

## WHAT IS GRAVITY?

Gravity is the force that pulls objects towards the Earth. It's the reason we walk on the ground rather than float around.

As we learnt in our science topic, gravity also holds Earth and the other planets in their orbits around the Sun.

As you know - gravity also exists on the Moon but it is not as strong as on Earth, which is why astronauts can jump higher on the Moon than on Earth.

Can you remember what happens to a feather and hammer if dropped from the same height on the moon (think back to the Starfish assembly!)



## GALILEO AND GRAVITY

Galileo was a famous scientist in the 16th and 17th Century. His most famous observation was that two objects of the same size but different weights hit the ground at the same time if they are dropped from the same height. This happens because the force of gravity acting on both objects is the same.

If a feather and a ball are dropped from the same height (on Earth) they fall at different rates. This is because the feather has more air resistance acting on it. Air pressure acts on the feather from all directions counteracting the force of gravity.

Galileo dropped two balls of different weights but the same size off the Leaning Tower of Pisa, proving that the weight of an object doesn't affect how fast it falls.

Do some research on Galileo Galilei. Can you find 3 facts about his life:

1.

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3.

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## Gravity Experiments

This experiment requires the following:

A sturdy chair

Stopwatch

Balloon

Various household items (which can't break)



Gather items of differing weights and sizes, such as a ball, action figure or doll, and a balloon. Carefully stand on top of the chair while holding the items. One at a time, drop each item from the same height. Keep track of how long it takes each item to reach the ground.

Though many believe that larger, heavier items will hit the ground first, this is not true. The rate of Earth's gravitational pull on all objects is the same regardless of weight. Given the absence of air resistance, each object should reach the floor at the same time. Do your findings support this?

Following on from the experiment above another great example of Galileo's discovery is to half fill one plastic bottle and leave another (the same size) empty. If dropped from the same height they will hit the ground at the same time!

