

# Gravity

Gravity is an invisible force that pulls objects towards each other. On earth, gravity pulls us down towards the centre of the earth. It also makes objects fall to the ground when dropped and gives objects weight.

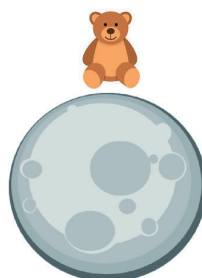
Weight is measured in Newtons and can be measured using a scale. Weight tells us how much gravity is pulling us down. If we went to the moon our weight would change as the moon has less gravity than earth.

Mass is measured in kilograms and always stays the same. It is a measure of the amount of matter in an object, all the things we are made up of.

Isaac Newton discovered that the force of gravity between objects depends on their mass. The greater the mass the greater the force of gravity. He also discovered that the closer objects are together the greater the force of gravity between them.



Mass= 0.65Kg  
Weight= 6.5N



Mass= 0.65Kg  
Weight=1.04N

## Let's drop it

Let's have an experiment. First, find a few different types of materials. Here are a few suggestions:

- Scrap of fabric/wash cloth
- A feather
- A piece of Lego or plastic bottle top
- A metal spoon
- A wooden spoon/lollypop stick

Hold two different things up at a time and then drop them, at the same time. Watch them carefully to see what happens.

Record your results in the table below. What did you notice happen? Did it move fast or slow and which one hit the floor first?

What two things did you drop?	What did you notice happen?

Why do you think some materials hit the floor first?

## **Let's make things a little more fun (and messy!).**

Do you have any paint?

Put a sheet of paper on the floor (maybe outside)  
or in a box to keep the splats contained.

Dip your objects in paint (maybe check with an adult that it's ok first).

Then drop each object, one at a time.

### **Have you noticed that the splats all look different?**

The heavier and quicker objects will splat bigger, and the lighter objects will have smaller splats.

## **Egg Drop**

### **Now you have had a positive experiment with gravity, let's make it an even bigger challenge!**

You need a hard-boiled egg and somewhere to drop it from. Any height will do e.g. an adult could hold it or you could stand on a chair.

What happens when you drop an egg? It splats!

Your challenge is to try and make a holder for your egg. You can use any materials that you have around you. The egg needs to be held securely, so that it can't fall out.

When you're finished you simply drop it from a height. The aim of the activity is for your egg to be intact. You don't want it to break.

Make sure to let us know how your egg drop experiment goes using [#DiscoveryatHome](#) or email [learning@discoverymuseum.org.uk](mailto:learning@discoverymuseum.org.uk).