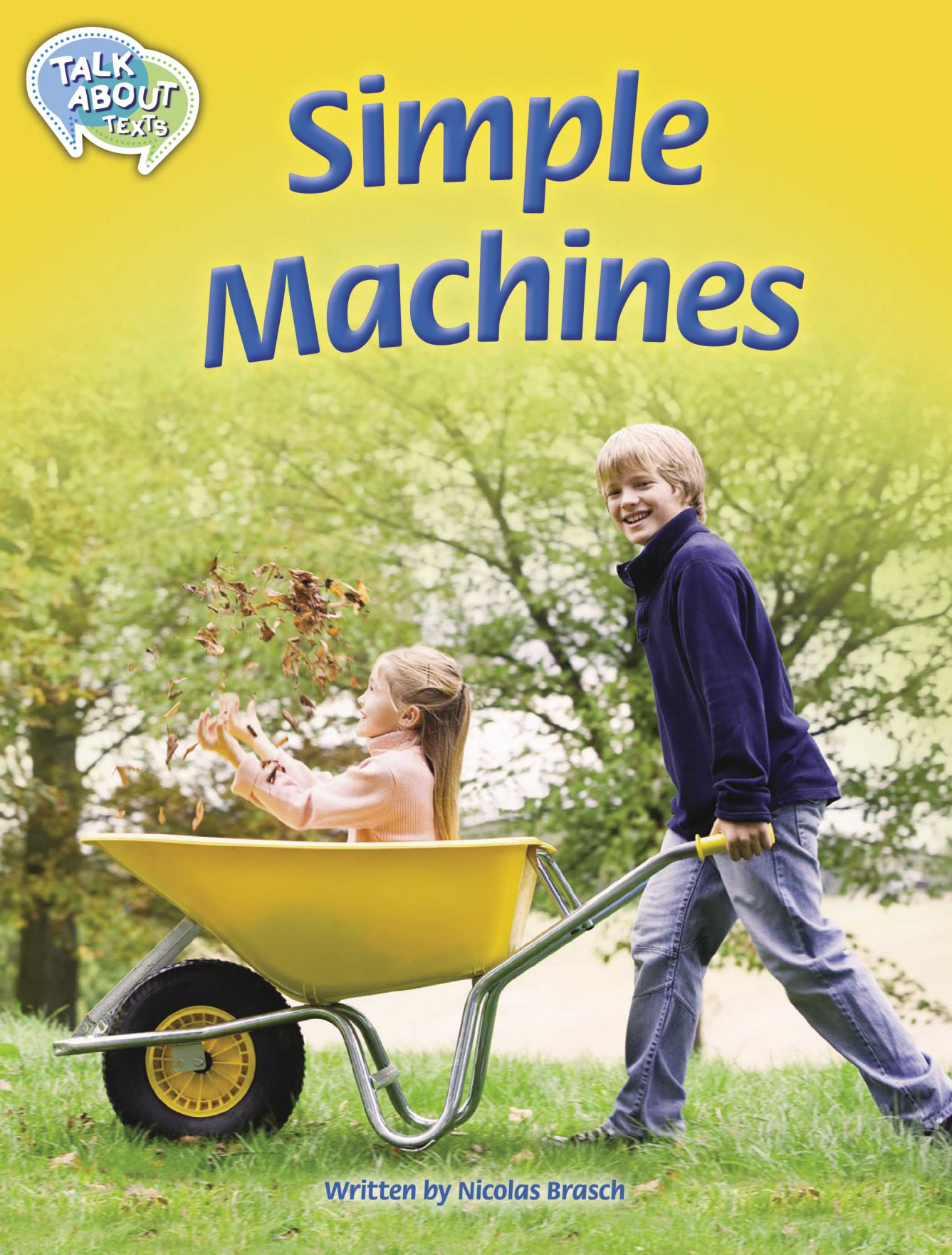
TALK ABOUT TEXTS

Simple Machines



Written by Nicolas Brasch

Simple Machines



For Review Only

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macmillan education

Contents

What Are Simple Machines? 3
Inclined Planes 4
Screws 7
Wedges 10
Levers 13
Wheels and Axles 16
Pulleys 19
Glossary 22
Index 23



