Science Golden Threads and Sticky knowledge

Bluebell	Fern	Bramble	Laurel
Minibeasts Growth – plants, people, animals Habitats Seasons	Seasons Animals including Humans Materials Plants Light & Shadows Sound	Animals including humans Plants Living things & habitats Forces & magnets Rocks & soils States of matter	Living things & habitats Properties & changes of materials Evolution Space Light Electricity

Golden Thread:

1. Working Scientifically
2. Scientific Understanding
3. Super Scientists

Sticky Knowledge linked to the Golden Threads

Bluebell - Reception

Golden Thread	Why it's good to be me?	How can we make the world a better place?	How do we show kindness to people and places?
Can everything be proven?	Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.	Know some similarities and differences between the natural world around them and contrasting environments.	Explore the natural world around them. Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

Fern – Year 1 / 2

Cycle A

Golden Thread	What makes a hero?		Do we value what we've got?		What is a leader?	
Science Golden Thread	***Identifying Animals***	***Everyday Materials***	***Super Scientists***	***Living in habitats***	***Exploring Everyday Materials***	
Working Scientifically	***Children can:*** • Notice similarities and differences between animals and be able to sort and classify these.	***Children can:*** • Carry out simple tests to help them understand materials and their properties. • Sort different materials into groups using a Venn diagram. •	***Children can:*** • Ask simple questions and understand that there may be lots of ways we can find the answer. • Answer questions by carrying out simple research involving the computer and books.	***Children can:*** • Use magnifying glasses and other equipment to look very closely at plants and animals within a micro habitat. • Sort animals and plants into different groups based on their similarities and differences.	***Children can:*** • Use simple equipment to help them find out more about materials. • Ask simple questions and think about the different ways we can find these out. • Carry out simple enquiries.	
Scientific Understanding	***Children know:*** • Amphibians live in the water as babies and on land as they grow older. • All birds have a beak, two legs, feathers and wings. • Fish live and breathe under water. • Mammals are animals that breathe air, grow hair or fur and feed on their mother's milk as a baby. • All reptiles breathe air. They have scales on their skin.	***Children know:*** • We can sort materials into groups by thinking about what is the same and what is different about them. • Natural materials, such as wood, wool and stone, can be used to make objects. Even though they might be changed a little to make them useful, the material is still the same. • Sometimes a material can be changed to create a new material. We call these materials man-made. • We can change the shape of some materials because they are flexible.	***Children know:*** • An inventor makes or discovers a new way of doing something. They might make something new. • Scientists study the world around us, the people and animals in it as well as studying space. They do this by looking and by doing experiments. • An astronaut is a person who is trained to travel into space. • Biology is the study of living things.	***Children know:*** • Life processes are the things that all living things do. They move, breathe, sense, grow, make babies, get rid of waste and get their energy from food. • Things that are dead were living once. • Things made out of wood, metal, plastic or rock were never living. • A food chain shows how each animal gets its food. • Children will be able to identify a variety of habitats and microhabitats.	***Children know:*** • Materials are what objects are made from. • Suitability means having the properties which are right for a specific purpose. • Children will be able to describe the basic properties of a variety of different everyday materials. • John McAdam's developed a highly successful process for building roads. • John Dunlop originally used rubber for creating tyres. • Charles Macintosh invented the first waterproof fabric.	

Super Scientists	• Tim Smit - Tim Smit had the idea to build the Eden Project. • Jane Colden - was a botanist. She is thought to be America's first woman botanist.	• Ole Kirk Christiansen - invented Lego in 1949.	• Mae Jemison - In 1992, Mae Jemison became the first African American woman in space. She was a scientist.	• Rachel Carson - was a scientist who studied ocean habitats. She discovered that pollution from farms was affecting the oceans and the animals in them.	• Nicholas Grimshaw - designed the biomes for the Eden Project • Charles Macintosh - invented the first waterproof fabric.	

