St Anne's C of E Primary School Curriculum Plan

Subject: Science	Year: 5	Term: Autumn 1

Unit: Properties of Materials

Vocabulary	Knowledge	Understanding	Skills
	Children will know (that)	Children will understand (that)	Children will be able to
magnetic - a material that is attracted to a magnet. **durable** - the ability to last a long time without becoming damaged. **transparent** - a material that allows light to pass through it so it can be seen through clearly. **versatile** - is able to do many different things or used in many different ways. **conductive** - a material that allows heat and/or electricity to pass through it. **steel** - a metal made from iron and carbon.	materials that are thermal conductors. which materials are soluble and insoluble in water. the different separation methods.  	thermal conductors are suited to a particular task. what the term 'dissolve' means. the processes of different separation methods. the most effective separation method for various materials.	**Question** ask questions that explore the solubility of a solute. **Plan** design an investigation that tests the solubility of a solute. plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. **Set-up** use test results to make predictions to set up further comparative and fair tests. **Observe**

stone - a natural material found in the Earth's crust. **force** - when an object is acted upon by a pull or push motion in a specific direction. **hardness** - resistance to scratching and pressure. **iron** - a type of metal found in the Earth's crust. **solute** - a substance that can be dissolved in liquid. **insoluble** - a substance that cannot be dissolved in liquid. **solvent** - a substance that can dissolve a solute; water is a solvent. **dissolve** - to mix with a liquid and become part of the liquid. **solution** - a mixture of substances. **substance** - any material, such as sugar. **saturation** - unable to dissolve or absorb any further. **solvent** - a substance that can dissolve a solute; water is a solvent. **solute** - a substance that can be dissolved in liquid.			carry out a fair and comparative test to group materials according to their properties. carry out a fair and comparative test to test the thermal conductive properties of materials. carry out a fair and comparative test to test the hardness of materials. group materials according to their properties. **Record** take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. **Conclude**

evaporation - the process where a liquid changes into a gas. **filtering** - the separation of solid particles in a mixture by passing the mixture through a screen. **sieving** - the separation of a mixture using a tool with small holes; used to separate smaller particles from larger ones. **mixture** - different things combined together; the particles are not bonded to each other. **pure substance** - a substance that has no other substances mixed into it.			use the results of their investigation to consider which solutions could be reversed. present the findings from an investigation that tests the solubility of a solute. **Evaluate** use results from a fair and comparative test to explain how the thermal conductive properties of materials enable them to be suitable for a specific task. use results from a fair and comparative test to explain how the hardness of materials enables them to be suitable for a specific task.

St Anne's C of E Primary School Curriculum Plan

Subject: Science	Year: 5	Term: Autumn 2

Unit: Changes of Materials

Vocabulary	Knowledge	Understanding	Skills
	Children will know (that)	Children will understand (that)	Children will be able to
pure substance - a substance that has no other substances mixed into it. **solute** - a substance that can be dissolved in liquid. **solvent** - a substance that can dissolve a solute (e.g. water). **solution** - a mixture of substances. **evaporate** - the process where a liquid changes into a gas. **melting** - changing from solid to liquid.	what 'evaporation' means. 	how evaporation can be used to get the salt back from salty water.	**Question** **Plan** suggest a method to recover the water from a salt water solution and explain why this method works. predict the best substances used to make the fizzy rocket. plan an experiment to investigate rusting and include how to make it a fair test. plan different types of scientific enquiries to answer questions,

reversible - a change to a substance that can be undone or reversed. **mixture** - different things combined together; the particles are not bonded to each other. **physical change** - a change that can be reversed such as changing state or making a solution. **evaporate** - the process where a liquid changes into a gas. **irreversible** - a change to a substance that cannot be undone or reversed. **effervescence** - fizzing or bubbling. **compare** - discuss how 2 or more things are the same and how they are different. **chemical change** - a type of change in which a new substance is formed. **product** - new substances made after the chemical change has happened. **fair test** - an experiment that only changes one variable. **control variable** - all the things we keep the same in an investigation.	methods for reversing a physical change.  some irreversible changes.  rusting is an irreversible change. the 3 factors a fire needs to burn.	how the method used to reverse a physical change works. why the change is irreversible and what new products have been made. why rusting is an irreversible change, why it is a problem and how to prevent it. different methods for extinguishing a fire.	including recognising and controlling variables where necessary. **Set-up** use test results to make predictions to set up further comparative and fair tests. **Observe** apply knowledge of the fire triangle to alternative extinguishing methods. **Record** use observations to describe how you can tell an irreversible change has taken place. **Conclude** use experiment results to test a prediction and write a conclusion to show the best substances to make a fizzy rocket. report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. **Evaluate** use the results of an evaporation experiment to explain which mystery liquid is a solution. use measuring equipment to suggest ways to improve the

