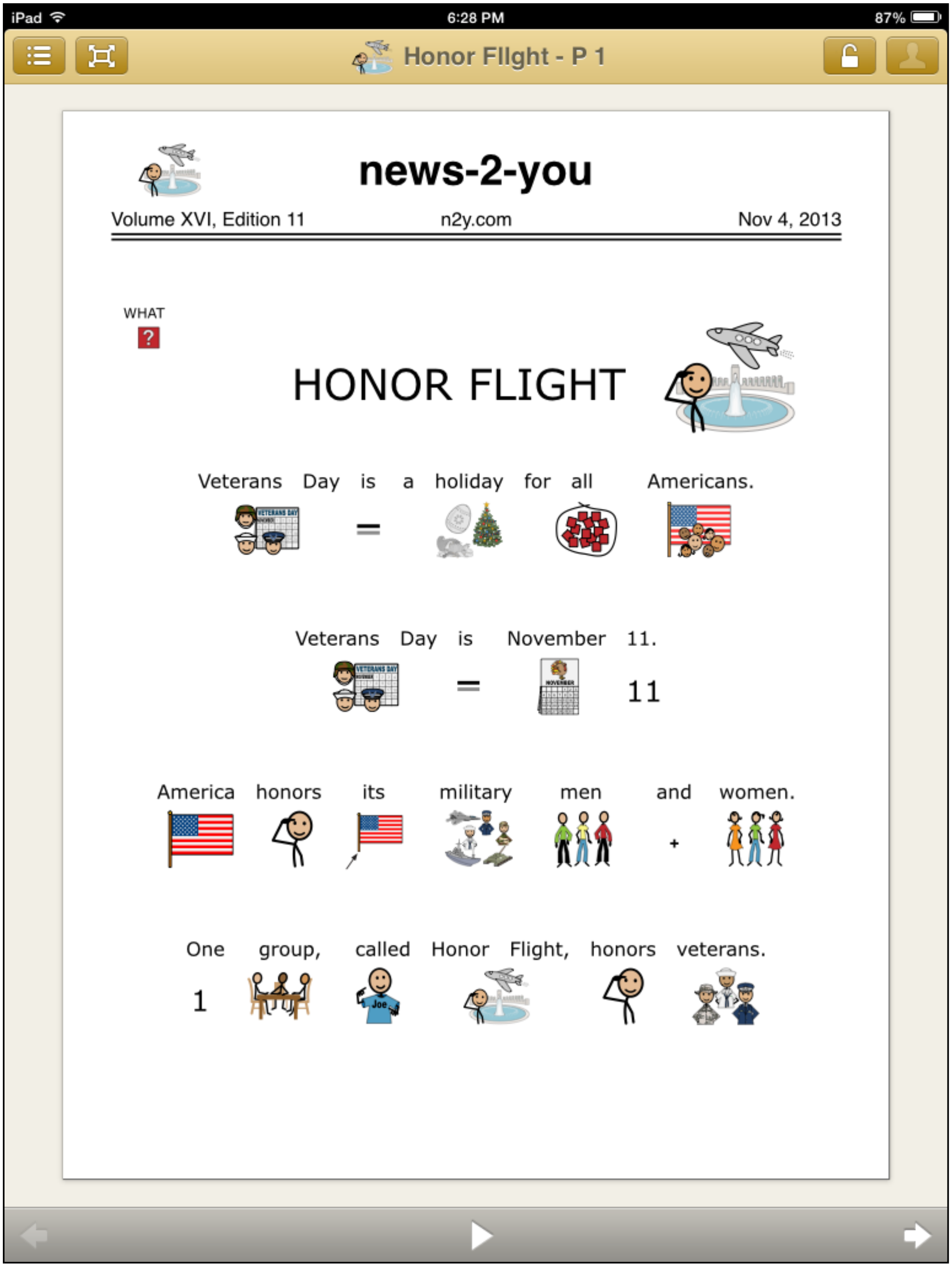
____

____

____

APPENDIX N

News-2-you *App*


iPad 6:28 PM 87%

Honor Flight - P 1

news-2-you

Volume XVI, Edition 11 n2y.com Nov 4, 2013

WHAT ?

HONOR FLIGHT

Veterans Day is a holiday for all Americans.

=

Veterans Day is November 11.

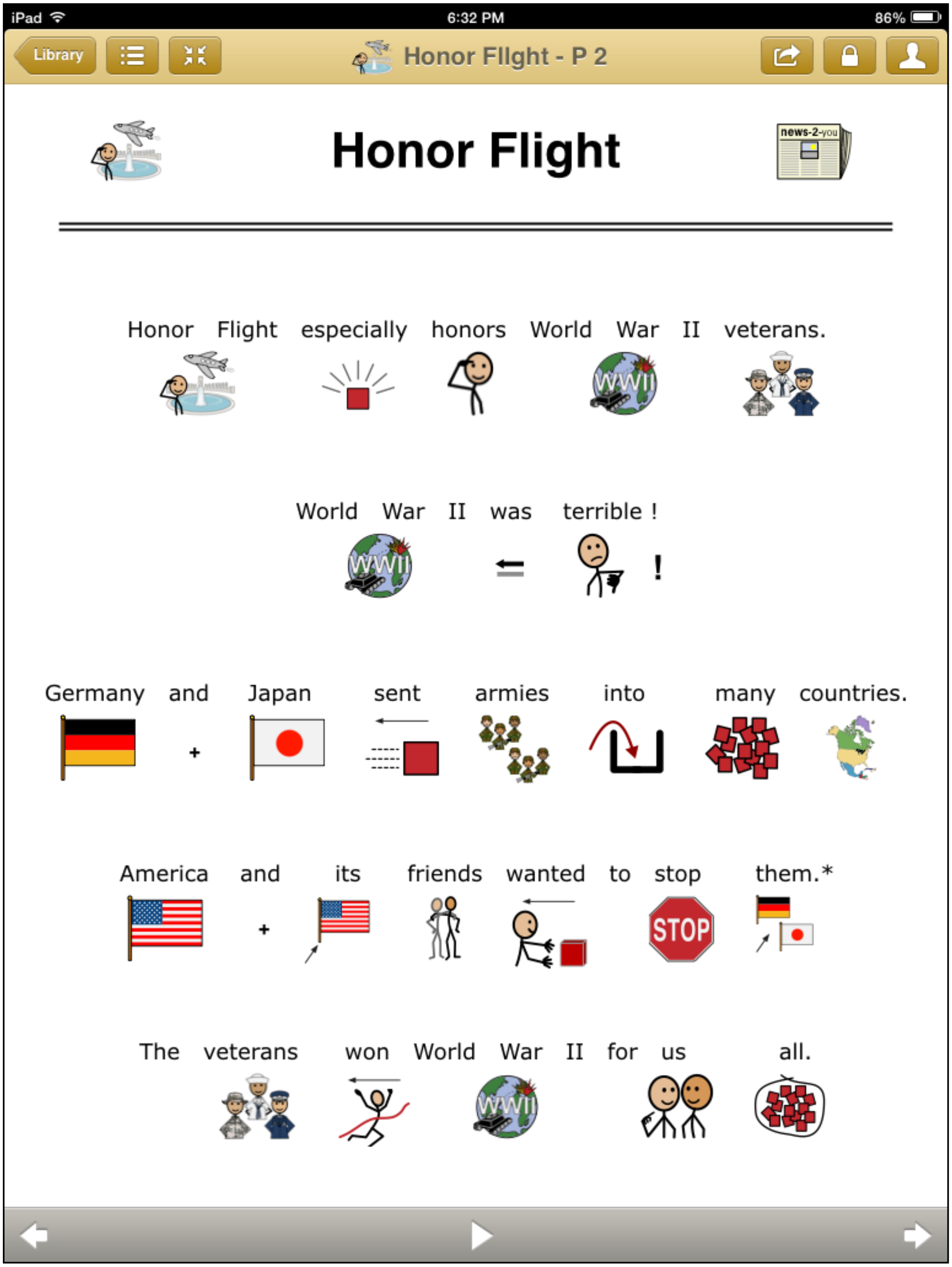
= 11

America honors its military men and women.

+

One group, called Honor Flight, honors veterans.

1 Joe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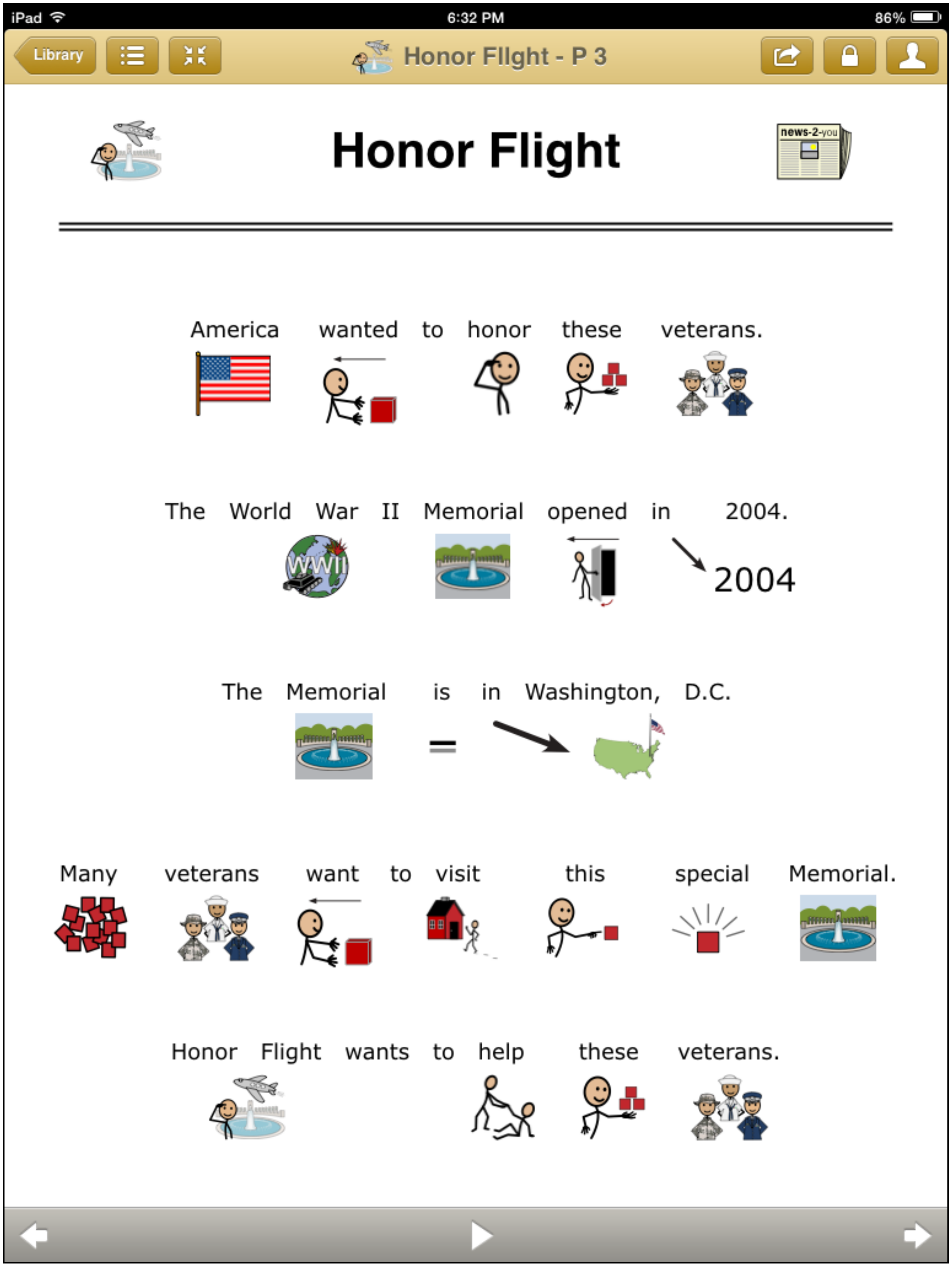
Library
Honor Flight - P 2
Honor Flight
news-2-you
Honor Flight especially honors World War II veterans.
World War II was terrible !
Germany and Japan sent armies into many countries.
America and its friends wanted to stop them.*
The veterans won World War II for us all.
WWII
STOP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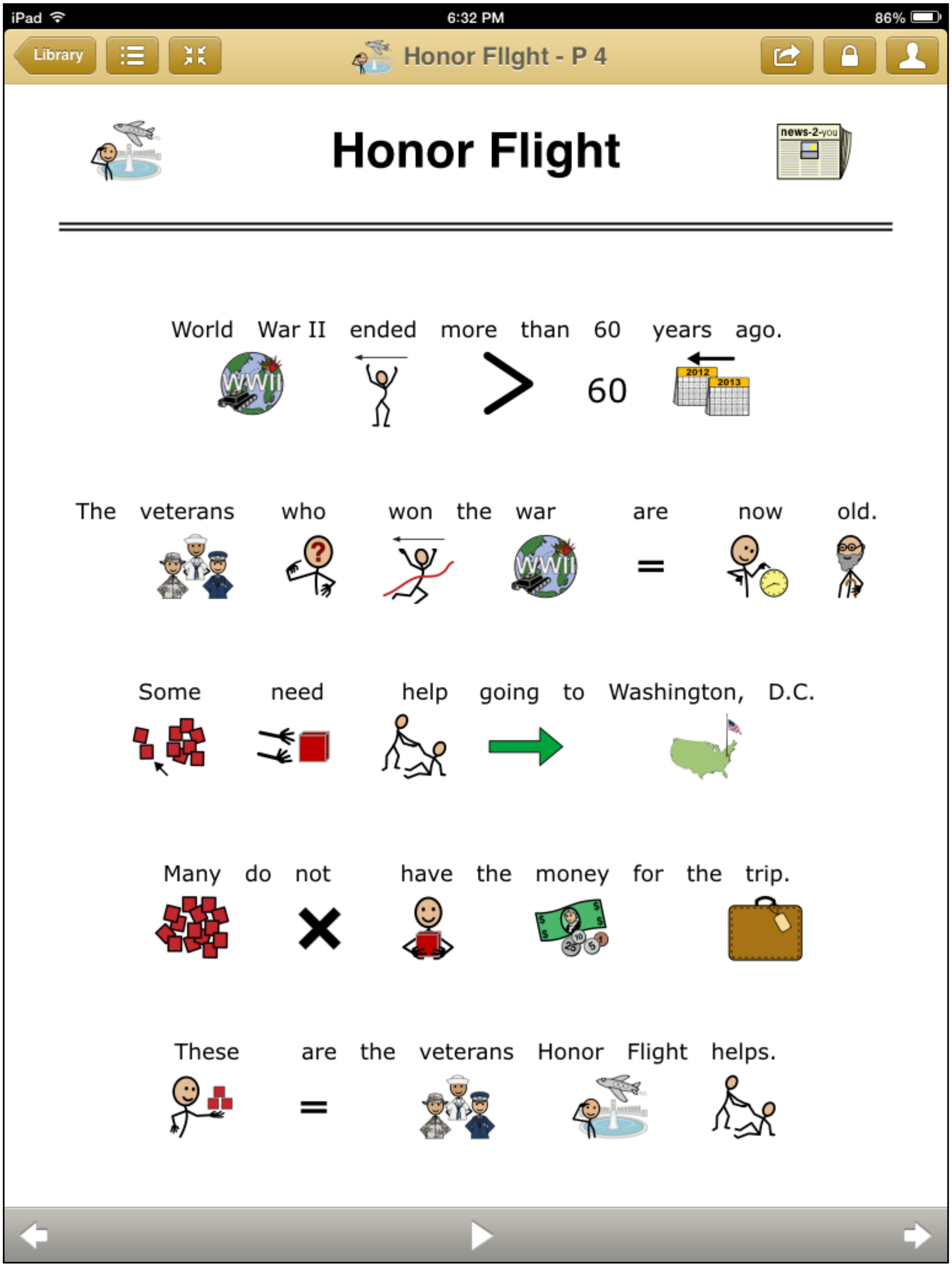
Library
Honor Flight - P 3
Honor Flight
news-2-you
America wanted to honor these veterans.
The World War II Memorial opened in 2004.
2004
The Memorial is in Washington, D.C.
Many veterans want to visit this special Memorial.
Honor Flight wants to help these veterans.



