Activities

The Magic School Bus Goes on Air

Grades: PreK–K, 1–2, 3–5

Overview
Kids trap air in containers and discover that air is pushy stuff. Then they explore how air pressure can hold up heavy objects.

Field Trip Notes
We got assigned air, and it's not fair! The only contribution the kids in Ms. Frizzle's class have to give the Walkerville Space Capsule is an empty jar. "It's not empty," argues Keesha. "It's filled with...air!" "But air doesn't do anything!" wails Ralphie. They discover the "airror" of their ways when they shrink and get stuck inside the jar - and all they find inside the "How-to-Get-Out-of-a-Pickle-Jar-WhenYou're-the-Size-of-a-Snail Escape Kit" is...air!
**Pushy Air**

Time: 30 minutes  
Group Size: 2-4

Ms. Frizzle’s kids trap air in containers and discover that air is pushy stuff. Your kids explore how air pressure can hold up heavy objects.

**What You Need**
- Straw for each child
- Gallon zipper bag for each group
- Heavy books or other objects
- Copies of PUSHY AIR page

**Talk About It**
Ask: Is air real stuff? How do you know that air is real?  
(One way: Feel wind, breath.) What can air do?

**What To Do**
1) Pass out straws, zipper bags, and activity sheets.  
2) Have kids trap air in their bags.  
4) Use the activity to challenge kids to discover if the air bags can support heavy objects.  
5) Then let kids deflate the bags for the Air Lift challenge. Ask volunteers to pick up three heavy books. Ask: Are they hard to lift? Can you lift them with your breath alone?
Next Stop
Have kids ride bikes first with underinflated tires, then fully inflated. Ask: Which required more effort to ride? Why? (Fully inflated tires have more air squeezed inside the tires. The pressure makes them stiff. Soft tires flex and bend - using up energy.)
PUSHY AIR

Air is pushy stuff!
But can it push up heavy books?

1. Sweep an open zipper bag through the air. Zip it closed. What is in the bag?

2. Press on the bag. Can you press the bag all the way down? What happens?

CHALLENGE #1
PUSHBACK
Can you beat air’s push?

Predict: Can your air bag hold up heavy books?  ___Yes ___No

Guess: How many heavy books?  ______

Try it! Pile books on your bag. How many does your air bag hold up?  _____

What is holding up the books?  ______

CHALLENGE #2
AIR LIFT
Can you lift three heavy books with your breath alone?

1. Insert a straw halfway into an empty zipper bag. Seal the bag around the straw.

2. Blow through the straw into the bag. Keep blowing as you slip the straw out. Seal the bag FAST as you remove the straw.

3. Did the books lift off the table? If not, try again.

Wrap-Up:

What pushed the books up?  ______

The books are pressing down on the air bag. Is the air pressing up on the books? Write what you think on the back.

Take-Home Challenge:
Will a zipper bag of air hold YOU up? Trap air in a new gallon zipper bag, then seal it shut. Sit on the air bag. What happens? Challenge an adult to sit on the bag!