Knowledge Organiser – Art 'The Natural World' Year 6

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

Key Knowledge and Skills

* Know how to use **commercial** design to influence layout of sketchbooks.

* Use sketchbooks to make a montage of images and **annotate** with comments, using sentence stem suggestions.

<u>Drawing techniques</u>

* Use different media to explore different sketching techniques and know what effect they make
* Make choices about media to create own artwork around the theme. Be able to explain choices.
* Know how to use scraper board techniques and apply them to observational sketches.

<u>Printing</u>

* Know which colour combination are best for over printing with ink, and which papers are best to use with them and be able to explain why.

* Know and be able to create an effective print using polystyrene and rollers.

<u>Collage</u>

* Know how to use pattern, line and tone to create a collage.
* To be able to explain choices made.

Key vocabulary

commercial	Used in professional business
annotate	Write comments and ideas 
media	Materials and tools used by the artist
scraper board	
pattern	
line	
tone	

Cultural Heritage

<u>Romania has 10% of the world's wolf population</u>

<u>Wolves of Pakistan</u>

<u>Indian Gray wolf</u>

<u>Tibetan Wolf</u>

Knowledge Organiser – Year 6 Computing:

We are Toy Makers

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Key Knowledge

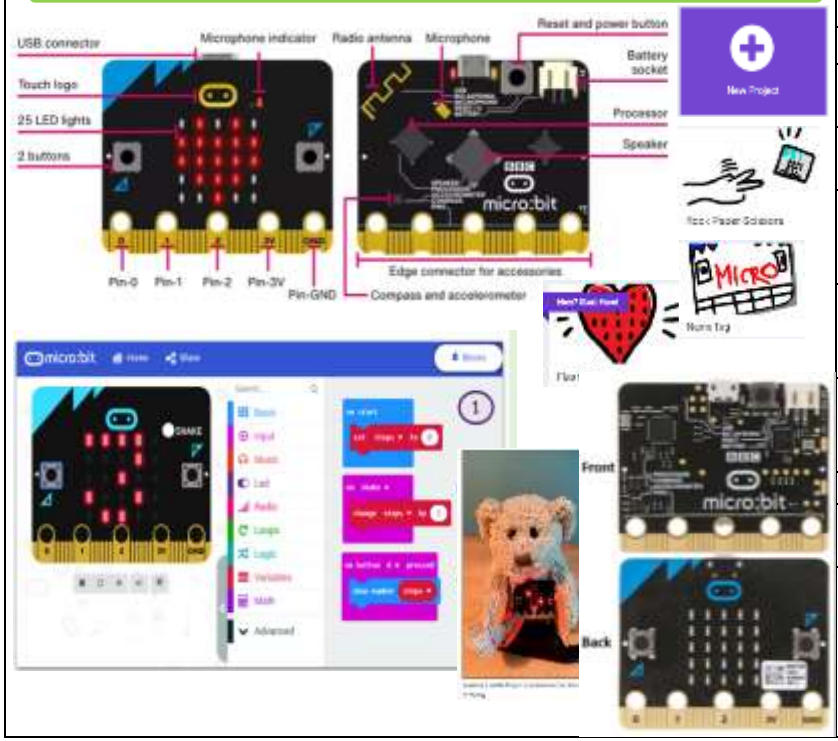
Unit 6.1: We are toy makers

Coding and physical computing

During this sequence of learning, pupils design and develop a BBC micro:bit powered modification to a soft toy to make the toy interactive.

WWW.Micro:bit.org/code

Let's code



Key vocabulary

Accelerometer	Hardware component providing data on changes in motion, typically in three directions.
Bluetooth	Wireless digital communication protocol using low energy signals over short distances.
Controller	Programmable device that determines electronic output based on electronic input.
Decomposition	Breaking a problem down into smaller parts.
Edge connector	Part of a circuit board that allows input and output components to be directly connected.
Embedded system	Computer hardware and software that forms part of a device or product.
Input	Data supplied to a computer.
Interactive	System whose output is determined by the input provided.
Light-emitting diode (LED)	An electronic component that lights up when current flows in one direction.
MakeCode	Block- and text-based editor from Microsoft, supporting a variety of hardware platforms including the micro:bit.
micro:bit	Simple, single board programmable computer with integrated input, output and network capabilities.
Microprocessor	Single silicon chip that performs all the functions of a computer's central processing unit.
Output	Information produced by a computer.
Simulator	Software that allows one computer system to behave as another.
System	A set of components (perhaps of different types, such as hardware and software) working together.

