



FORCES



What do forces do?

Make things - - - -

move

- move faster
- move slower
- change direction

also

change shape

Big and Little forces



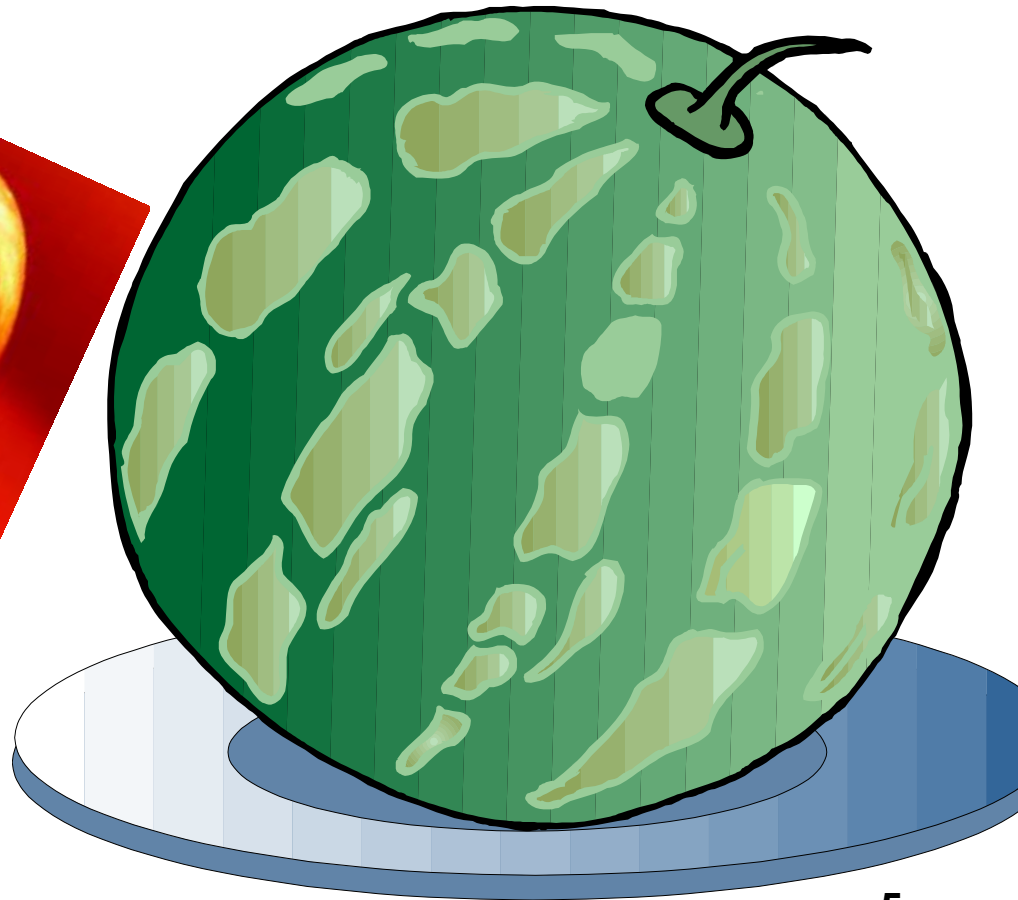
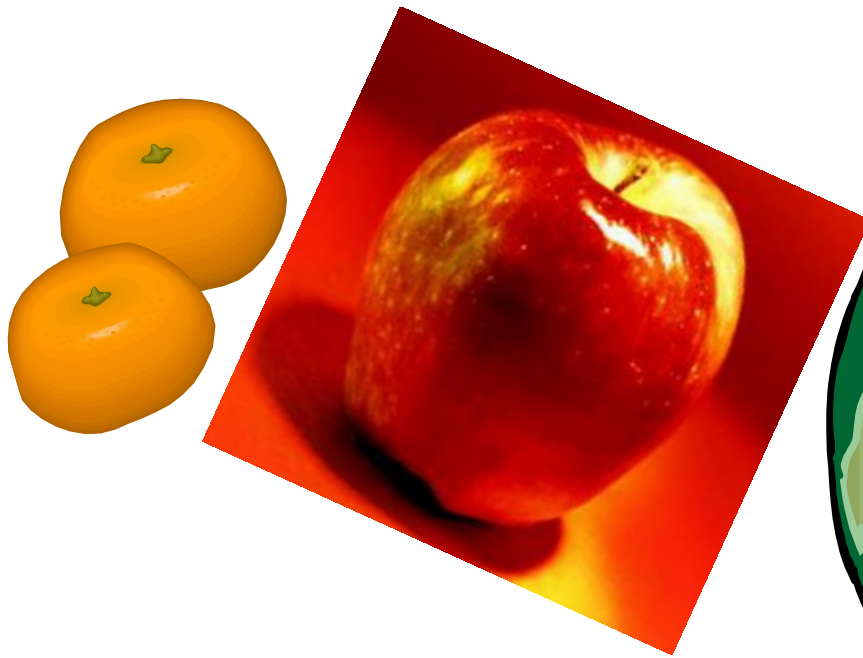
We can measure forces
Using a forcemeter

