

Jeff Koch

Lesson Plans

What is the land-water connection? Constructing a Terraqua Column

Standard(s): 3.1, 3.2, 3.3, 3.4, 4.6

Objective(s):

1. Students will construct and conduct experiments with terraqua columns.
2. Students will make connections to terrestrial and aquatic systems, the water cycle, land-use and water quality, point-source pollution, ecology, soil science, and agriculture.
3. Students will make observations, design experiments, record and analyze data, make models, and infer their findings.

Procedure:

1. Lecture discussion:
 - a. Briefly discuss the water cycle
 - b. Discuss water filtration
 - c. Terraqua column model's three basic components soil, water, and plants
 - d. How varying treatments can affect the whole system
2. Use the textbook, internet, or various other sources to find information on the following questions relating to the land-water connection:
 - a. How does salt affect the growth of plants?
 - b. How does adding fertilizer to the soil affect algal growth in the water chamber?
 - c. What type of soil best purifies water?

Find the definitions to the following water terraqua column vocabulary:

- a. terrestrial
 - b. aquatic
 - c. filtration
 - d. percolate
 - e. point-source pollution
 - f. non-point-source pollution
3. After the textbook, internet, or various other sources research is completed we will have a class discussion on what we have found

Follow-up Activities:

1. Students will perform, understand, and describe the results of chemical tests that relate to the nitrogen cycle.
2. A classroom hydroponics experiment will be setup by the students.