Cultural Heritage

Jenova Chen

Jenova Chen, is a Chinese video game designer. He is the designer of the award-winning games Cloud, Flow, Flower, and Journey, and is co-founder of Thatgamecompany.

Wedo Lego

Lego System A/S is a Danish toy production company based in Billund.

Knowledge Organiser – Cooking ‘’ Year 6

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Key Knowledge and Skills

What you need to know

- Different bread recipes (that can be made in school) to choose from

Cheesy naan bread


How to follow a recipe to make a basic dough

- kneading dough and shaping into different shapes or using a rolling pin to roll out dough
- Confidently cracking eggs

Adding extra ingredients

With moderate supervision:

* **Dice** foods and cut them into evenly sized, fine pieces (eg garlic, vegetable batons, herbs) – confidently using the **claw and bridge grips.**

Independently

* **Finely grate** hard foods (eg zesting, parmesan cheese)

With close supervision, how to:

* Use the **hob**
* handle hot food safely, using oven gloves
* To carefully remove cooked food with a **fish slice** from a baking tray on to a **cooling rack**

Key vocabulary

dough	A mixture of flour, yeast and warm water
supervision	With support from an adult
dice	Slice into cubes
grate	Reduce into small shred on a grater
Claw and bridge grip	 
hob 	The top of a stove
knead 	To work the dough with hands
season	Add salt and pepper
oven rack	

Taking something from a hot oven

Put on your oven gloves

Locate the **oven** rack and pull it out a little. With two hands, **remove** the **item** from the **oven** and **place** it on a heat-resistant surface. With your dominant hand, close the **oven** door, while saying “Closing the **oven** door”.

Cultural Heritage

Bread from around the world

Naan and chapati


Romanian Easter bread

African samosa bread

Knowledge Organiser – Geography: The Natural World Y6

Article 28- I have the right to an education.

Key Knowledge

What is an island?	An island is an area of land surrounded completely by water. It may be in a river, a lake or the sea. Islands can be different shapes and sizes. Some islands are large like Britain, others are small and you could easily walk around them.
Where are the Galapagos Islands?	The Galapagos islands are located 1,000km off Ecuador's coast in the Pacific Ocean. The Galapagos archipelago consists of 13 major islands, 6 smaller islands and many islets.
What is an archipelago?	An archipelago, sometimes called an island group or island chain, is a chain, cluster collection of islands or a sea containing a small number of scattered islands

The Galapagos

Charles Darwin's discoveries on the islands were paramount to the development of his Theory of Evolution by Natural Selection. On the islands, he discovered several species of finches. Due to his close observations he discovered that the different species of finches varied from island to island.

Key vocabulary

aerial photograph	A photograph taken from above of an object or a piece of land
Physical geography	Physical geography is the study of the natural world and how it can change eg the course of a river, weather.
Human geography	Human geography is the study of how humans have had an impact on the natural world eg building of houses and roads, deforestation.
islet	An islet is a very small island. It has little or no vegetation. They may be made of rock, sand or coral. They may be permanent or tidal. Islets may exist in the sea, rivers or any other body of water.

Cultural Heritage

Scaled Maps

Map Scale refers to the relationship (or ratio) between distance on a map and the corresponding distance in real life.

Maps present information about the world in a simple, visual way. They teach about the world by showing sizes and shapes of countries, locations of features and distances between places. Maps can show distributions of things over Earth, such as settlement patterns. They can show exact locations of houses and streets in a city neighbourhood.