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Library Honor Flight - P 4

Honor Flight

news-2-you

World War II ended more than 60 years ago.

60

2012 2013

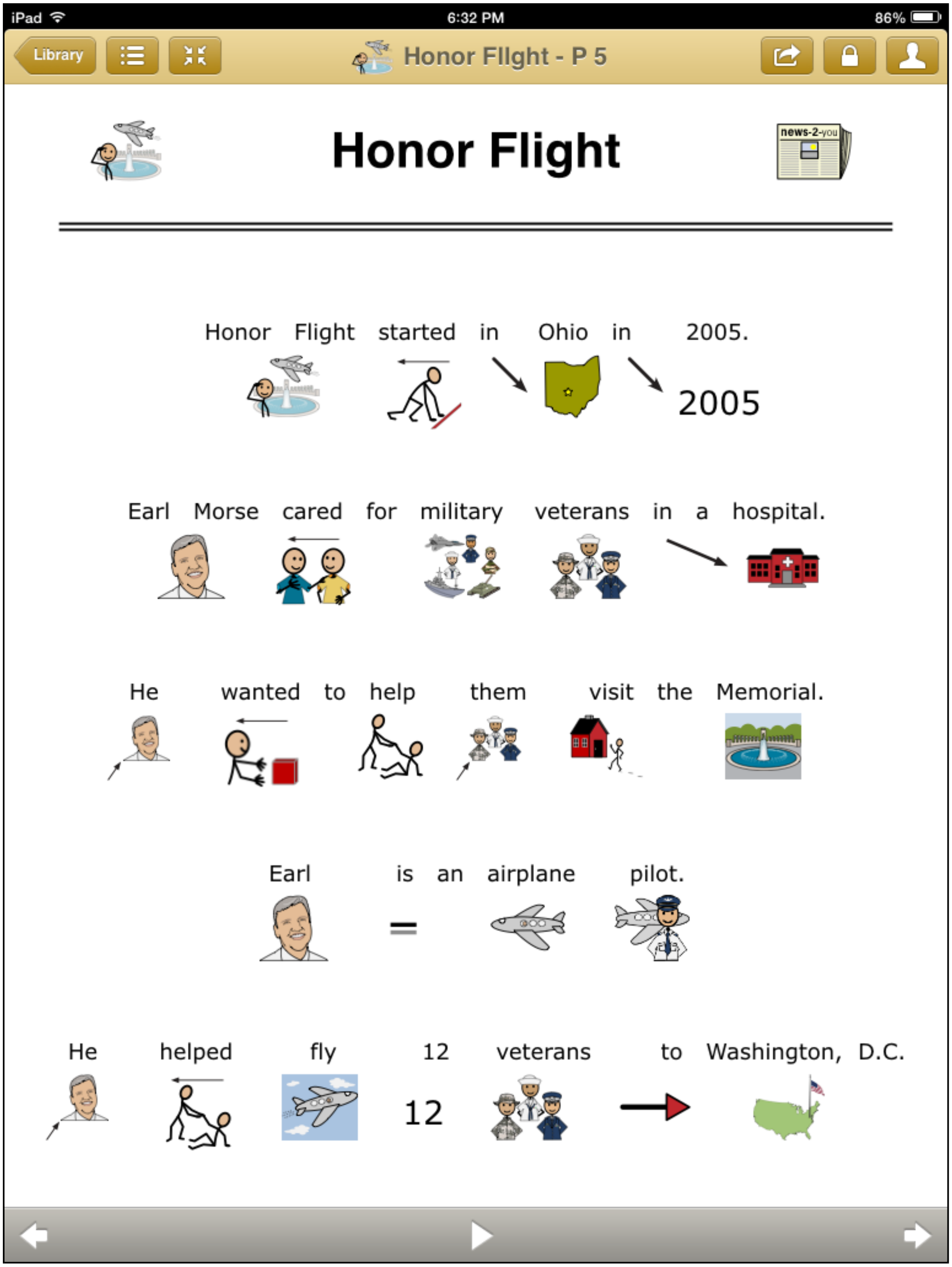
The veterans who won the war are now old.

WWII

Some need help going to Washington, D.C.

Many do not have the money for the trip.

These are the veterans Honor Flight helps.



Honor Flight

Honor Flight started in Ohio in 2005.

2005

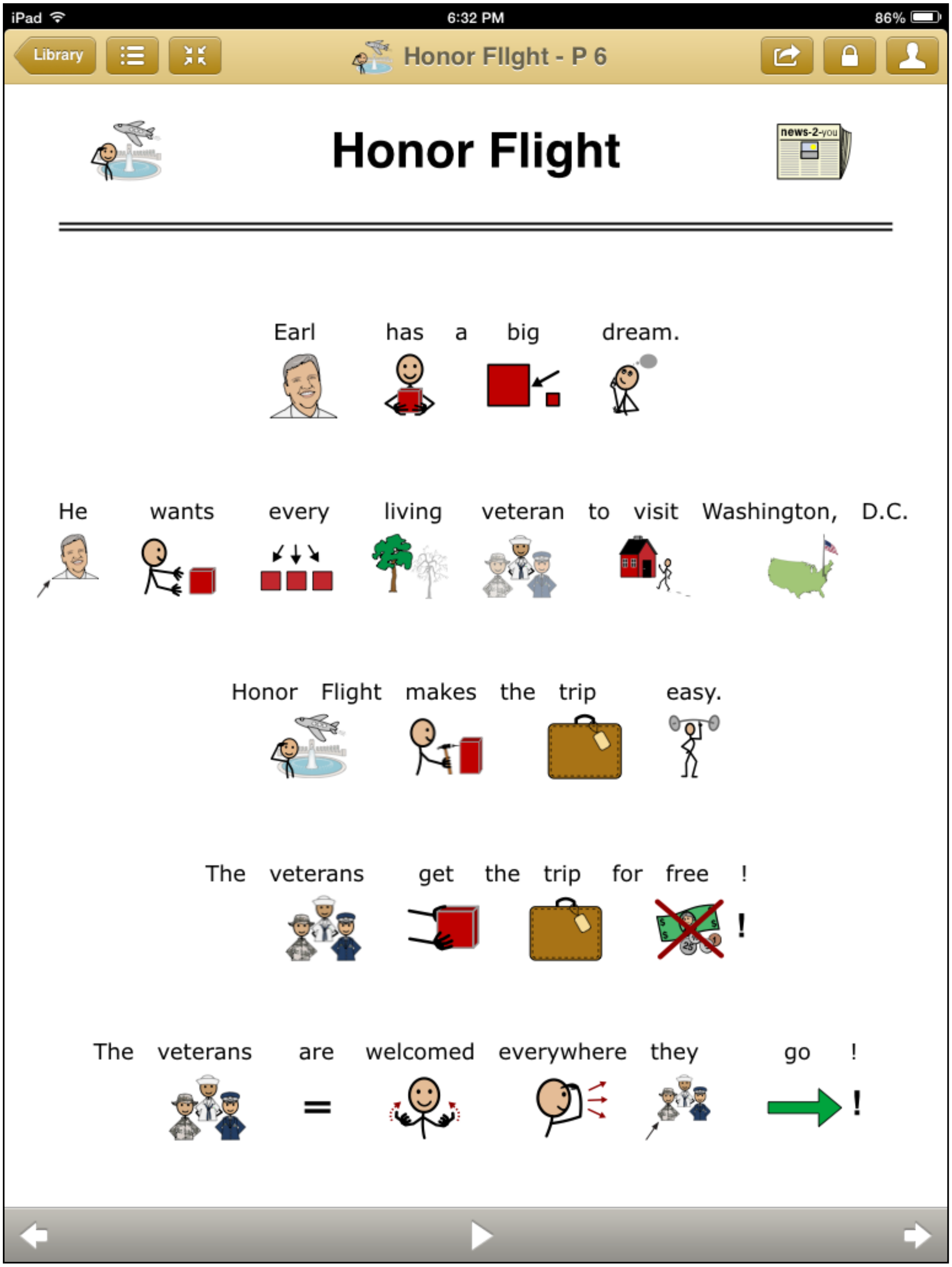
Earl Morse cared for military veterans in a hospital.

He wanted to help them visit the Memorial.

Earl is an airplane pilot.

He helped fly 12 veterans to Washington, D.C.

