

Remote Experiment: Measuring Air Pollution

Grades: 2-6

Learning Objectives

Students will be able to:

- Define air pollution
- Describe what makes up air pollution
- Explain the scientific method

Background Information:

How clean is the air? This experiment will provide students with an example of how “dirty” our air is. Students have the opportunity to choose a location where they would like to examine and evaluate air quality.

Purpose:

To determine the amount of foreign air particles in a specific area.

Supplies:

- White poster board (paper plates could also work)
- Scissors
- Hole punch
- Magnifying glass
- String
- Vaseline
- Permanent marker
- Notebook
- Pencil



Procedure:

1. Decide on a few locations where you will hang your testers. You can perform this experiment in your home, yard or another area of your choice depending on where you would like to examine how clean the air is.
2. Cut the poster board into several 4 x 4 inch squares.
3. Draw a square with the marker on each cut out piece of poster board, a little smaller than the square itself.
4. Punch a hole in the top of each piece of poster board and tie pieces of string in the holes so you can hang the cut outs in the inside or outside area of your choice.
5. Smear a thin layer of Vaseline inside the drawn square on each cut out and hang them in different places within the area you've decided to examine. Record the areas you've hung each cut out in your notebook.
6. Wait 3-5 days to collect your squares before ending your experiment and examining your results.

** You may need adult supervision when working with scissors, the hole punch, as well as assistance with hanging the squares in high places so the squares are not disturbed during your experiment.*

Observation:

At the end of your experiment, you should find some particles stuck to the square cut outs.

Using your magnifying glass, count the number of particles that are visible that are stuck to your squares. In the space provided below, draw the particles where you would find them from each individual square.

Square 1	Square 2	Square 3	Square 4

Results/Critical Thinking:

- Did you find your squares collected a lot of particles or very little?
- Does the amount of particles found on each individual square differ from one another? What does this mean and what would cause it?
- How would your results change if you chose a different location to test your experiment?
- Could the wind have an effect on your squares?
- What would happen if you tested your experiment in an area with high levels of air pollution, such as a large industrial city? Would there be more or less particles stuck to your squares?
- Are there any preventative measures we can take to help clean the air?

Conclusion:

The Vaseline that had been used on the square cut outs was designed to collect air particles. You may have noticed that air pollutant particles can be big or small, and colored or colorless.

The air particles that you observed are most often made up of dust, soot (from vehicles), smoke, or plant materials. In the same way that the particles collected on the Vaseline, high concentrations of particulates, like in large cities, creates Air Pollution.

Human Causes of Air Pollution

Human activity is a major cause of air pollution, especially in large cities. Human air pollution is caused by things such as factories, power plants, cars, airplanes, chemicals, fumes from spray cans, and methane gas from landfills.

There are ways that we can reduce the amount of pollution in the air by reducing the amount of dust, soot, and smoke that is produced.

What would be some ways you could help to reduce Air Pollution?