Sir Isaac Newton

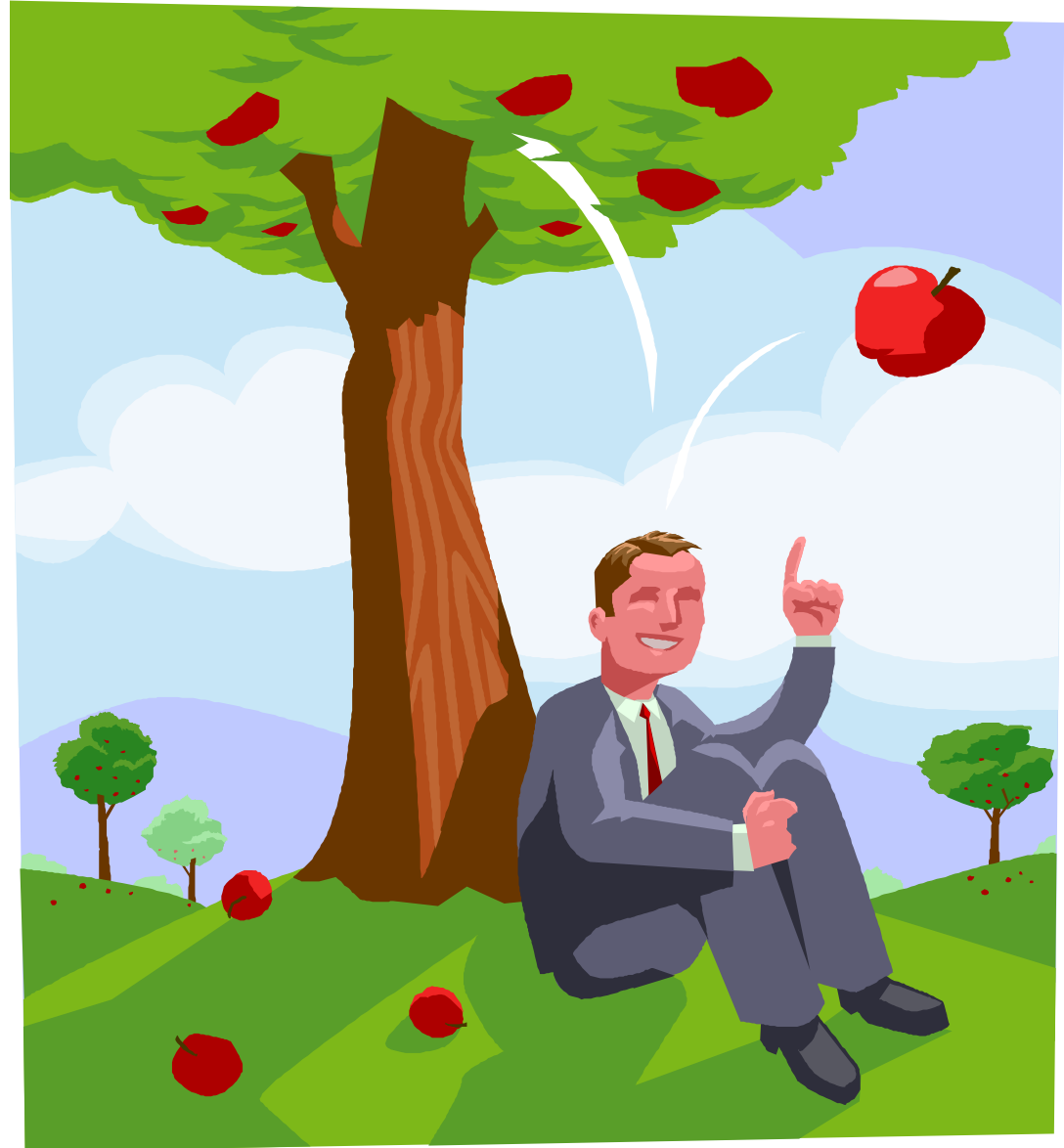


Newton

Which fruit ?



Newton?





Gravity is a force

- When gravity pulls something towards the Earth -
 - we call this force the **weight**.



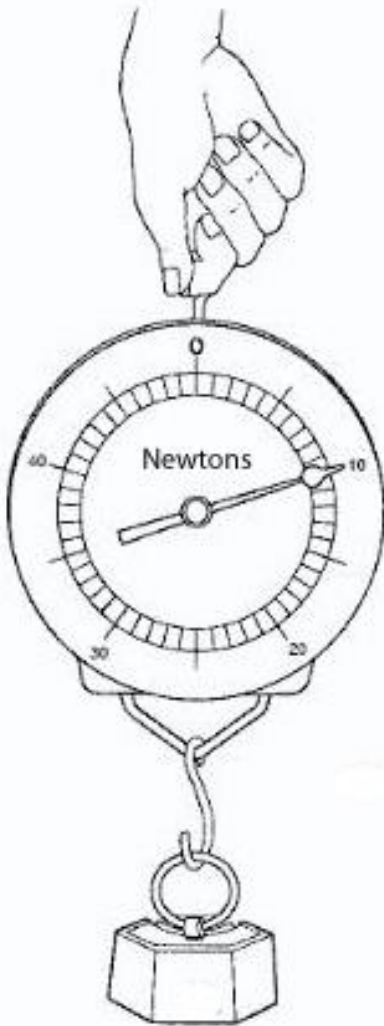
Forces are measured in

Newtons

Weight of an apple = about 1 Newton

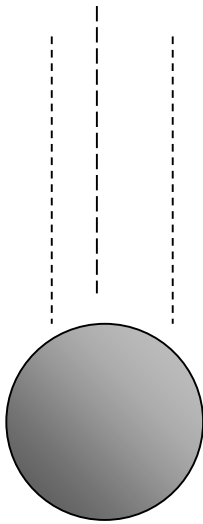


Let's play
a game !

