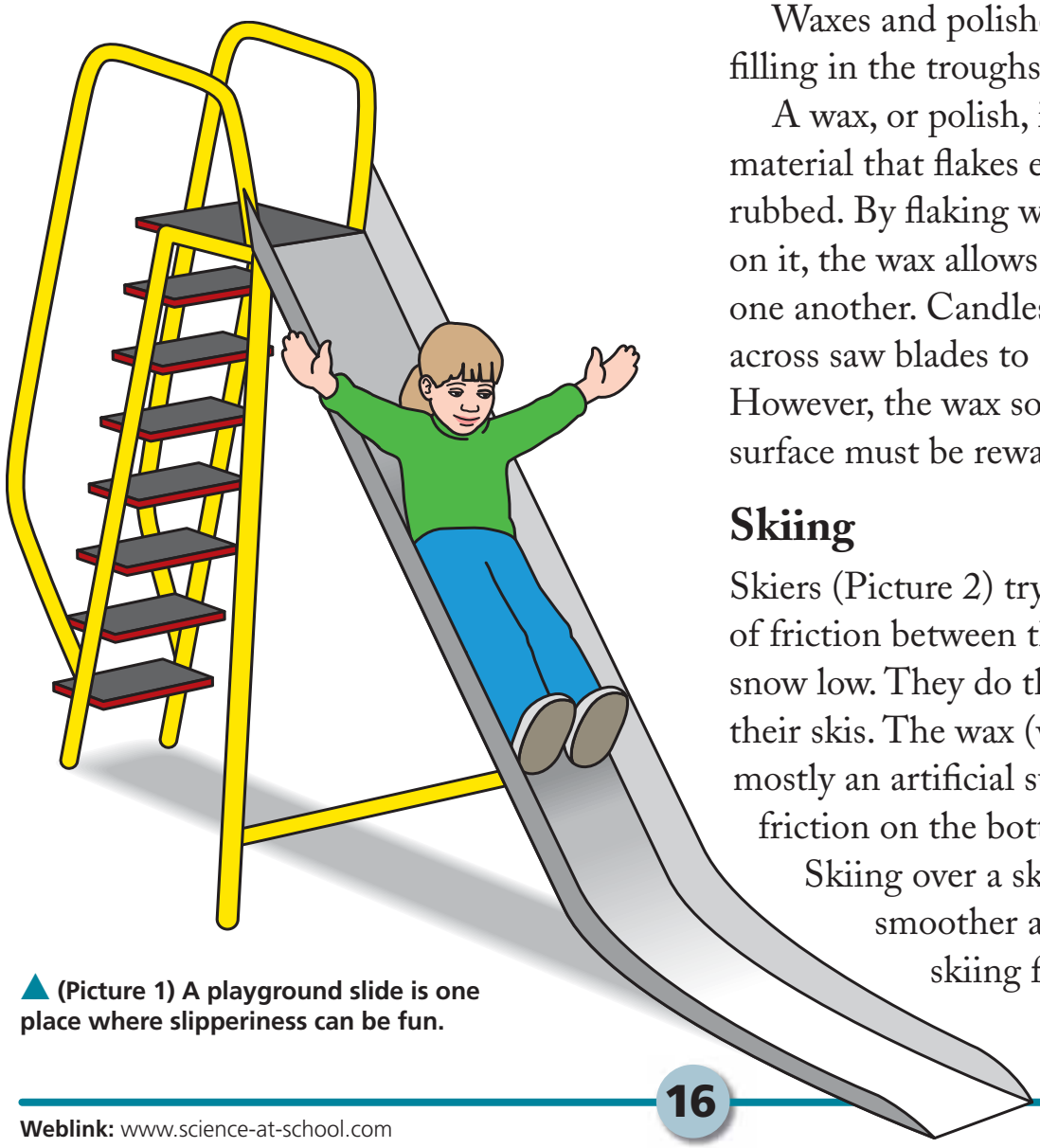
7 Where slipperiness occurs

You can reduce friction by making one or both surfaces very smooth. This can be good or bad.

Although we mainly want to keep a good grip between surfaces, there are some places where we want the surfaces to be as slippery as possible.

Slides

A playground slide is one place where we want to have slippery materials. This is why we use a sheet of mirror-shiny metal or plastic for the slide (Picture 1).



▲ **(Picture 1) A playground slide is one place where slipperiness can be fun.**

Glides

Glides are pieces of material with a very low friction. Look on the underside of a computer mouse (page 8) and you will see some small patches of slippery plastic glides.

Polishes and waxes

If you wax or polish something, you give it a shiny, sometimes even a mirror finish.

Waxes and polishes work in part by filling in the troughs in a surface.

A wax, or polish, is made of a soft material that flakes easily when it is rubbed. By flaking when a force is put on it, the wax allows surfaces to slip over one another. Candles are often rubbed across saw blades to make sawing easier. However, the wax soon wears off and the surface must be rewaxed.

Skiing

Skiers (Picture 2) try to keep the amount of friction between their skis and the snow low. They do this by waxing their skis. The wax (which today is mostly an artificial substance) cuts down friction on the bottom of the ski.

Skiing over a ski run makes the ice smoother and this also makes skiing faster.

▲ (Picture 3) Cars will slide on ice, not just because it is smooth, but because a film of water forms under each tyre.

Ice skating

Slipperiness is very useful for ice skaters. Skaters need to be able to glide over the ice. But no wax or polish is used here. Instead, surfaces are made more slippery by using water.

▼ (Picture 2) Skiing can be made faster by waxing the underside of the skis.

One special property of ice is that it melts when a high pressure is put onto it. An ice skate is a thin blade that takes all the **WEIGHT** of the skater and uses it to press down on a narrow line of ice. As a result, the ice melts and the skater slips over a film of water.

Dangerous roads

When people drive on icy roads, ice under the tyres melts and the tyres cannot get a proper grip. This is one reason why an icy road is so treacherous (Picture 3).

Summary

- Friction can be reduced by using a wax or polish.
- Friction on ice can be reduced by melting the surface of the ice.