

# Simple Machines: Inclined Planes

Have you ever seen a ramp on the back of a truck, or on a sidewalk? Ramps can help people in many ways. A ramp is a simple machine. A simple machine is a machine with very few or no moving parts. Ramps are a simple machine called an inclined plane. An inclined plane is any flat surface that is set at an angle.

An inclined plane is different from other simple machines because it doesn't move like other simple machines. This simple machine makes work easier. Work means to apply force to move something over a distance.

How could you use a ramp to make work easier? You may have seen delivery people moving heavy packages into their trucks with ramps. The object that is being moved is called the load, and the force you apply when you push or pull the object is called the effort. Without the ramp, delivery people would have to use a lot more effort to load their trucks!

Sometimes a force called friction can slow down objects on a ramp. Friction is when one object moves against another. If the ramp is rough or bumpy, it will cause friction with the object, making the object go slower. It is easier to move objects on a smooth ramp. You can also use slope, or how steep a ramp is, to make objects move more quickly. The steeper a ramp is, the faster an object can move down it.

A ramp is just one kind of inclined plane. A ladder is another type of inclined plane. Ladders help move objects, usually people, with less effort. Staircases are also inclined planes. They help people to get from one level to another with less effort. Most buildings have inclined planes on their roofs. On a flat roof precipitation and other objects get stuck, but with a sloped roof, snow, leaves, and other objects fall off.

Inclined planes are used to make other simple machines. A wedge is a simple machine that is made of two inclined planes together. Inclined planes don't move, but wedges do. An axe is an example of a wedge.

Inclined planes are simple machines used to make work easier. Ramps, ladders, and staircases are all inclined planes. When you make a ramp steeper, it makes objects go down quicker, but go up slower. Next time you need to move a heavy object, ask yourself, "Could a simple machine make my work easier?"

# Simple Machines: Inclined Plane

1. RI.1 What causes friction?

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2. RI.8 If you make an ramp steeper, what effect would it have on a person trying to move an object down the ramp?

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3. RI.2 What is the main idea of the text? How do you know?

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4. RI.1 List 3 examples of inclined planes.

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5. RI.1 What is a simple machine?

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6. RI.1 How can inclined planes help people?

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