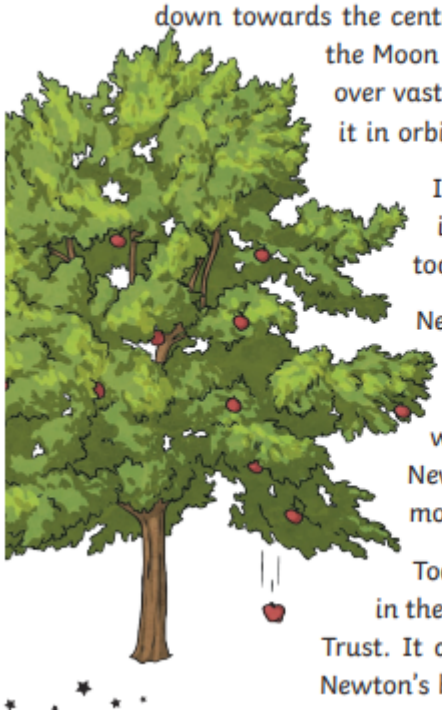
Newton and Gravity Fact Sheet

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.

Elgar and Mozart Year 5 Science home learning Monday 6th February

Questions

1. When was Isaac Newton born?
2. Why do you think that the outbreak of plague forced Newton to move from Cambridge back to Woolsthorpe Manor?
3. What inspired Newton to explore the force of gravity?
4. How did Newton describe the way gravity pulls objects?
5. What did Newton discover about the way gravity affects the Moon?
6. Why do you think forces are measured in Newtons with a newton meter?
7. Review this phrase: *Even Albert Einstein, writing in 1927, 200 years after Newton's death, described Newton as a shining spirit.* What does the word 'even' make you think about Albert Einstein?
8. Why do you think the National Trust have kept and looked after the apple tree in the gardens of Woolsthorpe Manor?

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
   _____
7. _____
   _____
   _____
8. _____
   _____
   _____

Forces Crossword

Across

2. Scientifically, _____ is measured in kilograms and weight is measured in newtons.

3. All surfaces create _____ on an object moving across them.

6. Friction _____ moving objects down.

7. Galileo Galilei conducted an experiment to prove that all objects fall at the _____ rate, no matter what their mass is.

8. _____ is a pulling force exerted by the Earth.

9. When two gears are connected, they always turn in _____ directions to one another.

11. A lever always rests on a _____.

Down

1. A lever can be used to make a smaller _____ lift a larger load.

2. Air pushes against any object _____ through it.

4. Aeroplanes are streamlined so they do not experience much air _____.

5. Isaac _____ discovered more about gravity.

10. Objects that do not experience much air or water resistance are called _____.