Fern – Year 1 / 2

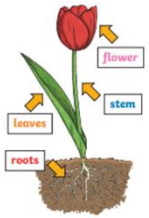
Cycle B

Golden Thread	Where does our food come from?		What is play?		How has communication changed (and stayed the same) through history?	
	Identifying Plants	***My body***	***Seasonal Changes***		***Growing Plants***	***Growth and Survival***
Working Scientifically	***Children can:*** • Carry out a fair test involving plants. • Look very closely at plants using simple resources. • Notice similarities and differences between animals and be able to sort these using Venn Circles	***Children can:*** • Ask questions about the human body and how it works. • Understand that we can answer questions in lots of different ways. • Use their observations and ideas to try and answer questions. •	***Children can:*** • Observe the weather and recall how it changes through the seasons. • Carry out simple tests to help them understand the difference between the seasons using simple equipment. Share their observations and ideas with their peers and adults.		***Children can:*** • Carry out a fair test with adult support. • Use the information they have recorded during their fair test to help them answer questions. • Use their observations and ideas about plants to try and answer questions. • To ask simple questions.	***Children can:*** • Use simple data to describe the importance of exercise and eating healthy and how this can impact on our bodies.
Scientific Understanding	***Children know:*** • A deciduous tree loses its leaves each year. • An evergreen tree keeps its green leaves all year round, even in the winter. • Roots take in water and nutrients from the soil and keep the plant in the ground. • The stem holds the plant up and carries the water and nutrients from the roots to the leaves and flowers. • Leaves catch sunlight to help the plant to make its own food. • Flowers attract insects and birds.	***Children know:*** • People explore the world using five sense; sight, hearing, touch, taste, smell. • Children will be able to name and label parts of the human body. • All young animals change as they go through the different stages of their life cycle and grow into adults. • Children will be able to identify the key stages of the human life cycle: baby, toddler, child, teenager, adult. • To stay alive, all animals have three basic needs for survival: water, air, food. • To grow into a healthy adult, we must eat the right types of food in the right amount and exercise.	***Children know:*** • There are four seasons we experience in the UK; Winter (December, January, February), Spring (March, April, May), Summer (June, July, August) and Autumn (September, October, November). • The weather includes the temperature outside, the wind direction and strength, as well as rain, cloud, snow and sun. • Daylight is when it is light outside. The amount of daylight changes with each season.		***Children know:*** • Each stage of the life cycle of a plant; 1. Seed or bean 2. Germination 3. Roots 4. Flowers 5. Fruit 6. Seed dispersal 7. Dies • When the conditions are right, the seed soaks up water and swells, and the tiny new plant bursts out of its shell. This is called germination. • All plants need light from the sun to grow well. Some plants need lots of sunlight. Some plants only need a little sunlight.	***Children know:*** • Some animals give birth to live young and some animals lay eggs which the young hatch from. Both these different types of young develop and grow into adults. • Some offspring look like their adults when they are born and some don't. • All young animals change as they go through their life cycle and grow into adults. • To grow into healthy adults, we must eat the right types of food in the right amounts and we must exercise.

Super Scientists	• Tim Smit - Tim Smit had the idea to build the Eden Project.	• Elizabeth Garrett Anderson - Elizabeth was the first woman to qualify as a doctor. She qualified in 1865. • Louis Pasteur - discovered that germs are living things that can be spread by touch or through the air.	• George James Symons - invented his own version of the rain gauge that is still used by meteorologists today.		• Jane Colden - was a botanist. She is thought to be America's first woman botanist.	• Linda Brown Buck - is an American biologist. She discovered that mammals have odorant receptors in their noses. This means they can smell over 10,000 different smells. She won the Nobel Prize in 2004.