Mapmakers, called cartographers, create maps for many different purposes. Vacationers use road maps to plot routes for their trips. Meteorologists use weather maps to prepare forecasts. City planners decide where to put hospitals and parks with the help of maps that show land features and how the land is currently being

HMS Beagle's Voyage

HMS Beagle set sail on her voyage in 1831. Living conditions on the ship were hard. There was not a lot of room on board the ship, as the ship held 75 people. Darwin was often seasick! The Beagle's voyage lasted for five years. The crew travelled to South America and reached the Galapagos islands. Darwin found plants and animals that nobody had seen before. He took samples of seeds. When he returned to England in 1836 he planted the seeds. He found that rhubarb and celery grew very well in England.

Knowledge Organiser – History: The Natural World Y6

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Key Knowledge

Why is Charles Darwin remembered?	Charles Darwin is remembered due to his work on the theory of evolution, which is the idea that all different species have evolved from simple forms: including the theory that humans evolved from apes.
How long did HMS Beagle's voyage last for?	In 1831, HMS Beagle set sail on her five year voyage.
What is speleology?	Speleology is the study or exploration of caves
Who was Alfred Russell Wallace?	Alfred Russell Wallace was a British naturalist, anthropologist and explorer.

Charles Darwin

Charles Darwin passed his exams to become a vicar but he did not want this to be his job. John Henslow, one of his teachers from Cambridge, sent him a letter saying that Robert FitzRoy, the captain of HMS Beagle was looking for someone to be the ships naturalist. The person would have to explore, collect and record information about the rocks, plants and animals that they found on their trip. Darwin persuaded his father to let him go on the trip.

Alfred Russell Wallace

In 1848 Alfred Russell Wallace travelled to the Amazon to find out about the animals that lived there. He stayed for 4 years. While in the Amazon, he collected thousands of specimens which included beetles, butterflies and birds. When Wallace was returning from his trip, the ship caught fire and 4 years worth of notes, drawings and collections was lost to the sea.

Key vocabulary

anthropologist	The study of human societies and cultures and their development. The study of human biological and physiological characteristics and their evolution
natural selection	The process where living things that are better adapted to their environment survive and have offspring.
specimens	Individual animals, plants or minerals that are used as examples
speleology	**Speleology** is the scientific study of caves and other karst features, as well as their make up, structure, physical properties, history, life forms and the processes by which they form (speleogenesis) and change over time (speleomorphology)

Cultural Heritage

Darwin and Wallace

For his next trip Wallace spent 8 years travelling through Malaysia and Indonesia. While travelling he collected many specimens including over 5,000 new species. Wallace concluded that species adapted and changed to suit their environment, passing on their characteristics to their offspring. If a species couldn't adapt it would die out. He wrote to Charles Darwin who had similar ideas about evolution. In 1858 they jointly published a paper outlining their theories. This paper changed the way people thought about animals and plants.

Emil Racovita

Emil Racovita was a Romanian biologist, zoologist, speleologist and explorer. In 1897, Racovita set sail on the ship Belgica to Antarctica. He was the first Romanian to have gone on a scientific research expedition to Antarctica. Racovita collected botanical and zoological samples beyond the Antarctic Circle.

Speleology

Emil Racovita contributed to speleology. He explored over 1,400 caves. Racovita, along with Rene Jeannel is considered to be one of the founders of biospeleology. He was particularly interested in isopoda. In 1920 he founded the world's first speleological institute.

Key Knowledge

HMS Beagle

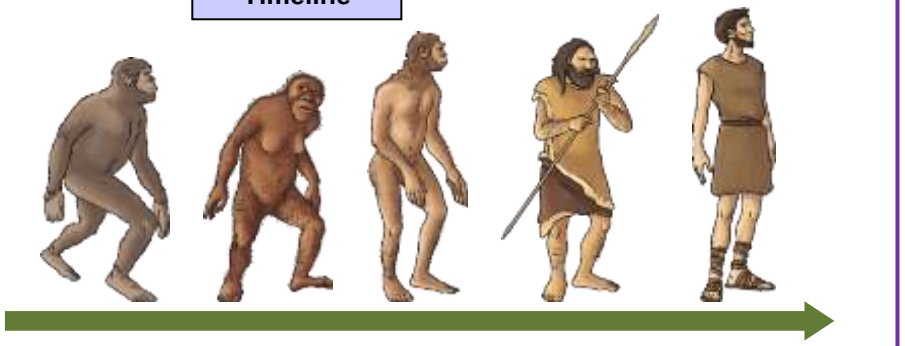
HMS Beagle set sail on her voyage in 1831. Living conditions on the ship were hard. There was not a lot of room on board the ship, as the ship held 75 people. Darwin was often seasick!

