Knowledge Organiser – Art 'May the Force be with you' Year 5

Article 31 – I have the right to be creative.

Key Knowledge and Skills

What you need to know:

* How to present in a sketchbook to show combined graphics, research and comments.

Peter Thorpe art

How to create space backgrounds

How to use a sponge and toothbrush

Load your sponge in both magenta and white. Use only a tiny bit of paint on the sponge.

Paint a diagonal strip across the canvas.

Wipe off excess paint off the sponge.

Blur the paint by sponging over the colours applied. Load your sponge (different area) in deep violet and white. Repeat the sponging and blurring technique in a different area of the canvas.

To dim the colours, load you sponge in a tiny bit of black (only a little is needed as less is more).

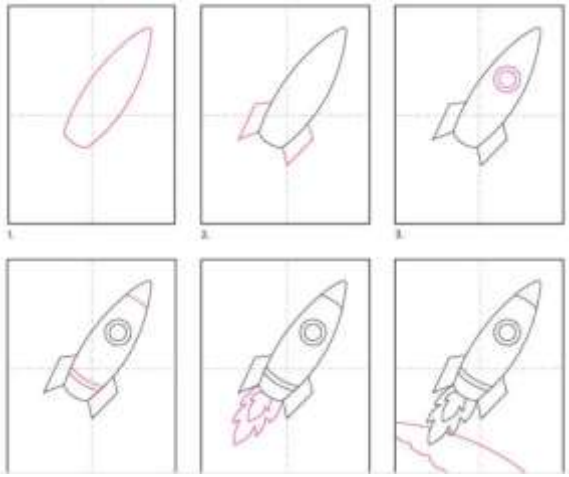
Creating rockets

How to use Peter Thorpe art to draw rockets

Key vocabulary

graphics	Images from the internet
magenta	Puplish-red
excess	extra
sponging	Pressing lightly with a sponge to create a textured print.
Blurring	To make unclear

How to draw a rocket



Cultural Heritage

Pakistani satellites launched in 2018.

Romanian rocket

Budapest from space

Knowledge Organiser – Year 5 Computing: We are Architects

sketchup

Article 31 – I have the right to be creative.

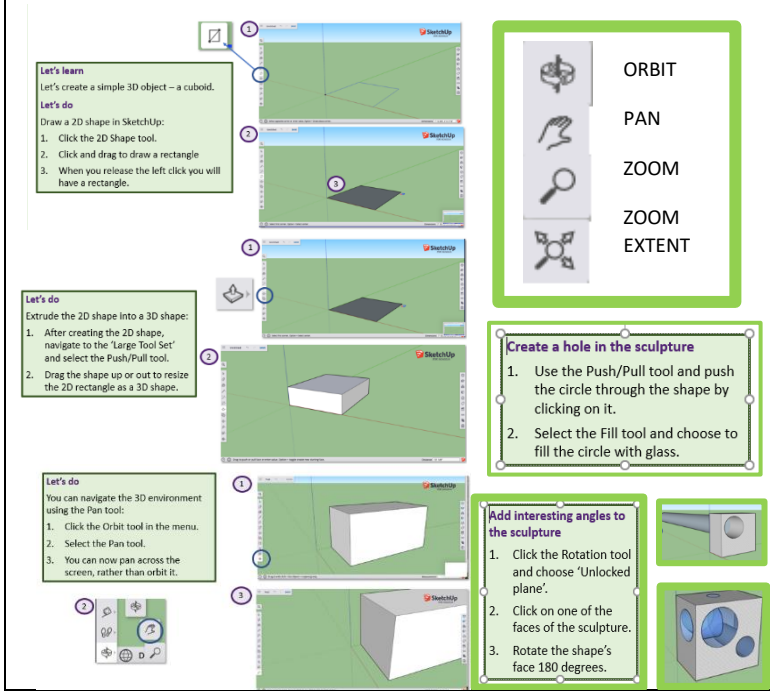
Key Knowledge

Unit 5.3: We are architects

Creating a virtual space

SketchUp: 3D Design Software

SketchUp is a 3D modelling computer program for a wide range of drawing applications such as architectural, interior design, landscape architecture, civil and mechanical engineering, film and video game design. SketchUp is an example of a **CAD (Computer-aided design)** tool. Computer-aided design is where computer software is used to help design real-world objects, such as buildings and sculptures.



Create a hole in the sculpture

1. Use the Push/Pull tool and push the circle through the shape by clicking on it.
2. Select the Fill tool and choose to fill the circle with glass.

