

**Grade Level:** 4 - 5

**Curriculum:** Explorations, Science, ADST

**Title of Lesson:** Simple Machines Introduction to Levers

**Learning Goals/Objectives:**

- Machines are devices that transfer force and energy.
- The choice of technology and tools depends on the task.

**Materials Needed:**

- Pencil and Paper

**Activity Instructions: (Step by Step)**

- Begin by watching this video: <https://youtu.be/jN-yKM1DTgU>
  - You can refer back to the video to help you answer the questions below:

## Simple Machines - Levers

What is a fulcrum?

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What is a lever arm?

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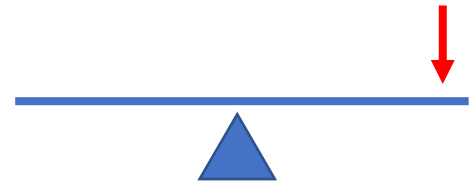
What is a load arm?

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How does a lever with its fulcrum in the centre help us?

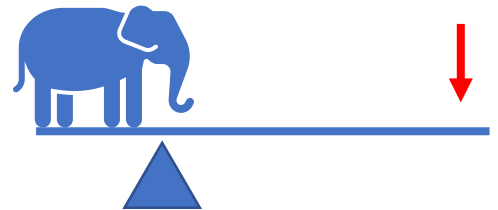


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What happens if we move the fulcrum towards the load?



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What happens if we move the fulcrum away from the load?

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How does the position of the fulcrum change the relationship between Force and Distance?

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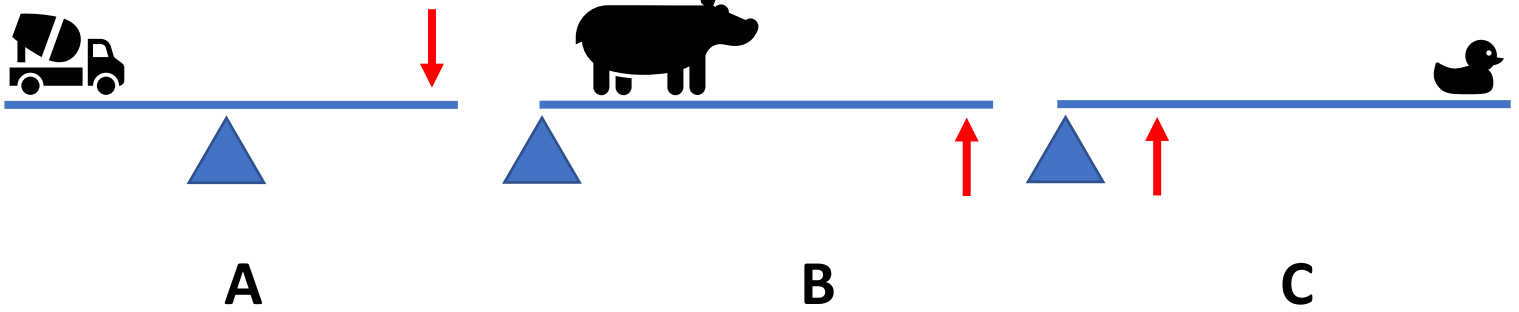
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Depending on where the fulcrum of a lever is, we refer to them by what *class* of lever they are.

- A *First Class Lever* has its fulcrum between where the load is and where the force is applied. Example A below is a *First Class Lever*.
- A *Second Class Lever* has its load between the fulcrum and where the force is applied. Example B below is a *Second Class Lever*.
- A *Third Class Lever* has its fulcrum at one end, its load at the other, and the force is applied in between the two. Example C below is a *Third Class Lever*.

Describe how each of the three levers below provide different benefits.



A:

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B:

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C:

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**Extension:**

List as many examples of levers you can. Next to them, write whether they are a First, Second, or Third Class lever.

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Can you think of a time when a lever might help you complete a task where you don't normally use one? Draw a picture of what this might look like.