



## Using MOUSE TRAP game to explore force and energy

**INTRODUCTION:** Machines work by changing energy from one form to another. Force could be either a push or a pull. Using a simple machine we can multiply the amount of force we can apply to an object or change the direction in which an effort force was applied. You must identify the load or the amount of force that has to be overcome to move an object. Additionally the effort, or amount of force we need to apply to move the object, needs to be known. Simple machines help us decrease the effort required to move an object. Many complex machines are actually just compounded or made up of two or more simple machines working together.

### LEARNING OBJECTIVE(s)

What students will know and be able to do by lesson's end:

- Investigate different kinds of forces used to move objects or hold them in place.
- Demonstrate and describe the effect of increasing and decreasing the amount of force applied to an object.
- Investigate and compare the effect of friction on the movement of any object over a variety of surfaces.
- Understand the force needed to lift a load manually compared with that required to lift it using a simple machine.

### KEY BACKGROUND KNOWLEDGE

- Understand the basic concept of forces and simple machines
- How to play the game

### MATERIALS

- 5 games
- Paper
- Pencil

### KEY VOCABULARY

Load	Effort	Force
Friction	Simple machine	Lever
Wheel	Axle	Inclined plane

### STUDENT ACTIONS

- Work as a team to set up the game.

### GUIDED PRACTICE

As you set up the game, identify how many and what types of simple machines you see/find in the construction of the game.

How does the simple machine impact the overall game? What type of simple machine do you not see in the game? What force or simple machine would you add OR remove to improve the game?

### EXTENSION

Construct a new version of the game using what you have learned create a board game using at least four types of simple machines (can be compounded) include all the parts and pieces and written instructions.