11-2006

Alien Invaders! Pre-visit, Support Materials: Water Characteristics (Grade 6)

Discover Mojave: Forever Earth

GRADE 6

ALIEN INVADERS!

PRE-VISIT • SUPPORT MATERIALS

Water Characteristics

Student Worksheet:
RESOURCES FOR WATER QUALITY RESEARCH

Online Resources

AskJeeves for Kids

Search for Internet sites with information about water and water characteristics:
www.askforkids.com

U.S. Geological Survey

Check out the U.S. Geological Survey for short explanations of general water quality tests:
http://ga.water.usgs.gov/edu/characteristics.html

Read short descriptions of ground water quality and tests:
http://ga.water.usgs.gov/edu/earthgwquality.html

GREEN – Global Rivers Environmental Education Network

Learn about water quality conditions and potential causes of change in conditions:
www.green.org/files.cgi/212_Making_Water_Quality_Connections.pdf

Specific Water Quality Tests

Calcium

http://kywater.org/ww/ramp/rmcalc.htm
www.amdareef.com/ho_chem2.htm
www.ianrpubs.unl.edu/epublic/pages/publicationD.jsp?publicationId=175
www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/doc_sup-appui/calcium/index_e.html

Dissolved Oxygen

http://waterontheweb.org/under/waterquality/oxygen.html
www.state.ky.us/nrepc/water/wcpdo.htm

pH

http://waterontheweb.org/under/waterquality/pH.html

Temperature

http://waterontheweb.org/under/waterquality/temperature.html

Turbidity

http://waterontheweb.org/under/waterquality/turbidity.html

Student Worksheet:
WATER CHARACTERISTICS

Work in teams of 5 to find the answers to the following. Assign one of the characteristics to each team member. Once each student has researched his/her topic, join together to share and discuss.

DRINKING? • BATHING? • FISHING? • SWIMMING?	
What is **pH**? What is a normal pH for drinking water? How does the pH of water affect living things? Identify 3 things that could cause the pH of water in a lake or ocean to change.	What is **TEMPERATURE**? How does water temperature affect living things? Identify 3 things that could cause the temperature of water in a lake or ocean to change.
What is **TURBIDITY**? What is an acceptable turbidity value for drinking water? How does water turbidity affect living things? Identify 3 things that could cause the turbidity of water in a lake or ocean to change.	What is **DISSOLVED OXYGEN**? What is an acceptable dissolved oxygen value for a fresh water lake? How does dissolved oxygen in the water affect living things? Identify 3 things that could cause the amount of dissolved oxygen in a lake or ocean to change.
What is **CALCIUM**? What is an acceptable calcium concentration for drinking water? How does the concentration of calcium in water affect living things? Identify 3 things that could cause the calcium concentration of water in a lake or ocean to change.	Which one of the 5 characteristics is most important to our group, and why?

Student Worksheet:

LAB ACTIVITY—WATER QUALITY TESTING

Work in groups of 3 to complete this activity. Use the tools and the procedures demonstrated by your teacher to measure 5 characteristics of 5 different water samples. Each test must be completed by you and your two partners. Record results of all three of your tests; then average the results. Put the average values in the shaded boxes.

WATER SAMPLE	PH	TURBIDITY (NTU)	DISSOLVED OXYGEN (PPM)	TEMPERATURE (^{O} CELSIUS)	CALCIUM (PPT)
Sample A	Test #1:	Test #1:	Test #1:	Test #1:	Test #1:
	Test #2:	Test #2:	Test #2:	Test #2:	Test #2:
	Test #3:	Test #3:	Test #3:	Test #3:	Test #3:
	Average:	Average:	Average:	Average:	Average:
Sample B	Test #1:	Test #1:	Test #1:	Test #1:	Test #1:
	Test #2:	Test #2:	Test #2:	Test #2:	Test #2:
	Test #3:	Test #3:	Test #3:	Test #3:	Test #3:
	Average:	Average:	Average:	Average:	Average:
Sample C	Test #1:	Test #1:	Test #1:	Test #1:	Test #1:
	Test #2:	Test #2:	Test #2:	Test #2:	Test #2:
	Test #3:	Test #3:	Test #3:	Test #3:	Test #3:
	Average:	Average:	Average:	Average:	Average:

Sample D	Test #1:	Test #1:	Test #1:	Test #1:	Test #1:
	Test #2:	Test #2:	Test #2:	Test #2:	Test #2:
	Test #3:	Test #3:	Test #3:	Test #3:	Test #3:
	Average:	Average:	Average:	Average:	Average:
Sample E	Test #1:	Test #1:	Test #1:	Test #1:	Test #1:
	Test #2:	Test #2:	Test #2:	Test #2:	Test #2:
	Test #3:	Test #3:	Test #3:	Test #3:	Test #3:
	Average:	Average:	Average:	Average:	Average:

Analysis Questions

1. Why weren't the values you obtained the same as those obtained by your lab partners?

2. Why is it important to take measurements more than one time?

3. Use your data from your ***Water Characteristics*** handout to answer the following questions:

    a. How did your pH results compare to a normal pH for drinking water?

    b. How did your turbidity data compare to an acceptable turbidity value for drinking water?

    c. How did your dissolved oxygen data compare to an acceptable dissolved oxygen value for lake water?

    d. How did your calcium data compare to an acceptable salt concentration for drinking water?

4. Knowing what you now know, which of the water samples would you most likely taste if you were allowed to taste any of them? Justify your answer with evidence.

5. How does your answer to question #4 differ from the answer you gave when you first observed the water samples?

6. Which of the samples of water (A, B, C, D, or E) would most likely be acceptable water quality for the fish of Lake Mead? Justify your answer with evidence.