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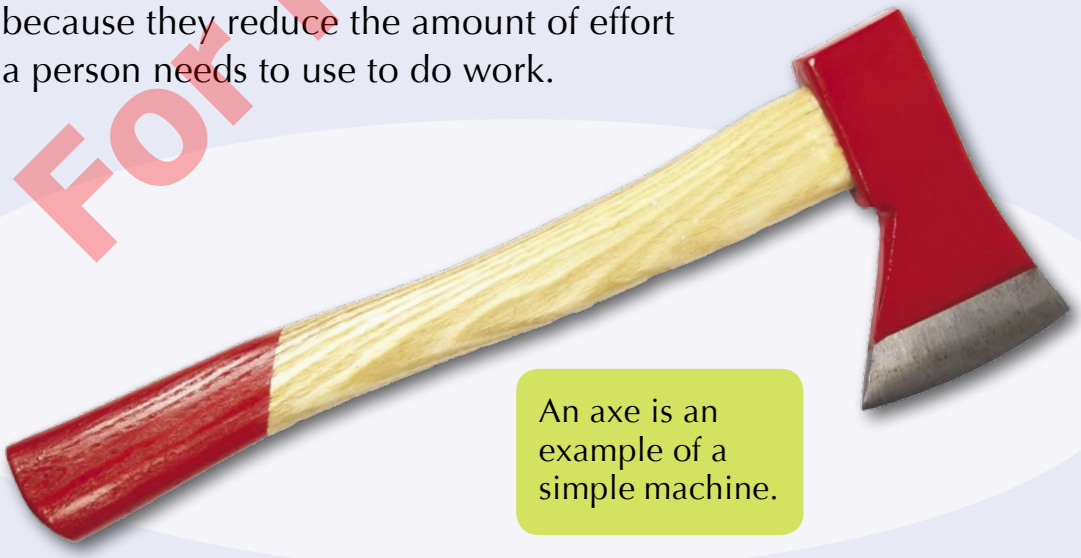
What Are Simple Machines?

Simple machines are tools or objects that make work easier. They have very few parts and are easy to make. Simple machines have been used for thousands of years. They help people to do things more quickly and with less effort.

We often use words such as **work**, **load**, **effort** and **force** when we talk about simple machines.

- Work usually means moving something from one place to another.
- A load is the thing that needs to be moved.
- Effort is the amount of force that we need to use to do something.
- A force may be pushing, pulling or lifting.

Simple machines either add force to the work or change its direction. They are called machines because they reduce the amount of effort a person needs to use to do work.



An axe is an example of a simple machine.

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Inclined Planes

An **inclined plane** is a flat surface that connects a lower level to a higher level. It makes it easier to move heavy loads between levels of different heights. An inclined plane is also called a **ramp** or a slope.

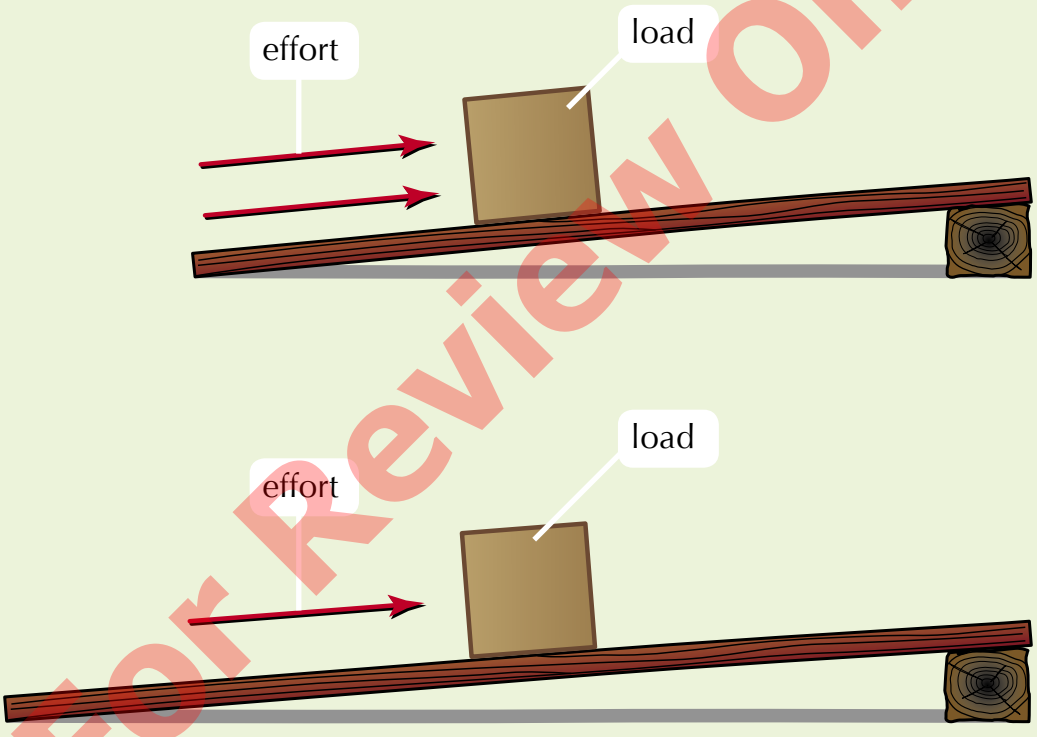
Inclined planes have been used for thousands of years. They are one of the simplest methods known for moving very heavy objects, such as stone and other building materials. Some people think that the ancient Egyptians used inclined planes to move the giant stone blocks used to build the pyramids.



