

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



## Key Knowledge and Skills

## What you need to know:

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



## <u>Peter Thorpe art</u> <u>How to create space backgrounds</u>





## 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

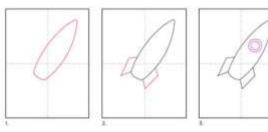


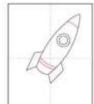


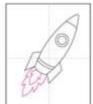
## Key vocabulary

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



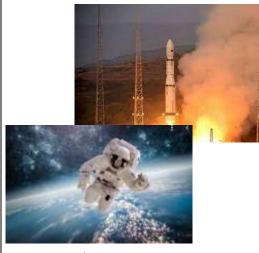






## Cultural Heritage

### Pakistani satellites launched in 2018.



Romanian rocket

**Budapest from space** 







# Knowledge Organiser – Year 5 Computing:



## We are Architects



sketchup

to create a 2-D image from a 3-D

virtual scene



## Unit 5.3: We are architects Creating a virtual space





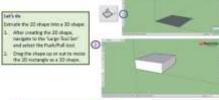
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IL ORBIT

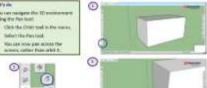
# SketchUp: 3D Design Software

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-vided design) tool. Computer-aided design is where computer software is used to help design real-world objects, such as buildings and sculptures.





Select the Pan book



## **ORBIT** PAN ZOOM ZOOM **EXTENT**

MIS	create a note in the soutpture		
1	Use the Push/Pull tool and push the circle through the shape by dicking on it.		
2.	Select the fill tool and choose to fill the cinde with glass.		

the sculpture Click the Rotation tool and choose Unlocker Click on one of the faces of the sculpture

> Exists the shape's: Box 180 degrees

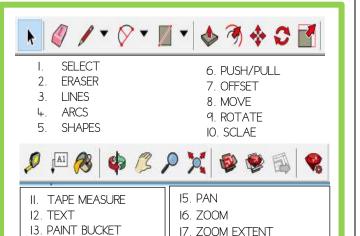
Add interesting angles to





### 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 an image indistinguishable (or Photorealistic nearly indistinguishable) from a digital photograph

Key vocabulary



18. 3D WAREGOUSE

## Sheila Sri Prakash

Cultural Heritage

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



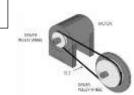
# Key Knowledge and Skills Key vocabulary Cultural Heritage What you need to know: Design brief A design brief is a

rotate

# 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:

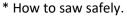
The motor works using an electrical circuit. This turns the

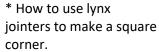
motor pulley. This in turns drives the belt which is attached to a wooden pulley. The wooden pulley rotates which in turn drives the axle that the wheels are attached to.

## You also need to know:

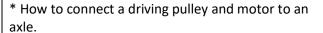


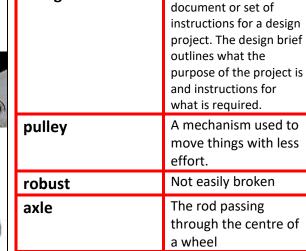
\* How to set up a bench hook with a G-clamp.





\* How to create an axle with moving wheels on a chassis.





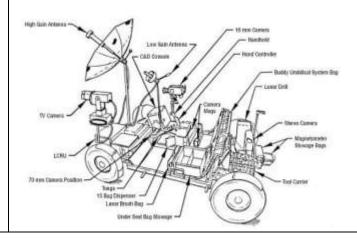


To turn around

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



What a moon buggy would contain.





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



	Key Knowledge		Key vocabulary	Cultural Heritage
How far is the ISS from Earth?	The ISS (International Space Station) orbits at approximately 350 km (220 miles) above the Earth.	astrobiology	concerned with the origins, evolution and future life of the universe. It considers the question	International Space Station  The ISS provides a vantage point from which to
Who owns the ISS?	The ISS program is a multi- national collaborative project between 5 participating space agencies: NASA (US), Roscosmos		of whether extra-terrestrial life exists and if it does how humans can detect it.	observe, monitor and even discover Earth. Astronauts are trained in meteorology, geology, oceanography
	(Russia), JAXA (Japan), ESA (Europe) and CSA (Canada)	astronomy	The science that studies celestial objects and phenomena. Objects of interest include planets, moons, stars, nebulae, galaxies and	and environmental science in advance of their mission to maximize their observation of Earth. Scientists on the ground help ISS crew identify upcoming photo
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.	meteorology	The study of weather forecasting and the impact of weather and climate change.	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.
				Lake &culso, Chile, disex up  Christmas tree harvest, North Carcina



# Knowledge Organiser - History: May the Force Be With You Y5



ney movieage				
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.			

Key Knowledge

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.

**Key vocabulary** 

#### **Muslim Astronaut Dilemma**

On 10<sup>th</sup> 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.