Add interesting angles to the sculpture

1. Click the Rotation tool and choose 'Unlocked plane'.
2. Click on one of the faces of the sculpture.
3. Rotate the shape's face 180 degrees.

Key vocabulary

Computer-aided design (CAD)	using computer software to help design real-world artefacts, from engineering components to buildings
Creative Commons	copyright licensing scheme where the creator of an original work allows others to use it without seeking further permission
Photorealistic	an image indistinguishable (or nearly indistinguishable) from a digital photograph
Render	to create a 2-D image from a 3-D virtual scene

Cultural Heritage

Sheila Sri Prakash

is an architect and urban designer of Indian origin. She is the founder of Shilpa Architects and is the first woman in India to have started and operated her own architectural practice.

Look into some of her architect designs.

Knowledge Organiser – D and T 'Moon buggies' Year 5

Article 29 I have the right to an education which develops my personality, respect for others' rights and the environment

Key Knowledge and Skills

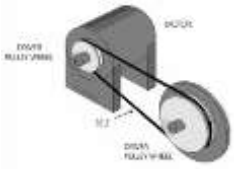
What you need to know:

What you are making:

DESIGN BRIEF

Design and make a moon buggy

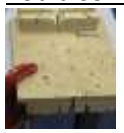
- It must be robust.
- It must move using an electrical mechanism.
- It must include practical features for the astronauts.



How a driver pulley works:

The motor works using an electrical circuit. This turns the motor pulley. This in turns drives the belt which is attached to a wooden pulley. The wooden pulley rotates which in turn drives the axle that the wheels are attached to.

You also need to know:



* How to set up a bench hook with a G-clamp.
* How to saw safely.

* How to use lynx jointers to make a square corner.
* How to create an axle with moving wheels on a chassis.
* How to connect a driving pulley and motor to an axle.

Key vocabulary

Design brief	A design brief is a document or set of instructions for a design project. The design brief outlines what the purpose of the project is and instructions for what is required.
pulley	A mechanism used to move things with less effort.
robust	Not easily broken
axle	The rod passing through the centre of a wheel
rotate	To turn around

Key tools

Junior hacksaw

Hot glue gun

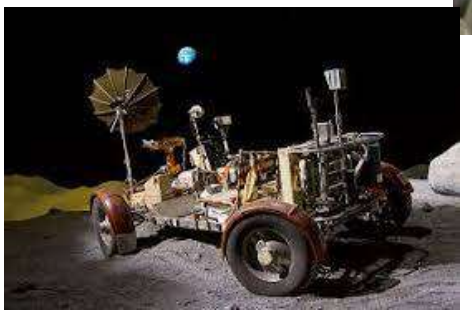
Lynx joint corners

Bench hook

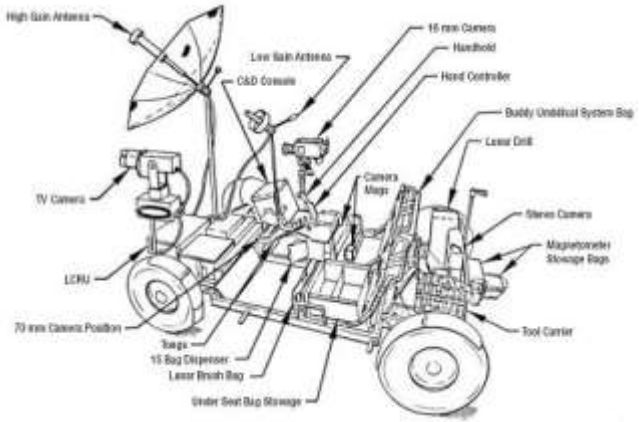
G Clamp

Cultural Heritage

The first lunar rover was designed by Filipino Eduardo San Juan.



What a moon buggy would contain.



Article 29 – I have a right to an education which develops my personality, respect for others' right and the environment.

Knowledge Organiser – Geography: May the Force Be With You Y5

Key Knowledge

How far is the ISS from Earth?	The ISS (International Space Station) orbits at approximately 350 km (220 miles) above the Earth.
Who owns the ISS?	The ISS program is a multi- national collaborative project between 5 participating space agencies: NASA (US), Roscosmos (Russia), JAXA (Japan), ESA (Europe) and CSA (Canada)
What is the ISS used for?	The ISS serves as a microgravity and space environment research laboratory in which scientific experiments are conducted in astrobiology, astronomy, meteorology and physics.