The Beagle's voyage lasted for five years. The crew travelled to South America and reached the Galapagos islands. Darwin found plants and animals that nobody had seen before. He took samples of seeds. When he returned to England in 1836 he planted the seeds. He found that rhubarb and celery grew very well in England.

The Theory of Evolution

In 1859 Charles Darwin wrote a famous book all about the things he had found in his travels. He thought that millions of years ago, living things had all started off in the same way and had gradually very slowly changed. In this way lots of different animals and plants had developed. He believed that humans had evolved from apes. This is called "evolution".

Timeline



Cultural Heritage

Rosalind Franklin

Rosalind Franklin contributed to the discovery of the structure of DNA

Barbara McClintock

We live in an age where we have mapped the human genome and developed took to edit the building block of life, but all this was possible thanks to the life long study into genetics by Barbara McClintock. She was able to determine the existence of jumping genes which are sequences of DNA that move between the genomes

genome

Genome is the complete set of genetic information in an organism. It provides all of the information the organism requires to function. In living organisms, the genome is stored in long molecules of DNA called chromosomes.

P.E Knowledge Organiser – Nimble Nets – Year 6

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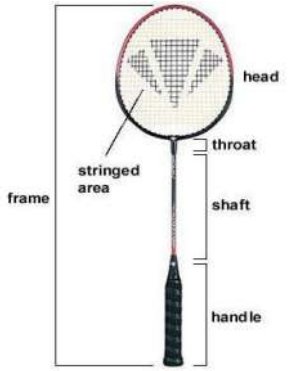
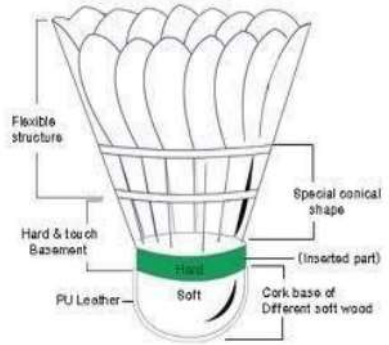
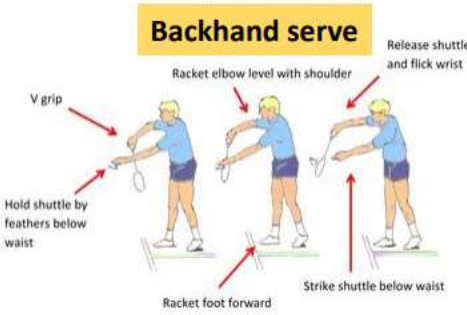
Key Knowledge

Badminton was developed in a game once played in India. It was brought to England by the English army officers in the 1860s. It was once known as a battledore and shuttlecock. The Duke of Beaufort introduced the game to the town of Badminton.







Key vocabulary

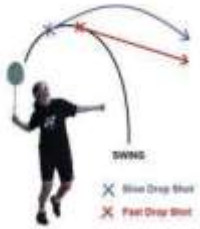
Serve	A serve or service is the first shot of any rally which brings the shuttle into play and aims to deliver the shuttle into the service court of the opponent's side.
Backhand	A type of shot played across the body with the back of the hand facing the opponent.
Forehand	A type of shot played by the side of your body with the palm of the hand facing the opponent.
Grip	Nicknamed the handshake grip, it is the positioning of the hand on the base of the racket.
Net shot	Shot hit from the fore court clearing the net and then falling rapidly.
Drop	A shot played with soft hands and with finesse to land the shuttle swiftly and close to the net on the opponent's side.
Smash	It is the most attacking shot in badminton. It is an overhead shot which brings the shuttle down from a height at a steep angle.
Shuttlecock	the shuttle is the object that the players hit back and forth across the net.
Clear	It is the basic stroke of badminton. It is played to the opponent's back court and may be used defensively (high clear) or offensively as when played flatter (attacking clear).