Bramble – Year 3 / 4

Cycle A

Golden Thread	What does it mean to be human?		What is respect?		Is it ever ok to break the rules?	
	Forces and Magnets	***Rocks, Fossils and Soils***	***Living in Environments***	***How Plants Grow***		***States of Matter***
Working Scientifically	***Children can:*** • Ask questions about forces and magnets and think about the type of enquiry which would be best to answer them. • Work in a group to set up and carry out a simple test. • Make very careful observations using different equipment to help them measure and record what they see. • Use results from an enquiry to write a conclusion, think of different questions they could investigate next and predict what might happen if variables were changed. • Use science knowledge to answer simple questions.	***Children can:*** • Record the results of their enquiries using tables, Venn diagrams and labelled drawings. • Record and present what they have found out in different ways including posters and labelled diagrams. • Use classification keys to help them identify different rock and soil samples. • Talk about different scientific ideas relating to fossils and how some of these ideas have changed over time.	***Children can:*** • Make observations about the animals that live in the areas that surround our school and record these accurately. • Answer questions by gathering information and data in different ways and present this information accurately. • Identify how science has changed what we now understand about living things and their habitats.	***Children can:*** • Carry out a fair test when working in a small group. • Record the results of their fair test using measuring equipment. • Use the results of their enquiry to answer the enquiry question and to make predictions about what might happen if the variables were changed. • Use their science knowledge to answer simple questions.		***Children can:*** • Set up simple, practical enquiries when working in a small group. • Find out information using different types of enquiry and use their observations to answer simple questions. • Use the results of an enquiry to conclude what they have observed and suggest improvements to how the enquiry was carried out. • Use what they know about states of matter to answer simple questions.
Scientific Understanding	Children will know/be able to: • Explain how things move and identify the force in action. • Different surfaces create different amounts of friction. • The amount of friction created by an object depends on the roughness of the surface and the object, and the force between them. • A magnetic field is invisible. You can use iron filings to see how a magnetic field works by	Children will know/be able to: compare and group together different types of rocks based on their physical properties. Children know: • Soil is the uppermost layer of the Earth. It is a mixture of different things: Minerals (the minerals in the soil come from finely broken down rock). Air; Water; Organic matter (including living	Children will know/be able to: • Animals can be grouped in lots of different ways based upon their characteristics. • Vertebrates can be separated into five broad groups: Mammals, fish, birds, reptiles, amphibians. • Invertebrates include slugs, worms, snails, insects and spiders. • Plants can be sorted into many different groups including flowering and non-flowering plants.	Children will know/be able to:  • I can draw and label the parts of a plant. • Water moves through the plant using capillary action. The stem acts like a straw and water is sucked up through the different parts of the plant.		Children will know/be able to: • There are three states of matter: solid, liquid and gas. • When water and other liquids reach a certain temperature, they change state into a solid or a gas. The temperatures that these changes happen at are called the boiling, melting or freezing point. • If a solid is heated to its melting point, it melts and changes to a liquid.

	place them on a piece of paper and placing a magnet underneath. • Like poles repel, opposite poles attract. • The needle in a compass is a magnet. A compass always points north-south on earth.	and dead animals and plants). There are three types of naturally occurring rock: Igneous, sedimentary and metamorphic.	• Plants and animals rely on the environment to give them everything they need. Therefore, when habitats change, it can be very dangerous to the plants and animals that live there. • Natural changes to the environment can be caused by, earthquakes, storms, floods, droughts, wildfires, the seasons. • Human made changes can be caused by; deforestation, pollution, urbanisation, the introduction of new animal or plant species to an environment, creating new nature reserves	• The flower's job is to create seeds so that new plants can be grown. Seeds can be dispersed by: water, shaking, dropping, eating, bursting or carrying. • The lifecycle of a plant: 1. A seed or bean is planted in soil 2. The seed or bean germinates 3. Roots to start to grow 4. Shoots start to appear above the soil 5. Leaves grow 6. The plant flowers 7. The plant fruits 8. The plant disperses the seeds 9. The plant dies		• When freezing occurs, the particles in the liquid begin to slow down as they get colder and colder. • Evaporation occurs when water turns into water vapour. • Condensation is when water vapour is cooled down and turns into water. • Condensation and Evaporation occur within the water cycle: 1. Water from lakes, puddles, rivers and seas is evaporated by the sun's heat, turning it into water vapour. 2. This water vapour rises, then cools down to form water droplets in clouds (condensation). 3. When the droplets get too heavy, they fall back to the earth as rain, sleet, hail or snow (precipitation).
Super Scientists		• William Smith - William studied geology and would study the pattern of fossils. He realised that he could tell the age of a rock by looking at fossils. • Inge Lehmann - Inge was a seismologist and looked at the waves of energy caused by earthquakes. She concluded that the earth has a solid core at the centre.	• Gerald Durrell - Gerald Durrell was a conservationist who worked hard to save Madagascar's unique plants and animals.	• David Douglas - The Douglas fir tree is named after this botanist. He also introduced pines and the flowering currant to Britain. • Tom Hart Dyke - This plant hunter hunts rare plants such as orchids.		• Antoine Lavoisier and Joseph Priestley These two scientists were mainly responsible for the discovery of oxygen. • Lord Kelvin - William Thomson, who is better known as Lord Kelvin, determined the temperature of absolute zero (the coldest possible temperature).