12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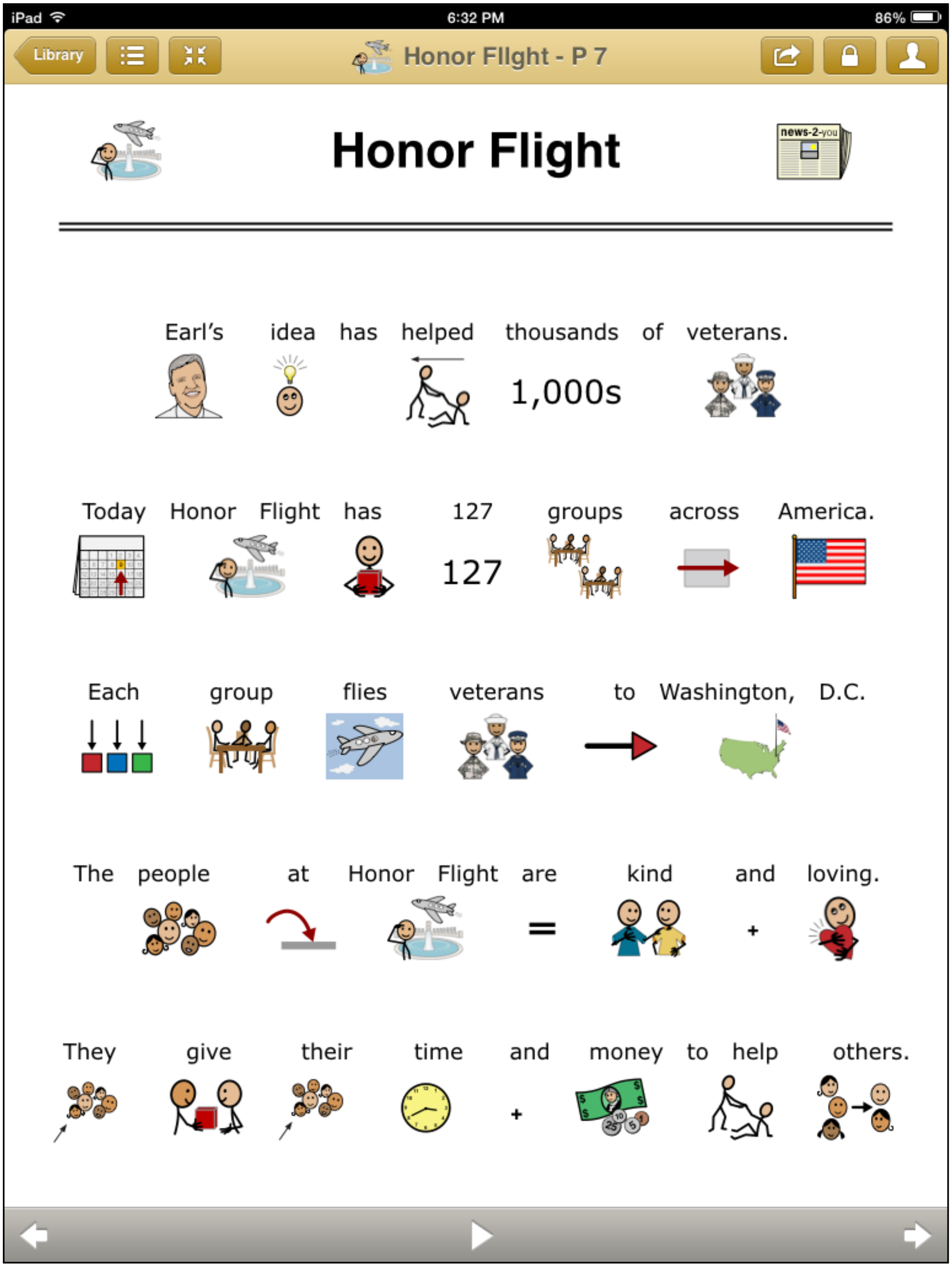
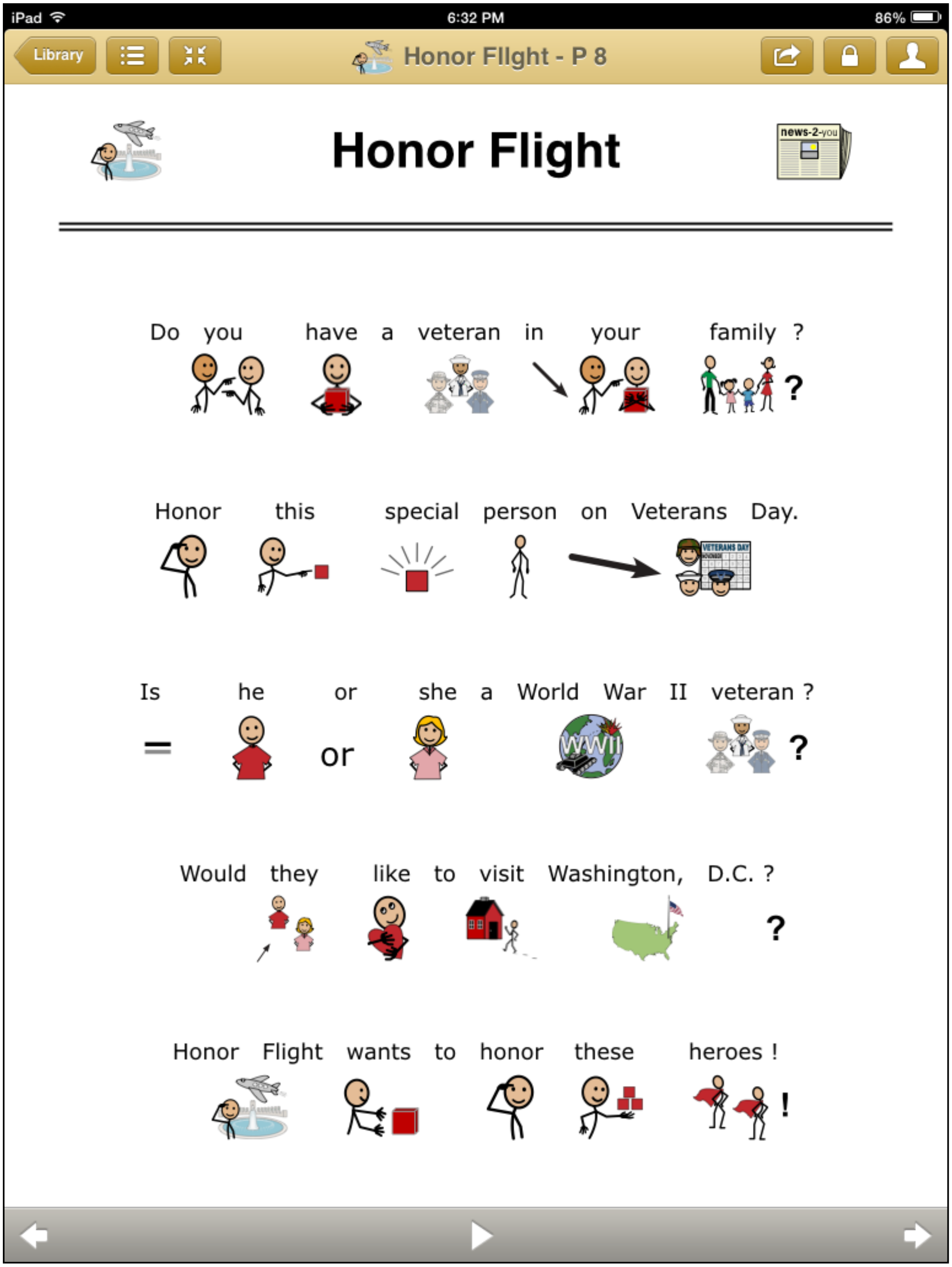
Library
Honor Flight - P 6
Honor Flight
news-2-you
Earl has a big dream.
He wants every living veteran to visit Washington, D.C.
Honor Flight makes the trip easy.
The veterans get the trip for free !
The veterans are welcomed everywhere they go !


iPad 6:32 PM 86%
Library
Honor Flight - P 7
Honor Flight
news-2-you
Earl's idea has helped thousands of veterans.
1,000s
Today Honor Flight has 127 groups across America.
127
Each group flies veterans to Washington, D.C.
The people at Honor Flight are kind and loving.
They give their time and money to help others.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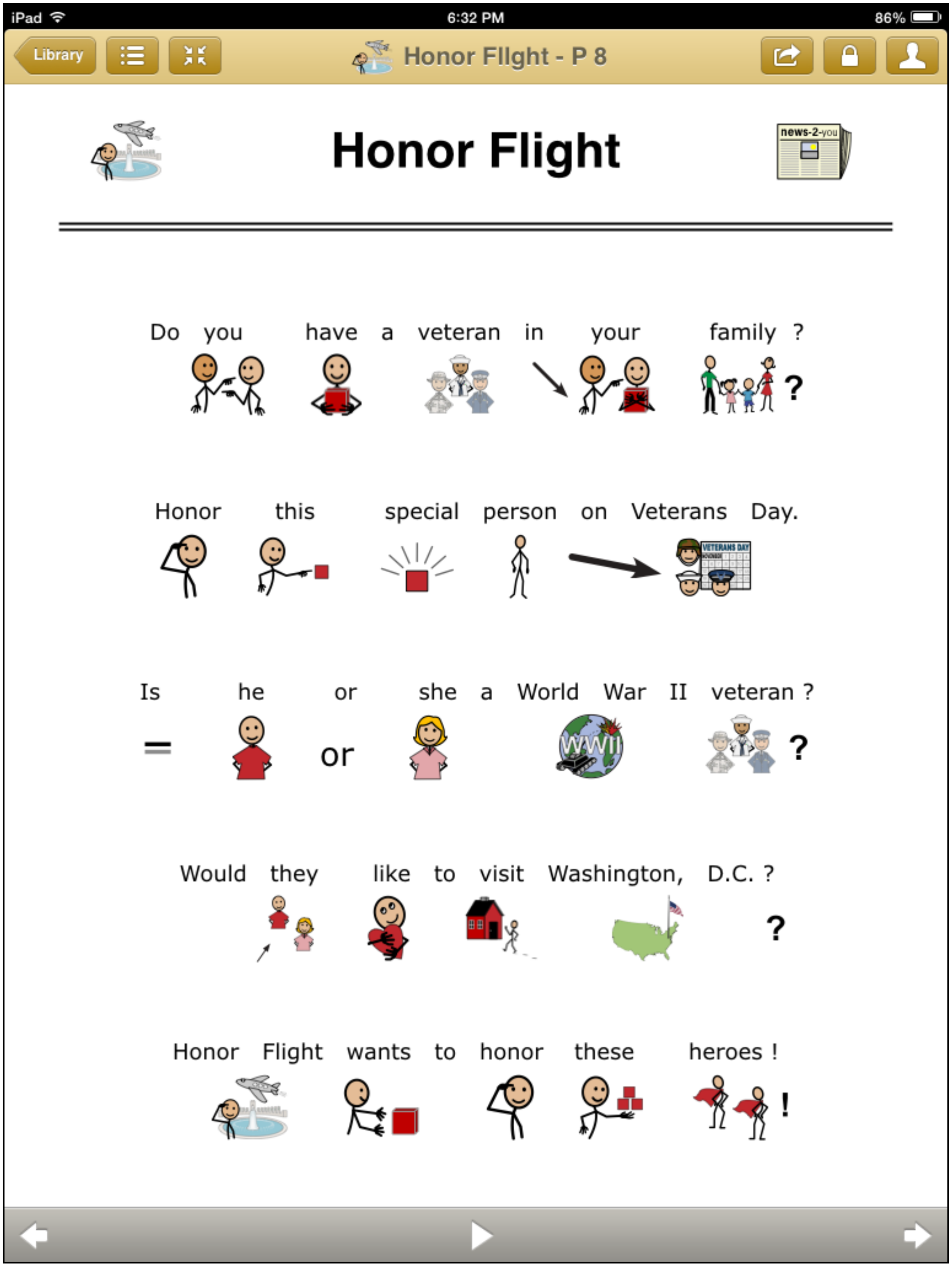
Library
Honor Flight - P 8
Honor Flight
news-2-you
Do you have a veteran in your family ?
Honor this special person on Veterans Day.
VETERANS DAY
Is he or she a World War II veteran ?
or
WWII
Would they like to visit Washington, D.C. ?
Honor Flight wants to honor these heroes !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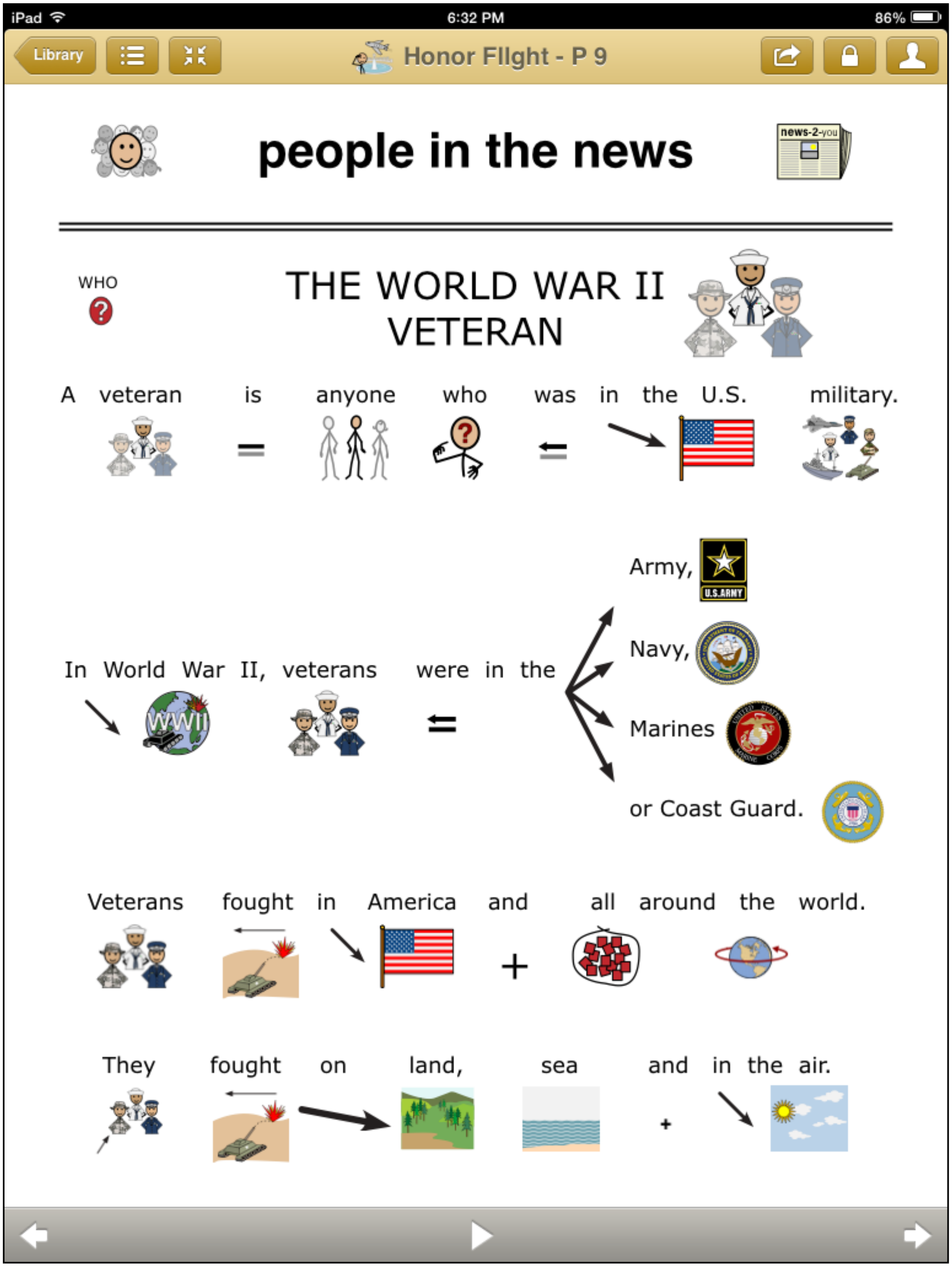
Library
Honor Flight - P 8
Honor Flight
news-2-you
Do you have a veteran in your family ?
Honor this special person on Veterans Day.
VETERANS DAY
Is he or she a World War II veteran ?
or
WWII
Would they like to visit Washington, D.C. ?
Honor Flight wants to honor these heroes !