**Cultural Heritage** 

## 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.

#### **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 Timeline 1947 The first animals into Helen Sharman. space were fruit thes. British astronaut Apollo 11 crew Tim Peake, a Scientists wanted to landed on the moon. 1961 British astronaut see how space travel The 1" words seed on Russian cosmonaut effects of space ran a marathon the moon was "The Yuri Gegarin 1º man travel on animars. The International is space. in space. Vostok 1 Eagle has landed' Guion Stewart. Space Station is completed 5 orbit of Bluford is the 1" launched into African American space. In space. UK SPACE 2010 Mae Junisonis UK Space space dog and the Dumitro Promanu tre 1" African: 1" animal to orbit Agency is set up 14 Romanian Anousheh Ansas 1963 American the Earth. cosmanaut t<sup>el</sup> female space Russian cosmonaut female in space Completed 8 day tourist and 1" Valentina Tereshkova space mission. female Muslimin Sultan bin Salman прасе space. A crater on the bin Abdulastz Altarside of the moon is named after her

## **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.





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



Key Knowledge Key vocabulary Cultural Heritage

## 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.



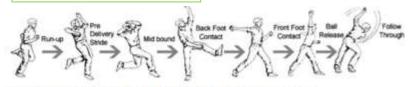
BATTING/HITTING – Stand sideways on to the bowler with the bat up and behind you. Swing through with the hips and follow through with the swing.

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

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  A backward movement towards the ball in an attempt to hit the ball			
Back foot batting				
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. T 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.			



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:

## GRIP STANCE, BACKSWING AND STEP

#### GRIP

- Fingers and thumbs wrapped around the bat ha
- 'V' in line between spice and edge.
- Hands close together
- Top hand against inside front thigh

#### STANCE

- Feet parallel and a foot length spart.
- Weight everify distributed and knees flexed
- Side-on position, relaxed
- Eyes level over toes.

## STANCE & BAT TAP

- Whicts and arms only
- Top hand control
- Bat handle close to body, in line with & under shoulders.

#### **BACKSWING & STEP**

- Co-ordinated movement.
- Comfortable stride
- Smooth movement of head toward line of the ball



## Fielding Skills:

### LONG BARRIER









## **Knowledge Organiser – Year 5 R Be Yourself – 2.2**

### 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

**Key Knowledge** 

- 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.

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	a response when in a		
flight	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	influence from your		
pressure	friends		
resolution	to fix something; to		
	make it right		
tricky	a difficult time that is		
situation	happening, one where		
	you might need to think		
	about the right decision		
unique	being the only one of its		
	type; sole; single		

**Key Vocabulary** 

# People who promote individuality



**Cultural Heritage** 

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."



## **Knowledge Organiser – R.E Year 5 – 2.2**



# Key Knowledge Unit 7 - Disposition: Participating and Willing to Lead

# 1 & 2. What is good about taking part? Why are leaders needed? How can people help to make the world a better place?

- What is good about taking part? Why it is necessary to have a leader? Would things work if the followers don't join in?
- How do you participate in the school community? As you
  move to the top of the school, your role often changes
  from participation to leading. For example, you may
  become a Prefect.
- The Jewish-led Mitzvah Day takes place every year in November. The idea brings together people of all ages, faiths and backgrounds, to volunteer side-by-side, building relationships. Many projects take place during this time.



There are three key concepts that underpin Mitzvah Day:

**1. Tikkun Olam**, which means 'repairing' or 'perfecting' the world to instil a shared responsibility of society—helping others, looking after the environment and addressing diverse human rights.

- 2. Gemilut Chasadim, which means 'acts of loving-kindness' which knows no bounds and not only teaches the art of giving but also not to expect to receive something material in return.
- **3. Tzedek**, which translates as 'righteousness' and 'justice' and can be shown through social action and acts of loving-kindness; not because it feels good but because the Jewish faith commands that it is the right thing to do.
- What is my responsibility to others? How can I help the world to be a better place?
- 3. How do believers of 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.







Ť				
	Word:	Meaning:		
	communion	the part of a		
		Christian service		
		that honors the last		
		supper of Jesus and		
		his apostles		
	disciple	one who follows a		
		leader or teacher;		
		pupil		
	humble	not proud; modest		
	humility	the quality or state		
		of being humble;		
		modesty about		
		one's status or		
		accomplishments		
	influence	the power or		
		invisible action of a		
		thing or person that		
		causes some kind		
		of effect on		
		another		
	lead	to give direction to;		
		show the way to;		
		guide		
	Mitzvah	a good deed done		
		from religious duty		
		(Hebrew)		
	modest	not thinking too		
		highly of oneself;		
		humble		
	participate	to take part in		
- 1				

