

Tuesday 2nd March 2021- Mild

LO: To explore the effect that gravity has on objects and the first theory of gravity.

Newton and Gravity Fact Sheet



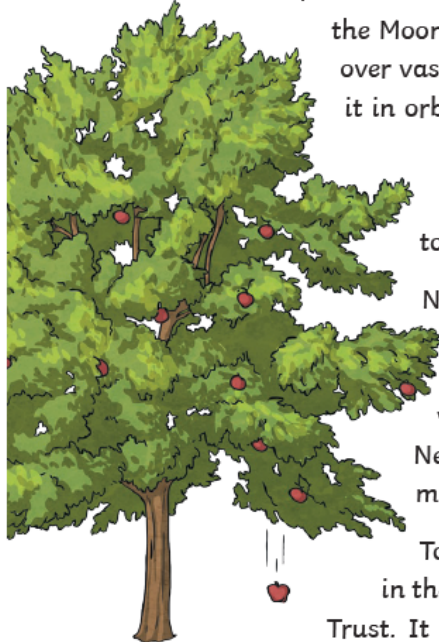
Isaac Newton was an English scientist and mathematician. He made many discoveries in his lifetime. One of the most important and influential discoveries that he made was the law of gravity.

Newton was born in 1643 at Woolsthorpe Manor in Lincolnshire. He worked hard at school, and was accepted to study at Cambridge University. He worked there for many years, but in 1665, the plague broke out and he was forced to move back to Woolsthorpe Manor.

While Newton was in the garden at Woolsthorpe Manor one day, he saw an apple fall from a tree. Some say it fell on his head but there is no evidence that this definitely happened. The sight of the apple falling down from the branch to the ground inspired Newton to think about the way it fell. Years later, he told his friend William Stukeley that he wondered why the apple fell down rather than sideways or upwards. He concluded there must be a 'drawing power' in the Earth and that 'the sum of the drawing power must be in the Earth's centre, not in any side of the Earth.'



Newton spent a lot of time thinking hard about the force of gravity, and how it pulls objects down towards the centre of the Earth. He was particularly interested in the way the Moon orbits the Earth, and he reasoned that gravity must extend over vast distances, pulling the Moon towards the Earth and keeping it in orbit.



In 1687, Newton published his discoveries about gravity in his famous book, *The Principia*. His findings are known today as Newton's Law of Universal Attraction.

Newton died in 1727, but his legacy lives on. All forces are measured in newtons (N), using a newton meter – both of which are named after Isaac Newton. Even Albert Einstein, writing in 1927, 200 years after Newton's death, described Newton as a 'shining spirit', and claimed he had one of the most brilliant minds of anybody who had ever lived.

Today, the apple tree that inspired Newton's ideas still grows in the gardens at Woolsthorpe Manor, now owned by the National Trust. It can be seen from the window of the room that was Isaac Newton's bedroom.

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1. When was Isaac Newton born?

2. Why did Newton move from Cambridge to Woolsthorpe Manor?

3. What fruit did Newton see falling from a tree?

4. In which direction does gravity pull objects?

5. Why does the Moon stay in orbit around the Earth?

6. What are forces measured in?

7. What did Albert Einstein think of Isaac Newton?

8. What can still be seen from Isaac Newton's old bedroom window?

Fill in the key words below to explain how gravity gives objects their weight.

All objects are made of _____, or stuff. The amount of matter they are made of is called their mass. This is measured in _____.

_____ pulls all objects down towards the _____ of the Earth. It pulls objects with a larger mass down with a stronger _____. The pulling force of gravity on an object is its weight. It is measured in _____.

Key words: newtons gravity force matter centre kilograms