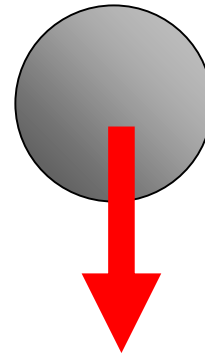


Forcemeters

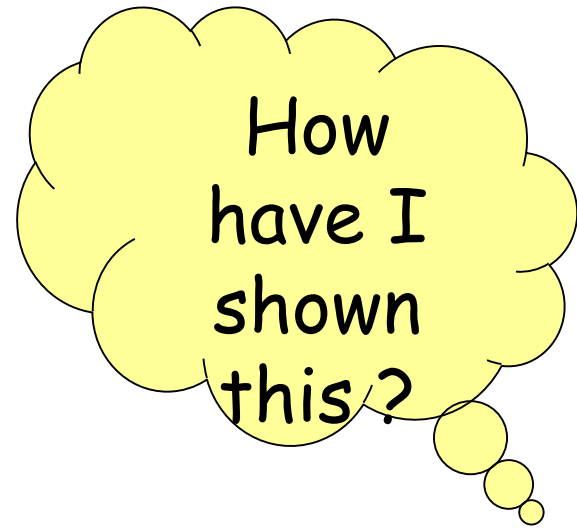
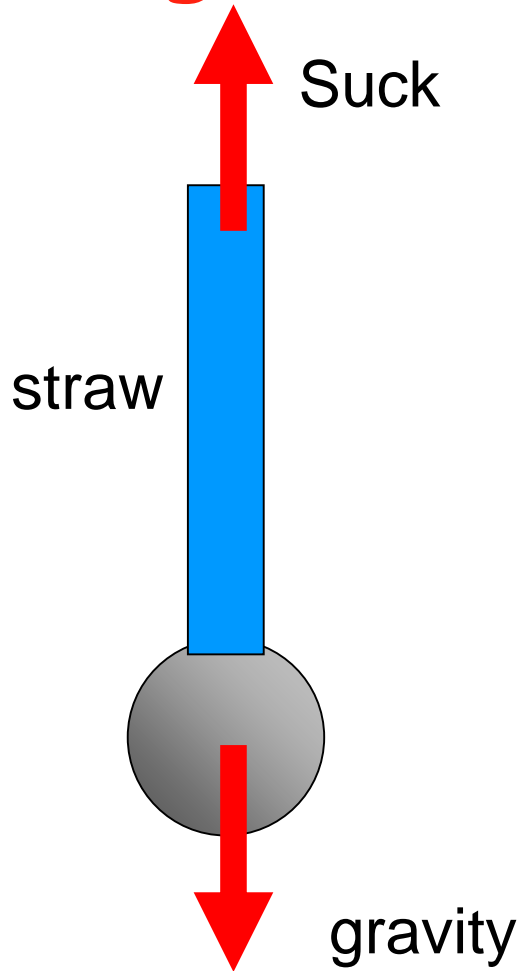
ping pong ball falling