KEY QUESTIONS

Before you hit the shuttle how would you prepare to hit it overhead?
Before you hit the shuttle how would you prepare to hit it underarm?
When starting with the serve what basic technique should you use to make it a good serve?
Where would you find space on a singles/doubles court, in which to direct the shuttle to beat an opponent?

Cultural Heritage

Pusarla Venkata Sindhu (born 5 July 1995) is an Indian professional badminton player. Over the course of her career, Sindhu has won medals at multiple tournaments including Olympics and on the BWF circuit including a gold at the 2019 World Championships. She is the first Indian to become the Badminton World Champion and only the second individual athlete from India to win two consecutive medals at the Olympic Games. She rose to a career-high world ranking of no. 2 in April 2017.



Choosing your shot

When the shuttle flies towards a particular area around your body, you'll need to use different strokes to hit the shuttle. The picture shows you the 4 different areas around your body where you're required to use the 4 different badminton strokes to return the shuttle.

Badminton Rules

- A shuttle landing on the line is in.
- If a shuttle hits the net either on service or during a rally, play continues.
- A player may not make contact with the net with either the racket or their body
- The shuttle must be contacted on the player's own side of the net.
- One touch of the shuttle on your own side

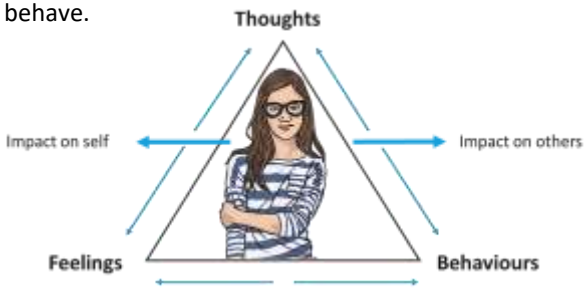
Knowledge Organiser – Year 6 HW Think Positive – 1.1

Article 28 I have the right to an education

Key Knowledge

1. The Cognitive Triangle

Our cognitive functioning includes memory, judgement, reasoning and emotional responses. The way we think affects the way we feel and the way we feel affects the way we act, or behave.



2. Thoughts are not Facts

Negative thoughts can be very powerful and we tend to believe they are true, even if we have no real proof.

Dealing with unhelpful thoughts:
A positive affirmation is a helpful thought that you can say in your head or out loud, to get you feeling more positive. *E.g. The best person I can be is me!*

3. Face your Feelings

We can become better at coping with these uncomfortable emotions, if we try to better understand them. You can use the Emotional Scale to describe how serious or intense the emotion is.

4. Choices and Consequences

Having information about the different choices means you can make an informed decision.
Remember to:

- ✓ Consider all the choices you have in the situation.
- ✓ Ask yourself if you have had to make this sort of decision before.
- ✓ Think through each option you have and what the likely consequences (impact) would be on you and other people.
- ✓ Ask for help or advice with important or difficult decisions; other people's experience and suggestions might help you
- ✓ Try not to regret decisions you make, even if they don't have a positive outcome; learn from your mistake and use it to improve your decision-making skills in the future!

5. Being Present Mindfulness…

- provides us with an opportunity to address negative or unhelpful thoughts
- helps us to form better relationships with those around us
- allows us to focus on what we have in our lives and be grateful.
- simply provides a short break from our busy lives, which can be stressful.

6. Yes, I Can

Someone with a **growth mindset** would say…	Someone with a **fixed mindset** would say…
I learn from others' success.	I am jealous when others do well.
I use feedback to improve.	I don't like criticism.
I try to overcome obstacles.	I give up when I get stuck.
I embrace new challenges.	I like to do things I can already do.
I learn from my mistakes.	I fear making mistakes.
I try to problem-solve.	I get others to solve my problems.
I know it requires effort to improve.	I don't like to put effort into tasks.
I believe you can do things you put your mind to.	I think some people are just good at certain things.
I am curious and ask questions.	I wait to be told what to do.