Key vocabulary

astrobiology	Astrobiology is a scientific field concerned with the origins, evolution and future life of the universe. It considers the question of whether extra-terrestrial life exists and if it does how humans can detect it.
astronomy	The science that studies celestial objects and phenomena. Objects of interest include planets, moons, stars, nebulae, galaxies and comets
meteorology	The study of weather forecasting and the impact of weather and climate change.

Cultural Heritage

International Space Station

The ISS provides a vantage point from which to observe, monitor and even discover Earth. Astronauts are trained in meteorology, geology, oceanography and environmental science in advance of their mission to maximize their observation of Earth. Scientists on the ground help ISS crew identify upcoming photo opportunities and areas of interest. These areas can range from coral reefs, to alpine glaciers, to smog over industrial regions. The unique documentation has become a valuable asset to researchers who use the data to help illustrate change over time. By comparing photo's from space of areas of interest, they can develop maps of land changes, identify changes in water levels, vegetation and even urban sprawl.

Article 29 – I have a right to an education which develops my personality, respect for others' right and the environment.

Knowledge Organiser – History: May the Force Be With You Y5

Key Knowledge

What do the initials NASA stand for?	NASA stands for National Aeronautics and Space Administration. NASA was started on 1st October 1958 as part of the US government. NASA is in charge of US science and technology that has to do with aeroplanes and space.
Have any astronauts from Britain gone into space?	There have been several astronauts from Britain who have gone into space. Dr Helen Sharman was the 1st British person in space and the first woman to visit the Mir space station in May 1991. Michael Foale was the 2nd British person in space and the 1st to perform a spacewalk. Tim Peake in 2015 was the 7th British person to go into space.
What is the difference between an astronaut and a cosmonaut?	Cosmonauts are people trained and certified by Russian Space Agency. Astronauts are people trained and certified by NASA, ESA (European Space Agency), CSA (Canadian Space Agency) or JAXA (Japan Aerospace Exploration Agency) to work in space.

Life in Space

Life in space is very different from life on Earth. Helen Sharman and Tim Peake (both British astronauts) had to overcome difficulties of living in space such as brushing their teeth, going to sleep, eating, having a wash and going to the toilet.

Key vocabulary

segregation	Into the 20th Century many states in the US followed a segregation policy. This meant that African Americans had to attend different schools, use different restaurants and sit in different areas of public transport than white people.
Space tourism	Someone who pays to go on a journey into space for pleasure and interest rather than as a job.

