

BLOW AND BLOW! SEE HOW FAR THINGS GO!

BENCHMARK and TASK

SC.A.1.1.1 The student knows that objects can be described, classified, and compared by their composition (e.g., wood or metal) and their physical properties (e.g., color, size, and shape).

- The student creates the movement of air, called wind.

KEY QUESTION

Can the movement of air cause an object to move? How many puffs of air will it take to move an object from one point to another?

BACKGROUND INFORMATION

Air is an invisible gas that is all around us. It is a mixture of nitrogen, oxygen, and small amounts of water vapor, argon, and carbon dioxide. Air takes up space, has mass, and exerts pressure. There is a thick layer of air all around the earth, and it pushes on everything. You cannot see air, but it is practically everywhere. You cannot feel air, except when the wind blows or when you breathe in and out. Air is essential to plant and animal life. We can live for a few days without food, but not more than five minutes without air.

Differences in air pressure cause wind, or moving air. Air moves from areas of high pressure to areas of low pressure. The greater the difference in air pressure, the faster the wind blows. Local winds that are part of the weather may blow over small areas that are no more than a few kilometers or over areas that are thousands of kilometers wide. Global winds circle the Earth in wide belts.

MATERIALS

Teacher

masking tape to mark starting/finishing lines
paper/other objects to test outside
The Wind Blew by Pat Hutchins
The Wind by Brenda Parkes (Newbridge)

Per group

Blow and Blow! graph
pencil
bag containing the following items:
small piece of tissue paper
cotton ball
block
plastic straw
tennis ball
marble
feather



TEACHING TIPS

1. Use masking tape to mark the starting line and finish line for each group. (You may need to experiment a little to decide how far apart to place the starting and finish lines [a tabletop works well]. Except for the block, students should be able to blow objects across the finish line in ten or fewer breaths.)
2. For each group, prepare a bag of items to be tested.

3. On the graph (if you don't use the one provided), tape/glue the object next to the word (e.g., the feather next to the word *feather*).
4. Model for students how to record the number of puffs on the graph.

ENGAGE

1. Read and discuss the book, *The Wind Blew*, by Pat Hutchins.
2. Have students watch as one student volunteer blows a cotton ball from a pre-marked starting point to a finish line.
Count the number of puffs it took to move the cotton ball.
Ask:
What caused the cotton ball to move?
How many puffs did it take to move the cotton ball?
Do you think it was easy or difficult to move the cotton ball? Why?

EXPLORE

1. Tell the students that they are going to be exploring how far an object can be moved by blowing on it.
2. Organize the students into groups of three. One student will blow the first object, one will count the number of puffs, and the third student will color the graph, showing how many puffs it took to move the object. Group members will change jobs for each new object.
3. Distribute materials to each group. Explain any necessary rules for the activity, such as:
 - You may not touch an object with your hands.
 - Only one object may be blown at a time.
 - The graph must be marked for the last object blown before the next object can be tested.

EXPLAIN

Ask:
Which object took the most puffs? Why?
Which object took the least puffs? Why?
Why were some objects easier to move than others?
What caused the objects to move?
Does the shape of the object affect how easy or difficult it is to blow?
Does the size of the object affect how easy or difficult it is to blow?
Did it matter how you placed the object on the table?

EXTEND/APPLY

1. Go outside on a windy day and have the students observe materials being blown around by the wind.
Ask:
What kinds of materials are being blown around easily?
What kinds of materials are not being blown or are not being blown around easily?
2. Hold up a piece of paper. Have the students predict what will happen when you place it on the ground. Do the same with other objects.
Ask:
Will the wind move the objects?
In what direction will it blow them?
Are some objects moving faster than others?

Why do you think so?

3. Discuss:

Is wind always the same strength?

(Students may need to observe the wind over a period of time in order to know this.)

Are there times when the wind may be strong enough to move objects that it cannot usually move on mild, breezy days?

Is wind helpful and/or harmful?

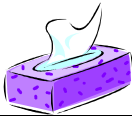




EXTENSIONS

1. Show students a windsock. Discuss and demonstrate the purpose of a windsock. Ask:
What can you do to make the windsock move inside a classroom?
2. If possible, have students make windsocks. Have them blow on their finished windsocks. Ask:
What made your windsocks move?
3. Have children take their windsocks outside on a breezy day. Have the students observe their windsocks' movement to determine the following:
 - *Is there wind?*
 - *Is the wind moving?*
 - *Is the wind strong or weak?*
 - *In which direction is the wind blowing?*
4. If possible, have the students take their windsocks outside at the same time each day for a week.
Keep a class chart to record whether the wind was strong, weak, or not blowing at all.

ASSESSMENT

Do children make reasonable predictions of how far new objects will travel when they blow on them? (Use walnut size rock, pencil, 1" squared paper, and a Starburst size candy.)

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Number of Puffs	10					
	9					
	8					
	7					
	6					
	5					
	4					
	3					
	2					
	1					
	tissue 	Feather 	cotton ball 	block 	tennis ball 	straw 