



Teachers' Guide

Introduction to the activity

The activity starts with Archimedes and the construction of levers in the ancient times. You can refer to other constructions of Archimedes, like the screw, or his experiments, like the notorious Eureka experiment about the law of buoyancy, since he was a famous scientist and engineer.

Moving on to the levers, refer to the three parts a lever consists of (fulcrum, force, load) and the three classes, regarding where the previous three parts are. Show your students examples of many everyday objects that are levers and talk about which class they belong to.

Finally, you end up to the catapult, that is a first-class lever. Refer to its ancient use as a weapon.

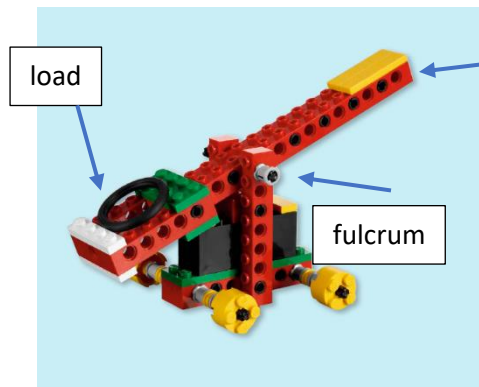
Simple machine

The activity is about levers. You will mention the parts that a lever consists of (fulcrum, force, load) and the three classes, according to where the above parts are on the lever. Using a lever, we multiply the result of the force we applied, which is called “mechanical advantage”. This is related to the torque, a concept students are not aware of.

Building

You will build a catapult, that is a 1st class lever. There is no difficulty in the building.

Answers to worksheet



Use the tires for students' safety and not to lose pieces from the sets. You can also use ping-pong balls.

For the following questions use a ruler/measuring tape/meter to do the necessary measurements. We do each measure three times, to be more sure about how far we can send the tire.

The tire goes further in case B, because the distance is greater, so our initial force is increased more than in case A.

Our result is that the greater the distance between the fulcrum and the load, the greater the force applied to the load.

For the remaining time you can do a contest, noting the critical points with paper-tape on the floor.