The arrow represents the force of gravity

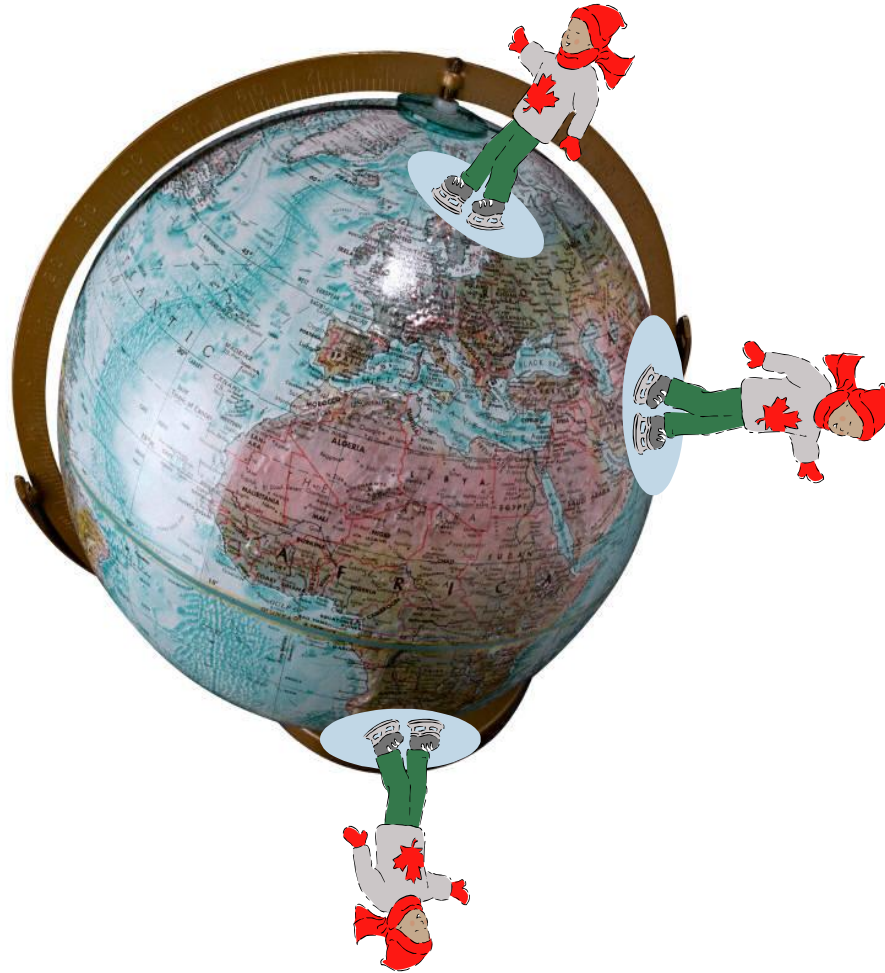


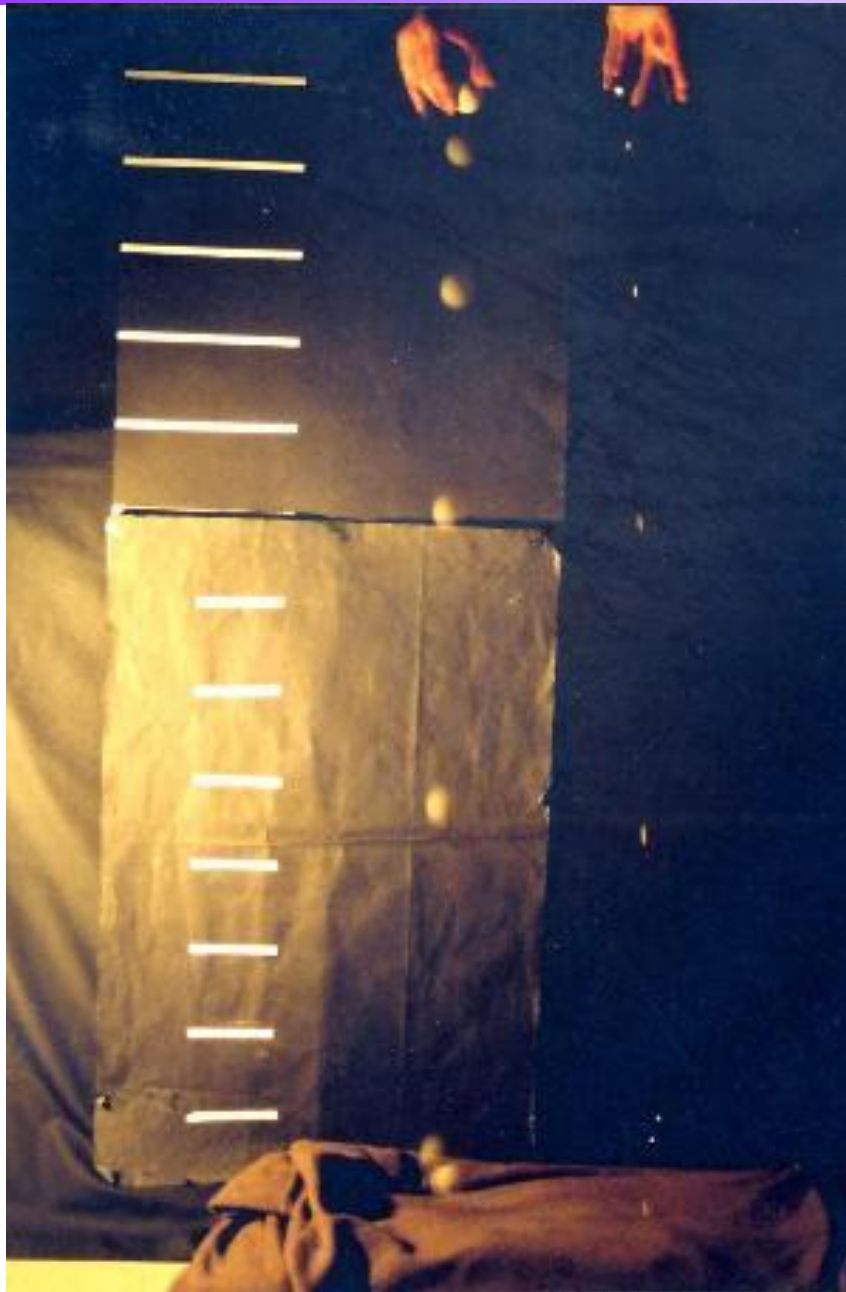
The ball does not fall when your sucking force = force of gravity



