

MICHAEL'S RACING MACHINE

Finding Examples of Wedges

A wedge is a double inclined plane. If you put two identical inclined planes together, back to back, the shape is a wedge.

Locate some wedge-type tools or pictures of such tools to learn how they are used. Here are a few to get you started on a search: chisels, needles, pins, nails, knives, saws, blades of scissors, rakes, spades, hoes, trowels, door stops, forks, bows of ships, woodpeckers' bills, and certain teeth.

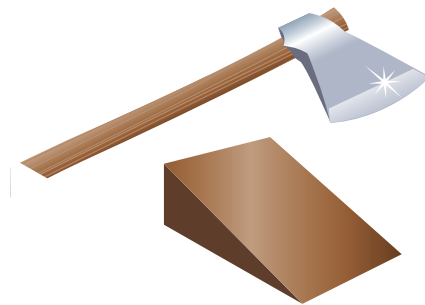
Observing the Advantage of a Lever

Obtain a 12-inch ruler, a pencil, and three heavy metal washers.

For test 1, set the ruler on the pencil as shown at the 4-inch mark, then place the washer at the end of the ruler at the 12-inch mark. Use your finger to slowly push down on the other end of the ruler. Try to remember how hard you have to push to lift the washer. Notice how far you have to push the ruler down compared to how far the washer is lifted.

For test 2, reset the ruler on the pencil as shown at the 8-inch mark, place the washer again at the 12-inch mark, and use your finger to slowly push down on the other end. Was it harder or easier to lift the washer? How far did your finger have to push? How far did the washer rise?

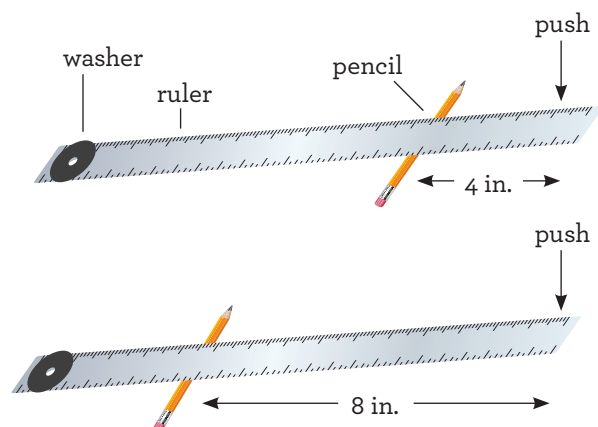
These simple machines demonstrate a major scientific idea: There is a trade-off to make work easier.



NOTE: The difference between an inclined plane and a wedge is that the inclined plane remains stationary while an object is moved over it, and the wedge is moved or forced into an object that remains stationary.

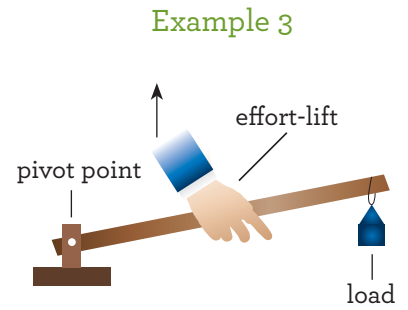
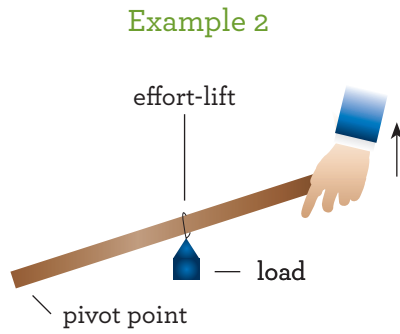
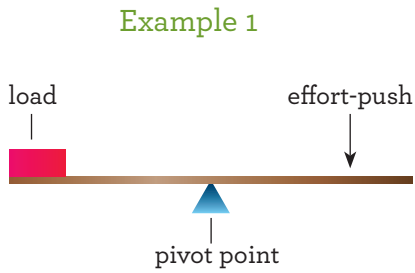
To move a heavy weight to a higher level, the work is easier if the move is done over a greater distance.

The physical law underpinning these machines is revealed by comparing the measures taken: work done (force applied) on an object = distance object moves in the direction of the force.



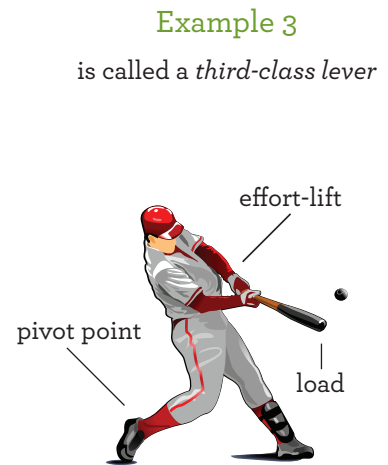
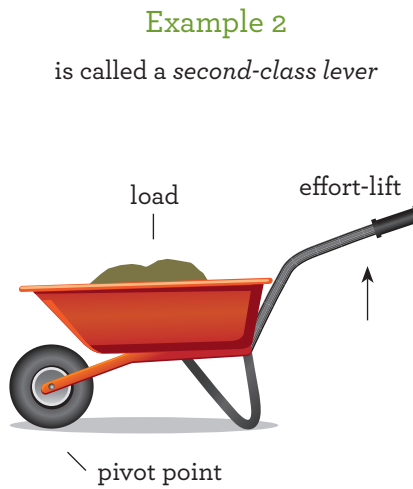
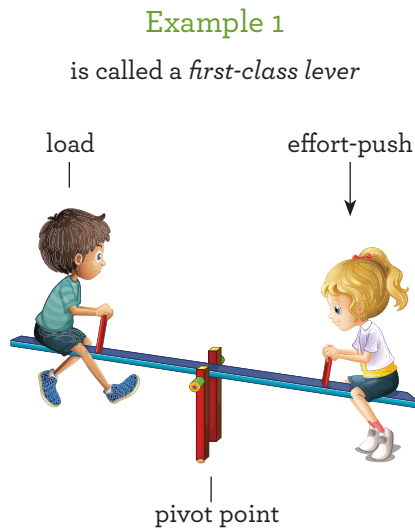
Examples of Some Levers

There are three different types of levers. Each lifts or pushes objects in a different way.



Locate examples of tools or pictures of tools that work in each of these ways.

Here are a few examples to help you get started:



Which type of lever is each of these tools?