people in the news

news-2-you

WHO

THE WORLD WAR II VETERAN

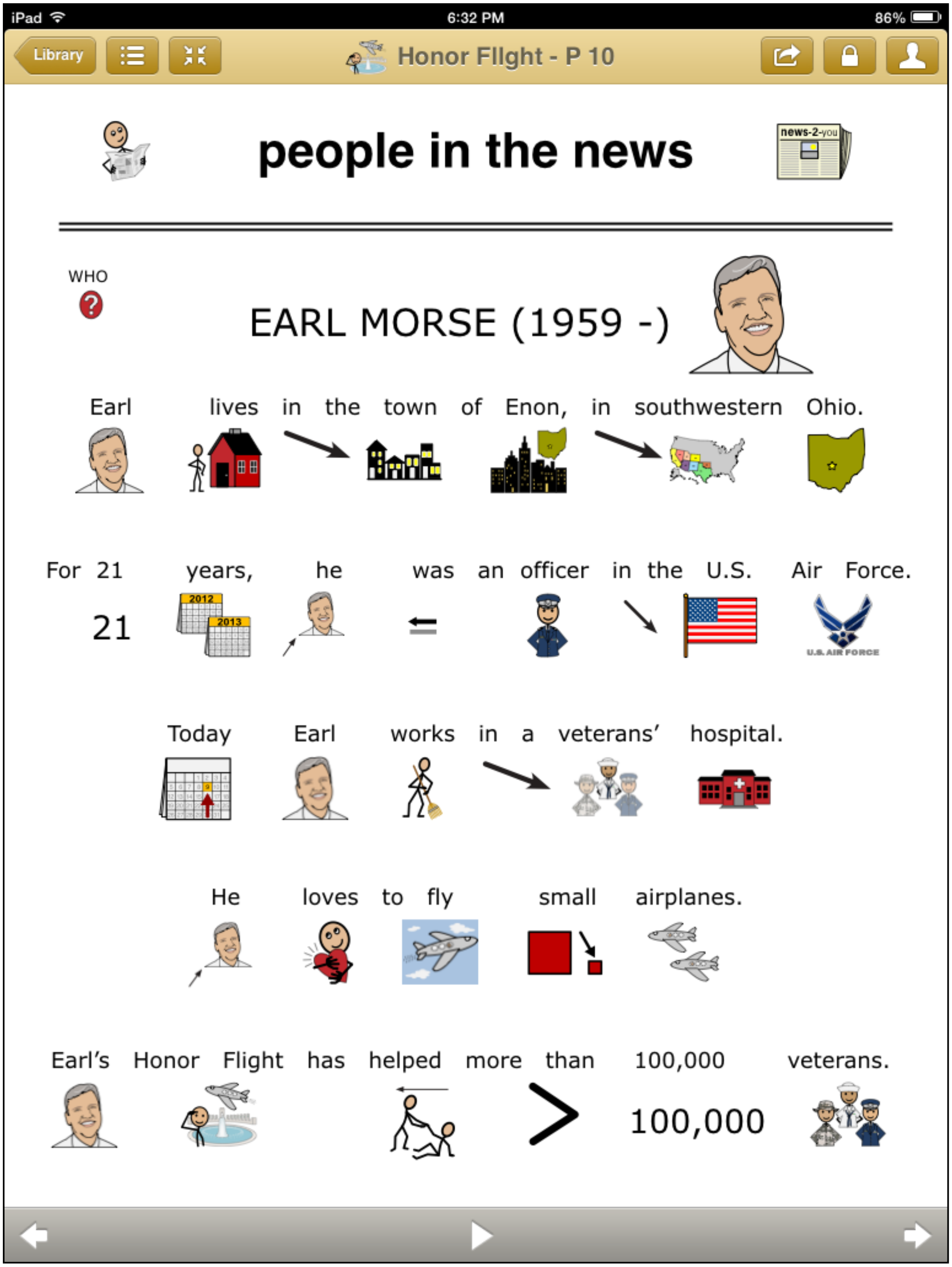
A veteran is anyone who was in the U.S. military.

In World War II, veterans were in the Army, Navy, Marines or Coast Guard.

U.S. ARMY

Veterans fought in America and all around the world.

They fought on land, sea and in the air.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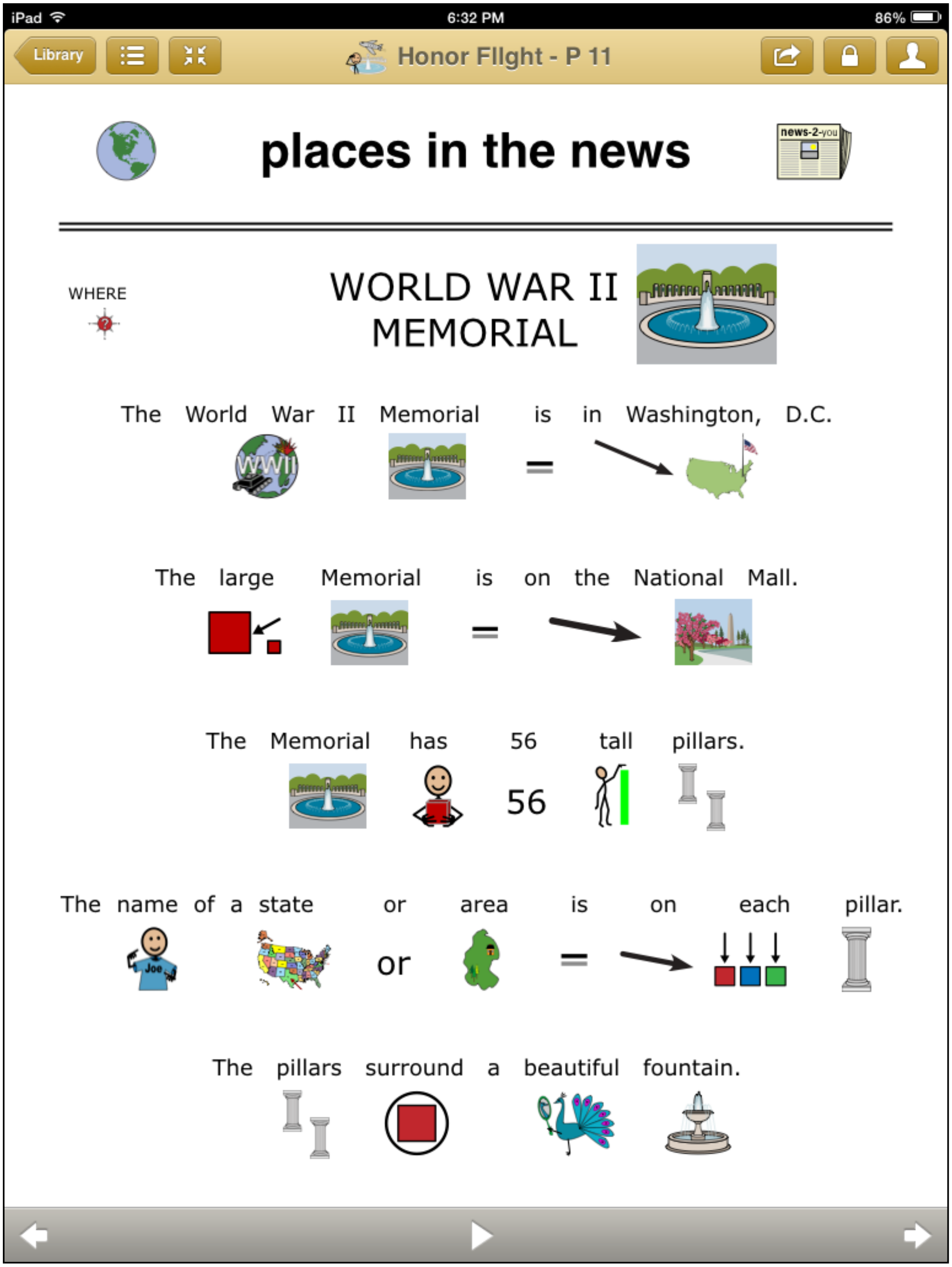
Library
Honor Flight - P 10
people in the news
news-2-you
WHO
EARL MORSE (1959 -)
Earl lives in the town of Enon, in southwestern Ohio.
For 21 years, he was an officer in the U.S. Air Force.
21
2012
2013
U.S. AIR FORCE
Today Earl works in a veterans' hospital.
He loves to fly small airplanes.
Earl's Honor Flight has helped more than 100,000 veterans.
100,000



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Library

Honor Flight - P 11

places in the news

WHERE

WORLD WAR II MEMORIAL

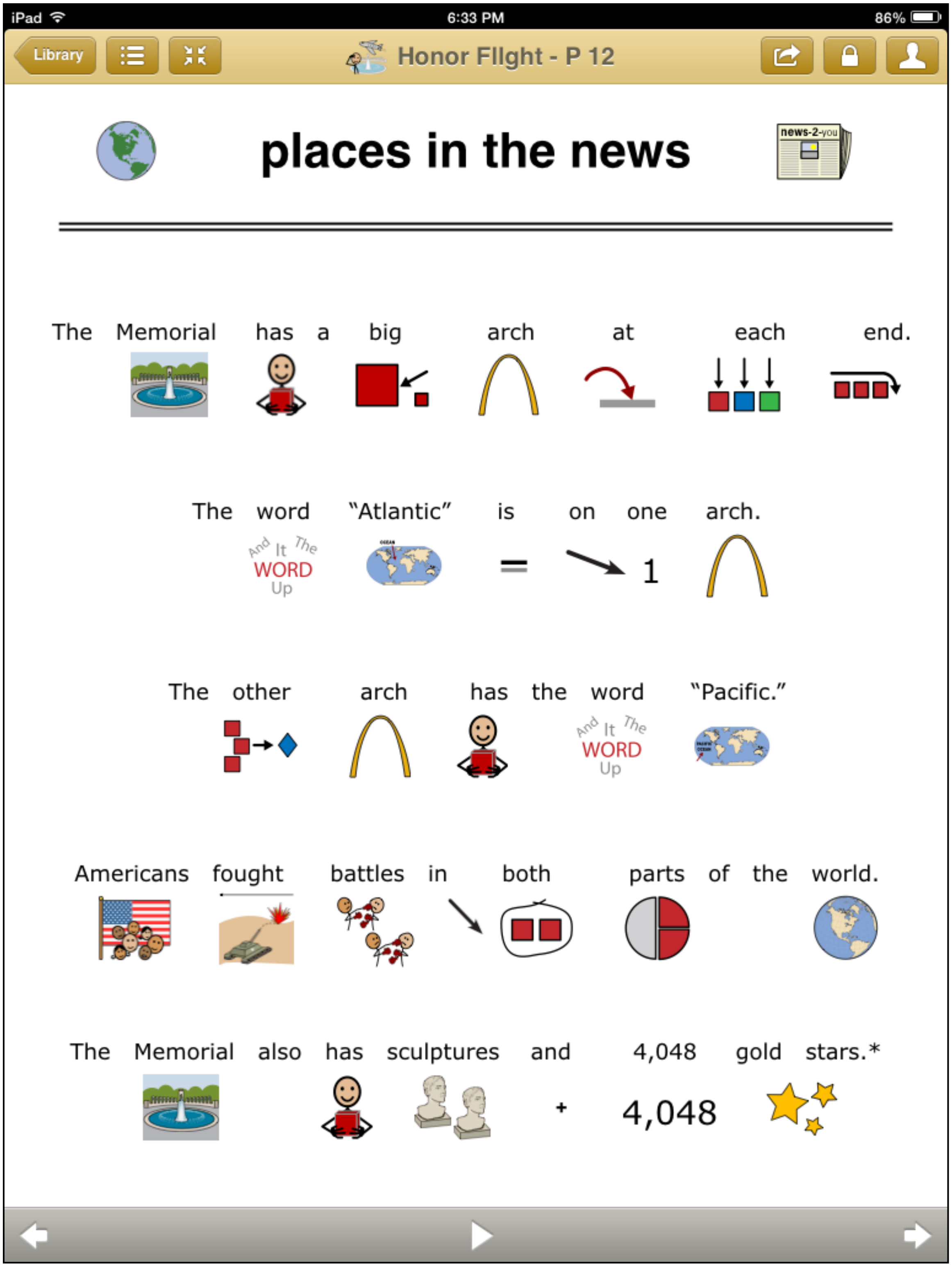
The World War II Memorial is in Washington, D.C.

The large Memorial is on the National Mall.

The Memorial has 56 tall pillars.

The name of a state or area is on each pillar.

The pillars surround a beautiful fountain.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Library
Honor Flight - P 12
places in the news
news-2-you
The Memorial has a big arch at each end.
The word "Atlantic" is on one arch.
WORD
1
The other arch has the word "Pacific."
WORD
Americans fought battles in both parts of the world.
The Memorial also has sculptures and 4,048 gold stars.*
4,048


