

# Force

## 11SCI - Mechanics

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### Starter

Brainstorm situations where force is involved, things that cause force and how it can be used in a **Physics** context on the board!

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### Force

Force has lots of applications in our world! Everything from cars, to aeroplanes, tug-of-war, sports and even bio-mechanics!

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### Defining Force

Force is a **push** or a **pull** and is measured in **Newtons (N)**.

Forces have a size (1, 2, 3, 4) and a direction (left, right, up, down).

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### How Forces Act

Consider you sitting on your seat. What forces are acting upon you?

Draw a box to represent yourself, with arrows coming out of the box to represent the forces. Make sure to label them!

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### Force Diagram

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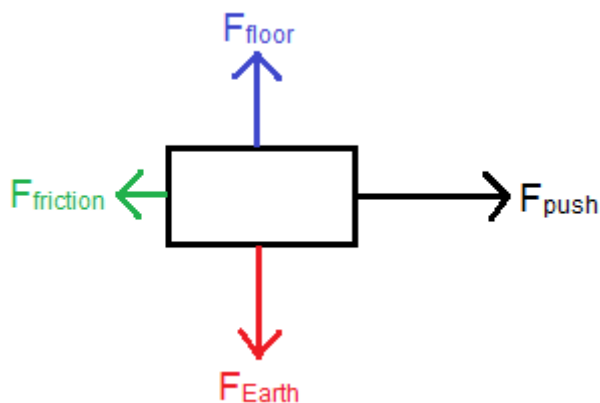


Figure 1: Force Diagram

### Force Diagram

- The length of the arrow represent the **size** of the force
  - The direction of the arrow represents the direction of the force
  - Arrows should all be labelled with names and sizes if possible
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### Balanced Forces

Think and discuss with the people around you:

Sitting on your chair, are the forces acting on you balanced or unbalanced? How do you know? What does it feel like?

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### Vertical and Horizontal Forces

- Vertical and horizontal forces are separate. They do not affect each other.
  - We can *balance* them to find out the **net force** in the vertical and horizontal directions.
  - If we compare them and they are the same, then forces are balanced. If they are different, forces are unbalanced.
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