Cultural Heritage

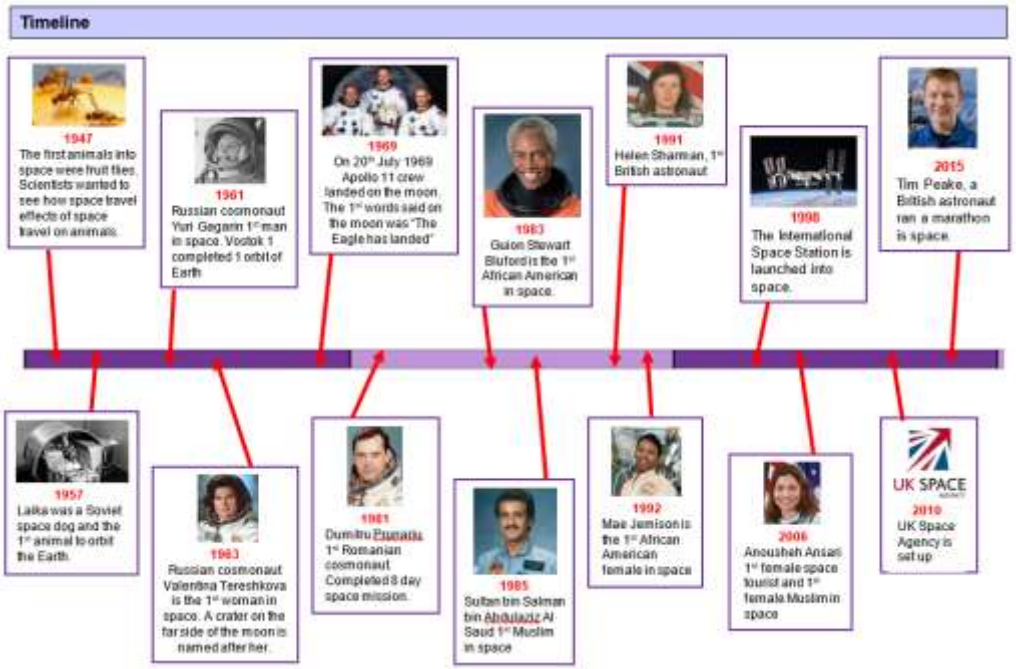
Muslim Astronaut Dilemma

On 10th October 2007 Sheikh Muszaphar Shukor was the first Malaysian Muslim astronaut. His time in space coincided with the last part of Ramadan.
In 2006, Malaysia's space agency Angkasa held a conference of 150 Islamic scientists and scholars to address the question: "*How to pray towards Mecca while in space?*" A document was produced in 2007 called "*A Guideline of performing Ibadah (worship) at the International Space Station*". It was approved by Malaysia's National Fatwa Council. The 18 page guideline addressed issues such as how to pray, how to locate Mecca, determining prayer times and issues surrounding fasting. One of the items agreed upon was prayer times. Instead of praying based on sunrise and sunset that the astronaut could see from the ISS, they were instructed to pray according to the day cycle of the last place on Earth they had been on. For Shukor this was the launch site in Baikonur in Kazakhstan.

Hidden Lives

Katherine Johnson, Mary Jackson, Dorothy Vaughn and Christine Darden were four African American mathematicians who played pivotal roles in a variety of NASA space missions. They had to constantly deal with racial and gender discrimination at work and in their lives. In 1958, Mary Jackson became the first African American female to become a NASA engineer. Although she was the co author of 12 research papers often her name was left off them. Their work was not given the recognition it deserved, however in recent times this has begun to change. In 2015 Katherine Johnson was awarded the Presidential Medal of Freedom by President Obama. In 2019, Mary Jackson (posthumously) and the other ladies were awarded the Congressional Gold Medal. In 2020 NASA renamed it's Washington Headquarters to the Mary W Jackson building.

Key Knowledge



Cultural Heritage

Caroline Herschel

Caroline Herschel was the first woman to discover a comet. She discovered 14 new nebulas, 8 comets and added 561 new stars to Flamsteeds Atlas. She has a comet, an asteroid, a crater on the moon and a space telescope named after her.

Valetina Tereshkova

In 1963 Russian cosmonaut Valetina Tereshkova was the first woman in space. A crater on the far side of the moon is named after her.

Dumitru Prunariu.

Dumitru Prunariu was the first Romanian cosmonaut in space.

Cecilia Payne Gaposchkin

Cecilia Payne Gaposchkin was an astronomer who discovered the composition of stars.

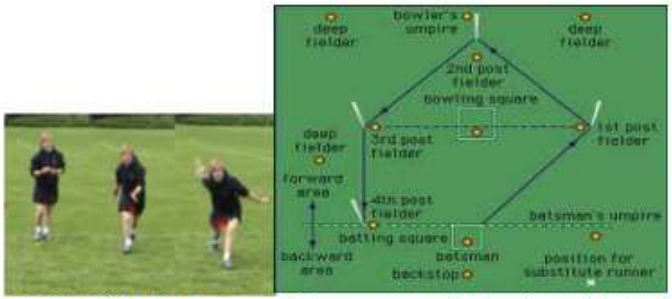
Article 31 – I have the right to play and relax

P.E Knowledge Organiser – Striking and Fielding – Year 5

Key Knowledge

Key Skills:

UNDERARM BOWLING – Hold ball in dominant hand, step forward with opposite leg, swing arm and release ball before shoulder height. Aim for the backstops hands.



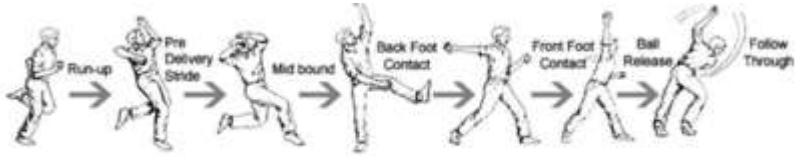
BATTING/HITTING – Stand sideways on to the bowler with the bat up and behind you. Swing through with the hips and follow through with the swing.

CATCHING – you can get someone out by catching them or by stumping them at a post after catching the ball. Get in position under the ball, hands in a cup shape. Bring the ball close into the body to ensure it is not dropped.

THROWING – a high elbow, the correct grip of the ball and power through the arm, achieves an effective overarm throw.

FIELDING - using different techniques in order to get the ball back to the bowler or to a post. E.G. long barrier fielding for stopping a low or rolling ball.