It is easier to wheel these heavy objects into the truck using a ramp.

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An inclined plane, or ramp, usually comes in one piece. One end is placed on the lower level, and the other is placed on the higher level. It takes more effort and force to push something heavy up a short ramp. It takes less effort to push a heavy object up a long ramp.



It takes more effort to move a load up a short ramp, because the shorter the ramp, the steeper the slope.

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A staircase is an inclined plane that is organised in regular steps.

Examples of Inclined Planes

A staircase is a kind of inclined plane. It connects two levels by breaking down the gap between them into small steps. You use much less effort to go up or down steps than it would take you to jump between two levels! Wheelchair ramps and playground slides are two other examples of inclined planes.

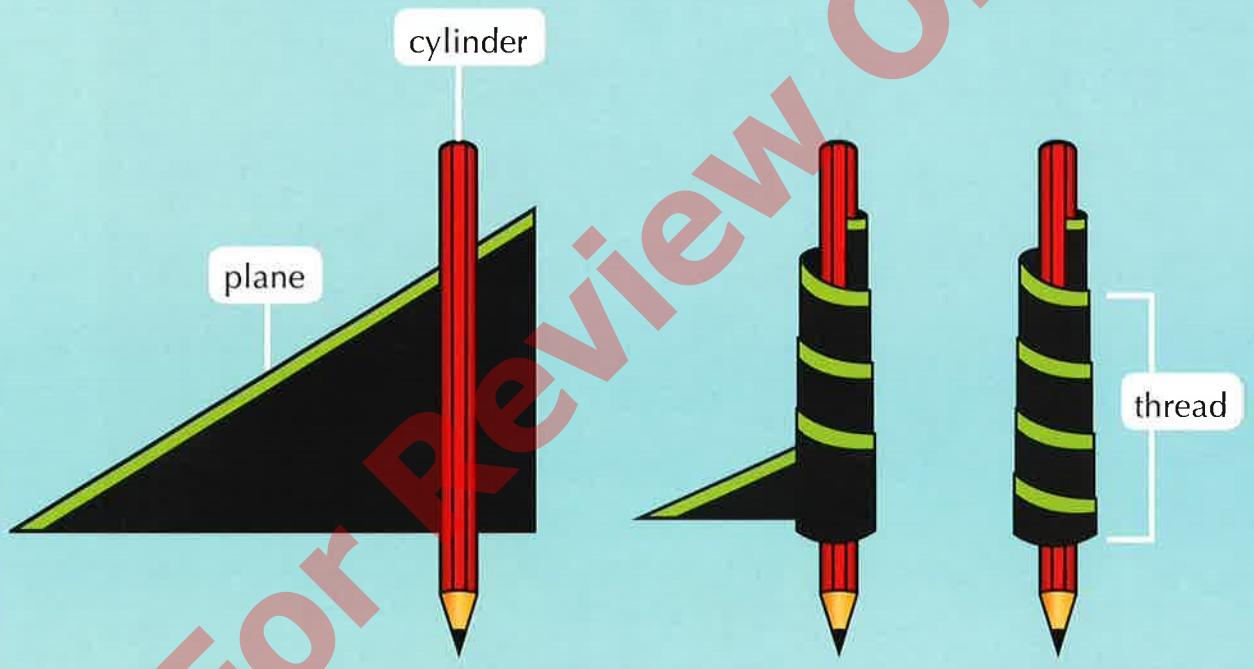


A ramp makes it possible for wheelchairs to move up a level.

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Screws

A screw is also a type of plane. It is actually a plane wrapped around a cylinder. You can see what this means if you cut a piece of paper into a triangle and wrap it around a pencil. The triangle is the plane. It wraps around the pencil to form a screw.



When an inclined plane is wrapped around a cylinder, the incline becomes like the thread of a screw.

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The force of moving a screw's thread through two loads joins them firmly together.

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Screws hold objects together. A screwdriver can push a screw into wood or take a screw out of wood. If you add effort at the top of the screw with the screwdriver, the pushing force will drive the screw into the wood. The thread in the screw transfers the effort all the way down the screw. As a screw is twisted into an object such as wood, the object 'moves up' the thread, or plane, of the screw. This is similar to a load being pushed up an inclined plane.