

Unit 3: POLLUTION- KEEP IT CLEAN

ACTIVITY 2

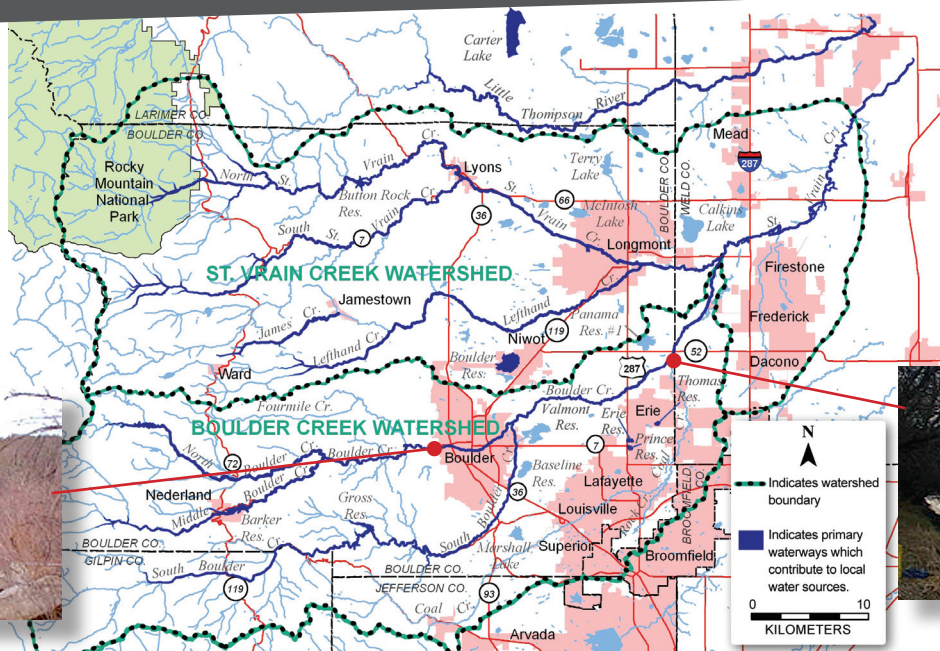
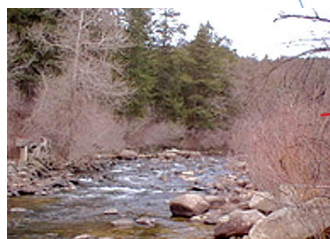
H₂O GO!

PHOSPHATE ON THE LOOSE

PURPOSE

The purpose of this lab is to graph phosphate levels at two different water quality testing sites along Boulder Creek in July over three years. The lab will examine phosphate levels in Boulder Creek as the water travels downstream. Below is a map of the water quality testing sites on Boulder Creek. The two sites this lab will examine are #1 Orodell, directly above Eben G. Fine Park, before Boulder Creek enters the city of Boulder, and #2 below Coal Creek, which is after Boulder Creek has progressed through the city of Boulder and after its confluence with Coal Creek, just north of Erie and east of Gunbarrel.

Orodell

Below Coal
Creek

HYPOTHESIS

Create a hypothesis of how phosphate levels will change from testing site #1 Orodell to testing site #2 Below Coal Creek. Review the map, the photos and Phosphate Background Information to help formulate your hypothesis.

PROCEDURE

1. Review the two water quality testing sites on the map above.
2. In the empty graph provided on the next page, use a different color to represent each testing site, and graph the phosphate data points provided for each year.
3. The July 2004 Orodell phosphate level has already been graphed as an example.
4. Graph the July 2004 below Coal Creek phosphate level.
5. Graph the July 2005 Orodell phosphate level.
6. Graph the July 2005 below Coal Creek phosphate level.
7. Graph the July 2006 Orodell phosphate level.
8. Graph the July 2006 below Coal Creek phosphate level.
9. Label and title your chart.
10. Explore the discussion questions with your teacher and class.
11. Write a conclusion for the lab on the back of this page.



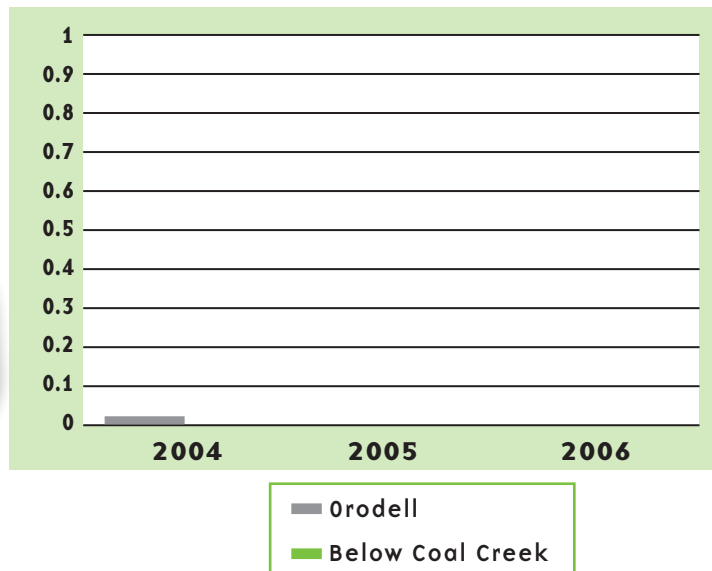
UNIT 3: POLLUTION-KEEP IT CLEAN

ACTIVITY 2: PHOSPHATE ON THE LOOSE (CONTINUED)

BOULDER PHOSPHATE DATA AND TEST SITES

Below are phosphate levels taken in July of 2004, July of 2005 and July of 2006 at two different locations around Boulder. Amounts of phosphate are in milligrams/liter:

Boulder Creek	July 2004 In mg/L	July 2005 In mg/L	July 2006 In mg/L
Orodell	0.02	0.04	0.03
Below Coal Creek	0.87	0.43	0.81



DISCUSSION

Have a discussion with your class regarding the phosphate data above and the trends you see in the data.

- What is the trend of phosphate levels between the two different testing sites? At Orodell? At Below Coal Creek?
- What does this data tell you about what might contribute to phosphate pollution?
- What are some of the most typical sources of this pollutant?
- Why would phosphate levels increase after the intersection of Boulder Creek with Coal Creek?
- What other pollutants might increase as a water source enters an urban area? What pollutants might increase as a water source enters an agricultural area?

CONCLUSION

- Do the results support your hypothesis?
- What would you conclude from this lab?
- What did you learn from this activity?

Given what you have learned in your lab, try responding to the Down the Drain scenario now. Is your answer different than before?

DOWN THE DRAIN

You and your friends have started a landscaping company to make some extra money. You complete tasks such as weeding, raking, fertilizing, applying pesticides, cutting and sprinkling the yard. You've just begun mowing your first yard when you realize you have run out of bags to collect the clippings and yard waste. Your friends suggest dumping the grass clippings into the storm drain, saying "It's okay, it'll get washed down."

What's the big deal?

Did you find it was easier to make an argument with some data and background knowledge to support your position?

No matter what your opinion is, knowing facts and understanding data makes it easier to express yourself, and more likely to convince someone of your position.
