

<b>THEME:</b>	<b>Water Monitoring</b>
<b>SCOPE &amp; SEQUENCE UNIT:</b>	<b>Data analysis</b>
<b>OBJECTIVE:</b>	<b>What does the creek monitoring show over time?</b>
<b>ACTIVITY:</b>	<b>Graphing the results</b>

Notes:	In-class activity
Teacher Prep.:	create graph elements, organize data
Time:	60 minutes

### **Skills:**

- ◆ Math Literacy
- ◆ Reading
- ◆ Ecological literacy
- ◆ Critical and creative thinking
- ◆ Collaboration, teamwork, leadership

### **Objectives:**

- ◆ To experience the scientific method of data analysis
- ◆ To make conclusions about what the data show in the graph
- ◆ To connect this information to the creek and the bigger picture

### **Background Information:**

After at least three creek monitoring dates there is enough data to create graphs with 3 points on them. Graph each parameter separately to see its range of value over time. Each parameter measured will need a different graph scale on the y axis.

### **Vocabulary:**

**Y axis** – the vertical axis on a graph

**X axis** – the horizontal axis on a graph

### **Materials:**

Graphing materials – student page for individual graphs, ruler, pen or pencil

Data from monitoring (from the master archive file) – accessible to students (most handy if printed out)

### **Introduction Discussion:**

What do the data tell us? Sometimes the data is more easily understood in graphic form because the changes, trends or relationships can be more easily seen. To see change over time, place time on the horizontal, x axis. Place the parameter being measured on the left hand side, the y axis. Title both. Title the graph. To make a line graph, mark each value in its matching date and value. Connect the marks with a solid line.

### **Reflection Discussion:**

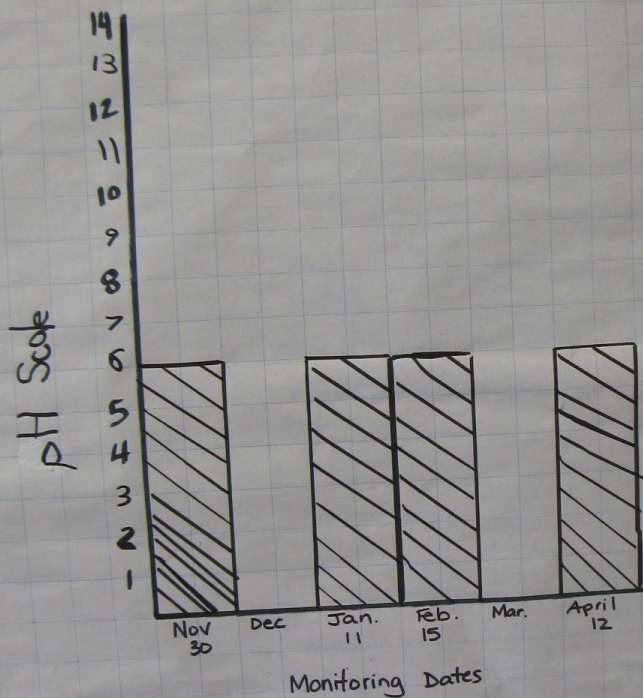
Review the graph results together to draw conclusions about the creek. What does the graph show? What could be the cause of the change (if there is any)? Is the difference real or is there an error in the sampling? What could explain this? Is the difference big enough to be important? Record these conclusions below the respective graphs.

### **Student Page:**

Pages for making graphs

### **Exemplars:**

Did the pH of the creek  
change over time?



No, it didn't change. This creek is slightly acidic, which is normal for this creek. Every change in pH is 10 times, so it is good the creek's pH didn't change. If it changes by much, life in the creek would die.

Did creek speed change  
over time?



Yes! Creek speed is affected by rainfall, the shape of the creek, and the amount of water in the creek.