Bowling Skills (overarm):



A straight arm on delivery whilst looking at the wickets

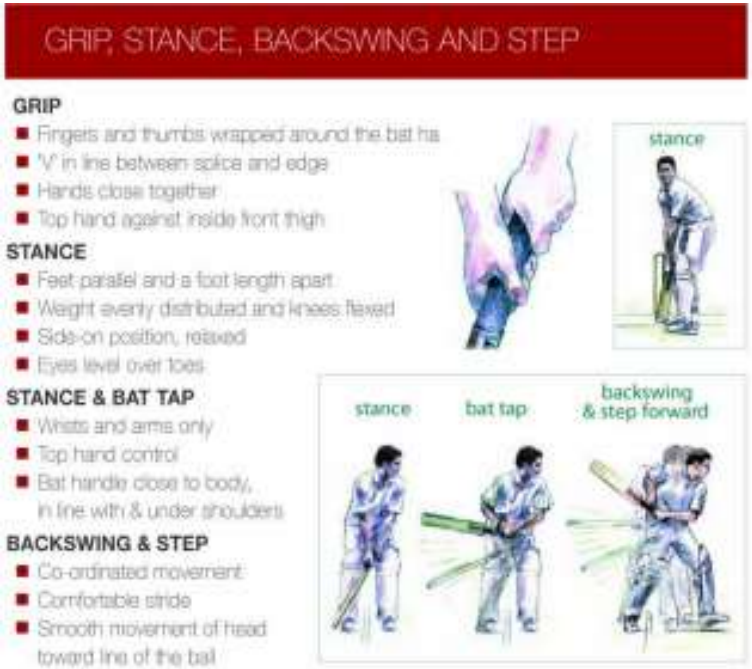
Key vocabulary

Word	Definition
Catch	Stopping a moving object without it touching the group and keeping hold of it.
Short Barrier	A quick way of stopping and picking up a ball
Long Barrier	Used to stop the ball when fielding
Fielding	Stopping, catching, throwing the ball, being in a ready position and getting in line with the ball.
Overarm Bowl	A roundarm style in which the arm rotates over the head and is different to throwing. The arm must be kept straight up to 15 degrees and exceeding this results in a throw.
Front foot batting	A forward movement towards the ball in an attempt to hit the ball
Back foot batting	A backward movement towards the ball in an attempt to hit the ball
Officials	Runa the game: Umpires, Scorers 3rd Umpire are some examples.
Fielding Positions	These are the multiple places that the fielding players can stand on the pitch
Vertical/straight bat shots	Used to drive the ball or sometimes deflect. The bat is in a vertical alignment at the point of contact.
Horizontal/cross bat shots	The bat is swung in a horizontal arc, with the player's head not typically being in line with the ball.

Cultural Heritage

Mahendra Singh Dhoni is a former Indian international cricketer who captained the I ndian national team in limited-overs formats from 2007 to 2017 and in Test cricket from 2008 to 2014. Under his captaincy, India won the inaugural 2007 ICC World Twenty20, the 2010 and 2016 Asia Cups, the 2011 ICC Cricket World Cup and the 2013 ICC Champions Trophy. A right-handed middle-order batsman and wicket-keeper, Dhoni is one of the highest run scorers in One Day Internationals (ODIs) with more than 10,000 runs scored and is considered an effective "finisher" in limited-overs formats.

Batting Skills:



Fielding Skills:

Article 29 You have the right to education which tries to develop your personality and abilities as much as possible

Knowledge Organiser – Year 5 R Be Yourself – 2.2

Key Knowledge

1. You are Unique

Sometimes wanting to 'fit in' can actually make us do things we don't feel comfortable with; behaving in a certain way or saying certain things. When this starts to happen, we are compromising our individual thoughts and values.

As we are all individuals, we all have our own thoughts, opinions and feelings. It is OK to think and feel differently to others – we are all unique! To respect this, we can:

Ask the other people in my relationships and friendships questions.
Listen to their answers and ask questions to find out even more.
Notice things about them, for example, if they have a new haircut or new shoes.
Compliment them by saying nice things to them.
Thank them for the things they do that you appreciate; don't take them and their actions for granted.

2. Let it Out

- It is important to share our true thoughts and feelings with people.
- Letting our thoughts and feelings out (and helping others to do the same) can help us all feel happier inside. It can also help us to build successful and trusting relationships with each other.

What different ways can we help others to share their true thoughts and feelings with us? How can we 'be there' for our friends?

3. Uncomfortable Feelings

Managing uncomfortable feelings

- ✓ Explain honestly and calmly how you are feeling and why.
- ✓ Find ways to calm yourself so that you feel ready to talk.
- ✓ Feeling confident and positive.
- ✓ Be kind to yourself.
- ✓ Think yourself happy.

When our uncomfortable emotions get on top of us, it's time to seek support.

