

SITTING ON AIR

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).

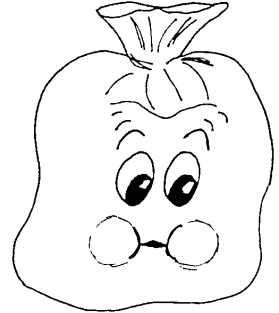
- The student experiences that air is all around us and takes up space.

KEY QUESTION

Can you capture air and use it?

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.



MATERIALS

Teacher

chart paper
balloon
1 clear garbage bag
1 twist tie
1 empty trashcan or big box
1 small, empty water bottle (about 8 or 16 oz.)

Per student

1 gallon bag with zip top
1 small sandwich baggie/twist tie

ENGAGE

What is in the trashcan? Use a clear zipper plastic bag and “scoop” air from the trashcan and seal the bag.

Ask:

What is in the bag?

How did it get there?

Where can we find air?

Listen to student responses, then ask:

How do you know where air is?

Tell the students to watch as you blow up a balloon. Ask:

What happened to the balloon as I blew into it?

What is inside the balloon?

Let the air out of the balloon.

Ask:

What happened to the air that was inside the balloon?

Where did the air go?

How do you know?

EXPLORE

1. Ask:
Do you think it is possible to sit on air?
2. Fill a plastic garbage bag with air by pulling it through the air, then quickly closing it. Tie the bag with a twist tie.
3. Ask the students to predict what will happen when the teacher sits on the bag.
4. Sit gently on the bag.
5. Distribute a zipper bag to each child. Show students how to fill the bag with air and seal it using the “zipper”. Tell them to gently sit on the bag.

EXPLAIN

Ask:

What are some words we could use to describe air? (Record responses on chart paper.)

What did we do to prove that air was in our classroom?

How do we know that air is all around us?

Can you really sit on air?

What questions do you still have about air?

EXTEND/APPLY

1. Provide students with a zipper bag. Have each student capture some air at home and bring it to school in the bag. Emphasize that air is everywhere and can even be moved from one place to another.
2. Discuss the use of air bags in many automobiles.

EXTENSIONS

1. Ask the students to predict whether or not the zipper bag can float in the air. Demonstrate and discuss results.
2. Repeat procedure to determine whether the zipper bag can float in water.
3. Demonstrate to the children how to float a submarine. Fill one small plastic water bottle with water. Do not replace lid. Place the filled water bottle in a tub of water. Be sure the water bottle sinks. Using a bendable straw blow air into the water bottle. Watch the bottle rise. (Air takes up space; air has force; air can be used as a tool; air makes things float.)