iPad
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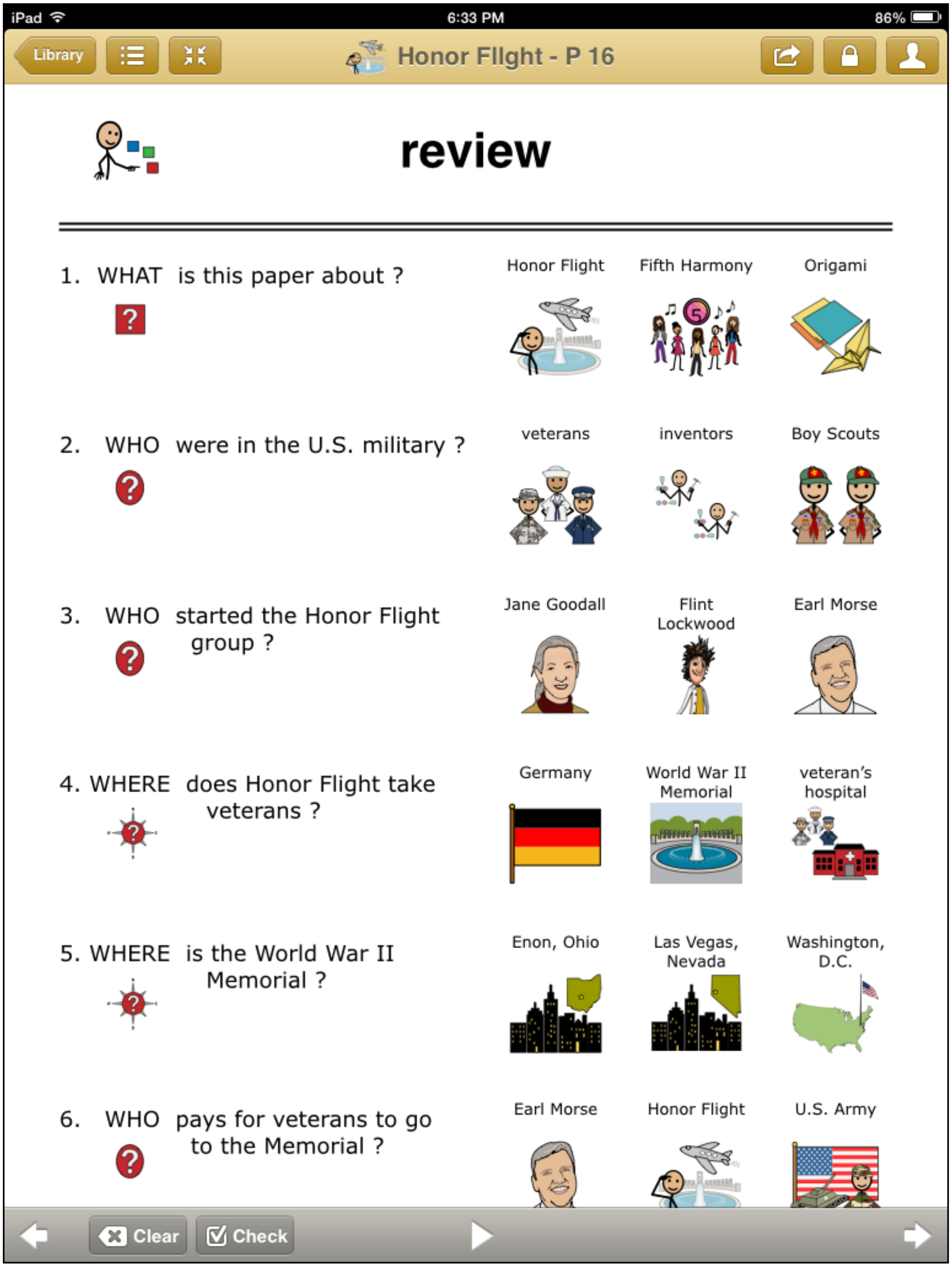
Library
Honor Flight - P 15
game
Touch and Hold pictures about HONOR FLIGHT
Washington, D.C.
America
visit
arts and crafts
Memorial
dog
Veterans Day
VETERANS DAY
NOVEMBER
military
birthday cake
veterans
trip
airplane
Americans
World War II
WWII
hat
honor
Clear
Check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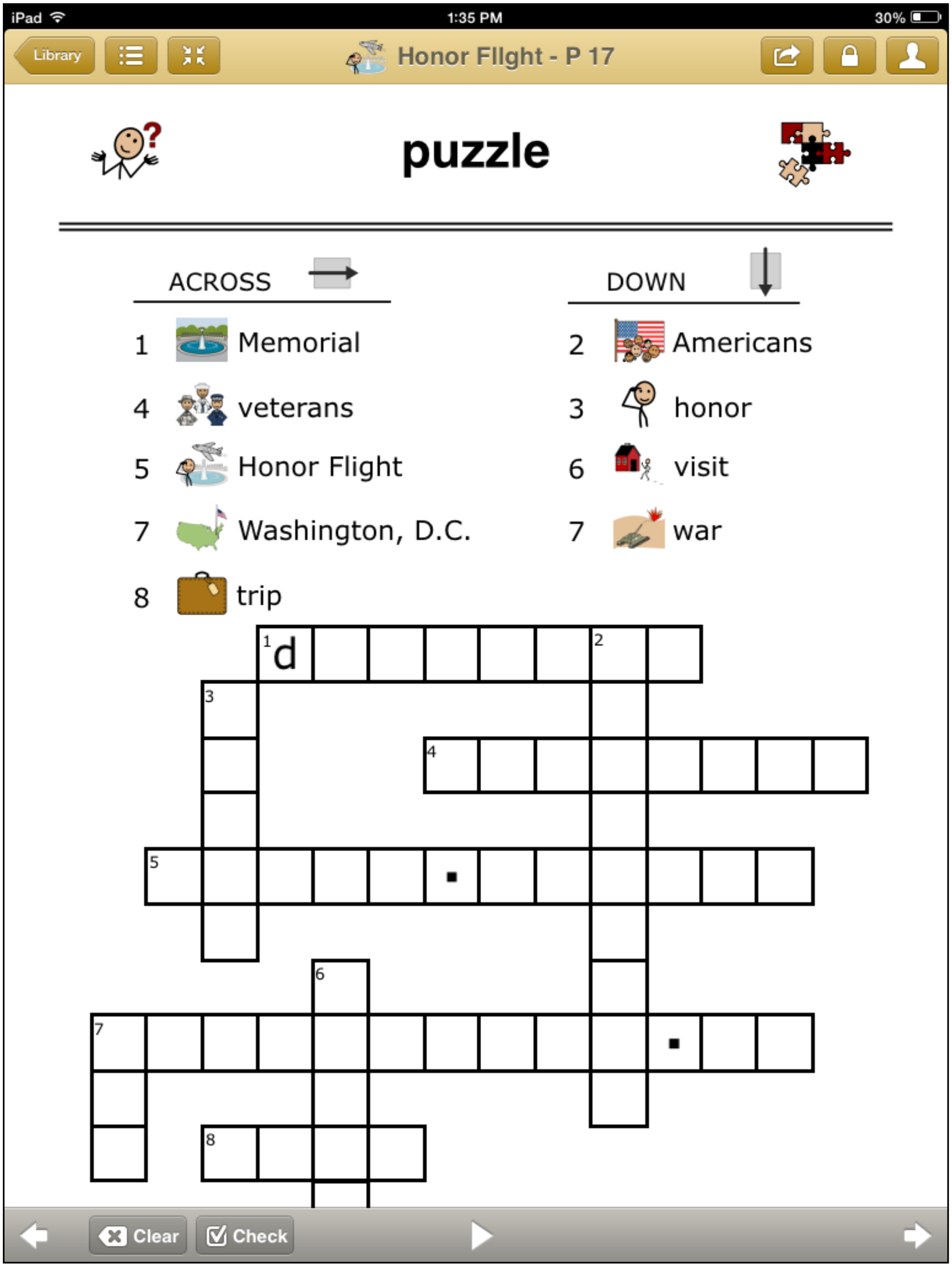
Library
Honor Flight - P 16
review
1. WHAT is this paper about ?
Honor Flight
Fifth Harmony
Origami
2. WHO were in the U.S. military ?
veterans
inventors
Boy Scouts
3. WHO started the Honor Flight group ?
Jane Goodall
Flint Lockwood
Earl Morse
4. WHERE does Honor Flight take veterans ?
Germany
World War II Memorial
veteran's hospital
5. WHERE is the World War II Memorial ?
Enon, Ohio
Las Vegas, Nevada
Washington, D.C.
6. WHO pays for veterans to go to the Memorial ?
Earl Morse
Honor Flight
U.S. Army
Clear
Check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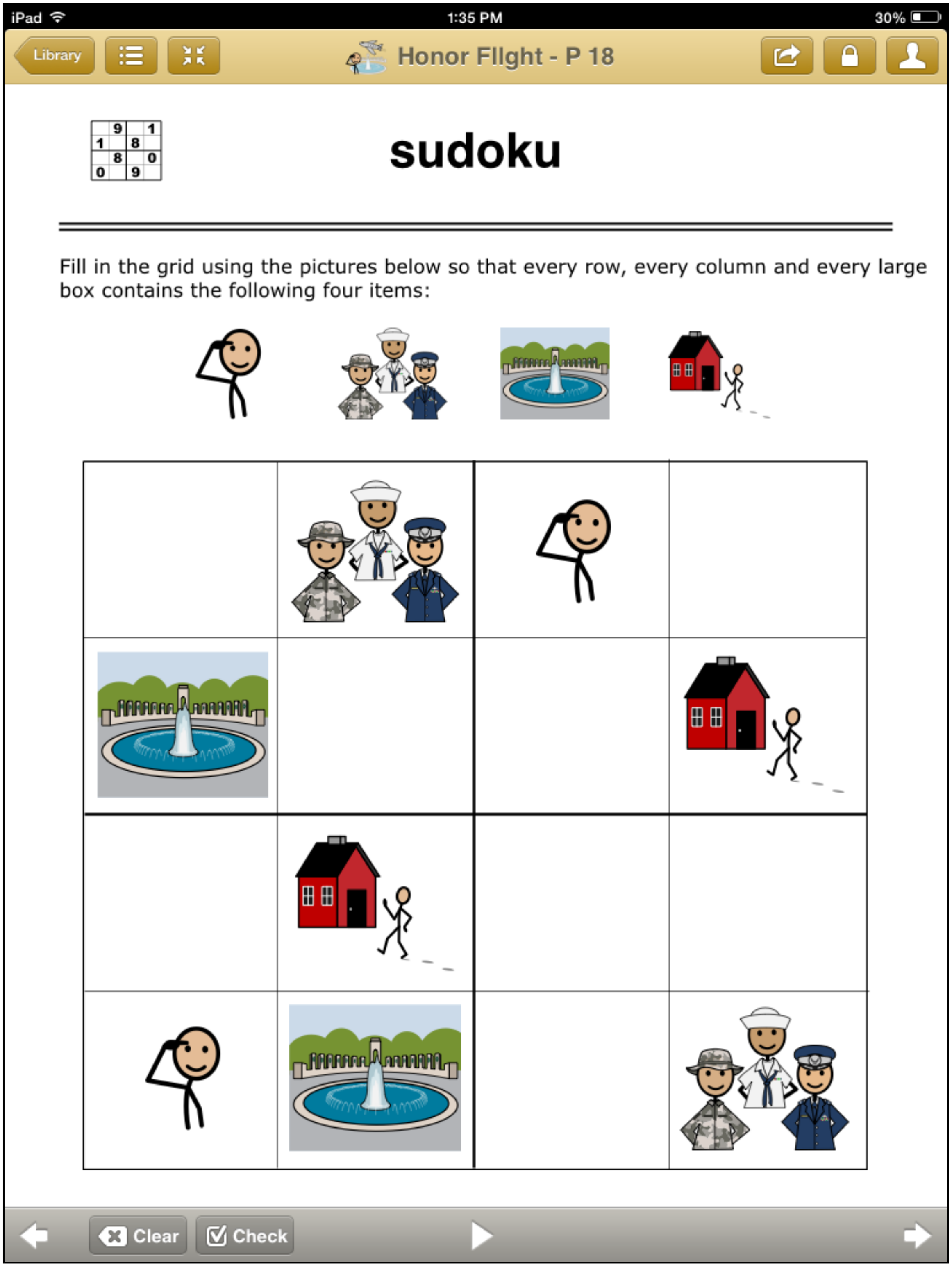
Library
Honor Flight - P 17
puzzle
ACROSS
1 Memorial
4 veterans
5 Honor Flight
7 Washington, D.C.
8 trip
DOWN
2 Americans
3 honor
6 visit
7 war
d
Clear
Check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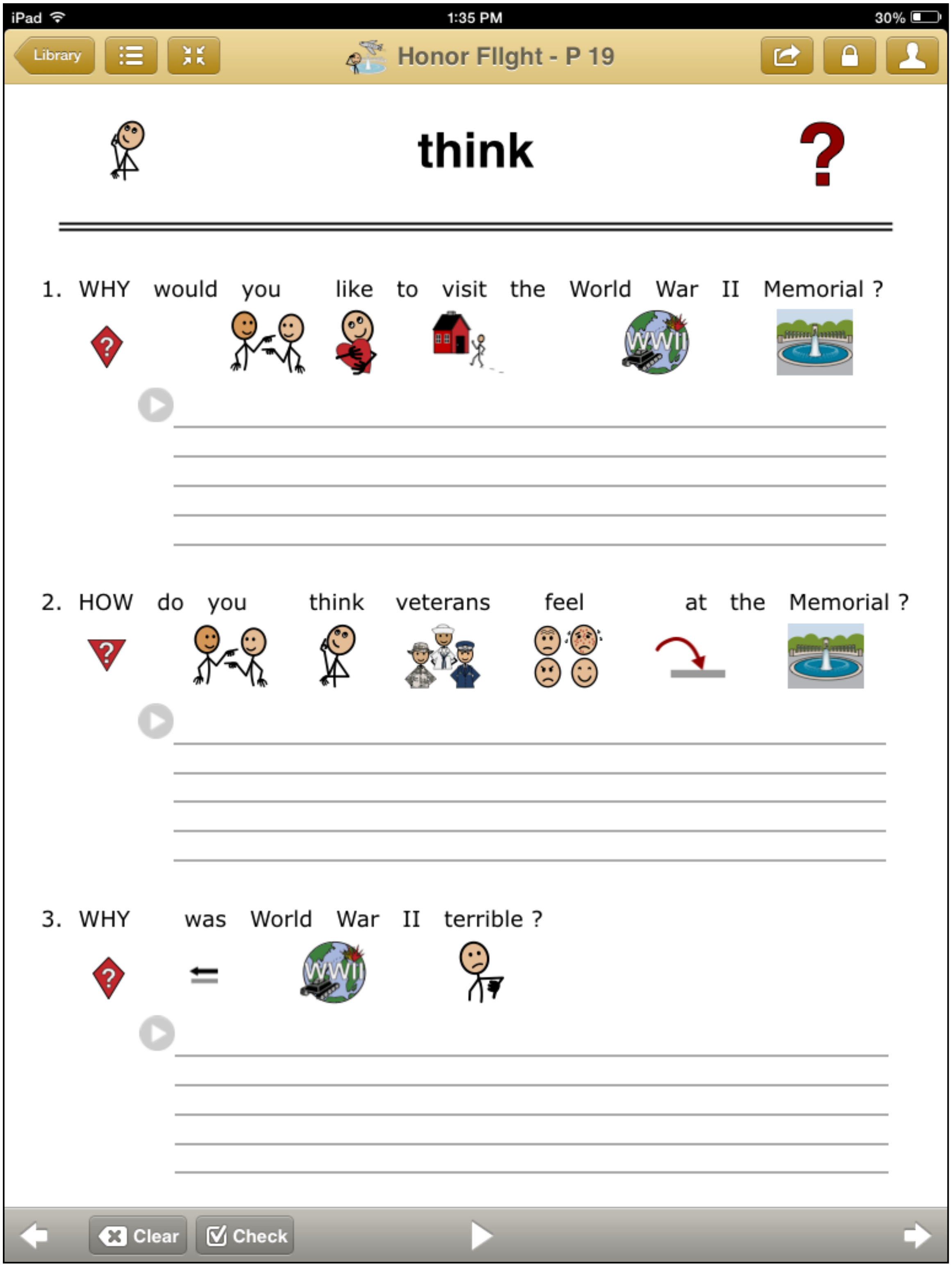
Honor Flight - P 18
sudoku
Fill in the grid using the pictures below so that every row, every column and every large box contains the following four items:
Clear
Check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Library
Honor Flight - P 19
think
1. WHY would you like to visit the World War II Memorial ?
WWII
2. HOW do you think veterans feel at the Memorial ?
3. WHY was World War II terrible ?
WWII
Clear
Check

APPENDIX O

ULS Training (Traditional Teaching)

Exploring Cognitively Accessible Academic Lessons for Students With Intellectual Disabilities Using the *iPad*

Jamie Gunderson

Training Agenda

Implementation
Whole Group Instruction
Small Group Instruction
Pre, Post & Maintenance Assessment
Data Collection
Teaching Fidelity

Unique Learning Systems Curriculum

IMPLEMENTATION

Student Differentiation Levels

Level 3
- read text (potential), simple writing, basic math, independent comprehension of modified content

Level 2
- require picture-supports to demonstrate comprehension, other direct supports as needed

Level 1
- maximum support, focus on increasing participation

Monthly Plan

Day 1	Day 2	Day 3	Day 4	Day 5
Language Arts block: 50 minutes Pre-assessment Checkpoints Reading (5 - 10 minutes/student)	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 1: Introduce book with picture walk and background building activities. Small Group (30 minutes) (3 groups x 10 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 2: Reread book and answer comprehension questions. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 6: Spelling Activities. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 9: Spelling Activities. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.
Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 3: Introduce book with picture walk and background building activities. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 4: Reread book and answer comprehension questions. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 7: Spelling Activities. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 4: Reread book and answer comprehension questions. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 19: Number Sense. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.