Bramble – Year 3 / 4

Cycle B

Golden Thread	What is Justice?		What's worth fighting for?		What is a fair society?	
	Health and Movement	***Circuits and Conductors***	***Changing Sound***		***Eating and Digestion***	***Light and Shadow***
Working Scientifically	***Children can:*** • Ask questions about how we can keep ourselves healthy and suggest how we can find out the answers. • Talk about how health and movement are linked together. • Think of ways they can use the science they understand about health to impact on their everyday life.	*Children can:* • Ask simple questions about electricity based on their everyday observations. • Set up simple circuits when working with a partner. • Record what they observe and share this in a variety of ways including labelled diagrams using electronic symbols and simple tables. • Use the results of their enquiries to think of other questions they would like to explore. •	***Children can:*** • Ask simple questions about sound based on the observations they have made. • Say which type of enquiry would be the best to answer their questions. • Set up simple enquiries and carry them out in a small group. Answer questions using drawings, labelled diagrams and using simple scientific language.		***Children can:*** • Ask questions about what they would like to find out about eating and digestion and think about how we could answer these. • Identify how science has changed in how we understand eating and digestion. • Report on what we have found out either by explaining their ideas verbally, creating a poster or by writing what they know.	*Children can:* • Think of questions using what they already know about light and shadow and can say which type of enquiry would best answer these. • Make very careful observations and measure these using different equipment such as data loggers. • Record what they have found out using scientific language, labelled diagrams and bar charts. Use the science they understand to answer simple questions.
Scientific Understanding	Children will know/be able to: • Living things need food to grow and be strong and healthy. • Plants can make their own food, but animals cannot. • To stay healthy, humans need to exercise, eat a healthy diet and be hygienic. • Animals, including humans, need food, water and air to stay alive. • Skeletons do three important jobs: • Protect organs inside the body; • Allow movement;	Children will know/be able to: • Examples of Electrical Conductors include; copper and steel. • Examples of Electrical Insulators include: wood, plastic, paper, rubber, glass and fabric. • Many everyday appliance rely on electricity for them to work. Some appliances use mains electricity (are plugged into a socket) and others have a battery to make them work.	Children will know/be able to: • Sound is a type of energy. Sounds are created by vibrations. The louder the sound, the bigger the vibration. • Pitch is a measure of how high or low a sound is. A whistle being blown creates a high-pitched sound. A rumble of thunder is an example of a low-pitched sound. • Sound can travel through solids, liquids and gases. Sound travels as a wave, vibrating the particles in the medium it is travelling in. Sound cannot travel through a vacuum.		Children will know/be able to: * Labelled diagram of human digestive system • The teeth of an animal are designed to eat different foods depending on the diet of the animal. • The arrows in a food chain show the flow of energy. *labelled diagram of a food chain with key scientific vocabulary.	Children will know/be able to: • Be able to name light sources and understand transparent, translucent and opaque. • We need light to be able to see things. Light travels in a straight line. When light hits an object, it is reflected (bounces off). If the reflected light hits our eyes, we can see the object. • Some surfaces and objects reflect light well and other materials do not. • The pupils control the amount of light entering the eyes.

