Year 5 : Lifecycles

LIFE CYCLES

Mammals

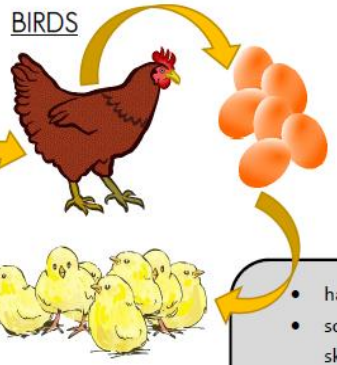
1.) Gestation - An embryo grows inside the mother, reliant on her for everything it needs.

2.) Young - Growth and development is independent from parents.

3.) Independent Adult - Seeks company in order to mate and now nurses their young.

- have hair or fur
- are warm- blooded
- feed babies milk
- give live birth

BIRDS



- hatch from eggs
- some look like parents, shed skin and grow (the young are called *nymphs*)
- some go through *metamorphosis* where young and adult look different.

- Live in water and on land
- Lays eggs
- Moist, slimy skin
- Babies different from adults

Amphibians

1.) Eggs - Female lays eggs which are fertilised by the male.

2.) Tadpole - After 2-25 days the tadpole hatches from the egg and swims.

3.) Jumps on Land - Grows front legs and uses nutrients in its tail as food.

4.) Grows fins and hind legs - Develops lungs and stringer tail.

5.) Adult Frog - Eats insects instead of plants and after 2-4 years it becomes an adult frog and can lay eggs.

Plants

1.) GERMINATION - seeds grow
2.) ROOTS GROW - underground
3.) STEM and LEAVES - over ground
4.) POLLEN - used to make seeds
5.) SEEDS SPREAD - the cycle re-starts.

Insects

1.) Eggs – laid by the female insect.

2.) Larva – Eggs hatch and larva is born. It looks different to its adult self (e.g. caterpillar/maggots).

3.) Pupa – When the larva moults for the last time, a pupa is formed. It acts as a camouflaged, protective shell for the larva to transform.

4.) Adult – The adult breaks out of the pupa and matures.

Tier 2 Vocabulary

variable	Things that change
label	Words to name parts
prediction	Think about what might happen
precision	Accurate
conclusion	Use evidence to make a decision

Topic (Tier 3) Vocabulary

life cycle	The sequence of changes that a living thing goes through as it grows and develops. Birth, growth, reproduction, aging, and death are all stages in the life cycle of an animal.
reproduction	The process by which living things create young or offspring
gestation	The time that an animal spends developing before being born

Prior learning

Classification of animals (Y4)

Rights of the Child/Global Goals

Article 29
I have the right to an education which develops my personality, respect for others' rights and the environment.
Global Goal 14: Life below water
Global Goal 15: Life on land

National Treasures

The National History Museum London
Here you can find out about different types of animals.

Big Ideas

Living things can be classified (grouped)

Life goes through a cycle
Living things have systems, each with its own job

mammals	Mammals have fur or hair.	dog, elephant, squirrel
birds	Birds have wings, feathers and a beak.	penguin, toucan, owl
reptiles	Reptiles have scales.	chameleon, tortoise, crocodile
amphibians	Amphibians have moist skin.	newt, frog, toad
fish	Fish have scales, fins and tails.	salmon, shark, clown fish

Year 5 Animals inc Humans

BABY - Babies drink milk after they are born. They usually start eating solids when their teeth start to appear at about 6 months. Many can crawl by 9 months and begin to walk after they are 1. All babies are different and develop at different times.

CHILD - Running, talking and learning to read, write and count are all developing in a child. They are developing skills in sports, art and music as well as developing socially, emotionally, physically and psychologically.

ADOLESCENT - During the ages of 9-19, humans become more independent, begin puberty ready for reproduction and become ready for adulthood.

ADULTHOOD - The human body is at its physical peak of fitness and strength and are able to be completely independent. This is when most humans reproduce.

LATE ADULTHOOD / OLD AGE - Body declines in fitness and health from 60 years onwards and there is an increased dependence on others to look after them as time goes on. The life cycle ends when a human dies.

Topic (Tier 3) Vocabulary

life span	The length of time that a human, animal, or plant lives or can be expected to live
growth	Growing, getting bigger

Tier 2 Vocabulary

variable	Things that change
label	Words to name parts
prediction	Think about what might happen
precision	Accurate
conclusion	Use evidence to make a decision

Prior learning

Adult and baby animals KS1
-Animal groups KS1 and KS2
-Basic needs to survive Y2

Rights of the Child/Global Goals

Article 24: Every child has the right to the best possible health.
Global Goal 3: Good health and wellbeing.

