

0.1 Unit 03 - Forces

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1 **Definition (Force)**

Any interaction between any two objects.

Fundamental forces

2 **Definition**

Gravitational force - the interaction of gravitational forces. By far the weakest force.

3 **Definition**

Electromagnetic force - the fundamental force that dictates 98% of forces you experience on an everyday basis. Holds together molecules. Ex. rub a balloon on your head.

- People are mostly made up of empty space.
- Why do you feel the desk? Photon-photon interactions.

4 **Definition**

Strong Nuclear Force - since atoms are all charged positively in the nucleus and should theoretically repel each other, they still stick together because of strong nuclear force.

- Strongest force. Only works over small distances.
- Making these using $E = mc^2$ then it can easily turn into a nuclear reaction.
- To make a nuclear fusion reaction, two atoms must collide with large amounts of energy.

5 **Definition**

Weak Nuclear Force - underlies radioactivity and decay

- The effective range of the weak force is limited to subatomic distances, and is less than the diameter of a proton.