corrosion - the reaction of a metal with oxygen. **rusting** - the reaction of iron with oxygen. **variable** - something we can change in an experiment. **combustion** - an irreversible change where a fuel uses oxygen to burn and releases energy. **oxygen** - a gas that makes up around ⅕ of the air around us and is needed for burning. **carbon dioxide** - a gas which makes up around 0.04% of our atmosphere. **fuel** - a substance that can burn to release energy. **extinguish** - to put out a fire. **smother** - to extinguish by covering. **acid** - a sour or bitter substance, such as vinegar. **bicarbonate of soda** - an alkali used in baking as a raising agent. **reaction** - a process in which substances are converted into different substances.			accuracy of the observations made in the experiment. evaluate the strengths and weaknesses of the method chosen and suggest improvements. identify scientific evidence that has been used to support or refute ideas or arguments.

predict - to explain what you think might happen.			

St Anne's C of E Primary School Curriculum Plan

Subject: Science	Year: 5	Term: Spring 1

Unit: Forces

Vocabulary	Knowledge	Understanding	Skills
	Children will know (that)	Children will understand (that)	Children will be able to
Sir Isaac Newton - an English physicist and mathematician. **gravity** - force which draws objects towards the centre of a planet, or other body. **astronomy** - study of the universe. **mass** - how much matter an object contains (measured in g/kg). **weight** - the force applied to an object by gravity (measured in Newtons). **Galileo Galilei** - an Italian scientist and the first astronomer. **opposing** - to act against.	the life and work of Isaac Newton. what air resistance does to an object. the forces acting on an object floating in water. the similarities and differences between air and water resistance. 	the influence gravity has on the universe. how air resistance acts on objects. how water resistance acts on objects. air and water resistance act differently on objects.	**Question** **Plan** plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. **Set-up** investigate the relationship between mass and gravity. design and test parachutes, using averages to get more accurate results. create a set of interacting gears. **Observe** use a Newton metre to measure a force.

air resistance - friction which acts between the air and another object. **streamlined** - shape or design of an object so it travels through the air with as little resistance as possible. **parachute** - a device, usually made from cloth, designed to create air resistance and slow the descent. **upthrust** - any force that is causing something to be pushed upwards. **buoyant** - to float. **water resistance** - friction which acts on an object as it moves through water. **sink** - an object becoming submerged in a liquid. **streamlined** - an object that is shaped to travel through air or water with as little resistance as possible. **Newton meter** - a device used to measure the size of a force lubricant - a substance used to reduce friction between moving surfaces.	the forces acting on a range of objects (friction, air resistance, water resistance etc.). gears are toothed wheels that mesh together, they rotate in opposite directions.	how friction acts on objects. ways of changing the size of a frictional force.  how gears work and their purpose.	describe the effect forces can have on an object. notice patterns in the workings of gears. **Record** draw an accurate diagram of the forces acting on a parachute and explain their purpose. take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. **Conclude** report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. identify scientific evidence that has been used to support or refute ideas or arguments. **Evaluate**

Newton - the international metric unit of force. **friction** - the resistance of motion when one object rubs against another. **resistance** - force which operates in the opposing direction to the motion of an object. **load** - the weight of an object. **pulley** - a wheel over which a belt, rope, or chain is pulled to lift or lower a heavy object. **lever** - a long arm that rests on a support called a fulcrum. **pivot** - a pin or shaft on which a mechanical part turns. **gear** - toothed wheel that engages another toothed mechanism in order to change the speed or direction of motion. **mesh** - to connect, interlock or engage with. **mechanism** - a mechanical device. **rack and pinion** - gears used to convert rotation (movement in a circular direction) into linear motion (movement in a straight line). **bevel gear** - a gear having teeth cut into a conical surface, usually			

meshing with a similar gear set at right angles.			