National Treasures

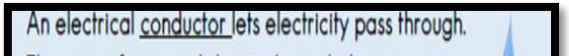
Prof. Robert Winston

He studies how humans change as they grow up.

Big Ideas

Life goes through a cycle.

An electrical conductor lets electricity pass through. They are often metals but it also includes water.



An electrical insulator does not let electricity pass through.

KEEPING COOL

Thermal Insulators - Do not let heat travel through easily such as fabrics, wood and plastics. Can keep heat in or out.

Thermal Conductors - Lets heat travel easily through such as metals.

When things get hot, atoms start to vibrate. Heat produces energy. This could cause them to change state!

Topic (Tier 3) Vocabulary Properties of Materials

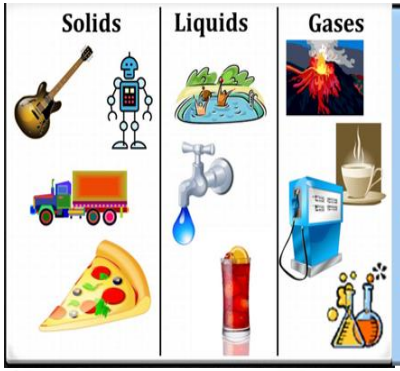
hardness	How hard or soft a materials is. Do you leave a mark when you scratch the material?
soluble	Can be dissolved
insoluble	Can not be dissolved
solution	When a substance dissolved in a liquid you make a solution.
transparent	Lets light through
translucent	Lets some light through
opaque	Blocks light
magnetic	Attracted to magnets

DISSOLVING

Dissolving is when the particles of solids mix with particles of liquids, often appearing like it has disappeared but it has dissolved in the liquid to make a transparent solution (e.g. mixing sugar into water). It does not always need heat to occur. If a material does not dissolve it is *insolubale*. If it does, it is *soluble*.

MELT ING

Involves only solids which change into a liquid due to heat. They stay as the same material (e.g. ice to water).



FEATURES

- Solids hold their shape. (Salt, sand and sugar are tiny solids so they pour like a liquid but they pile up and are nit wet.)
- Liquids form a pool not a pile!
- Gases escape from an unsealed container and fill the entire volume of space.

Separating Materials

SIEVING - A way to separate two solids of different sizes (e.g. flour and raisins).

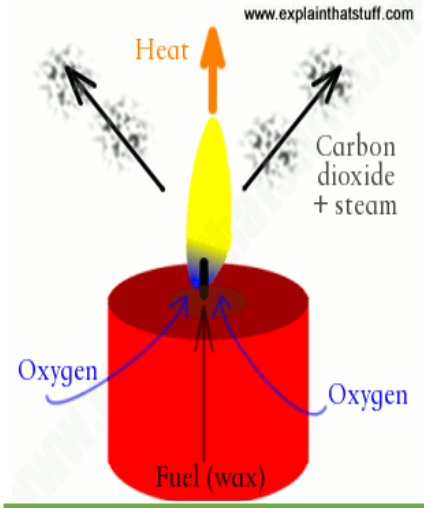
FILTRATION - A mixture of liquids and solids which haven't dissolved can be filtered using paper with tiny holes (e.g. sand and water).

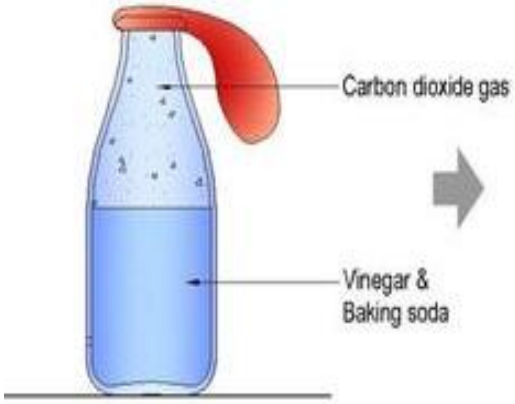
EVAPORATION - A solid dissolved in a liquid (solution) can be heated. Liquid evaporates and leaves behind the solid (e.g. salt and water solution).

MAGNETISM - Metal attracts to the magnet, leaving behind the other solid (e.g. paper clips and matchsticks).

Reversible Changes	Irreversible Changes
Changing State (boiling water, melting ice cubes)	Cooking food
Dissolving (sugar dissolving in water)	Burning wood
Mixing	Metal going rusty

Some changes cause new materials to be made. This kind of change is not usually reversible.



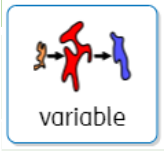


Topic (Tier 3) Vocabulary

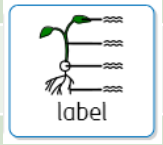
These changes can be reversed. For example, when ice melts it turns to water. This change can be reversed. You can freeze the water to make ice again.

