



Teacher's Corner Lesson Plans

*Helping Teachers and Students Make the Most of
their Outdoor Classroom*

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Who Has Seen the Wind? *†

Dennis Wendland

Grade level: Grade 2 and Grade 3.

Provincial curriculum links: Ontario.

Subject: Science and Technology.

Keywords: Wind, Energy.

Description

Students will gain an understanding of how energy, in the form of wind, can act on other objects to cause motion. Students will learn that they can use this energy to move their own objects and that wind energy is harvested in large quantities to produce electricity for manufacturers and communities.

Curriculum Framework

Topic: Energy From Wind and Moving Water (grade 2)

Strand: Energy and Control

Topic: Movement (grade 3)

Strand: Structures and Mechanisms

Topic: Air and Water in the Environment (grade 2)

Strand: Earth and Space Systems

Specific Lesson Goals

At the end of the lesson, students will be able to:

*This exercise is adapted from Waterloo Region District School Board. *Let The Sun Shine In — Using the Environment as a Context for Learning*. Waterloo Region District School Board, 2000, 27 pages.

†Submitted by: Dennis Wendland <dennis_wendland@wrdsb.on.ca>

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- Identify movement as an outcome of energy input.
 - Recognize that it is the movement of air and water that produces energy and that air and water are not by themselves sources of energy.
 - Identify various ways in which moving water (air) is used as a form of energy.
 - Design and construct a device propelled by air.
 - Ask questions about and identify needs and problems related to the use of wind and moving water as energy sources, and explore possible answers and solutions.
 - Plan investigations to answer some of these questions or solve some of these problems, and describe the steps involved.
 - Use appropriate vocabulary in describing their investigations, explorations, and observations.
 - Identify devices that use moving air and moving water as energy sources, and describe what happens to these devices when the air or water is still.
 - Recognize that moving air and moving water can be sources of energy for electrical power.
 - Describe how gravity and the shape of different structures affect the behaviour and use of moving water (air).
 - Describe, using their observations, the characteristics and movements of simple mechanisms.
 - Identify changes in the position of an object in relation to other objects.
 - Describe, using their observations, the pattern of movement of objects.
 - Record relevant observations, findings, and measurements, using written language, drawings, charts, and concrete materials.
 - Select and use appropriate tools, utensils, and equipment.
 - Use appropriate techniques to make and fasten the components of a model that they have made.
 - Demonstrate an awareness of air as a substance that surrounds us and takes up space, and whose movement we feel as wind.
 - Describe the movement of air relying on their observations of its effects.

Preparation

Preparation time: 30 minutes

Length of lesson: 45 minutes

Resources required:

- construction paper
- crayons
- markers
- paint
- pin

Procedure

Part 1

1. To make pinwheels, precut the construction paper into 5” squares.
2. Hand the paper squares out to the children and have them colour and decorate them as they like.
3. Have the children hand in their decorated squares.
4. Using a ruler, draw lines connecting opposite corners of the square.
5. Trace a nickel or a button to create a small circle in the center of the square.
6. Carefully cut to, but not through, the center circle.
7. Curl the corners into the center; do not crease the triangular sections.
8. Secure the pinwheel corners to the eraser of an unsharpened pencil by pushing a pin or thumbtack through the four folded corners, through the center circle of the pinwheel, and into the pencil eraser.

Part 2

1. On a windy day, take the children outside and experiment with objects to see if they can be blown about by the wind.
2. Discuss why the wind moves some things and not others.
3. Observe the weight of the objects and the strength of the wind.

4. Let the children compare pairs of objects, such as a leaf and a tree, petals and flowers, sand and mud, low and high grasses, and water and ice.
5. Have the children hold their pinwheels and observe how they are moved by the wind.
6. Move to a sheltered area and observe the differences in the pinwheel's movement.
7. Have the children mark one of the four parts of the pinwheel and record how many times it rotates in a designated amount of time. Do this for both the windy and the sheltered areas and observe any differences.

Discussion and Questions

Discuss with the students how wind energy can be harvested by bigger “windmills” and how this can be used to produce electrical energy.

Student Evaluation

How well did the students understand the lesson? Students can be rated.

Enrichment and Extension Activities

Discuss the impact of wind upon the trees in the school ground. How can we tell which direction the prevailing winds are from?

Educator Notes

This is a great lesson plan to fulfill some of the energy curriculum expectations.

Credits

Thanks to the Waterloo Region District School Board Outdoor Education Staff.