

# Teacher Notes for Simple Machines:

Simple machines should be taught using hands on activities and the inquiry method. The activities in this unit are meant to supplement learning about simple machines.

## **Upon completion, students should understand:**

- The basic simple machine vocabulary
- Simple machines make work easier
- Simple machines have no or few moving parts
- Simple machines help us push, pull, lift or lower loads
- The 6 basic simple machines and how they work
- The circumstances under which less effort/force is needed and why
- That compound machines use more than one simple machine and identify them (scissors are levers with a screw, pulleys often have axles etc.)

It is vitally important for students to experience simple machines, stations and/or tasks should be set up with simple machines for student experiment with:

**Levers**—Place a variety of levers at this station. Students identify the various levers, fulcrum, effort and load and identify how they help and what they do. They should change location of the fulcrum in their inquiries to determine if it makes the load easier or harder to lift.

**Pulleys**—Place a variety of pulleys (spools of thread and string), identify what type of simple machines these are, identify how they help and what they do. Experiment with 2 pulleys to determine the impact on the load.

**Inclined Planes**—have students make a ramp from classroom materials that will allow objects to travel on easier. Ask students to identify how inclined planes help in real life situations. If building sets like K-nex and Lego are available, it will help with this activity.

**Screws** — Have a variety of shapes and sizes of screws and a few screwdrivers. Scrap blocks of wood are also needed. Students try to determine if the screw is easier or harder to put into the wood when there are more or less threads or when the screw is longer or shorter. Counting the number of times the screw driver turns is a way of measuring.

**Wheels/Axes**—Use the wheels from building sets to set up inquiries. Use larger and smaller wheels, experiment with various surfaces and the impact they have.

**Wedge**— Examine door wedges, have chisels of various sizes to experiment with splitting various materials.

\* At the end of the unit, have students design a toy using more than one simple machine.