

Activity name: Particulate Matter - What's In The Air

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 identified by ATEEC Fellows as necessary preparation for environmental technology occupations.

Appropriate for which course(s)? Environmental Science, Chemistry, and Biology.

Concept/skill learned (i.e. from K/S Tables): To trap and observe the appearance of particles of solid matter in our air. Read and follow lab procedures, complete data forms.

Approximate time to complete activity: 1 week - varying amounts of time/period (see procedure).

Source of idea or activity (for published source, please include author, title, publisher, date): Adapted from [Air Pollution -- Environmental Education Program](#). Missouri Department of Natural Resources, 1982 by Margaret Suerth.

Learning Objectives: Students will analyze particulate matter in air.

Materials/resources needed (equipment, print media, electronic media, videos, supplies, etc.): Magnifying lens or microscope, petroleum jelly (Vaseline), Scotch-type tape, glass slides of wax paper, and cardboard.

SCANS Skills: Reading, writing, mathematics, decision making, acquires and evaluates information, organizes and maintains information, interprets and communicates information.

Primary Instructional Method: Lab

Description of activity:

HYPOTHESIS: Where in your town or neighborhood do you think the air might be dirty? Where do you think the air is clean? Carefully write down your hypothesis (guess).

PROCEDURE: Decide on several places you would like to test your guess. For each place you would like to test make a particle trap. Make one extra trap.

For each trap you need to cut 2" x 2" piece of wax paper. Tape it or tack it by the corners to a slightly larger piece of cardboard or wood. If you have microscope slides one of them for each instead. Put a thin layer of petroleum jelly on the wax paper or slide. This is your place that will not be in the way and where it will not be disturbed. Leave it there

for two or three days. Place your extra one in a sealed jar. This is your control. You will use it to compare.

After 2 or 3 days collect all your particle traps, carefully marking each one as to exactly where it was. Be careful not to touch the petroleum jelly. Examine each with a magnifying lens or microscope. Be careful not to touch the lens to the petroleum jelly.

HOW MANY PARTICLES OBSERVATIONS	
TEST PLACE	ON TRAP?
	COMMENTS

CONTROL

- 1.
- 2.
- 3.
- 4.

SKETCHES: Do a sketch of the particles on each trap.

CONCLUSIONS: Which traps contained the most small particles of solid matter? Was your guess correct? Carefully write down your conclusions.

DISCUSSION: Discuss your test results with your friends. Where did they find the most particles in the air? Are your results like your friends' results? Did you test places they did not? Together do you have a larger number of different places tested? Where in your town are the most particles? Where are there the least? What do you think the particles are? Where do you think they come from? What can be done about it? What should be done about it?

ASSESSMENT RECOMMENDATIONS: Check sketches and answers to conclusions in a lab write up.

FURTHER STUDY: Where else do you think you might test? What else could you test? How do people protect themselves from such particles?

Activity submitted by: --

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