

Activity name: Water Analysis (Physical)

This activity is meant to provide a real-world application of the ATEEC Recommended Core Curriculum's math, science, technical, communications, or critical thinking knowledge and skill concepts, which have been identified by the ATEEC Fellows as necessary preparation for environmental technology occupations.

Appropriate for which course(s)? Life Science, Earth Science and Physical Science

Concept/skill learned (i.e. from K/S Tables): Select, calibrate, and use sampling and monitoring equipment; Draw, read, or interpret blue prints, flow diarams, schematics, sketches, maps, and charts; apply ratios and proportions to sove problems; interpret and extrapolate data.

Approximate time to complete activity: 1 day

Source of idea or activity (for published source, please include author, title, publisher, date):

Materials/resources needed (equipment, print media, electronic media, videos, supplies, etc.): Water collecting apparatus, water testing equipment (temp, flow rate, depth, turbidity), aquatic organism collecting equipment and common laboratory equipment and supplies.

Description of activity: Part A

1. Identify and locate different types of surface water in your area.
2. Visit the sites of each water type and complete the following:
 - collect three samples
 - measure the physical characteristics of the water (temp, flow rate, depth, turbidity)
 - construct a cross-section of the stream at a variety of depths
 - fix one of the samples for later dissolved oxygen analysis
 - collect materials from the stream bottom for lab analysis
3. In the laboratory:
 - using 2 of the samples collected, complete an analysis of the chemical parameters of the water samples
 - complete an analysis of the bottom samples collected at the site
 - use the data on water depth and stream profile to calculate an estimate of the volume of water at one particular point in the stream
 - using the estimate of water volume and the flow rate, estimate the number of gallons per minute that flow past your observation site

- allow the third sample to settle out the particulate matter and use this data to determine the total grams of soil per minute passing your observation point
- or***
- pass a known volume of the third sample through a filter paper and calculate the mass of suspended solids in the sample. Use this data to estimate the total mass of solids passing your observation point in one minute

Activity submitted by: Tom Watts

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