These changes can not be undone. For example, when you cook an egg there is no way to turn it back in to a raw egg.

Tier 2 Vocabulary



Things that change



Words to name parts

Think about what might happen

Accurate

Use evidence to make a decision

Uses of common materials	
Wood can be used for:	Doors, tables
Plastic can be used for:	Pens, rulers
Glass can be used for:	Windows, glasses
Metal can be used for:	Cars, coins

National Treasures

Car Manufacturing

To design a car you need to understand materials, their properties and how they can change.

Rights of the Child/Global Goals

Article 13
I have the right to find out and share information.

Prior learning

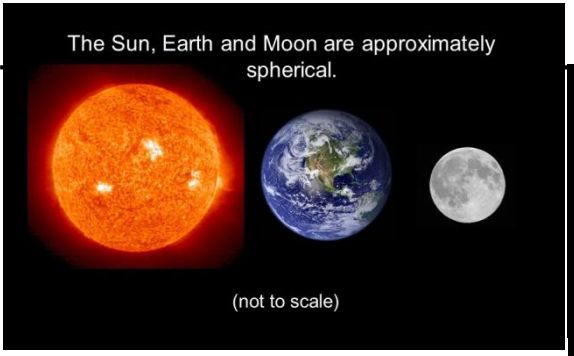
Properties and uses of materials (Y1 and Y2)
Solid, liquid, gas (Y4)
Water cycle (Y4)
Magnetism (Y3)
Electrical conductors (Y4)

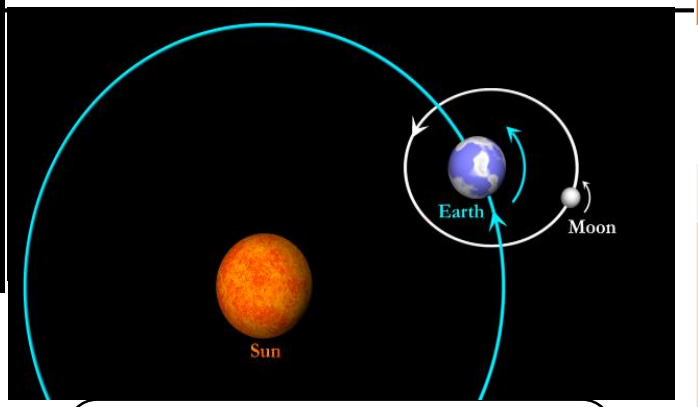
Big Ideas

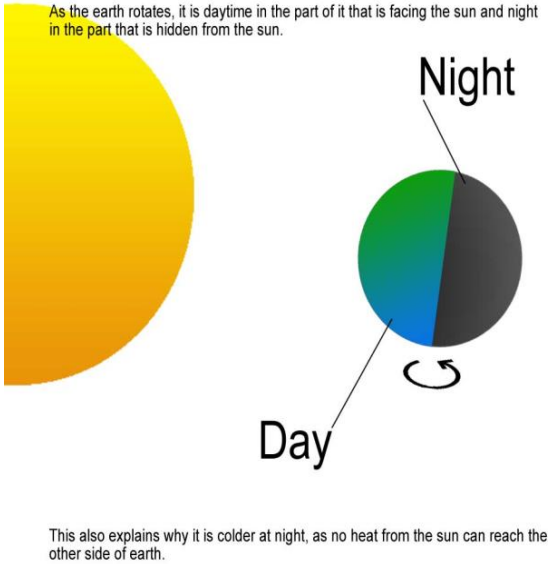
Materials have different properties. We think about the properties when choosing a material for a job.

Materials can exist in different states; these states can sometimes be changed.

Year 5 Earth and Space







It is not safe to look directly at the Sun, even when wearing dark glasses!

Time

24 hours: Time for the Earth to spin on its axis (a day)

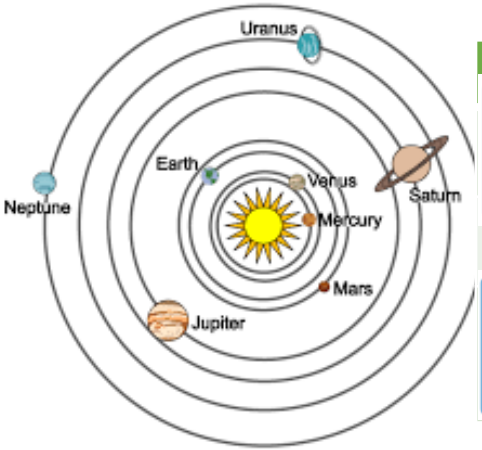
28 days: Time for the moon to orbit the Earth

365 ¼ days: Time for the Earth to orbit the sun. 365 days: a year
Every 4 years there is a leap year (366 days/29 days in February)

The Earth's tilt on its axis causes the seasons.