Gravity down under

- People do not fall off the Earth



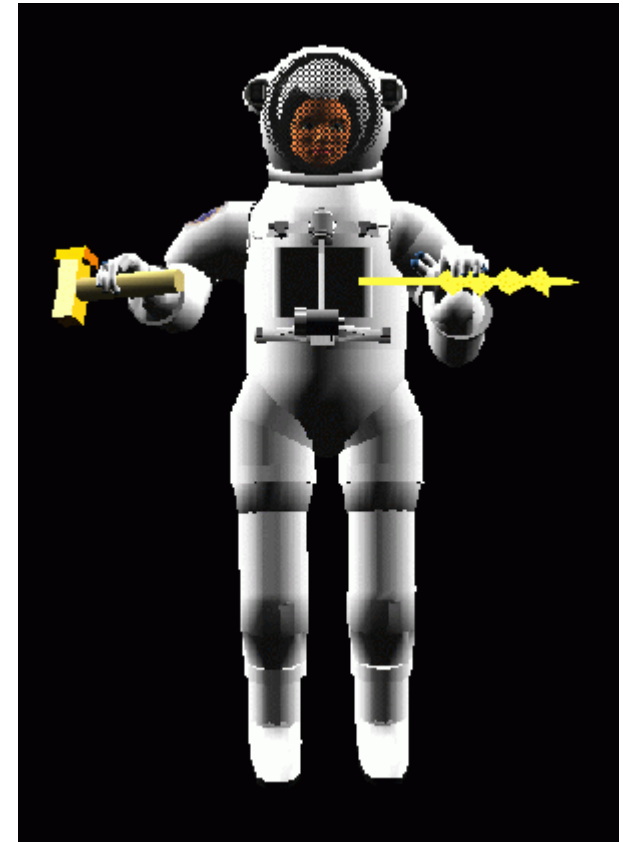


*two
objects
dropped
at the
same time*

On the Moon – Apollo 15

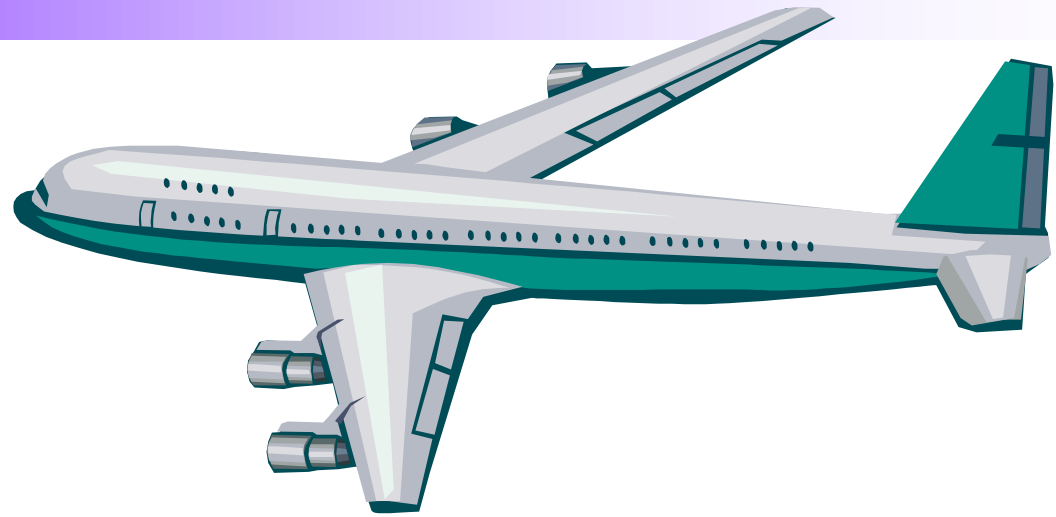
A heavy geological hammer and a falcon feather were dropped from the same height.

They hit the lunar surface at the same time.