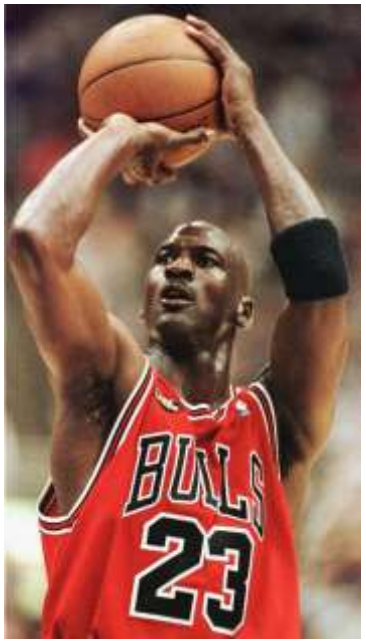
Key Vocabulary

Word:	Meaning:
cognitive	to do with the process of thinking and other mental processes – that means things we do with our minds
consequences	a result or effect, typically one that is unwelcome or unpleasant
emotional health	being in control of your thoughts, feelings and behaviour, being aware of your emotions and being able to deal with them
emotions	a strong feeling, from a person's mood, circumstances or relationship with others
growth mindset	to believe that your basic abilities can be developed through dedication and hard work
informed decision	decision based on facts or information
mental health	a person's emotional well-being. Mental health affects how we think, feel and act
mindfulness	being aware of something; accepting your feelings, thoughts and bodily sensations; used as a therapeutic technique

Cultural Heritage

Growth Mindset

Michael Jeffrey Jordan, is a businessman and former professional basketball player.



'I can accept failure, everyone fails at something. But I can't accept not trying.'

Knowledge Organiser – R.E Year 6 Article 28 I have the right to an education

Key Knowledge

Unit 1 - Living by Rules

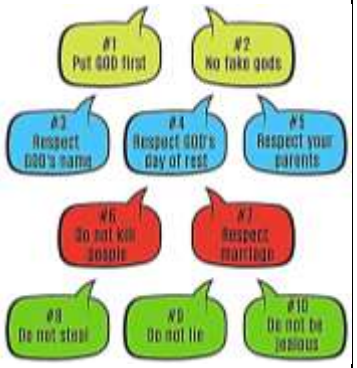
Religious Traditions: Christianity

1. Could we live without rules?

Which rules are most important? What behaviour would you expect if there were no rules?

2. What impact do the rules of Christians have on society?

Christian morality (principles related to what is right or wrong) is based upon the Ten Commandments (Exodus 20).Commandments 1-4 are rules for the relationship between mankind and God and 5-10 are rules for relationships between people.



Some UK laws, past and present, have their roots in the Ten Commandments. For example, it is against the law to kill or harm others (number 6) or to steal (number 8). You can also be prosecuted if you lie in court (number 9).

Unit 2 - Being Fair and Just

Religious Traditions: Islam

1. Does it matter if people are unfair?

Prejudice is hatred or unfair treatment toward a person or group without cause or reason.

Discrimination is the act of treating some people unfairly because of prejudice.

- Unfortunately, people can be discriminated against in many ways. They include being denied certain jobs, not being allowed to attend university, being imprisoned, being tortured, hurt or killed.

2. What is it like if people behave unfairly on the basis of religion?

- People might be discriminated against for reasons such as their skin colour, gender, race or religion.
- People past and present have been/are still treated unfairly because of their faith.

Some examples include:

1. The Persecution of Christians and Churches today (detailed on the Barnabas Fund website)
2. The Persecution of Muslims and Non-Muslim Asians following 9-11.
3. The Persecution of Jews in WWII /The Holocaust.

Being the target of discrimination can cause lot of strong and negative emotions including anger, sadness and embarrassment. It takes away peoples' rights and their power to exercise their rights

3. How do believers of Islam act fairly?

The story, Prophet Daud (David) and the two disputants, is from the Qur'an and it teaches believers of Islam to act fairly. Daud (David) listened to just one person and made his decision. He did not listen to the other. Therefore, he could not have made a fair and just decision. This is why he asked for Allah's (swt) forgiveness (Qur'an 38: 21-24)

- Through local council representation, newspaper and media reporting, posters, meetings, social media and living out our faith, we can make sure that our faith view is heard in society's decisions.
- It is important that every faith group has input, such as the Faith leaders' group, where representative leaders from faith groups in Birmingham meet and discuss their beliefs and plan events together.

