

Water Quality Monitoring (Leon Sinks)

Teacher's Guide

Subject: Integrated Science (Life; Earth-Space; Physical)

Topic: Water Quality monitoring, watersheds.

Summary: Students will use various types of water monitoring equipment to explore selected to gain a better understanding of the dynamics of surface water compared to ground water, and how they are connected. Special emphasis will be paid to changes in dissolved oxygen.

Objective(s): After completing the field lab, students will be able to:

1. Operate selected water quality field equipment
2. Collect and interpret water quality data

Ecosystem(s): Rivers, Springs

Equipment:

- Lamotte water sampler
- Armored thermometer
- Refractometer
- X tech pen
- pH test kit
- Transparency tube
- D.O. Kit
- Data sheet & clipboard

Background

- Vocabulary: Dissolved Oxygen, parameters, water quality, watershed
- Reference Material: Healthy Water Healthy People parameters
- Equipment Training: D.O. test kit

Procedure (Engage; Explore; Explain)

1. Engage the students by asking a specific question that gets to the heart of the activity: What is the major difference between surface water and ground water?
2. Use the students' answers to ascertain what they already know, clarify any misconceptions; Ask them to formulate their own hypothesis relating to their own expectations of the outcome of the lab.
3. Follow the procedures for the water quality equipment. Fill out the data sheet accordingly.
4. After completing the lab, allow the students to answer the discussion questions as a group and explain their answers relating them to the concepts, processes and skills associated with the activity. Students should record their answers individually. At this time, facilitators can introduce/explain the specific concepts and explanations in a formal manner.

Sunshine State Standards:

Science: SC.7.N.1.1; SC.7.E.6.6

Language Arts: LA.7.4.3.1,2; LA.7.4.2.2

Mathematics: MA.7.S.6.1;

Social Studies: SS.B.1.3.1; SS.B.2.3.6, 9

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Student Data Sheet

General Information

Full Name:		Science Teacher:	
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Student Hypothesis and Rationale

If dissolved oxygen levels can be negatively affected by a large amount of decomposition and lack of water flow then the Dissolved oxygen in hammock sink will be (choose one: higher/ lower) than natural bridge

because _____

Field Observations/Measurements/Data

	Group name	Group name	Average	Group name	Group name	Average
Location:	Hammock Sink	Hammock Sink	Hammock Sink	Natural Bridge	Natural Bridge	Natural Bridge
Date:						
Time:						
Weather conditions:						
Cloud cover:						
Air Temperature:						
Water Type: Ground water/ surface water						
Karst Feature:						
Depth of water sample:						
Water temperature:						
Color of water:						
Transparency:						
pH:						
Conductivity:						
D.O.						

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Assessment

1. What was the pH and Dissolved Oxygen at hammock sink?

2. Which parameters had the greatest change (according to scale) between Hammock Sink and Natural Bridge?

3. Look at your Hypothesis. Was your hypothesis supported by your data? Whether your hypothesis is supported or not, what can you infer from your observations, measurements, and results?

4. Would you expect the conductivity to be greater in a high mountain stream that receives fresh snowmelt or in a lake with lower elevations? Explain your answer.

5. Describe what changes in your area could have an effect on the PH reading at your water site?

6. Think about the observations you have just made. Did the activity raise new questions? Write a short question (start with “What, Why, Where, When, or How”) about something you want to learn more about.