	• Support the body and stop it from falling on the floor. • Skeletal muscles work in pairs to move the bones they are attached to by taking turns to contract (get shorter) and relax (get longer).		• The side of the vibration is called the amplitude. Louder sounds have a larger amplitude, and quieter sounds have a smaller amplitude.			• When the light source is directly above the object, the shadow will be directly underneath. A shadow is caused when light is blocked by an opaque object.
Super Scientists	• Marie Curie was a famous scientist who developed the use of x-rays, which meant that a lot more patients could be correctly diagnosed and treated.	• Thomas Edison Thomas Edison's inventions made it possible for people to enjoy the benefits of electricity. • Maria Telkes - Maria Telkes was a famous scientist who made a lot of discoveries around solar power.	• Alexander Graham Bell was a Scottish scientist and inventor. His most famous invention was the first telephone. • James West and Gerhard M. Sessler - West and Sessler invented an efficient microphone which is used in most modern phones		• Washington Sheffield was an American dentist and he was famous for inventing the first modern toothpaste in a tube.	

Laurel - Year 5/6

Cycle A

Golden Thread	Where do we come from? Who are we?		Why do people take risks?		What are rights and responsibilities? What does it mean to be free?	
	Evolution and Inheritance	***Life Cycles***	***Properties and Changes of Materials***	***Seeing Light***		***Classifying Organisms***
Working Scientifically	*Children can:* • Record their findings from an enquiry using labelled, scientific diagrams. • Decide how to present their findings from an enquiry. • Understand how scientists have changed theories about evolution and inheritance using scientific evidence to support their arguments.	*Children can:* • Record their findings from an enquiry using labelled, scientific diagrams. • Decide how to present their findings from an enquiry.	*Children can:* • Plan an enquiry to answer a given question, identifying control, independent and dependent variables. • Report on their findings from an enquiry, writing conclusions which explain what they have found out and how identify how much trust they have in the results.	*Children can:* • Plan a fair test when working with a partner. • Present what they have found out to a small group of peers.		*Children can:* • Record data using classification keys and scientific diagrams. • Decide how best to present their findings from an enquiry.
Scientific Understanding	Children will know/be able to: • Animals and plants produce offspring that are similar but that are not identical to them. Offspring often look like their parents because features are often passed on. • In the same way you can see variation between offspring and their parents, you can see variation within any species including plants. • Characteristics are influenced by the environment that the living things are living in. These adaptations can develop as result of many things, such as food and climate.	Children will know/be able to • Some living things, such as plants, contain both male female sex cells. In other, such as humans, they contain either the male or female sex cell. • Mammals use sexual reproduction to produce offspring. • The male sex cell, called the sperm, fertilises the female sex cells. • The fertilised cell divides into different cells and will form a baby with a beating heart. • The baby will grow inside the female until the end of the	Children will know/be able to • Different materials are used for particular jobs based on their properties: • Electrical conductivity, flexibility, hardness, insulators, magnetism, solubility, thermal conductivity, transparency. • Reversible changes, such as mixing and dissolving solids and liquids together, can be reversed by: sieving, filtering and evaporating. • Dissolving: a solution is made when solid particles are mixed with liquid particles. Materials that will dissolve are known as	Children will know/be able to • Light travels as a wave. But unlike waves of water or sound waves, it does not need a medium to travel through. This means light can travel through a vacuum – a completely airless space. • Shadows can be elongated or shortened depending on the angle of the light source. A shadow is also larger when the object is closer to the light source. This is because it blocks more of the light. • The law of reflection states that the angle of incidence is equal to the angle of reflection. Whenever light is		Children will know/be able to • In 1735, Swedish Scientist Carl Linnaeus firs published a system for classifying all living things. An adapted version of this system is still used today: The Linnaeus System. • Living things can be classified by eight levels: Domain, Kingdom, Phylum, Class, Order, Family, Genus and Species. • Each group allows scientists to observe and understand the characteristics of living things more clearly. • Microorganisms are viruses, bacteria, moulds and yeast. Some animals (dust