**Key Vocabulary** 

# Cultural Heritage Unit 7 – Disposition: Participating and Willing to Lead

# Social Change and Participation



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



Rastafarian Peace Officers join West Midlands Police on patrol in Handsworth

#### **Key Knowledge Cultural Heritage Key Vocabulary Unit 8 - Disposition: Being Modest and Listening to Others** pride a sense of personal value 1. Why should people listen to others and be modest? What do How can I learn to listen respectfully to those who hold that comes from Christians teach from the Bible about humility? different views from me? what one has or • The expression 'being proud' (pride) has a number of Why should we listen to others? can do everyday meanings; the least attractive of which is that proud Both Muslims and Christians believe \* righteousness the quality of people think they have a superior status to others because of they have a Holy book which clearly Christian rock band being morally right achievement. states God's will for people. There are Islam thebandwithnoname's or justifiable some similarities and differences. Humility is putting aside status for the good/benefit of others. share the Christian social change the way human For example, a carer shows humility in serving others. Listening to others is not simply message to thousands interactions and We can see the humility of Jesus when he hearing their words, but acknowledging at gigs relationships washed the disciples' feet. Jesus was willing to Christianity and respecting their right to hold views transform cultural serve other people, and humble himself. different from our own. Christianity and social In The Last Supper, the bread and wine Muslims believe that Isa (as) was a prophet, that he institutions over represents Jesus' body and blood. This is also gave the message/teachings of Allah (swt) to the time important because it was the last meal that people. Christians believe that Jesus is God in person. society the members of a Jesus had with his friends before he was Muslims believe that followers of Moses plotted to kill community or killed. Jesus but that Allah (swt) raised him to heaven alive group considered Many Christians today, remember Jesus' death by sharing (body and soul) without together bread and wine (Holy Communion). experiencing death on earth. It HOL) 2. How do Christians follow Jesus' example of humility? was someone else who died and Christians continue to seek opportunities to serve each other was buried. Christians believe that today. In some church traditions, church leaders wash feet on Jesus died, was buried and on the Maundy Thursday as a symbol of the way Christians leaders third day came alive again. should serve others. How can we listen respectfully to the those who hold different views from ourselves? Crucifixion was considered the most shameful death. It was the helpless, naked, drawn out death of a convicted criminal and yet Christians believe that Jesus was willing to die that Is humility always a good thing? shameful death because of his great love for God and Is it good in every situation? humanity. Are there times when I should stand up against What does it mean to be humble and modest? injustice or unfairness rather than just listen? Are there any situations where being humble/modest is an

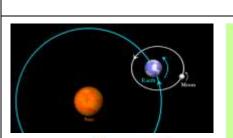
unusual response?



# Knowledge Organiser - Science - 'May the Force be with you'



# - Earth and Space - Year 5



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





- 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.

Key Knowledge

- 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).

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.

Key Vocabulary

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

Cultural Heritage



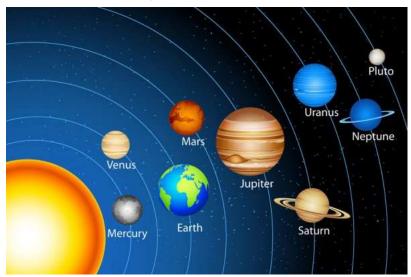
## Our Solar System - The Planets and the Sun -

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.



# Knowledge Organiser – Science – 'May the Force be with you' -



## Forces - Year 5

Key Knowledge	Key Vocabulary		Cultural Heritage
Forces can make an object -	Word	Definition	Galileo -
Start to move	Forces	Pushes or pulls	Was a professor of
<ul><li>Stop moving</li><li>Move faster</li></ul>	Gravity	A pulling force exerted	mathematics in Italy.
Move slower		by the Earth	Discovered the idea of air
Change direction	Weight	The measure of the force of gravity on an object.	resistance and how it effects
Change its shape	Mass	A measure of how much	the rate the objects fall.
Force - Gravity  Gravity is the pulling force acting between the Earth and a falling object.	Mass	matter (or 'stuff) is inside an object.	He discovered that all objects, no matter their mass, would fall at the same
Gravity pulls objects to the ground.	Friction	A force that acts	
Isaac Newton is famously thought to have developed his theory of gravity when	Friction		rate in a vacuum.
he saw an apple fall to the ground from a tree.		between 2 objects or surfaces that are moving,	rare in a vacani.
Isanc Newton		or trying to move, across	- E
		each other.	
	Air Resistance	A type of friction caused	
		by air pushing against any	Archimedes -
		moving object.	He was a philosopher and
	Water Resistance	A type of friction caused	mathematician, who lived in
		by water pushing against any moving object.	Greece.
The force of gravity is pulling these objects towards the ground -	Streamlined	When an object is shaped	He discovered the idea of
		to minimise water and air	water resistance, density and water displacement and how
		resistance.	·
	Mechanism	Parts which work	it effects objects moving
		together in a machine.	through water.
		Examples of mechanisms	

are pulleys, gears and

leavers.

## 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.