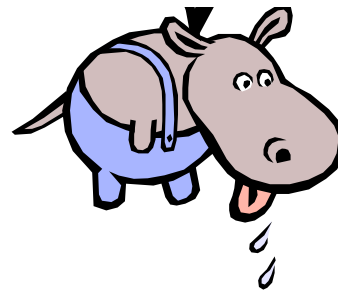


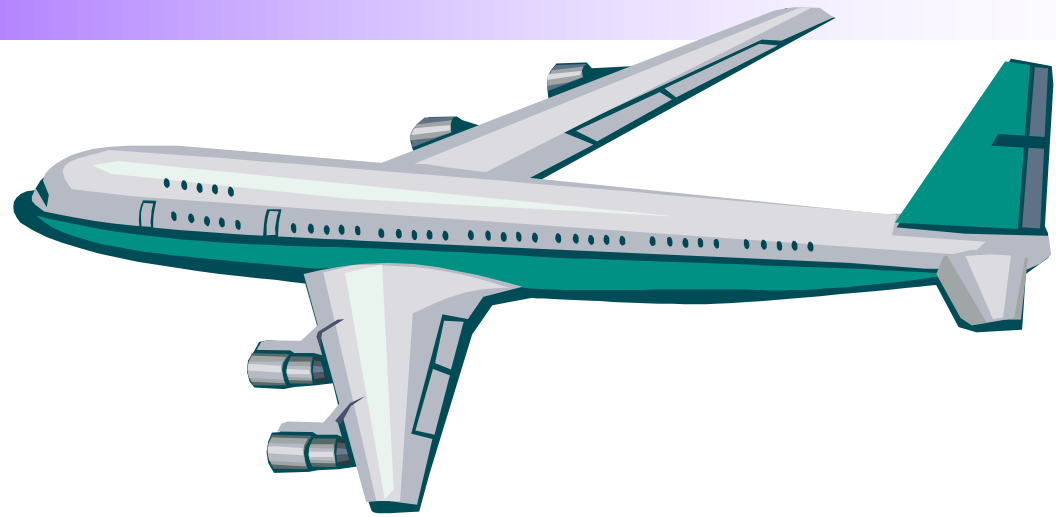
astronaut David Scott

http://nssdc.gsfc.nasa.gov/planetary/image/featherdrop_sound.mov

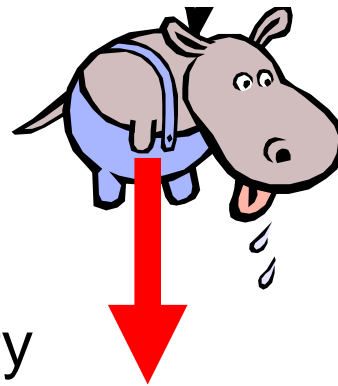


Hippo jump



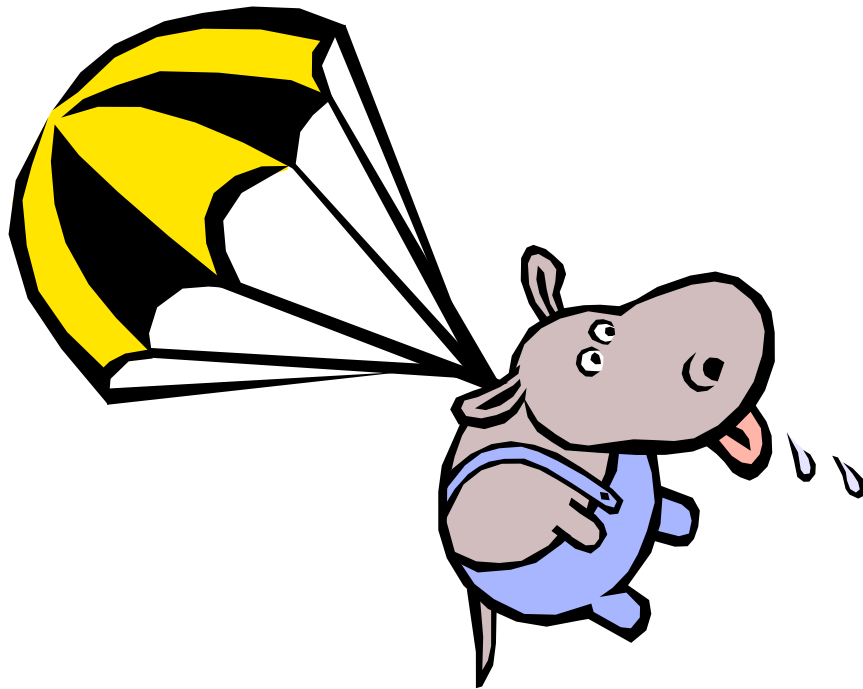


Hippo jump

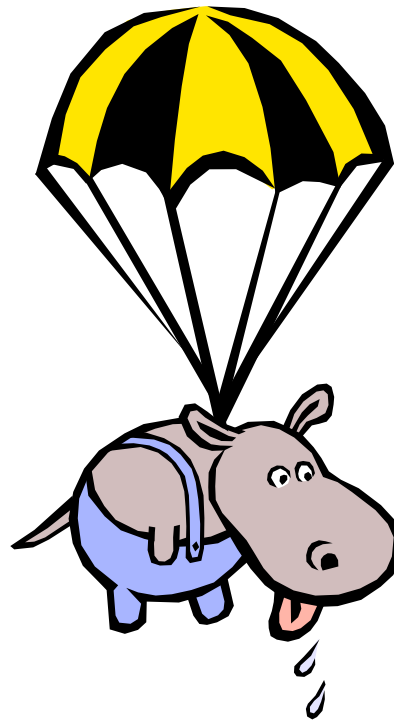


Force of gravity

Saved?