Key Vocabulary

Word:	Meaning:
discriminate	the act of treating some people unfairly because of prejudice.
disputant	one who disputes or contests; arguer; debater
just	fair and honest
morality	principles related to what is right or wrong
persecute	to continually treat in a cruel or harsh way because of race, religion, political ideas, or some other difference.
prejudice	hatred or unfair treatment toward a person or group without cause or reason.
prosecute	to begin or carry on a court action against in order to enforce the law
representation	the action of speaking or acting on behalf of someone or a group of people

Cultural Heritage

Malala Yousafzai is known for standing up against gender discrimination

Martin Luther King Jr and Rosa Parks stood up against racial discrimination

Knowledge Organiser – Science – 'The Natural World'- Animals including humans - Year 6

Article 28 I have the right to an education

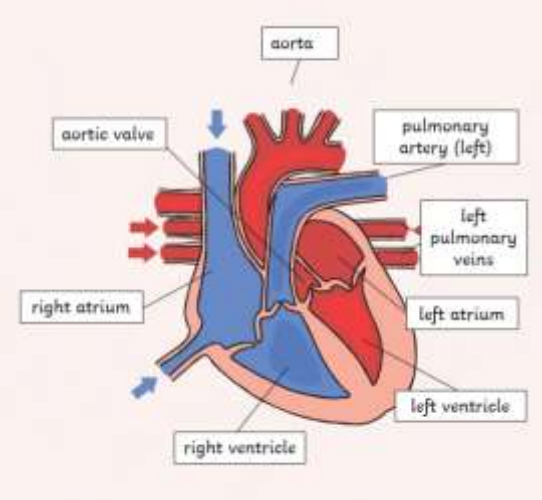
Key Knowledge

Circulatory System –

Your circulatory system is made up of three parts: the heart, blood vessels and the blood itself.

Heart –

The heart is a powerful muscle that is situated between your lungs, protected by the ribcage. Your heart keeps all the blood in your circulatory system flowing. The heart pumps blood to the lungs to get oxygen. It pumps the oxygenated blood to the rest of the body.



Blood –

Blood carries useful materials like oxygen, water and nutrients and removes waste products like carbon dioxide. It is needed to keep us alive. Blood also fights infections, and carries hormones around the body.

Key Vocabulary

Word	Definition
Arteries	tubes in your body that carry oxygenated blood from your heart to the rest of your body.
Atrium	the part of the heart that receives blood from the veins.
Blood Vessels	narrow tubes that your blood flows through.
Carbon Dioxide	a gas produced by animals and people breathing out.
Circulatory System	the system responsible for circulating blood through the body, that supplies nutrients and oxygen to the body and removes waste products such as carbon dioxide.
Deoxygenated	blood that does not contain oxygen.
Oxygenated	blood that contains oxygen
Ventricle	the part of the heart from which blood passes into the arteries
Vein	a tube in your body that carries deoxygenated blood to your heart from the rest of your body.

Cultural Heritage

Lifestyle Choices

Healthy food from around the world –

Chinese cabbage –

Mangoes from Pakistan –

Apples and grapes from France –

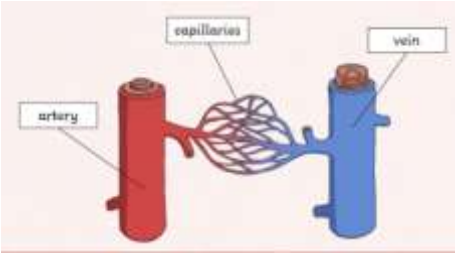
Blood Vessels –

The blood travels through a network of blood vessels to everywhere in your body.

Arteries – carries oxygenated blood **away** from the heart

Capillaries – enable **exchange** of oxygen with body

Veins – carries blood from capillaries back to the heart to be pumped **to** the lungs to be re-oxygenated.



Lifestyle Choices -

Things that can harm the circulatory system	Things that can help the circulatory system
• Smoking • Drinking alcohol • Drugs • Eating lots of highly saturated fat foods	• Healthy diet with the right nutrients and eating the correct amount of food. • Regular exercise and keeping fit – this can help improve circulation, increase the oxygen going around your body, help you sleep easier and strengthen your bones.

