

## Water Quality Monitoring (Physical & Weather)

## Teacher's Guide

**Subject:** Science (Earth Science)

**Topic:** Physical Parameters of Water Quality and Meteorological Conditions.

**Summary:** Students will monitor and physical parameters of water quality and local meteorological conditions

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

1. Measure temperature, clarity, and flow
2. Measure air temp, relative humidity, cloud cover, and light intensity.

**Ecosystem(s):** Lakes/Rivers/Springs

### Equipment:

- Armored thermometer
- GPS unit
- 2 Safety Glasses
- Data sheets & Clipboards
- Flow meter
- Clarity tubes
- Env. Multimeter
- Cloud chart (GLOBE)

### Background:

- **Vocabulary:**
- **Reference Material:** Healthy Water Healthy People; GLOBE cloud protocols
- **Equipment Training:**

### Procedures (Engage; Explore; Explain; Elaborate; Evaluate):

1. Ask the students how the weather might affect water quality.
2. Use the students' answers to ascertain what they already know, clarify any misconceptions, and then ask them to formulate their own hypothesis relating to their own expectations of the outcome of the lab.
3. Complete the measurements on the physical parameters of water quality and local weather conditions.
4. After completing the lab, Elaborate on the concepts by having the students 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:**

**Language Arts:**

**Mathematics:**

**Social Studies:**

## Water Quality Monitoring (Physical & Weather)

## Student Data Sheet

### General Information

Full Name:		Science Teacher:	
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### Student Hypothesis and Rationale

If water clarity is predominantly (mostly) affected by surface water runoff then the location that should be least affected by surface water runoff would be (choose one: Alligator Lake, Ichetucknee Springs, Suwannee River), because . . . \_\_\_\_\_

### Field Observations/Measurements/Data

	Alligator Lake	Ichetucknee Springs	Stephen Foster SP (Suwannee River)
<b>Date (Time)</b>			
<b>Latitude</b>			
<b>Longitude</b>			
<b>Water Temp</b>			
<b>Clarity</b>			
<b>Flow</b>			
<b>Air Temp</b>			
<b>Wind Speed</b>			
<b>Relative Humidity</b>			
<b>Light Intensity (lux)</b>			
<b>Cloud Cover</b>			
<b>Weather conditions previous day</b>			

## Water Quality Monitoring (Physical & Weather)

## Assessment

1. What are some factors (weather, slope of land, surroundings, etc) that could have affected your water quality measurements at Alligator Lake?

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2. How is the water quality different at Ichetucknee vs. Alligator Lake? What may be a reason for this (these) difference(s)?

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3. Is the water quality at Stephen Foster State Park more similar to that of Alligator Lake or Ichetucknee Springs? Explain how you chose your answer.

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4. Review your measurements for flow and water clarity at each location. Does there appear to be a link between the two? How might they be related?

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5. What are some ways humans can improve water quality as it relates to runoff?

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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.

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