

**Grades: K-5**

**Subject: Science**

**NGSS (DCI) Connections: ESS3.C**

**Time: 2 Class Periods (1 Week Apart)**

## Student Objectives

- Name examples of natural and man-made air pollution.
- Describe some ways that people pollute the air.
- Observe and compare air samples.
- Explain how air pollution may affect us in our daily lives.

## Materials

- Wire coat-hangers
- Stockings (tan or white)
- Scissors
- Stapler
- Petroleum jelly
- Cotton swabs
- Magnifying glass
- Tape or rubber bands
- Butcher paper

## Background Information

People pollute or make the air dirty in many different ways. Perhaps the most obvious pollutants are those linked to burning fuel in factories, power plants, cars and trucks. People pollute the air simply by moving around. For example, particles

and dust are stirred into the air when a person walks down the street or moves from room to room indoors. Vehicles traveling along dry dirt or gravel roads also stir up dirt and dust.

Particulate matter (PM) added to the air mixture in the form of dust might be made up of bacteria, microscopic organisms, pollen, animal dander or other substances. The extremely small size of these particles makes them a risk to humans because they are easily inhaled deep into the lungs where they can contribute to a variety of health problems.

The human respiratory tract has built-in, self-cleaning mechanisms designed to keep foreign particles out of the lungs. Some air pollutants can impair or halt these mechanisms, paving the way for pollutants to travel deeper into the lungs. Conditions ranging from sore, dry throats to asthma and bronchitis have been shown to have some connection with air pollution levels. Apart from health problems, air pollutants can create ugly blankets of smog or mists that spoil the natural beauty of our surroundings and affect vegetation. Plants need clean air, sunlight, and water for healthy growth and foreign substances in the air can hinder plants' ability to take in these essential nutrients.

## Setting the Stage

Have the students construct the "flying bird." Kindergarten teachers may want an assistant to help the students make their birds. Teachers can prepare the coat hangers ahead of time for younger students.

## Activity

### Building the Birds

1. Have students cut out the bird parts.
2. Ask each student to write their name on the back of the tail feathers.
3. Students can color the head and tail feathers. They should not color the wings.
4. Grasp a wire hanger by the handle. In the center bottom, pull and stretch the hanger into a diamond shape.
5. Pull the knee high stocking onto the pointed part of the hanger and pull the stocking toward the handle until it fits snugly.
6. Secure the top of the hose with staples, tape or rubber bands.
7. Staple the head, wings, and tail feathers to the bird.
8. Using a cotton swab spread a small amount of petroleum jelly on the wings (*NOTE: Be sure the students apply the petroleum jelly to the wings only*).

### Hanging the Birds

1. Help the students hang the birds at different locations inside and outside the classroom: playground, trees, breezeway, parking lot, school bus area, cafeteria, ball field, etc.
2. Make a chart listing the locations of the birds.

4. Collect the birds if there is a threat of rain. Place the birds back outside after the rain has passed.
5. After one week (or two) have the students collect their birds.

### Collection and Comparison of the Birds

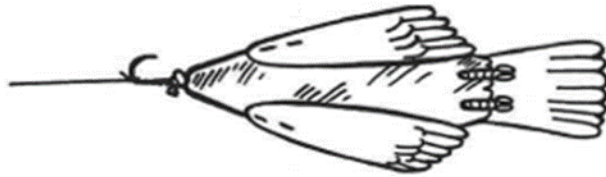
6. Have the students guess and chart their predictions as to which birds will be the dirtiest.
7. Collect the birds and place on a table or floor covered with butcher paper.
8. Students may visually select the bird showing the most and least signs of pollution. Help students identify the locations of the greatest and least pollution. Ask if they know the reason for the differences.
9. Give the students hand-held magnifying glasses to examine the bird's wings. Stress that the smallest particles can be the most dangerous and that there are particles present they cannot see, even with the magnifying glass.
10. Discuss with the students the implications that if the birds are "dirty" or polluted due to the air, then our lungs can be dirty too. Ask how they think this may affect their health, especially their breathing. Help them think of things we can do to protect our lungs. Examples: avoid burning trash or leaves; wear masks when working around saw dust; walk instead of driving; avoid playing near busy roadways, etc.