Nutrients and Water – The Small Intestine –

The nutrients, from the food we eat, pass through the villi (in the small intestine) and are absorbed into the blood vessels.

Water is absorbed in the small intestine in exactly the same way as other nutrients.

Blood transports –

- Gases (mostly oxygen and carbon dioxide)
- Nutrients (including water)
- Waste products

Respiration	inhaling oxygen-rich air and exhaling air filled with carbon dioxide.
Pulse	the regular beating of blood through your body. How fast or slow your pulse rate is depends on how active you are
Organ	a part of the body that has a particular purpose and performs specific functions.
Heart	the organ in your body that pumps blood around the body.
Lungs	two organs in your chest which fill with air when you breathe in. They oxygenate the blood and remove carbon dioxide from it.
Nutrients	substances that help animals and plants grow.
Villi	Structures in the small intestine which help absorb nutrients.

Knowledge Organiser – Science – 'The Natural World' - Evolution and Inheritance - Year 6

Article 28 I have the right to an education

Key Knowledge

Evolution –

Evolution means change over time. It is the reason we have so many species on Earth. It happens when there is competition to survive (natural selection) and through differences within a species caused by inheritance and mutations. Scientists have proof that living things are continuously evolving!

Inheritance –

Inheritance is when something is passed on to the next generation. Offspring are not identical to their parents and some characteristics are inherited (passed on from parents to off-spring). Other differences are new in offspring—these are called mutations.

Eye colour and hair colour are examples of inherited traits.

Adaptation –

Adaptation is the action of a living things changing to suit the environment. If a species is well adapted it will survive and pass on successful genes to offspring. These adaptations can be a result of climate change and food. However, being highly adapted to one specific environment can be detrimental to a species' survival if there are sudden changes to that environment.

Living Things		Habitat		Adaptive Traits
polar bear		arctic		Its white fur enables it to camouflage in the snow.
camel		desert		It has wide feet to make it easier to walk in the sand.
cactus		desert		It stores water in its stem.
toucan		rainforest		Its narrow tongue allows it to eat small fruit and insects.

Key Vocabulary

Word	Definition
Offspring	The young animal or plant produced by a species.
Inheritance	When characteristics are passed from parents onto offspring.
Variations	The differences between individuals within a species.
Characteristics	The distinguishing features or qualities that are specific to a species.
Adaptations	An adaptation is a trait changing to increase a living things chances of surviving.
Habitat	Refers to a specific area or place in which particular animals and plants can live.
Environment	An environment contains many habitats and includes areas where there are both living and non-living things.
Evolution	Adaptation over a very long time.
Natural Selection	The process where organisms that are better adapted to the environment tend to survive and produce more offspring.
Fossil	The remains or imprint of a prehistoric plant or animal embedded in rock.
Adaptive Traits	Genetic traits that help a living thing survive.
Inherited Traits	Traits you get from your parents.

Cultural Heritage

Adaptation -

Cacti come from either North or South America where they grow naturally in the wild.

Camels can be found living in different countries, such as North America, Egypt, Morocco and Australia.

Fossils –

Fossils are the preserved remains, or partial remains, of ancient animals and plants. Fossils let Scientists know how plants and animals used to look millions of years ago. This is the proof that living things have evolved over time.




Natural Selection –

Fossils of giraffes from millions of years ago show that they used to have shorter necks. They have gradually evolved, over time, through natural selection to have longer necks. This is so that they can reach the top leaves on the taller trees.

FURTHER WORK:

Charles Darwin (1809-1882) was an English scientist best known for his theory of evolution. He was a geologist who travelled across the world in 1831 on the HMS Beagle. He studied many animals and plants on his travels and came up with the idea of natural selection (the strongest survive and evolve).

Mary Anning (1799-1847) lived in the seaside town of Lyme-Regis. She found 'curiosities' which she later found out were fossils. She made many incredible discoveries and important scientists asked her for advice but at the time she was not as recognised for her work as she should have been and others took credit for her work. She is remembered as one of the greatest fossil hunters ever.