Autumn 1 -Earth and Space: Physics

What? (key knowledge)

The Solar System

What is the solar system?	A group of 8 planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune.
How do the planets move?	The planets all orbit the Sun. Each have different orbits so some take longer.
Are all planets the same?	The first 4 planets are small and rocky; the outer 4 planets are gas giants or ice giants.
What shape are the Earth, sun and moon?	Approximately spherical.

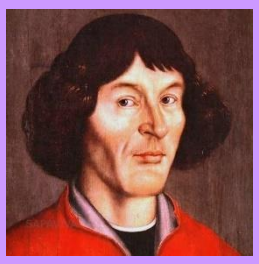
The Earth and Moon

What causes day and night?	The Earth rotates on its axis anti-clockwise and makes a complete rotation over 24 hours.
How long does it take for the Earth to orbit the Sun?	The Earth takes 365 and a quarter days to orbit the Sun. Every four years on Earth is a leap year.
What causes seasons?	It is the Earth's tilt that causes the seasons.
What does the moon orbit?	The Moon orbits the Earth anticlockwise and takes approximately 28 days.

axis	an imaginary line through the middle of something
galaxy	an extremely large group of stars and planets; our galaxy is called the Milky Way
gravity	the force which causes things to drop to the ground
leap year	a year which has 366 days; there is a leap year every 4 years
orbit	the curved path in space that is followed by an object going round a planet, moon or star
planet	a large, roughly round object in space that moves around a star
Solar System	the Sun and all 8 of the planets that go around (or orbit) it
sphere	an object that is round in shape like a ball
universe	the whole of space and all the stars, planets and other forms of matter and energy in it
geocentric	the theory that the Earth formed the centre of the universe; the Sun and planets revolved around the Earth
heliocentric	the theory that the Sun formed the centre of the universe; the planets orbit around the Sun

Influential Scientist:

Nicolaus Copernicus



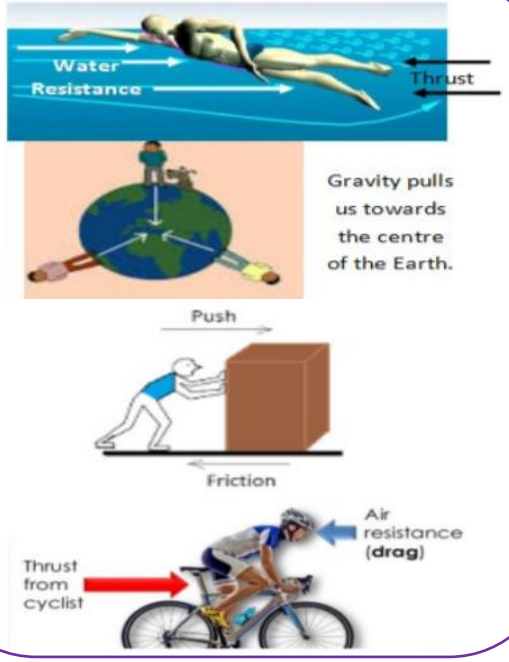
He was the first scientist to propose that Earth and other planets revolve around the sun, or the Heliocentric Theory of the universe.

Spring 1 – Forces, Levers and Pulleys: Physics

What? (key knowledge)	
Forces	
What is a force?	A force is either a push or a pull.
Forces can make things…	Speed up, slow down, change shape and change direction.
What is gravity?	Gravity is the forces that pulls objects down towards the centre of the Earth.
What is friction?	Friction happens when two surfaces touch each other
What is water resistance?	Water resistance slows down moving objects, because water slows you down as you move through it.

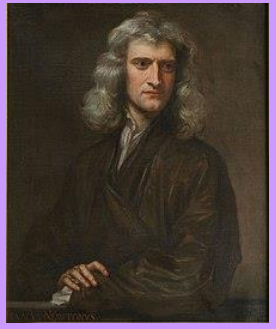
Type of Force	
What is air resistance?	Air resistance slows down moving objects, because air slows you down as you move through it.
What is a lever?	A lever is a simple machine which helps us to lift objects.
What is a pulley?	Pulleys also help to lift heavy objects. They include at least one wheel and a length of rope.

friction	Friction is a force between two surfaces that are sliding, or trying to slide, across each other.
gravity	Gravity is a force which tries to pull two objects towards each other.
air resistance	Air resistance is a type of friction between air and another material. For example, when an aeroplane flies through the air.
water resistance	If you go swimming, there is friction between your skin and the water particles.
levers	A lever can be described as a long rigid body with a fulcrum along its length.
pulleys	Pulley is a simple machine and comprises of a wheel on a fixed axle, with a groove along the edges to guide a rope or cable.
gears	Gears are wheels with teeth that slot together. When one gear is turned the other one turns as well.
parachute	A parachute is a device used to slow down an object that is falling towards the ground. As the parachute opens, the air resistance increases.
Newton	During his lifetime, Newton developed the theory of gravity and made breakthroughs in the area of optics, such as the reflecting telescope.



Influential Scientist:

Isaac Newton



Sir Isaac Newton made many important scientific discoveries, but his most famous one is his theory of gravity.