Unique Learning Systems Curriculum

WHOLE GROUP INSTRUCTION

ULS Lesson Plan

Lesson 2

Instructional Targets
Reading Standards for Literature

[redacted]

Classroom Activities/Lesson Plan
Read and Answer: *Long Ago or Today?*

Comprehension activities extend beyond "checking" what students remember from reading. During instruction, students learn to refer to the book, using both illustrations and text, to locate answers to questions. Students recognize types of responses appropriate to *who*, *what* and *where* formats. Question responses may also provide students with a foundation for story retell. Reread the Leveled Books and repeat comprehension activities throughout the unit to increase students' skills in multiple areas of comprehension.

After reading (and rereading) *Long Ago or Today?*, use the comprehension worksheets as a guide for students to answer questions about the book. Choose the most appropriate worksheet on the basis of each student's needs. Level 3 is text only. Level 2 is symbol-supported. Level 1 is written in a sentence strip format, allowing students to select from multiple choices or one errorless picture choice.

1. Who is this story about? (Josh and Jordan, **Josh and Grandpa**, Josh and Mother)
2. What did Grandpa like to watch on TV? (**cartoons**, sports, news)
3. Who does Josh like to talk to on his cell phone? (Grandpa, Mother, **friends**)
4. What does Josh use to listen to music? (radio, **MP3 player**, CD player)
5. What did Grandpa use to type his ABCs? (computer, phone, **typewriter**)

The questions on the comprehension worksheets provide picture and text support to identify the key details or sequence of events in the story. Use these questions to encourage students to retell the story. Talk about the story's main message or main ideas as outlined by the comprehension questions.

ULS Lesson Plan

Comprehension questions from Leveled Books are based on the highest level in the series. These books may be read aloud as needed for students at all levels to gain meaning.

[redacted]

Differentiated Tasks		
Level 3	*Level 2*	*Level 1*
• Students will independently read *who*, *what*, *where*, *when* or *why* questions about a story and write, speak or select an answer. • Students will retell a story, including the main idea and key details.	• Students will point to or select a picture from a choice of three in response to a *who*, *what* or *where* question about a story. • Students will use picture supports to retell key details from a story.	• Students will respond to a *who* or *what* question by choosing a single option or an errorless picture. • Students will retell key details from a story through an active participation response (e.g., voice output device, eye gaze choice board).

[redacted]

Worksheets for Read and Answer
Sentence strips and picture cards
Standards Connection Lesson 2

Provide each student with appropriately adapted lesson materials!

ULS, January 2014

Level 3 Assignment

Long Ago or Today?

Name: ____________________

1. Who is this story about?

Josh and Jordan Josh and Grandpa Josh and Mother

2. What did Grandpa like to watch on TV?

cartoons sports news

3. Who does Josh like to talk to on his cell phone?

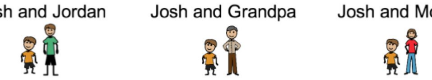
Level 2 Assignment

Long Ago or Today?

Name: ____________________

1. Who is this story about?

Josh and Jordan Josh and Grandpa Josh and Mother



2. What did Grandpa like to watch on TV?

cartoons sports news

3. Who does Josh like to talk to on his cell phone?

5

Level 1 Assignment

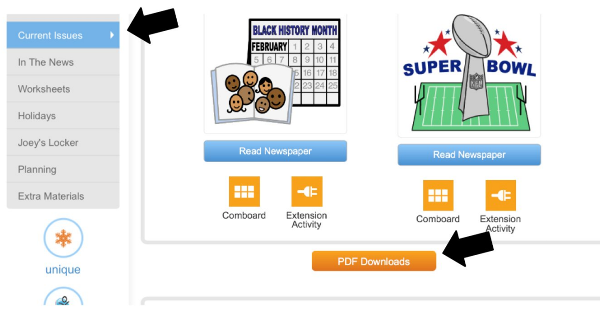
1. Who is this story about ?

Josh and Jordan	Josh and Grandpa	Josh and Mother
		

news2you

SMALL GROUP INSTRUCTION

www.n2y.com/products/news2you



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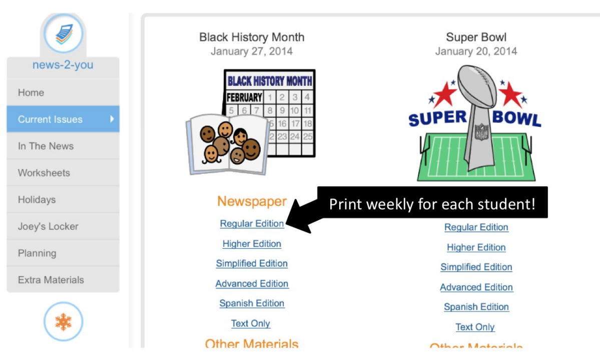
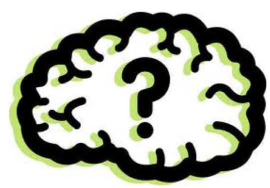


Small Group Lessons

30 minutes
(3 groups, 10 minutes)

Directions
- Read news-2-you newspaper aloud.
- Instruct students to complete worksheets.
- Record 100%-completed worksheets on work completion checklist.



Task Practice

Unique Learning Systems Curriculum

PRE, POST & MAINTENANCE ASSESSMENT

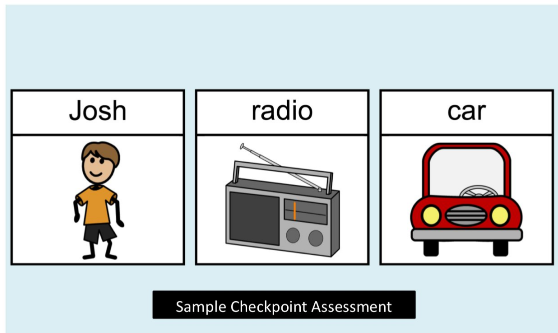
Assessment Timeline

Pretest (Day 1)

Posttest (Day 20)

Maintenance (2 Weeks Later)

Sample Checkpoint Assessment



Sample Checkpoint Assessment

Content, Reading and Mathematics (Continue assessment on next page.)				
	Attempts	**Teacher Prompt**	**Response Options** (correct in bold)	**Special Accommodations** *For students with vision, hearing, physical or communication impairments, special accommodations that are typically afforded during instruction may be applied to the administration of these checkpoints.*
Item 1	**Attempt 1**	**Present 3 pictures (with text).** *Josh likes to watch cartoons. Who is Josh?*	a. **Josh** b. radio c. car	Response options may be presented verbally. No additional prompts.
	Attempt 2 (If Needed)	**Present 2 pictures (with text).** *Who is Josh?*		Add verbal, gestural or physical prompts. Score 0 if no response or refuses to respond.
Item 2	**Attempt 1**	**Present 3 pictures (with text).** *Josh watches cartoons in his bedroom. Where does Josh watch cartoons?*	a. telephone b. school c. **bedroom**	Response options may be presented verbally. No additional prompts.
	Attempt 2 (If Needed)	**Present 2 pictures (with text).** *Where does Josh watch cartoons?*		Add verbal, gestural or physical prompts. Score 0 if no response or refuses to respond.
Item 3	**Attempt 1**	**Present 3 pictures (with text).** *Vest begins with the letter v. Find the vest.*	a. drum b. **vest** c. bear	Response options may be presented verbally. No additional prompts.
	Attempt 2 (If Needed)	**Present 2 pictures (with text).** *Find the vest.*		Add verbal, gestural or physical prompts. Score 0 if no response or refuses to respond.

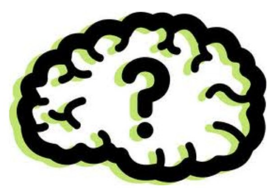
Level 1 Directions & Score Sheet

10

Sample Checkpoint Assessment

Content Understanding/History: Share information about heritage and traditions in the community or country.			
	Teacher Prompt	**Response Options** (correct in bold)	**Special Accommodations** *For students with vision, hearing, physical or communication impairments, special accommodations that are typically afforded during instruction may be applied to the administration of these checkpoints.*
Item 1	**Present 3 pictures (with text).** *When Grandpa was a kid he liked to type his ABCs.* *What did people type on long ago?*	a. TV b. **typewriter** c. computer	Response options may be presented verbally.
Item 2	**Present 3 pictures (with text).** *Grandpa was a kid long ago. Things were different long ago.* *Which one is from long ago?*	a. computer b. cell phone c. **telephone**	Response options may be presented verbally.
Item 3	**Present 3 pictures (with text).** *Games are fun. Games have changed over time.* *What is an example of a game from long ago?*	a. chores b. **marbles** c. video games	Response options may be presented verbally.
Item 4	**Present picture of radio and MP3 player.** **Present 3 phrases/sentences (with pictures).** *Grandpa listened to music on a radio.* *Josh listens to music on an MP3 player.* *How are an MP3 player and a radio the same?*	a. **They both play music.** b. They are the same size. c. They both show movies.	Response options may be presented verbally.
Item 5	**Present picture of a slate.** **Present 3 phrases/sentences (no pictures).** *George went to school long ago. He used a slate and chalk.* *Which one is most like a slate and chalk?*	a. a backpack and a lunchbox b. a baseball and a bat c. **a notebook and a pencil**	Response options may be presented verbally.
Item 6	**Present picture of George and his friends.** **Present 3 phrases/sentences (no pictures).** *George lived long ago. George and his friends had to walk to school every day.* *Why did George and his friends have to walk to school?*	a. They missed the bus every day. b. They all lived close to the school. c. **They did not have buses.**	Response options may be presented verbally.

Level 2&3 Directions & Score Sheet



Task Practice

Exploring Cognitively Accessible Academic Lessons Using the *iPad*

DATA COLLECTION

Tools

- Work Completion Checklist (Daily)
- Post-Intervention Survey

Work Completion Checklist

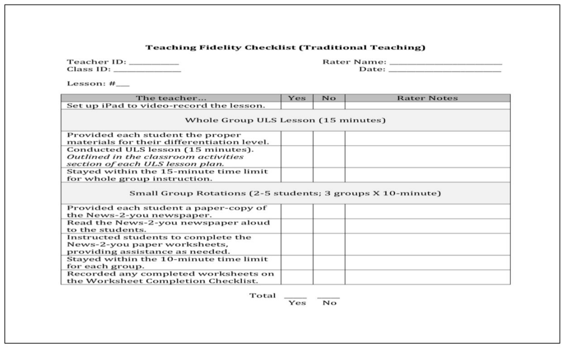
Student	Game Page	Review Page	Puzzle Page	Sudoku Page	Think Page	Total

Record (✔) completed worksheets (100%)

Exploring Cognitively Accessible Academic Lessons Using the *iPad*

TEACHING FIDELITY

Teaching Fidelity Checklist



Teaching Fidelity Checklist (Traditional Teaching)

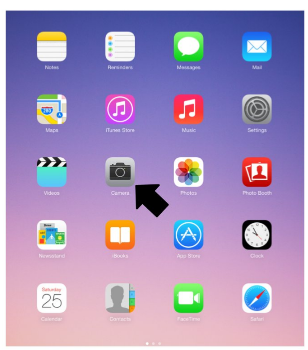
Teacher ID: __________ Rater Name: ____________________
Class ID: ____________ Date: ____________________

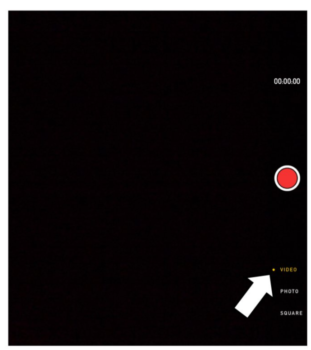
Lesson: #___

The teacher...	Yes	No	Rater Notes
Set up iPad to video-record the lesson.			
Whole Group ULS Lesson (15 minutes)			
Provided each student the proper materials for their differentiation level.			
Conducted ULS lesson (15 minutes). *Outlined in the classroom activities section of each ULS lesson plan.*			
Stayed within the 15-minute time limit for whole group instruction.			
Small Group Rotations (2-5 students; 3 groups X 10-minute)			
Provided each student a paper-copy of the News-2-you newspaper.			
Read the News-2-you newspaper aloud to the students.			
Instructed students to complete the News-2-you paper worksheets, providing assistance as needed.			
Stayed within the 10-minute time limit for each group.			
Recorded any completed worksheets on the Worksheet Completion Checklist.			