	• Evolution is the gradual process by which different species have developed from earlier forms over millions of years. This process is continuously happening – even today!	gestation period when the baby is born. • Most plants contain both the male sex cell (pollen) and the female sex cell (ovules). Wind and insects help to transfer pollen to a different plant. The pollen from the stamen of one plant is transferred from the stigma of another. The pollen then travels down a tube through the style and fuses with an ovule.	soluble. Materials that won't dissolve are known as insoluble. A suspension is when the particles don't dissolve.	reflected from a surface, it obeys this law.		mites) and plants (phytoplankton are also microorganisms).
Super Scientists	• Charles Darwin was a famous naturalist, geologist and biologist. He was best known for his work on the theory of evolution by natural selection, also known as 'survival of the fittest'. He published a book called 'The Origin of Species by Natural Selection'. It was ground breaking and controversial. It was published in 1859 – 10 years after our school was built! • Mary Leakey - Discovered many fossils of early hominins and their tools. These fossils provide evidence for the evolution of humans.		• Stephanie Kwolek – While trying to find a lighter material for car tyres, Stephanie created a very hard, but light, material called Kevlar. This invention was used in cards but also in bulletproof vests and is still used to protect the police and armed forces today.	• Isaac Newton (1643-1727) shone a light through a transparent prism, separating out light into the different colours of the rainbow (red, orange, yellow, green, blue, indigo, violet) - the colours of the spectrum. All colours merge together to create visible light.		• Libbie Hyman – She was a zoologist who is best known for her work on the classification of invertebrates. • Alexander Fleming – is well known for discovering the world's first antibiotic that could be used to treat illnesses caused by bacteria. He called it penicillin.

Cycle B

Golden Thread	Is exploration always good?		What is friendship?			What is democracy?
Science Golden Thread	***Earth and Space***	***Changes and Reproduction***	***Forces in Action***	***Changing Circuits***		***Healthy Bodies***
Working Scientifically	*Children can:* • Recognise how the theories and understanding of our solar system have changed over time as new technologies have been developed. • Carry out secondary research and report their findings in the form of a flip book. • Record information they have found out from scientific diagrams. • Carry out a fair test and identify how much the results can be trusted.	*Children can:* • Record data taken from scatter graphs, bar charts and information tables. • Present the findings from an enquiry using a scientific report format.	*Children can:* • Plan for different types of enquiry to answer questions. • Take measurements using a Newton Meter and other scientific equipment. • Report and present the findings from my enquiry.	*Children can:* • Recognise and control variables when planning and carrying out an enquiry. • Report and present the findings from out enquiry and decide how much we can trust the results.		*Children can:* • Plan a fair test to answer a given question when working with a partner, identifying the variables that will affect the results. • Take measurements using different scientific equipment and decide when they will need to repeat readings. • Present their findings in the form of a poster.
Scientific Understanding	Children will know/be able to: • describe the movement of the Earth, and other planets, relative to the Sun in the solar system. • Mercury, Venus, Earth and Mars are rocky planets. They are mostly made up of metal and rock. Jupiter, Saturn, Uranus and Neptune are mostly made up of gases (helium and hydrogen) although they do not have cores made up of rock and metal. • The Earth rotates (spins) on its axis. It does a full rotation once every 24 hours. At the same time Earth is rotating, it is also orbiting (revolving) are the Sun. It takes a little more than 365 days to orbit the Sun. Daytime occurs when the side of the Earth is facing towards the Sun. Night occurs when the side of the Earth is facing away from the Sun.	Children will know/be able to • Humans develop inside their mothers and are dependent on their parents for many years until they are old enough to look after themselves. • Amphibians such as frogs are laid in eggs then, once hatched, go through many changed until they become an adult. • Some animals, such as butterflies go through metamorphosis to become an adult. • Birds are hatched from eggs and are looked after by their parents until they can live independently. • Mammals use sexual reproduction to produce their offspring:	Children will know/be able to • Forces can make an object… Start to move. Stop moving. Change direction. Move faster. Move more slowly. Change its shape. • Water resistance and air resistance are forms of friction. Friction is sometimes helpful and sometimes unhelpful. For example, air resistance is helpful as is stops the skydiver hitting the ground at high speed. Friction on a bike chair can make the pike harder to pedal so it is unhelpful. • Mass is how much matter is inside an object and is measured in kilograms (KG). • Weight is how strongly gravity is pulling object	Children will know/be able to • Series Circuit – A circuit that has only one route for the current to take. If more bulbs or buzzers are added, the power must be shared and so they will be dimmer or quieter. If just one part of this series circuit breaks, the circuit is broken and the flow of the current stops. • Components of a Circuit and their Symbols: *Lamp/ bulb (indicator)* *Lamp/ bulb (lighting)* *Wire* *Motor* *Buzzer* *Switch (open)* *Switch (closed)* *Battery* *Cell*		Children will know/be able to • Drugs, alcohol and smoking have negative effects on the body. • A healthy diet involves eating the right types of nutrients and in the right amounts. • Mammals have hearts with four chambers. Blood that has come from the body is deoxygenated, and the blood that has come from the lungs is oxygenated again. • Capillaries are the smallest blood vessels in the body, and it is here that the exchange of water, nutrients, oxygen and carbon dioxide takes place. • The liquid part of blood contains water and protein this is called plasma. • Blood transports: gasses (mostly oxygen and carbon dioxide); nutrients (including water); waste products. • The heart pumps blood to the lungs to get oxygen.

