Activities

The Magic School Bus Revving Up

Grades: 3–5

Overview
Kids make balloon-powered race cars to learn about the force that drives their racing vehicles.

Field Trip Notes
When the Magic School Bus's engine stops running, Mr. Junkett, a vehicle maintenance inspector, decides the bus should be junked. The class shrinks, dons fireproof suits and masks, and heads for the engine -- from the inside! There, they discover that the peanut-butter that Junkett accidentally dropped into the engine is blocking the fuel line, stopping air from mixing with gas, and keeping the spark plugs from sparking. While cleaning up the mess, the kids learn how an engine works. Can they get the bus working again before Junkett has it pounded into a pancake?
The Great Balloon Race

**Time:** 40 minutes  
**Group size:** Four  
Since your students can't travel through the Magic School Bus's engine, to see what gets the wheels turning, they can explore another way to turn wheels: propulsion. Here, they'll see how the push from air-filled balloons turns the wheels of milk-carton 'buses.'

**What You Need**

- 1 pint milk carton per group  
- Cardboard  
- Balloons (long, thin)  
- Straws  
- Copies of THE GREAT BALLOON RACE  
- Scissors  
- Masking tape  
- Rulers

**Ahead of Time:**

- Punch four “axle” holes in the milk cartons. Holes should allow straws (axles) to turn easily.  
- Punch a fifth straw hole in the back of the carton.  
- Blow up balloons and let them deflate. Insert a straw one inch into the nick of each balloon. Secure the straw with tape or a rubber band.
Talk About It
Ask: What, besides a gas engine, can be used to move something on wheels?

What To Do

1) Distribute materials. Help kids cut holes in the middle of wheels. Demonstrate how to blow up a balloon through a straw.
2) After students have assembled buses, let them test “engines” on an uncarpeted floor. They can measure and record the distances buses travel. Ask: What’s causing the bus to move? (Air, forced out of the balloon, propels the balloon - which pushes the bus.) What else is moved by propulsion? (rockets, jets)
3) Ask: What if you blew up the balloon more? Less? Why? Try it. 4) Hold three rounds of THE GREAT BALLOON RACE!

Next Stop
Have students create a scrapbook of engines powered by gas and other power sources (alternative fuels, electricity, pedal power in bicycles).

Subjects:
Science, Energy, Simple Machines, Force, Observation, Inventors and Inventions
THE GREAT BALLOON RACE

Some buses move with gasoline power. Can you move your own mini-Magic School Bus with balloon power?

What to Do

MAKING YOUR BUS

1. Cut the top off your milk carton.
2. Cut out four round cardboard wheels.
3. Use a pencil to punch holes in the middle of your wheels.
4. Push the straws through the holes in the milk carton. They should stick out on each side.
5. Tape the straws onto the ends of the straws. Slide the straw into the hole in the back of the milk carton.
6. Blow up your balloon.
7. Pinch the end of the straw to keep the air in.
8. Push the bus down and let go of the straw.

THE GREAT BALLOON RACE

Write down how many inches your bus travels.

RESULTS:

1st Round: ________ inches
2nd Round: ________ inches
3rd Round: ________ inches