

Make Work Easier With a Lever

We are surrounded by simple machines that make our lives easier by helping to get a job done with less effort. Six basic simple machines are the lever, the wheel and axle, the pulley, the inclined plane, the wedge and the screw. They enable us to push or pull an object, and they can be found almost anywhere work is being done.

Objective

Discover that a see-saw is a type of simple machine called a lever. A lever is a rigid bar that involves using a force called effort to move a load around a pivot called a fulcrum. In this case, you will provide the effort and your friend will be the load.

Materials

- a see-saw
- a stool
- a friend who weighs about as much as you do

Safety Notice: All applicable laboratory safety rules must be followed. Students should not perform any experimental activity without the teacher's supervision and express permission. Students must follow safety guidelines and wear appropriate protective gear.

Procedure

1. The work you will be doing is lifting your friend. Ask your friend to stand on the stool, and then carefully try and lift him or her off the stool. Can you do it?

- Is it easy or difficult to move the load?

2. Can you think of a way to use a simple machine to make that task easier?

3. Have your friend sit on one side of the see-saw, but close to the middle bar, not on the seat. What is the middle bar called?

4. Now go to the other end of the see-saw and see if you can pull it down to the ground. Are you able to lift your friend into the air? Record what happens. Explain how the see-saw acts as a lever.

5. Now have your friend sit at the end of the see-saw, on the seat. Move closer to the fulcrum and try to pull your end down. Does it take more or less effort to lift your friend into the air? Record what happens.

- If it is the same friend, and the same see-saw, what has changed?

Conclusions

- Draw a diagram of the see-saw and your friend. Label the fulcrum, the effort, and the load.