	• It appears to use that the Sun moves across the sky during the day but the Sun does not move at all. It appears to us that the Sun moves because of the movements of the Earth.	• The male sex cell, called sperm, fertilises the female sex cells. • The fertilised cell divides into different cells and will from a baby with a beating heart. • The baby will grow inside the female until the end of the gestation period when the baby is born. • Most plants contain both the male sex cell (pollen) and female sex cell (ovules), but more plants can't fertilise themselves. Wind and insects help to transfer pollen to a different part of the plant. The pollen from the stamen of one plant is transferred to the stigma of another. The pollen then travels down a tube through the style and fuses with an ovule.	down and is measured in newtons (N)			• Arteries carry oxygenated blood away from the heart. Veins carry deoxygenated blood toward the heart.
Super Scientists	• Stephen Hawking – He was an astrophysicist whose theories, including those concerning black holes, have changed the way we understand the universe. • Margaret Hamilton – Margaret worked for NASA and was responsible for programming the on-board flight software on the Apollo spacecraft computers. She wrote the code that the computer used to navigate from Earth to the Moon and made sure the computer would land the spacecraft safely on the moon. • Neil deGrasse Tyson – In 2006, Pluto was reclassified as a dwarf planet and Neil was a big part of making this	• David Attenborough – David is a British wildlife film-maker and naturalist who has written and presented many popular documentaries about animals and their behaviour. He has been on TV for over 60 years and is recognised all over the world.	• Isaac Newton is famously though to have developed his theory of gravity when he saw an apple fall to the ground from an apple tree. • Leonardo da Vinci – Leonardo was known as an expert scientist, inventor, engineer, architect, writer, sculptor and painter. His most famous painting, The Mona Lisa, is thought to be the best known and most visited work of art in the world.	• Steve Jobs – He was an innovator, inventor and entrepreneur who introduced new technologies to the public. He co-founded the technology company Apple Incorporated, and launched the iPod, iPhone and iPad.		• In 1893, Dr Daniel Hale Williams performed the world's first successful open-heart surgery, without blood transfusions, with unreliable anaesthetic and with no way of stopping the heart from beating while he operated! • Marie Maynard Daly – was the first black woman with a PhD in chemistry in the USA. She is known for her work on how our diet affects the health of our circulatory system. Marie Maynard Daly's work demonstrated that high levels of cholesterol can lead to clogged arteries. One way we can lower cholesterol levels is by eating less saturated fat.

	decision. He works as a planetary scientist and actually thinks we shouldn't use the name 'planets' but instead group them according to their type, such as gas giant, ice giant and terrestrial planet.					