4. The Confidence Trick

- When we are feeling nervous, our body produces extra adrenaline – however, this extra adrenaline isn't always needed and therefore it can make us feel a bit sick, have a gurgling stomach or we may even feel shaky and dizzy.

- In some situations where people feel nervous, they use this extra adrenaline to cope with the situation. At other times, people use this extra adrenaline to flee from the situation. These two different responses are known as fight or flight.

- An invisible confidence mask encourages us to feel confident and makes us believe in ourselves, even when we are feeling shy or nervous.

5. Do the Right Thing

Tricky situations are ones which make you feel uncomfortable, ones which are dangerous and ones which involve resisting pressure to do something you feel is wrong.

Peer pressure describes a situation in which your friends are influencing the choices and decisions you are making. There are some things you can do to help yourself?:

- ✓ You can remove yourself from the situation
- ✓ You can tell a trusted adult
- ✓ You can be assertive

6. Making Amends

When we make amends after making a mistake, we make the situation better. We also make ourselves feel better. By making amends, we allow ourselves to move on and leave behind uncomfortable feelings such as guilt and anxiety.

Key Vocabulary

Word:	Meaning:
amends	something given or paid to make up for a wrong done to a person or group
assertive	means being able to stand up for your own or other people's rights in a calm and positive way
compromise	an agreement or settlement of a dispute that is reached by each side making allowances
fight or flight	a response when in a difficult situation, you may 'run away' or stay and 'have your say'
individuality	the character of a person that sets them apart from others
opinion	a view about something, not necessarily based on fact
peer pressure	influence from your friends
resolution	to fix something; to make it right
tricky situation	a difficult time that is happening, one where you might need to think about the right decision
unique	being the only one of its type; sole; single

Cultural Heritage

People who promote individuality

Pharrell Lanscilo Williams is an American singer, songwriter, record producer, fashion designer, and entrepreneur.

"Individuality is the new wealth."

"We think individuality is super important because that which makes you different makes you special. People can be honest about who they are, and they recognise that their differences are not things to be ashamed of, but these really special attributes actually give you your identity."

Article 30 You have the right to enjoy your own culture, practise your own religion, and use your own language

Knowledge Organiser – R.E Year 5

Key Knowledge

Unit 7 - Participating and Willing to Lead

Religious Traditions: Christianity

1. What is good about taking part?

- *How can you participate in the school community?*
- *As you move to the top of the school, how might your position change from a follower to a leader?*
- *Do you have any experience of leading?*
- *Even as a leader you have to sit back and listen and still take your turn*
- *You should share your merits in a way that does not diminish the qualities of others but promotes you*

2. How do believers of Christianity participate in the world?

- Individuals can influence the nature of society. They can make changes because of their beliefs and as a result, social change occurs.

Some examples of where this has happened are:

- *Elizabeth Fry (Quaker) – prison reform.*
- *Oscar Romero – an Archbishop from El Salvador who spoke out for the poor and was killed for his beliefs.*
- *Mother Teresa – a nun who worked with poor people in Calcutta.*

What social change would you be willing to lead?

3. How do believers of other faiths participate in Birmingham, the UK and the World?

Individuals can influence the nature of society by participating. There are many modern day examples such as:

- Christian rock band *thebandwithnoname's* share the Christian message to thousands at gigs
- Rastafarian Peace Officers join West Midlands Police on patrol in Handsworth
- Other famous leaders from a variety of faiths include Gandhi, Malcolm X and Baha'u'llah.

Unit 8 - Being Modest and Listening to Others

Religious Traditions: Christianity and Islam

1. What does the Bible teach about putting yourself first?

- We can see the humility of Jesus when he washed the disciples' feet. Jesus was willing to serve other people, and humble himself.

- In The Last Supper, the bread and wine represents Jesus' body and blood. This is also important because it was the last meal that Jesus had with his friends before he was killed.

2. Why should we put others first? (Christianity)

- Jesus didn't have to die on the cross, he didn't deserve it, but instead he did it for everybody. He loved everybody that much and wanted to save them.
- Christ himself was like God in everything. He was equal with God. But he did not think that being equal with God was something to be held on to.
- He gave up his place with God and made himself nothing. He was born to a man and became like a servant. And when he was living as a man, he humbled himself and was fully obedient to God. He obeyed even when it caused his death.

