

Lesson Plan: Air Quality Presentation for Youth (Grades K-3)

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- Title:** Air Characteristics, Airborne Dust
- Subject:** Air Quality
- Subcategory:** Characteristics of air, characteristics of airborne dust, keeping dust down
- Description:** Through the reading of two books, *I Face the Wind* by Vicki Cobb and *Stars Beneath Your Bed, The Surprising Story of Dust* by April Pulley Sayre, and a demonstration planting seeds in soil, students gain a better understanding about the characteristics of air, airborne dust, and the importance of keeping airborne dust (particulates) down. *I Face the Wind* is an interactive book where students listen to the story and help with demonstrations to learn that air has force through wind and the speed of air molecules, and that air has weight and takes up space. With *Stars Beneath Your Bed*, students listen to the book and learn what dust is, that dust scatters light and “paints” the sky at sunrise and sunset, what makes dust, and that dust is around for a very long time. During the seed/soil demonstration, children see the difference between a dry, dusty soil and moist soil. Discussion highlights human causes of airborne dust, and methods such as establishing plants and using water can be effective ways to keep airborne dust down.
- Audience:** Youth grades K-3.
- Duration:** 30-45 minutes.
- Goals:** Students will gain a greater awareness of the characteristics of air and airborne dust.
- Objectives:** Students will be interactive and have fun learning about the importance of air quality.
- Resources:** *I Face the Wind* by Vicki Cobb
Stars Beneath Your Bed, The Surprising Story of Dust by April Pulley Sayre
- Props:** Plastic grocery bag or zip-close bag
- Hanger
 - Pencil
 - Tape
 - Two identical balloons
 - Small ball
 - Book
 - Dry soil
 - Potting soil
 - Small plant pot and saucer
 - Small shovel
 - Seeds
 - Spray bottle with water

Reference

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Materials: AQDX Fugitive Dust Program outreach and education staff
Books: *I Face the Wind* by Vicki Cobb
Stars Beneath Your Bed, The Surprising Story of Dust by April Pulley Sayre

Activity

Plan: Read *I Face the Wind*

- Mesh reading with discussion, brainstorming on how wind affects things.
- With the help of students, perform these exercises:
 1. Wind strengths
 - a. Trap air in a bag and feel it push back as the bag of air is squeezed.
 - b. “Weigh” identical empty balloons on a hanger, fill one balloon with air and “weigh” them again.
 - c. Use a small ball to roll it slowly and quickly against a student to feel the difference in strength of the bump.
 - d. Wave a book slowly and quickly in the air to make different strengths of wind.
 2. Picture clean air
 - a. Have the students draw a picture of how air pollution could be reduced in the future.
 - b. Ideas could be: people riding solar powered trains, beautiful bike paths, healthy children playing outside.
 - c. Have children display art work and explain how they envision a world without air pollution.
 3. Baby must breathe
 - a. Have the children color the picture and take turns discussing how all the people, except the baby, are polluting the air.
 - b. Have the children discuss how the pollutants will affect the baby’s life.
 4. Break the inversion layer code
 - a. Have the children color and complete the inversion layer code.
 - b. Explain how the inversion layer is created in areas surrounded by mountains such as Maricopa County.

Read *Stars Beneath Your Bed*

- Mesh reading with discussion on where students see dust and where they think it comes from.

Seed Planting Demonstration

- Open discussion about different kinds of dirt. Shovel a small amount of dusty soil into plant pot. Have the students notice dust floating above the pot.
- Mix in potting soil noting that this soil does not create dust like the dry soil, and it helps to keep dust down.
- Plant a few flower or vegetable seeds in the topsoil, mentioning that sometimes people will plant vegetation to help stabilize the soil and keep dust down.
- Use spray bottle to water the seeds. State that water is needed for the seeds to grow into plants, and some people, like construction workers, use water to keep dust down on their construction sites.
- Open discussion regarding health effects of breathing airborne dust and where airborne dust comes from in our community.

Method of

Learning: Group discussion, hands-on demonstration, lecture.

Assessment: Written evaluation by teacher assessing presenter, visual aids, and measuring learning by students.