Total ___ Yes ___ No

Fidelity Videos





Teaching Fidelity Checklist

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Total ____ Yes ____ No

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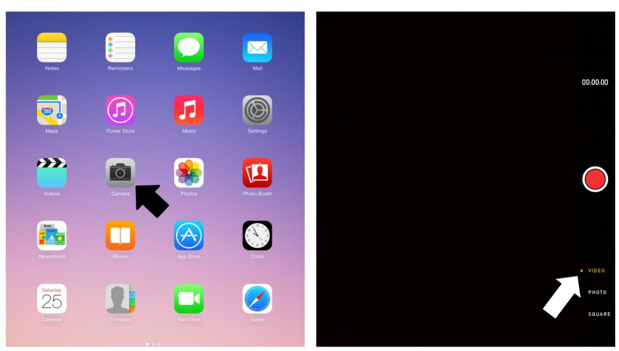
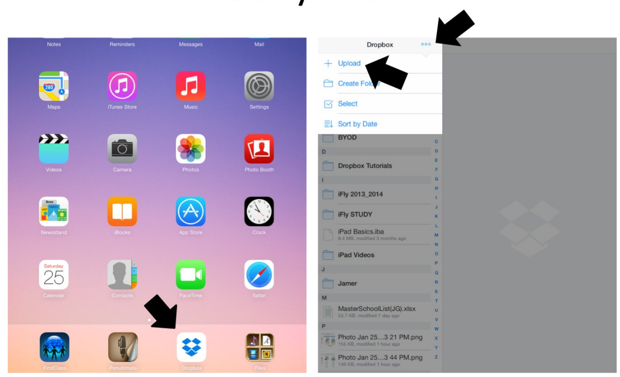
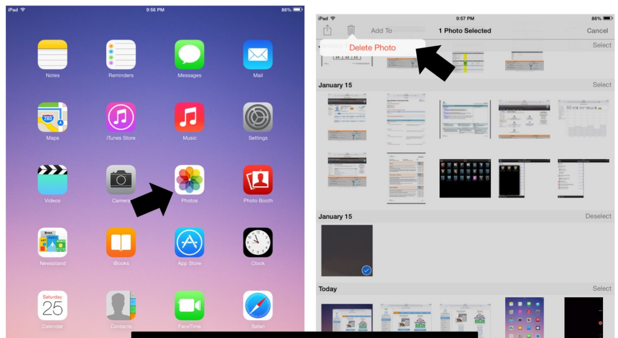


Fidelity Videos



Fidelity Videos

Fidelity Videos



Lesson videos must be deleted after upload!

Questions?

APPENDIX P

ULS Training (*iPad)*

Exploring Cognitively Accessible Academic Lessons for Students With Intellectual Disabilities Using the *iPad*

Jamie Gunderson

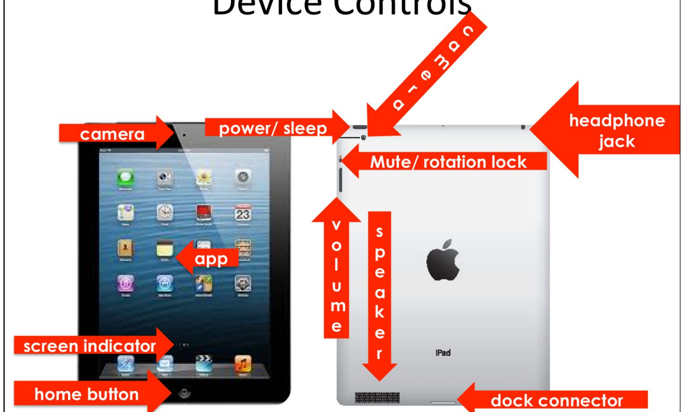
Training Agenda

iPad Tutorial
Implementation
Whole Group Instruction
Small Group Instruction
Pre, Post & Maintenance Assessment
Data Collection
Teaching Fidelity

Apple, 2010

IPAD TUTORIAL

Device Controls



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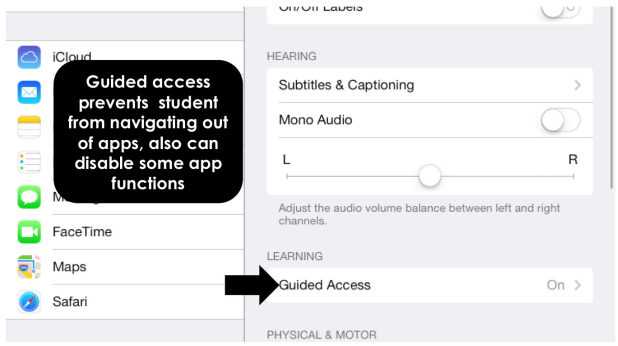
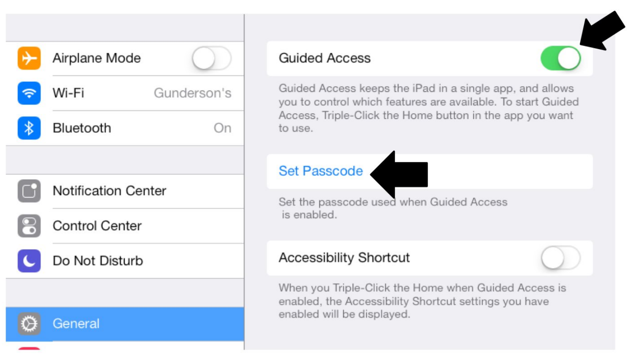


Guided Access



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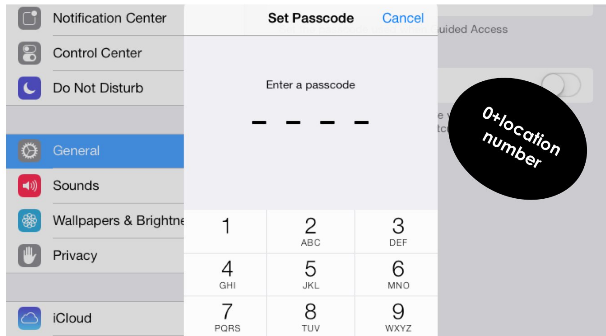
Guided Access



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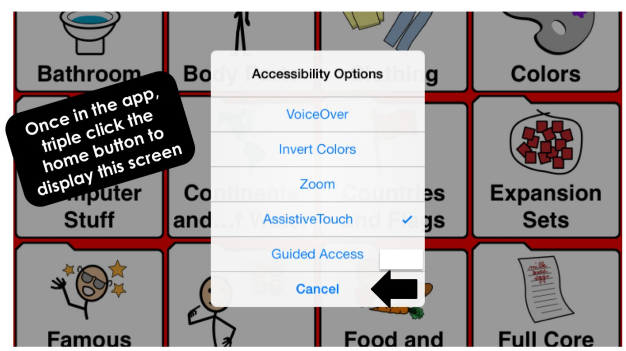

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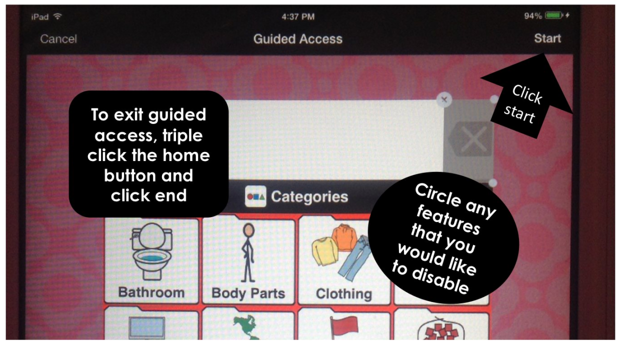
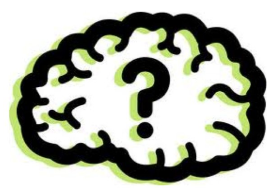




Task Practice

Unique Learning Systems Curriculum

IMPLEMENTATION

Student Differentiation Levels

Level 3
- read text (potential), simple writing, basic math, independent comprehension of modified content

Level 2
- require picture-supports to demonstrate comprehension, other direct supports as needed

Level 1
- maximum support, focus on increasing participation

Monthly Plan

Day 1	Day 2	Day 3	Day 4	Day 5
Language Arts block: 50 minutes Pre-assessment Checkpoints Reading (5 - 10 minutes/student)	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 1: Introduce book with picture walk and background building activities. Small Group (30 minutes) (3 groups x 10 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 2: Reread book and answer comprehension questions. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 6: Spelling Activities. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 9: Spelling Activities. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.
Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 3: Introduce book with picture walk and background building activities. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 4: Reread book and answer comprehension questions. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 7: Spelling Activities. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 4: Reread book and answer comprehension questions. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.	Language Arts block: 50 minutes Whole Group (15 minutes) Lesson 19: Number Sense. Small Group (30 minutes) Read news-2-you newspaper and complete news-2-you worksheets. Record completed worksheets on work completion checklist.

Unique Learning Systems Curriculum

WHOLE GROUP INSTRUCTION

ULS Lesson Plan

Lesson 2

Instructional Targets
Reading Standards for Literature

[redacted]

Classroom Activities/Lesson Plan
Read and Answer: *Long Ago or Today?*

Comprehension activities extend beyond "checking" what students remember from reading. During instruction, students learn to refer to the book, using both illustrations and text, to locate answers to questions. Students recognize types of responses appropriate to *who*, *what* and *where* formats. Question responses may also provide students with a foundation for story retell. Reread the Leveled Books and repeat comprehension activities throughout the unit to increase students' skills in multiple areas of comprehension.

After reading (and rereading) *Long Ago or Today?*, use the comprehension worksheets as a guide for students to answer questions about the book. Choose the most appropriate worksheet on the basis of each student's needs. Level 3 is text only. Level 2 is symbol-supported. Level 1 is written in a sentence strip format, allowing students to select from multiple choices or one errorless picture choice.

1. Who is this story about? (Josh and Jordan, **Josh and Grandpa**, Josh and Mother)
2. What did Grandpa like to watch on TV? (**cartoons**, sports, news)
3. Who does Josh like to talk to on his cell phone? (Grandpa, Mother, **friends**)
4. What does Josh use to listen to music? (radio, **MP3 player**, CD player)
5. What did Grandpa use to type his ABCs? (computer, phone, **typewriter**)

The questions on the comprehension worksheets provide picture and text support to identify the key details or sequence of events in the story. Use these questions to encourage students to retell the story. Talk about the story's main message or main ideas as outlined by the comprehension questions.

ULS Lesson Plan

Comprehension questions from Leveled Books are based on the highest level in the series. These books may be read aloud as needed for students at all levels to gain meaning.

[redacted]

Differentiated Tasks		
Level 3	*Level 2*	*Level 1*
• Students will independently read *who*, *what*, *where*, *when* or *why* questions about a story and write, speak or select an answer. • Students will retell a story, including the main idea and key details.	• Students will point to or select a picture from a choice of three in response to a *who*, *what* or *where* question about a story. • Students will use picture supports to retell key details from a story.	• Students will respond to a *who* or *what* question by choosing a single option or an errorless picture. • Students will retell key details from a story through an active participation response (e.g., voice output device, eye gaze choice board).

Worksheets for Read and Answer
Sentence strips and picture cards
Standards Connection Lesson 2

Provide each student with appropriately adapted lesson materials!

Level 3 Assignment

Long Ago or Today?

Name: ____________________

1. Who is this story about?

Josh and Jordan   Josh and Grandpa   Josh and Mother

2. What did Grandpa like to watch on TV?

cartoons   sports   news

3. Who does Josh like to talk to on his cell phone?

Level 2 Assignment

Long Ago or Today?

Name: ____________________

1. Who is this story about?

Josh and Jordan    Josh and Grandpa    Josh and Mother 

2. What did Grandpa like to watch on TV?

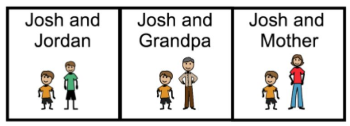
cartoons    sports    news 

3. Who does Josh like to talk to on his cell phone?

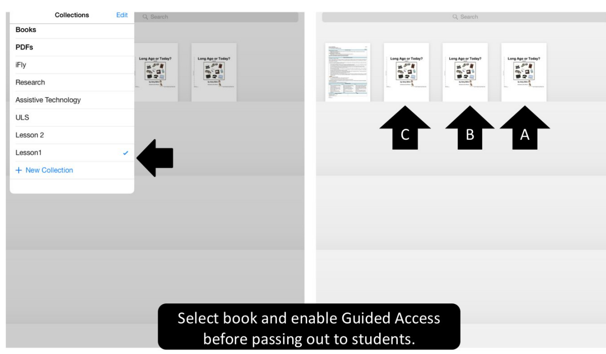
9

Level 1 Assignment

1. Who is this story about ?



iBooks



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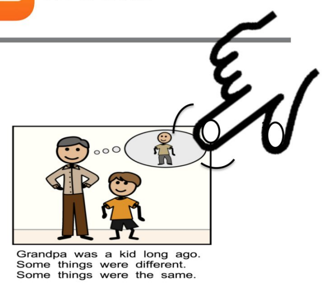
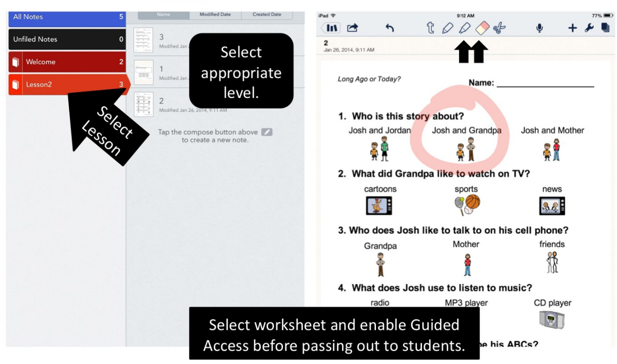


swipe

Notability



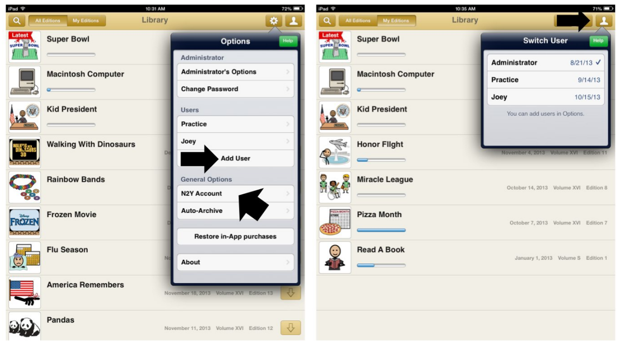
Notability

touch

news2you

SMALL GROUP INSTRUCTION

n2y App



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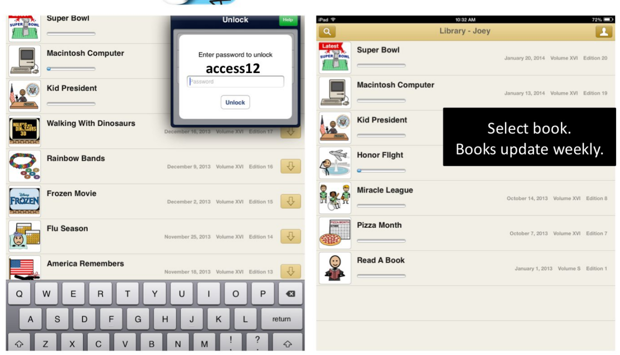

