

# Grip and Go!

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Friction can make it harder to move things and can heat things up and sometimes wear things out but it is also very helpful in many ways. When you wear sneakers to play a game, the rubber soles create friction with the floor or ground when you push off to run. Try these mini activities to see how the grip of friction helps us in many different ways.

## Materials:

- Socks
- Sneakers
- Wide rubber band
- Plastic wide mouth jar with lid

## Procedures:

1. Take off your shoes so that you have only socks on your feet. Go to an area that has a clean smooth floor with no carpeting
2. Carefully slide around a little on the floor to get a feel for the amount of friction between your socks and the floor.
3. Now put on your sneakers and try to slide around a bit. Is the force of friction greater between your sneaker and the floor or between your sock and the floor? Your sneaker would be pretty easy to slide across the floor if you weren't in it. Does this mean that weight effects the force of friction?
4. Put the lid tightly on a jar. With the jar on a table, hold it securely with one hand and use the other hand to twist off the lid.
5. Close the jar tightly again. Put a rubber band around the lid. Now twist the lid off again. The rubber band seem to give you a better grip? Is this similar to the sneaker and the floor? How does using the rubber band have anything to do with friction?

## Think about this ...

Many basketballs and footballs made for children have little bumps on the surface. Does this have anything to do with

friction? Are these little bumps in any way like the sand on sand paper?

## Where's the Chemistry?

Traction and grip depend on friction. The type of material and how it is textured have a lot to do with how much friction will be produced when the surface is rubbed against another. When you grip something, your hand is one surface and what you grip is the other. Not much can be done about the nature and texture of your skin. But the things you grip like tools or sports equipment can be changed so that the surface will produce more friction when you hold it and use it.



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The American Chemical Society develops materials for elementary school age children to spark their interest in science and teach developmentally appropriate chemistry concepts. The *Activities for Children* collection includes hands-on activities, articles, puzzles, and games on topics related to children's everyday experiences.

The collection can be used to supplement the science curriculum, celebrate National Chemistry Week, develop Chemists Celebrate Earth Day events, invite children to give science a try at a large event, or to explore just for fun at home.

Find more activities, articles, puzzles and games at [www.acs.org/kids](http://www.acs.org/kids).

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## Safety Tips

This activity is intended for elementary school children under the direct supervision of an adult. The American Chemical Society cannot be responsible for any accidents or injuries that may result from conducting the activities without proper supervision, from not specifically following directions, or from ignoring the cautions contained in the text.

### Always:

- Work with an adult.
- Read and follow all directions for the activity.
- Read all warning labels on all materials being used.
- Wear eye protection.
- Follow safety warnings or precautions, such as wearing gloves or tying back long hair.
- Use all materials carefully, following the directions given.
- Be sure to clean up and dispose of materials properly when you are finished with an activity.
- Wash your hands well after every activity.

**Never** eat or drink while conducting an experiment, and be careful to keep all of the materials used away from your mouth, nose, and eyes!

**Never** experiment on your own!

**For more detailed information on safety go to [www.acs.org/education](http://www.acs.org/education) and click on "Safety Guidelines".**

