

**Title:** Air Quality Investigation

**Grades:** 4-8

**Objectives:**

- To conduct an experiment to sample and measure the particulate matter in the air at various locations and/or elevations in the schoolyard. (TEKS 5.2B,C)
- To discuss why different locations would have different amounts of particulate matter and how this would affect animal or plant life in the area. (TEKS 5.1B)

**Vocabulary:** particulate matter, particulates

**Materials:**

- 3 x 5 index cards
- Magnifying glass
- Clear packing tape
- Rulers
- 5mm grid paper
- Calculators
- Masking tape

**Procedure:**

1. Begin by cutting a 3cm x 5cm rectangle out of the center of your index card.
2. Place clear packing tape on one side of the card so the sticky part is exposed through the hole.
3. Choose 3 locations for your collection cards that will not get a lot of human interference for a minimum of a 24-hour period.
4. Write your names and the location where you will be placing the card on the back of the card.
5. Once you have chosen the location you will be placing the card or slide, decide how you will attach your card to this location (tape, string or clothespins).
6. Attach the cards to the three locations you have chosen in the schoolyard.
7. After a minimum of 24 hours return to your cards and take them down.
8. Place your 5mm grid paper on the non-sticky side of the card so that it shows through the packing tape.
9. Using the magnifying glass, count and calculate the number of particulates in each 5mm grid for a total area of 3cm<sup>2</sup>.

Kelli Hendrix  
Dr. Alan Sowards  
Stephen F. Austin State University -College of Education  
Energy, Economics, and the Environment Summer Institute

10. Be sure to record all of your collection information in your science journal.

**Assessment:** Have the students create a Venn Diagram showing the differences in two of their locations that showed different results and then write a conclusion as to what causes them to differ.

**Reference:** <http://stclair.k12.il.us/splashd/airquexp.htm>

**Note:** If you go to the web site and click on the “View Data” link at the Air Quality Investigation web page and then click on “View” on the right side of the page there is a collection sheet that can be used to record data.