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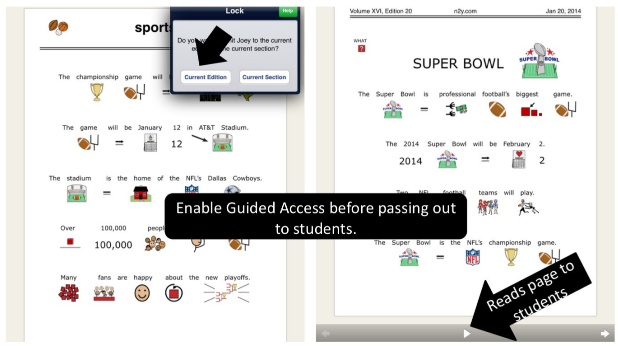

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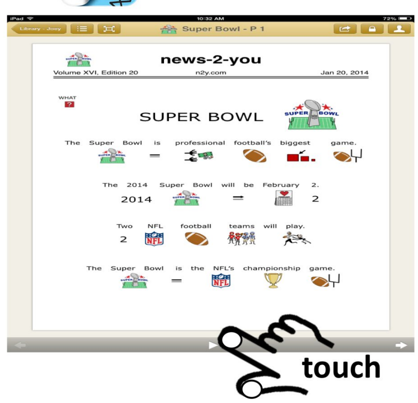

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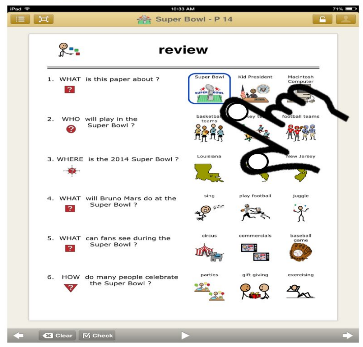


hold

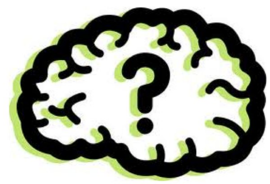
Small Group Lessons

30 minutes

(3 groups, 10 minutes)

Directions

- Read news-2-you newspaper aloud (app).
- Instruct students to complete worksheets (app).
- Record 100%-completed worksheets on work completion checklist.



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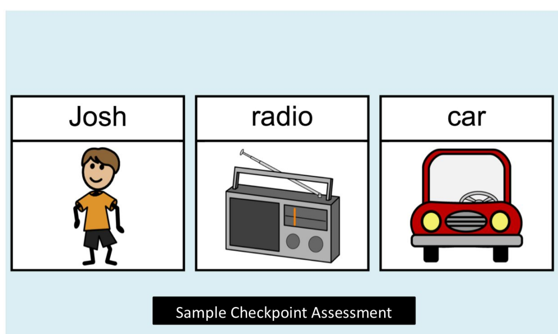

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	Attempt 2 (If Needed)	**Present 2 pictures (with text).** *Find the vest*		Add verbal, gestural or physical prompts. Score 0 if no response or refuses to respond.

Level 1 Directions & Score Sheet

Sample Checkpoint Assessment

Content Understanding/History: Share information about heritage and traditions in the community or country.

	Teacher Prompt	Response Options (correct in bold)	**Special Accommodations** *For students with vision, hearing, physical or communication impairments, special accommodations that are typically afforded during instruction may be applied to the administration of these checkpoints.*
Item 1	**Present 3 pictures (with text).** *When Grandpa was a kid he liked to type his ABCs. What did people type on long ago?*	a. TV b. **typewriter** c. computer	Response options may be presented verbally.
Item 2	**Present 3 pictures (with text).** *Grandpa was a kid long ago. Things were different long ago. Which one is from long ago?*	a. computer b. cell phone c. **telephone**	Response options may be presented verbally.
Item 3	**Present 3 pictures (with text).** *Games are fun. Games have changed over time. What is an example of a game from long ago?*	a. chores b. **marbles** c. video games	Response options may be presented verbally.
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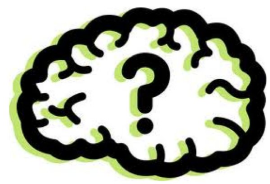
Level 2&3 Directions & Score Sheet



Task Practice

Exploring Cognitively Accessible Academic Lessons Using the *iPad*

DATA COLLECTION

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- Post-Intervention Survey
- Post-Intervention Questionnaires

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Record (✔) completed worksheets (100%)

Exploring Cognitively Accessible Academic Lessons Using the *iPad*

TEACHING FIDELITY

Teaching Fidelity Checklist

Teaching Fidelity Checklist (*iPad*)

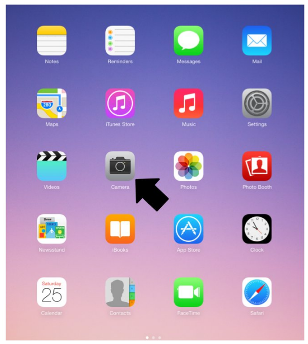
Teacher ID: ________ Rater Name: ________________
Class ID: ___________ Date: ________________

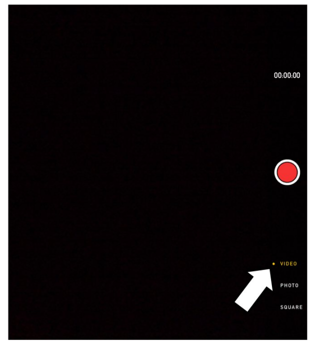
Lesson: #___

The teacher…	Yes	No	Rater Notes
Set up iPad to video-record the lesson.			
Whole Group ULS Lesson (15 minutes)			
Provided each student the proper materials for their differentiation level via the *iPad*.			
Conducted ULS lesson (15 minutes). *Outlined in the classroom activities section of each ULS lesson plan.*			
Stayed within the 15-minute time limit for whole group instruction.			
Small Group Rotations (2-5 students; 3 groups X 10-minute)			
Provided each student an *iPad* with *Guided Access* in the News-2-you *app*.			
Used the *iPad* (News-2-you *app*) to read the News-2-you newspaper aloud to the students.			
Instructed students to complete the News-2-you worksheets via the *iPad*, providing assistance as needed.			
Stayed within the 10-minute time limit for each group.			
Recorded any completed worksheets on the Worksheet Completion Checklist.			

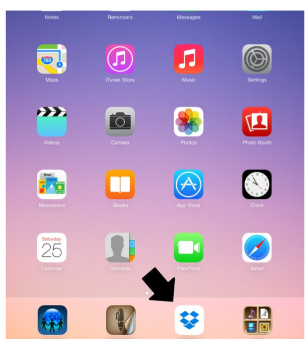
Total ____ ____
Yes No

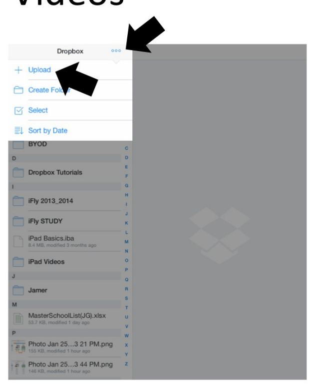
Fidelity Videos





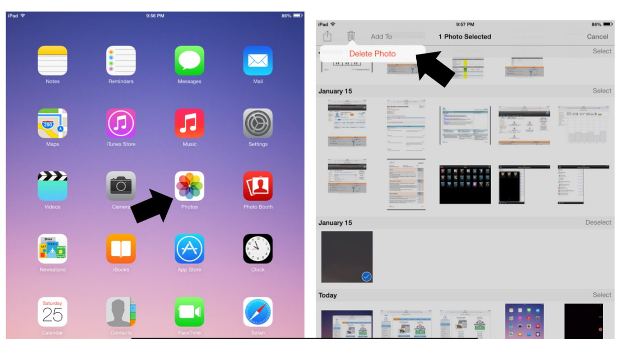
Fidelity Videos





Fidelity Videos

Fidelity Videos



Lesson videos must be deleted after upload!

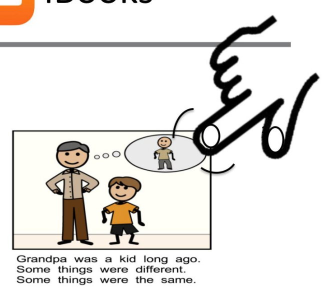
APPENDIX Q

Student Training

Device Controls

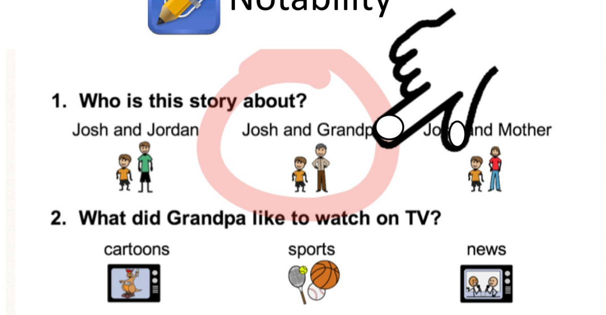
touch

iBooks



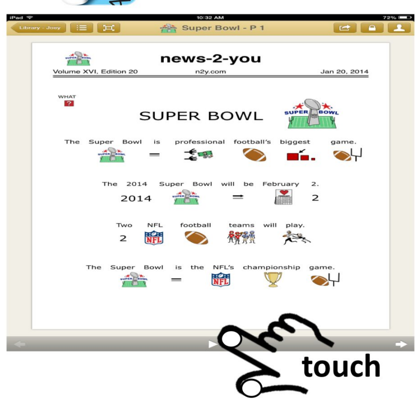
swipe

Notability



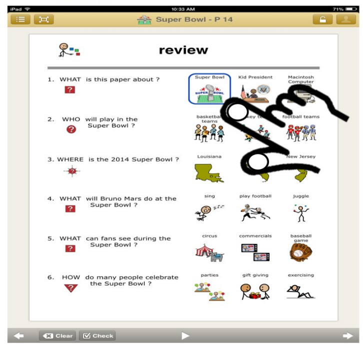
touch

n2y App



touch

n2y App



hold

3

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Jamie Linn Gunderson
Curriculum Vitae

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Current Position

2012- present
Assistive Technology Project Facilitator, Clark County School District

Degrees Awarded

Doctor of Philosophy, Special Education
University of Nevada, Las Vegas
Disability Areas: Autism and Intellectual Disabilities
Leadership Area: Educational Leadership
GPA 3.95/4.0

Master of Education, Special Education, 2007
University of Nevada, Las Vegas
Area of Emphasis: Autism and Intellectual Disabilities
GPA: 4.0/4.0, passed portfolio examination with distinction

Bachelor of Education, Special Education, 2007
University of Nevada, Las Vegas
Area of Emphasis: Generalist K-12
GPA: 3.74/4.0

Certification

Special Education Generalist K-12, State of Nevada, Mild/Moderate Disabilities

School Administration, State of Nevada

TESL Endorsement

Honors and Awards

New Special Education Teacher of the Year, Clark County School District, 2006.

Professional Experience

University Experience

University of Nevada, Las Vegas, Fall 2012
Part-time Instructor, Department of Educational and Clinical Studies

University of Nevada, Las Vegas, Fall 2011
Teaching Internship, Department of Educational and Clinical Studies

Public School Experience

Lied Middle School, Clark County School District, Las Vegas, Nevada, 2009-2012

- Self-contained special education teacher for students with intellectual disabilities.

Las Vegas High School, Clark County School District, Las Vegas, Nevada, 2008-2009

- Self-contained special education teacher for students with intellectual disabilities.

Silvestri Junior High School, Clark County School District, Las Vegas, Nevada, 2006-2008

- Self-contained special education teacher for students with intellectual disabilities.

Nate Mack Elementary School, Clark County School District, Las Vegas, Nevada, 2005-2006

- Special programs teaching assistant for students with emotional and behavioral disorders.

Bruner Elementary School, Clark County School District, Las Vegas, Nevada, 2004-2005

- Teaching assistant for kindergarten students with and without disabilities.

Research and Scholarship

Presentations

Morgan, J. J., Brown, N., & Gunderson, J. (2011, November). Integrating professional learning communities into the practicum experience. Session presented at the annual meeting of the Teacher Education Division in Austin, TX.

Gunderson, J. L., Lucia-Terry, S., & Amoia, A. (2014, November) *iFly* Soaring to Success. Session presented at the Urban Special Education Leadership Collaborative in Houston, TX.

Teaching

University of Nevada, Las Vegas, 2012
Part-time Instructor, Department of Educational and Clinical Studies

Course Number and Title	Course Description	Semester(s) Taught
ESP 737i: Resource Room Practicum	Course designed to provide students with an overview of the resource room including developing classroom systems, writing high quality lesson objectives and plans, acquiring materials for the classroom, developing strategies and techniques for instruction students with disabilities, and writing individualized education plans (IEPs).	Fall 2011 Fall 2012

Service

Clark County School District

Designed and implemented project iFly serving elementary and secondary students with intellectual disabilities. Authored the iFly iBook (available in the iBook store).

Professional Organizations

Council for Exceptional Children
Division for Research
Technology and Media Division