

Parts Per What

Grade Level: 4 th -5 th grade	Topic: Water Conservation/ Protection	Estimated Time: 50 minutes
<p>Brief Lesson Description: Students will demonstrate water flow through a watershed, identifying landforms and possible sources of water contamination. Then, students will explore ways farmers work to protect the environment, including watersheds, by planting buffers trips, using precision technologies to apply fertilizers or manage water use on their farms. Finally, students will dilute a “contaminant” in a water sample to demonstrate water clarifying practices. Lesson includes division of fractions and decimals starting with 1/10 and progressing to 1/1,000,000.</p>		
<p><u>Next Generation Science Standards</u> Performance Expectation(s): 4-ESS2-1: Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation. 5-ESS2-1: Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact. 5-ESS3-1: Obtain and combine information about ways individual communities use science ideas to protect the Earth’s resources and environment. 5-PS1-1: Develop a model to describe that matter is made of particles too small to be seen.</p> <p><u>National Agricultural Literacy Outcomes:</u> T1.3-5 c: Identify land and water conservation methods used in farming systems (wind barriers, conservation tillage, laser leveling, GPS planting, etc.) T1.3-5 e: Recognize the natural resources used in agricultural practices to produce food, feed, clothing, landscaping plants, and fuel (e.g., soil, water, air, plants, animals, and minerals). T2.3-5 e: Understand the concept of stewardship and identify ways farmers/ranchers care for soil, water, plants, and animals. T4.3-5 d: Provide examples of science being applied in farming for food, clothing, and shelter products. T5.3-5 b: Discover that there are many jobs in agriculture.</p>		
<p>Specific Learning Outcomes: Students will be able to:</p> <ol style="list-style-type: none"> 1. Identify possible sources of surface and ground water contamination. 2. Recognize how water is used in agricultural production and the conservation practices employed by farmers to maintain or improve the quality of our water. 3. Measure the dilution of a contaminant in water by dividing fractions of the contaminant in a water sample. 4. Name two careers related to water quality. 		
<p>Narrative / Background Information</p>		
<p>Prior Student Knowledge: Students should be familiar with:</p> <ol style="list-style-type: none"> 1. Understand fractions 2. Know the difference between a numerator and denominator 3. Understand the basic steps of the water cycle 4. Understand what makes something a pollutant 		