volume 3
issue 16

Grip and Glide With Friction

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What happens when you roll a ball on a basketball court? What happens when you roll a ball on grass? The ball rolls faster on the basketball court. That's because the ball meets more friction on the grass.

Friction is caused when two objects move against each other. If their surfaces have bumps, the objects slow down. The texture of the objects, or the quality of the surface, keeps objects from gliding over each other. Rough textures have more bumps, so they create more friction. Smooth textures have fewer bumps, so they create less friction. That's why there's more friction on grass than on a basketball court.

Sometimes, friction is helpful. If you're going too fast on your bike, you put on the brakes. The brakes rub against the wheels and create friction. This stops your bike. Friction is also helpful when you run. The bumps on your sneakers help your feet grip the sidewalk.

Friction can cause problems, too. When you ride your bike on sand, the sand's rough edges create friction that slows you down. Friction also causes problems when you skate because rough surfaces keep you from gliding. You might even fall because your body keeps going after your feet stop.

Air and water cause friction, too. If you throw a ball into the wind, the wind slows the ball down. Also, when you swim, the water pushes against you and slows you down.

Sometimes, you can control friction. You can reduce friction when you swim by wearing a slippery bathing suit. You can reduce friction in some machines by using oil. You can increase friction with pressure. When you're washing a dish that has food stuck onto it, press harder with the sponge. The friction might remove the food.

To test friction, wash and dry your hands. Then rub them together. Now, wet your hands and rub them together again. What's the difference? Friction!

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