3. Why should we listen to others?

- Both Muslims and Christians believe they have a Holy book which clearly states God's will for people. There are some similarities and differences.
- Listening to others is not simply hearing their words, but acknowledging and respecting their right to hold views different from our own.
- *Muslims believe that Isa (as) was a prophet, that he gave the message/teachings of Allah (swt) to the people. Christians believe that Jesus is God in person.*
- *Muslims believe that followers of Moses plotted to kill Jesus but that Allah (swt) raised him to heaven alive (body and soul) without experiencing death on earth. It was someone else who died and was buried. Christians believe that Jesus died, was buried and on the third day came alive again*

Key Vocabulary

Word:	Meaning:
lead	to give direction to; show the way to; guide
quality	a feature that makes a person or thing what it is
influence	the power or invisible action of a thing or person that causes some kind of effect on another
society	the members of a community or group considered together
Social change	the way human interactions and relationships transform cultural and social institutions over time
humble	not proud; modest
disciple	one who follows a leader or teacher; pupil
humility	the quality or state of being humble; modesty about one's status or accomplishments
obedient	likely or willing to obey rules or orders

Cultural Heritage

Social Change and Participation

Imran Khan, the Prime Minister of Pakistan, has worked hard to tackle corruption

Rastafarian Peace Officers join West Midlands Police on patrol in Handsworth

Christian rock band *thebandwithnoname's* share the Christian message to thousands at gigs

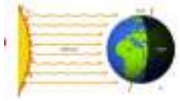
The Children's Bible – Jesus washed the disciples feet p256, The last supper p258 resurrection p270 **My First Quran – Prophet Isa p219**

Article 31 – I have the right to be creative.

Knowledge Organiser – Science – 'May the Force be with you' - Earth and Space - Year 5

Key Knowledge

The Earth, Sun and Moon are spherical (approximately).



The Earth

- The Earth rotates on its axis, which stands on a 23.5° angle.
- The sun's rays hit the side of the Earth which faces the sun. ***This causes day and night.***
- It takes the Earth 24 hours to make one complete spin on its axis.
- The Earth orbits the Sun. One orbit takes 365 days (1 year).

The Moon

- The Moon is a celestial body which orbits the Earth.
- One orbit takes approximately a month (almost 28 days).
- We only see the part of the Moon that is lit by the sun which is why it appears to be different shapes at different times of the month.
- The moon is described as waxing as it gets larger from new moon to full moon. As the moon gets smaller from full moon to new moon it is described as waning.
- There is no life on the Moon because it has no atmosphere (no air or weather).

Key Vocabulary

Word	Definition
Sun	A huge star that the Earth and other planets in the solar system orbit around.
Star	A giant ball of gas held together by its own gravity.
Moon	A natural satellite which orbits Earth or other planets.
Planet	A large object, spherical, or nearly spherical, that orbits a star.
Sphere	A round 3D shape. An example of a sphere is a ball.
Spherical bodies	Astronomical objects shaped like spheres.
Satellite	Any object in space that orbits something else. These can be natural or manmade.
Orbit	To move in a regular, repeated curved path around another object.
Rotate	To spin. The Earth rotates on its own axis.
Axis	An imaginary line that a body rotates around.

Cultural Heritage

Dumitru-Dorin Prunariu is a Romanian cosmonaut. He flew in space aboard Soyuz 40 spacecraft and Salyut 6 space laboratory.

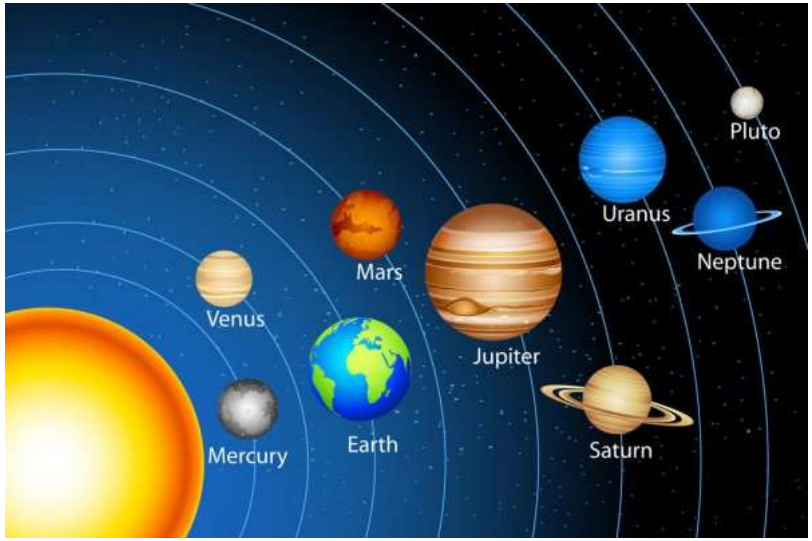
Our Solar System – *The Planets and the Sun -*

Our solar system is currently believed to include eight planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune. In 2006 Pluto was reclassified as a 'dwarf planet'.