# Bird's Eye View Lesson Plan

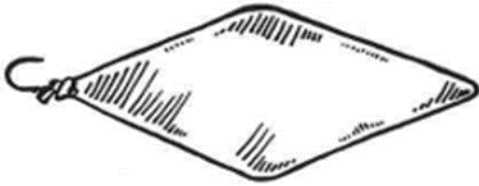
Step 5



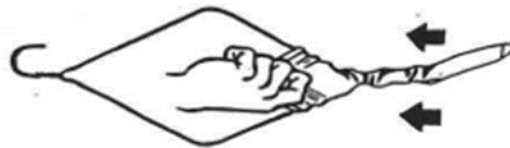
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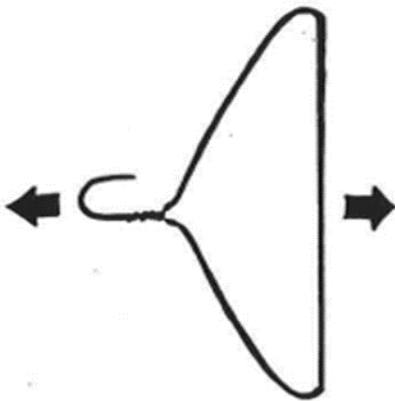
Step 3



Step 2



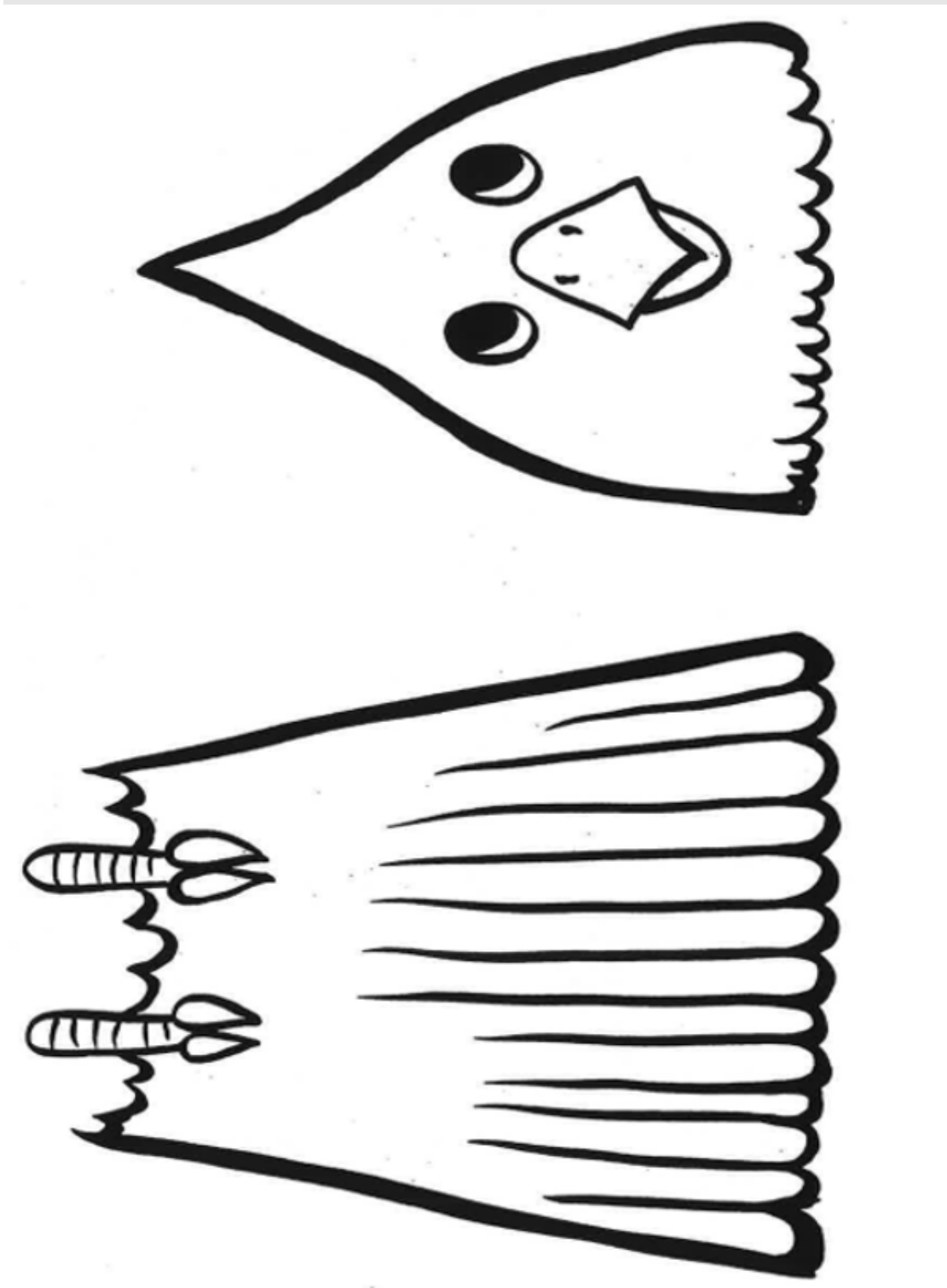
Step 1



# Bird's Eye View Lesson Plan

EPA

JUNE 2024



**REMINDER – DO NOT COLOR WINGS!**