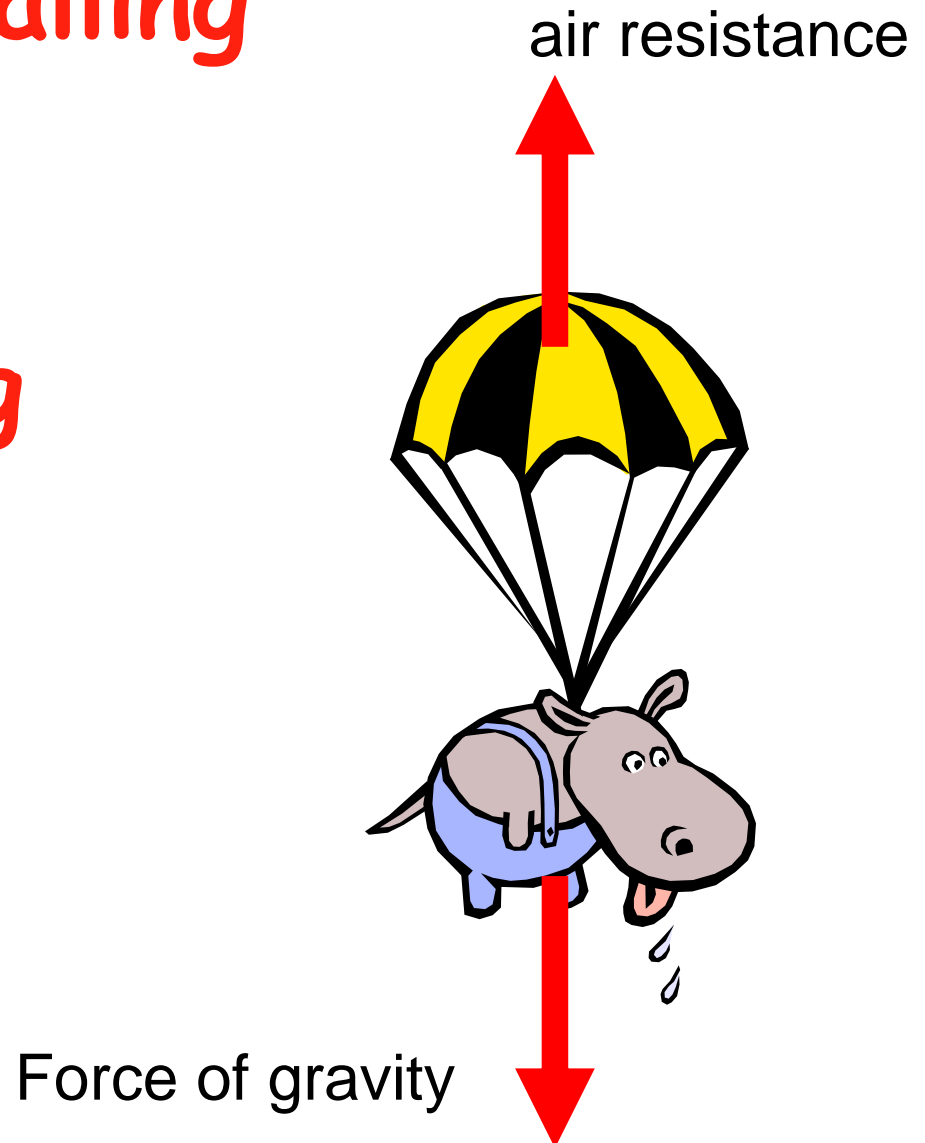
Hippo is still
falling quickly



Hippo is still falling
quickly

but not getting
faster

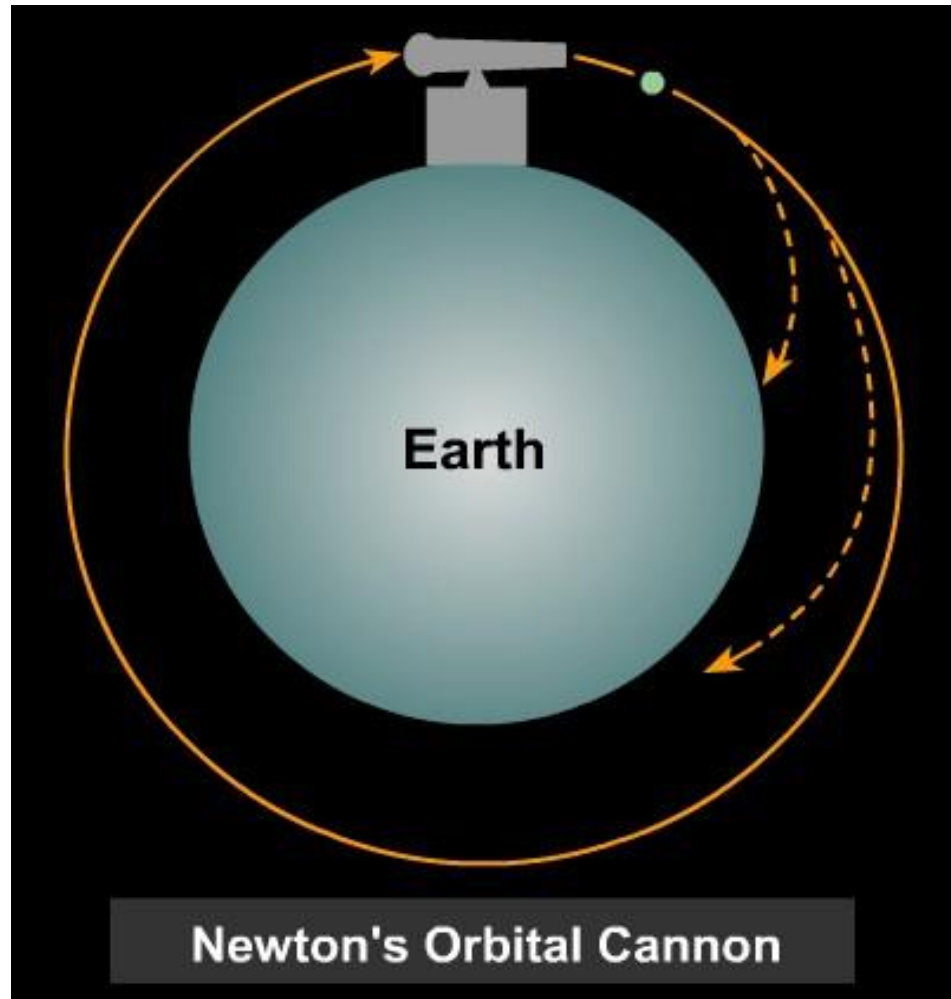
- How do we know?



Launching a satellite

The cannon ball must move very quickly to orbit the earth.