Planets are celestial objects that orbit a star like our solar system's Sun.

The Sun is a hot ball of gas which is classified as a star. The Sun is placed at the centre of our solar system and makes life possible on Earth.

Diagram of our Solar System -



Forces acting upon Earth

• Forces acting at a distance are forces that do not require direct contact between them.

• Gravity is the pulling force acting between the Earth and other planets.

Article 28 You have the right to education. Article 17 You have the right to collect information from the media – radios, newspapers, television, etc – from all around the world.

Knowledge Organiser – Science – 'May the Force be with you' - Forces - Year 5

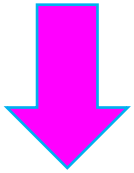
Key Knowledge

Forces can make an object –

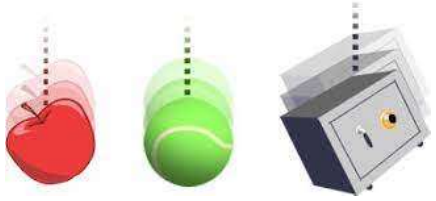
- Start to move
- Stop moving
- Move faster
- Move slower
- Change direction
- Change its shape

Force - Gravity

Gravity is the pulling force acting between the Earth and a falling object.
Gravity pulls objects to the ground.
Isaac Newton is famously thought to have developed his theory of gravity when he saw an apple fall to the ground from a tree.



The force of gravity is pulling these objects towards the ground –



Key Vocabulary

Word	Definition
Forces	Pushes or pulls
Gravity	A pulling force exerted by the Earth
Weight	The measure of the force of gravity on an object.
Mass	A measure of how much matter (or 'stuff) is inside an object.
Friction	A force that acts between 2 objects or surfaces that are moving, or trying to move, across each other.
Air Resistance	A type of friction caused by air pushing against any moving object.
Water Resistance	A type of friction caused by water pushing against any moving object.
Streamlined	When an object is shaped to minimise water and air resistance.
Mechanism	Parts which work together in a machine. Examples of mechanisms are pulleys, gears and leavers.

Cultural Heritage

Galileo –
Was a professor of mathematics in Italy.
Discovered the idea of air resistance and how it effects the rate the objects fall.
He discovered that all objects, no matter their mass, would fall at the same rate in a vacuum.

Archimedes –
He was a philosopher and mathematician, who lived in Greece.
He discovered the idea of water resistance, density and water displacement and how it effects objects moving through water.

Article 28 You have the right to education. Article 17 You have the right to collect information from the media – radios, newspapers, television, etc – from all around the world.

Other forces – that act between moving surfaces -

Air Resistance –

Air resistance is the force on an object moving through air. Air resistance affects how fast or slowly objects move through the air.

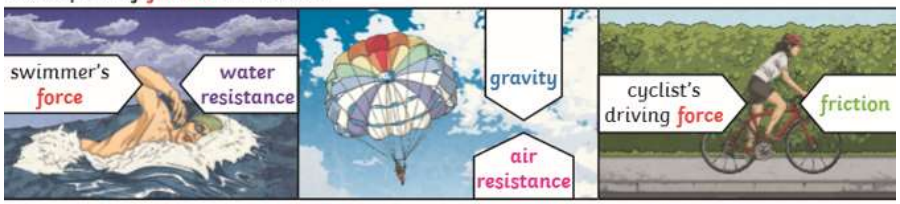
Water Resistance –

Water resistance is the force on objects floating on or moving in water.

Friction -

Friction is a 'sticking' force – the resistance that a surface or object encounters when moving over another surface or object.

Examples of forces in action:



Water resistance and air resistance are forms of friction. Friction is sometimes helpful and sometimes unhelpful. For example, air resistance is helpful as it stops the skydiver hitting the ground at high speed. Friction on a bike chain can make the bike harder to pedal so it is unhelpful.

Streamlining objects can help to reduce the resistance. E.g. a shark is streamlined as it has a pointed nose which helps it cut through the water more quickly. This reduces the water resistance.

Pulleys	Gears/Cogs	Levers
		
Pulleys can be used to make a small force lift a lighter load. The more wheels in a pulley, the less force is needed to lift a weight.	Gears or cogs can be used to change the speed, force or direction of a motion. When two gears are connected, they always turn in the opposite direction to each other.	Levers can be used to make a small force lift a lighter load. A lever always rests on a pivot.