Activities

The Magic School Bus Plays Ball

Grades: 3–5

Overview
Children follow a worksheet and do a simple experiment to investigate friction and how it can be reduced by using rollers.

Field Trip Notes
Ralphie's delighted! Ms. Frizzle's class is going to a baseball game. Of course, it's a very special baseball game. The Magic School Bus shrinks and takes Ms. Frizzle and the kids inside a book to a frictionless baseball field. Ralphie hits a homer he'd never have imagined in the world of friction, and all the kids find out about friction and other pushes and pulls. But when they get on the Bus to head back to school, the book closes with them inside it. How can they get out of the book? Can what they've learned about forces and friction help them make it home?
Friction Action
What a difference friction makes! When Ms. Frizzle's kids get off the Bus into the world of nonfriction, they can't even walk. Your kids can work in small groups to find how movement changes when there is more - and less - friction.

What You Need
- Shoe box
- Popsicle stick
- Large rubber band
- Tape
- A fat straw marked with numbered bands at short intervals
- Ruler
- Table
- Small stones or groups of other objects to fit inside the box
- Rounded pencils or straws

Talk About It
Help children think about friction by asking: Where would be a good place to slide? Why?

What To Do
Prepare a box for each group:
Cut a small hole in one end.
Poke a hole near the end of the straw large enough to thread the rubber band through it.
Push the straw and the rubber band through the hole, loop it around the stick, and tape the stick in place. The numbered bands will indicate the amount of force required to move the box. Test your sample objects and record the force required to move them across different surfaces.

**Next Stop**
Discuss other ways besides rollers to make less friction between the box and the table. Try putting marbles, sugar, or ice under the box.

Subjects: Sports, Science, Friction, Force and Motion, Observation, Shapes