

# Gravity

What holds the universe together

# Gravity or gravitation

- A non-contact force in which **objects with mass attract one another**.
- Gives weight to objects with mass.
- Causes them to fall to the ground when dropped.
- Causes dispersed matter to coalesce (move together) resulting in the existence of the Sun, the planets of our Solar System.
- Causes bodies which are large enough to assume spheroidal shape.

# Gravity is responsible for

- keeping the Earth and the other planets in their orbits around the Sun.
- keeping the Moon in its orbit around the Earth.
- the formation of tides.
- heating the interiors of forming stars and planets to very high temperatures.

# Misconceptions about gravity

- It is caused by the atmosphere.
- It is caused by the Earth's spin.
- There is no gravity in space, on Moon etc.
- Weightlessness (e.g. in Space Shuttle) means no gravity.
- Heavier objects fall faster than light ones.

All these are incorrect!

# Weightlessness or Free Fall

- What you see on Space Station, Shuttle etc is Free Fall or orbit.
- See [http://highered.mcgraw-hill.com/sites/dl/free/007299181x/59233/5\\_3.htm](http://highered.mcgraw-hill.com/sites/dl/free/007299181x/59233/5_3.htm)