The Moon orbits the Earth



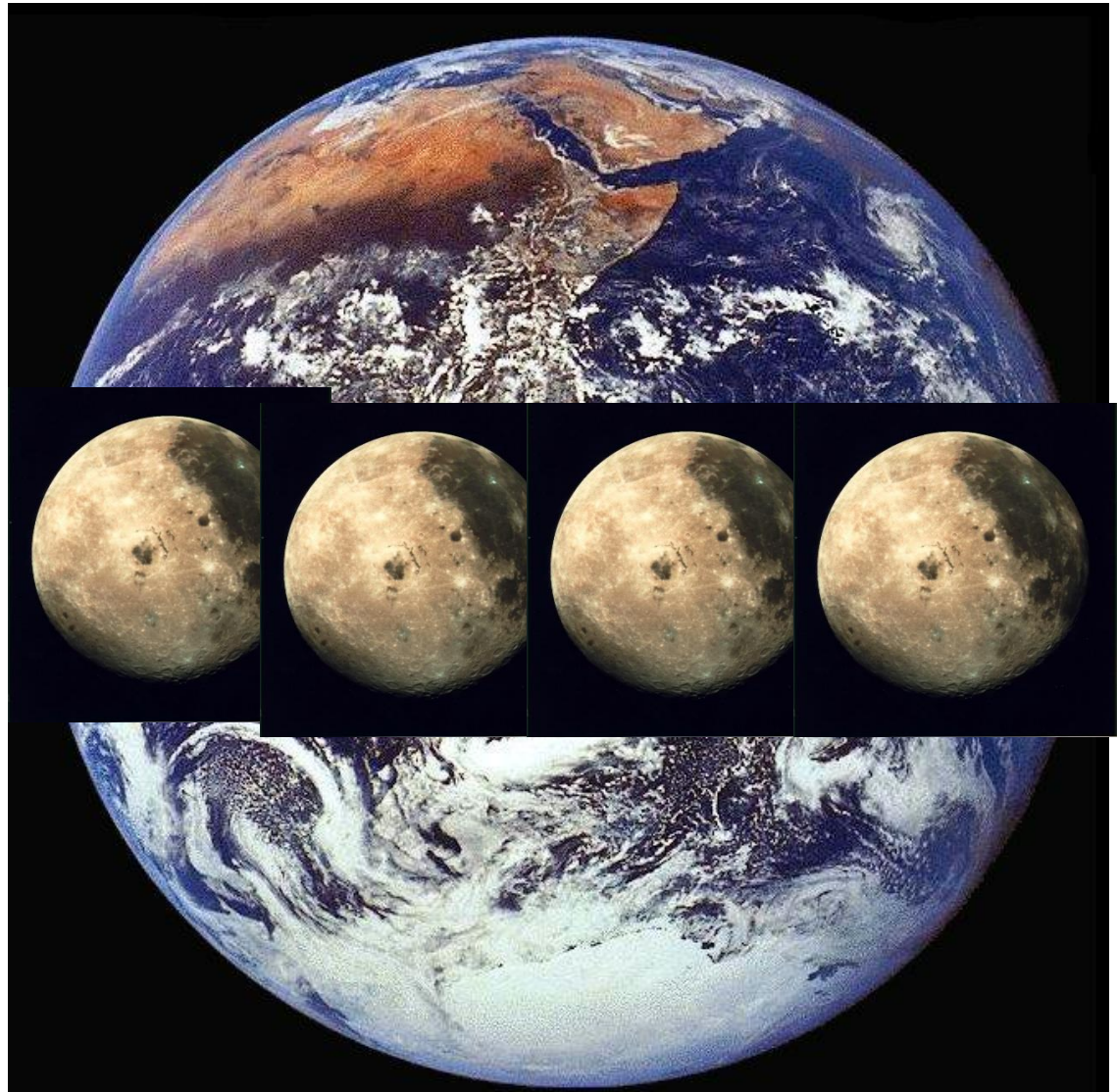
The Earth



The Moon

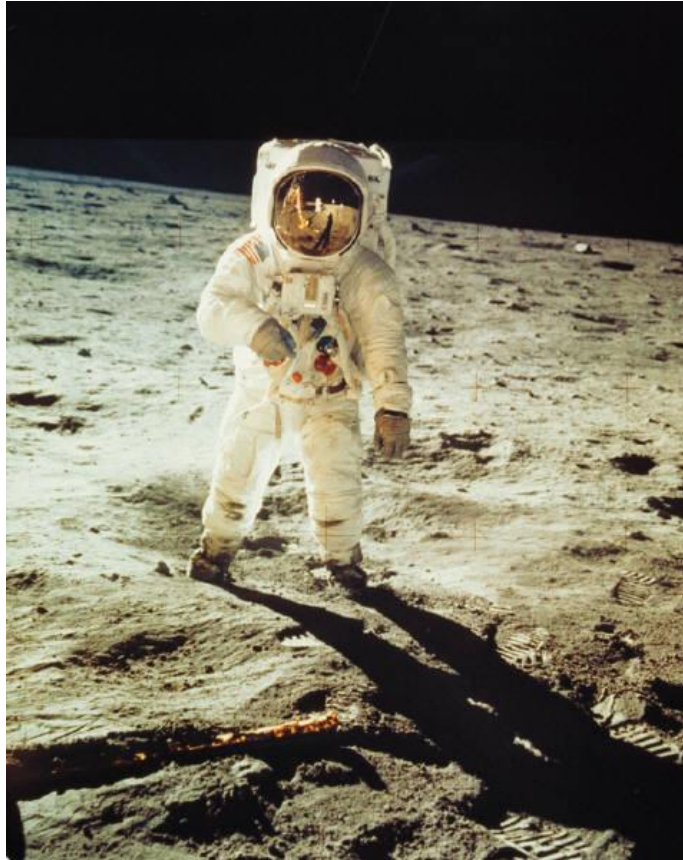


The Earth



The Moon

On the Moon



NASA pictures



GRAVITY

- Things fall
- Things have weight
- Things stay in place



No Gravity

- Would an apple fall?
- Would things stay on earth?
- What would happen?

- What?
- Why?
- How?

keep asking questions
-like Newton !