Topic (Tier 3) Vocabulary

orbit	Move in a circle around something
revolve	Spin
axis	A real or imaginary line through the centre of an object, around which the object turns
solar system	Our sun, its eight planets and their moons
sun	The star at the center of our solar system
planet	A large body in outer space that circles around the sun or another star
spherical	The shape of a sphere



Tier 2 Vocabulary

variable	Things that change
label	Words to name parts
prediction	Think about what might happen
precision	Accurate
conclusion	Use evidence to make a decision

National Treasures

Prof. Stephen Hawking

A famous British scientist who studied space.

Prior learning

Forces – push/pull Y3
Gravity Y5
Seasons KS1

Big Ideas

The position and movement of the Earth causes day, night, months, seasons & the year.

Rights of the Child/Global Goals

Article 13
I have the right to find out and share information.

FORCES

Year 5

Gravity

Gravity is a force that holds things to Earth's surface and prevents things from floating off into the atmosphere. It ensures that unsupported objects to fall back down to Earth.


It is said that the famous scientist Isaac Newton was sitting under a tree when an apple fell on his head. He identified it was a force pulling the object down. We now measure gravity in Newtons (N) because of this.

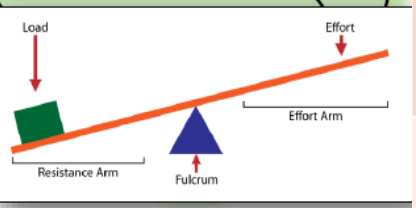

There is gravity on the moon but it is much less than on Earth, so during the moon landings of 1969, astronauts could jump higher for longer due to the weaker pull of gravity.

Friction

When objects are pushed or pulled, an opposing force can be felt. This opposite force is called 'friction'. Friction causes things to slow down or stop. The grip on our shoes stops us slipping. Therefore, friction is great. An ice-skate on an ice-rink will move for a long time because there is very little friction. The rougher the surfaces, the greater the friction. This rubbing of two surfaces can release energy, causing heat. (Try rubbing your hands together!)

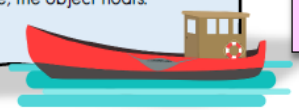
LEVERS

A way to lift heavy weights using the least amount of effort. The longer the lever, the easier it is to lift. The fulcrum is where the lever pivots in order to lift the heavy load.



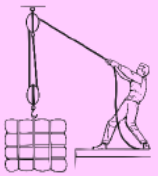

Water Resistance

Water resistance is a type of *friction* which can slow things down in the water. Water acts upon objects making them harder to pass through. A fish has a *streamlined* body shape to help it swim through water more easily. *Upthrust* is the name of the force which keeps things afloat in water. When gravity is greater than upthrust, the object sinks. When the two are the same, the object floats.

PULLEYS

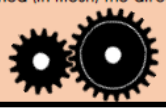
Used like levers to lift loads with less effort but for longer distances. Rope is passed through a pulley which is attached to an anchor point and returned back to the ground to be pulled.



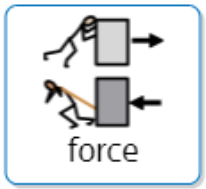
Air Resistance

Air resistance (sometimes referred to as drag) acts against gravity on falling or moving objects. It's what you feel on your hair when riding fast on a bike or it's what fills a parachute to help slow you down when falling from the sky. . Object such as aeroplanes reduce air resistance because of their streamlined shape.

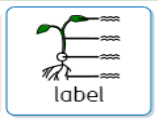
GEARS - Used to transmit power from one part of a machine to another. Connected gears can increase speed, increase force or cause a change in direction. When joined (in mesh) the direction of rotation of the driven gear is the opposite of the drive gear.



Topic (Tier 3) Vocabulary

 force	Force can cause a movement
 newton	The unit we use to measure force
 weight	How heavy something is
 acceleration	Speeding up
 deceleration	Slowing down

Tier 2 Vocabulary

 variable	Things that change
 label	Words to name parts
 prediction	Think about what might happen
 precision	Accurate
 conclusion	Use evidence to make a decision

Prior learning

-Push and pull (Year 3)
-Magnets (Year 3)
-Comparing everyday materials (Year 3)

Rights of the Child/Global Goals

Article 13
I have the right to find out and share information.

Big Ideas

There are contact and non-contact forces; these affect movement

National Treasures

Bloodhound SSC
British scientists are using their knowledge of forces to try and beat the land speed record.