

Groundwater Levels

Teacher's Guide

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

Topic: Groundwater Levels vary by Location and Land Use

Summary: Students will measure the elevation of the water in Alligator Lake and the groundwater in a nearby well. Differences in the recharge methods of surface water and groundwater will be analyzed.

After completing the field lab, students will be able to:

Objective(s):

1. Identify surface water and groundwater
2. Understand the difference between a watershed and a springshed
3. Measure and analyze water level data

Ecosystem(s): Lakes/Rivers/Springs

Equipment:

- Solinist Measuring Tape
- GPS
- Data Sheet and Clipboard
- Reference Sheet

Background:

- Vocabulary: Groundwater, surface water, percolation, watershed, springshed
- Reference Material: Project WET: Get the Groundwater Picture
- Equipment Training: GPS

Procedure (Engage; Explore; Explain)

1. Engage the students by asking a specific question that gets to the heart of the activity: Do you ever think about where all that water goes when it rains? Does it all run down to streams, rivers, and lakes; or does it seep into the ground and become groundwater? 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.
2. Locate SRMD Lake Level Station and record water level and GPS location.
3. Students will navigate to the well site from the lake using pre-set GPS waypoint.
4. Use Solinist measuring tape to record depth at which water can be found, and calculate the water level by subtracting the measurement from known elevation (142.03ft).
5. After completing the lab, discuss the differences observed and what may have caused them. Introduce the last date of rainfall and allow students to compare their answers for the discussion questions with the graphs on the reference page.

Sunshine State Standards:

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Student Data Sheet

General Information

Full Name:		Date:	
School (teacher):		Time:	

Student Hypothesis and Rationale

If rainfall influences groundwater and surface water differently, then I think (choose one: groundwater / surface water) would be affected more quickly by rainfall because...

Field Observations/Measurements/Data

Date of last known Rainfall event: _____

	Alligator Lake	Well Site
Latitude		
Longitude		
Weather Conditions		
Current Water Level (feet)		
First Day of Water Level Rise		

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Assessment

1. When was the last rainfall event at this location?

2. How many days did it take for the rainfall to affect the groundwater?

3. Do your data support your hypothesis? Whether your hypothesis is supported or not, what can you infer from your observations, measurements, and results?

4. How do you think the rainfall effects on rivers would be similar to or different than the effects on lakes?

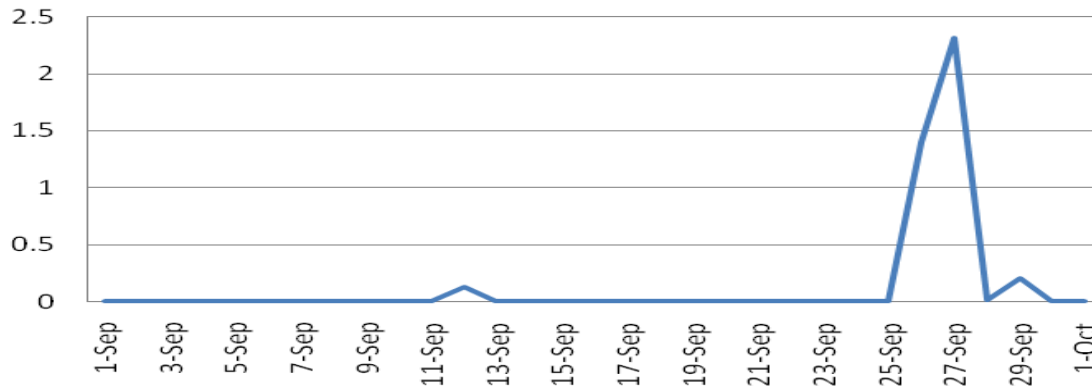
5. Based on your findings, would water runoff from a neighborhood have a greater effect on groundwater or surface water? Explain.

6. Think about what you learned in this lab; has it generated any new questions? Write a new question about something you want to learn more about.

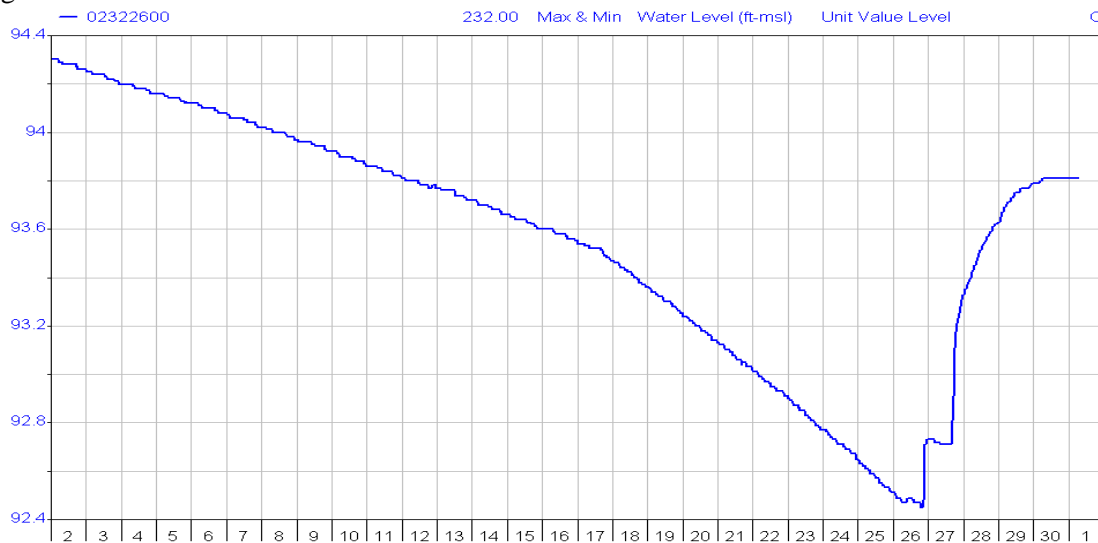
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Reference Charts

Rainfall Data (in inches) for Lake City



Alligator Lake Water Level Data



Approximate Well Water Level Data (in feet)