St Anne's C of E Primary School Curriculum Plan

Subject: Science	Year: 5	Term: Spring 2

Unit: Earth and Space

Vocabulary	Knowledge	Understanding	Skills
	Children will know (that)	Children will understand (that)	Children will be able to
Solar System - the name for the Sun and all the planets, dwarf planets, asteroids, meteors and comets that orbit it. **orbit** - the path of one celestial object around another, such as the Moon around the Earth. **terrestrial planet** - the name given to the 4 inner rocky planets - Mercury, Venus, Earth, and Mars. **gas giant planets** - the name given to the 4 outer planets - Jupiter, Saturn, Uranus and Neptune. **dwarf planet** - a planet which lacks the strength of gravity to attract surrounding materials.	key characteristics of a planet. examples of a heliocentric and a geocentric solar system model. the sun transitions across the sky at different times in the day.	all planets are different to one another. the order of the planets from the Sun.  the Sun, Earth, moon and other celestial bodies are spheres. the differences between a heliocentric and geocentric model of the solar system. the Sun transitions across the sky. how night and day happen. how Earth moves in space.	**Question** **Plan** **Set-up** use test results to make predictions to set up further comparative and fair tests. represent visual characteristics of a planet. **Observe** describe the Sun, Earth, moon and other celestial bodies as spheres. describe the characteristics of a planet. **Record** create a representation of their knowledge of the planets and space using their imagination. take measurements, using a range of scientific equipment, with

rocky planet - the name given to the inner planets Mercury, Venus, Earth, and Mars. **geocentric** - the old solar system model, which thought the Earth was at the centre. **heliocentric** - the modern model of the solar system, which places the Sun at the centre. **astronomy** - the study of space, planets and the universe as a whole. **spherical** - round like a ball. **poles** - the place where the axis spins around; the North pole and the South pole. **season** - a time of year which is defined by the weather associated with it. **axis** - the (imaginary) line which a planet rotates around. **hemisphere** - on Earth, there are 2 of these – the North and South, separated by the equator. **shadow** - a dark figure or image cast on the ground or surface by a body intercepting light. **time zone** - one of 24 parts that the world is divided into so that	the Earth moves within our Solar System. the Earth's rotation and the movement of the sun create day and night. how the Earth and Moon move relative to the Sun. the movement of the Moon relative to the Earth.	time can be different in various parts of the world. how time can be recorded using a 'solar clock'. how the Sun transitions across the sky. the Moon orbits the Earth, not the Sun.	increasing accuracy and precision, taking repeat readings when appropriate. **Conclude** report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. identify scientific evidence that has been used to support or refute ideas or arguments. **Evaluate**

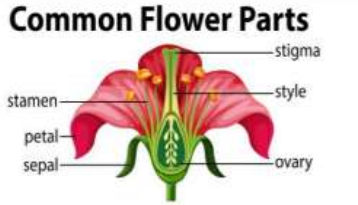
different places can set their clocks correctly. **sundial** - a device that uses the light of the Sun to show the time of day. **dial** - a plate, disc, face or other surface containing markings or figures to indicate times of the day. **gnomon** - the raised part of the sundial that causes a shadow.  **phase** - the appearance of a Moon or planet, according to the amount of illumination seen. **waxing** - the name given to Moon phases when the Moon is becoming brighter.  **waning** - the name given to Moon phases when the Moon is becoming darker.  **eclipse** - when a body moves into the shadow of another body; either as a lunar eclipse or a solar eclipse. **moon** - body which orbits a planet; also called a natural satellite.			

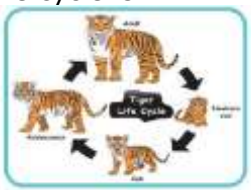
moon - body which orbits a planet; also called a natural satellite.			

St Anne's C of E Primary School Curriculum Plan

Subject: Science	Year: 5	Term: Summer 1

Unit: Living Things and their Habitats

Vocabulary	Knowledge	Understanding	Skills
	Children will know (that)	Children will understand (that)	Children will be able to
genes - a set of instructions needed to make cells. **tuber** - an underground part of a plant which stores food. **reproduction** - to make offspring, either sexually or asexually. **asexual reproduction** - where only one parent is needed to create offspring. **fertilisation** - when a sperm and egg cell join together. **placental mammal** - a mammal who has live young which develop before birth inside a female mammal. **monotreme mammal** - a mammal who lays eggs to reproduce.	plants are living things. what plants need to grow strong and healthy. plants can reproduce sexually and asexually.  the 3 types of mammal.	what makes a plant a living thing. how a plant is strong and healthy. how plants produce sexually and asexually. not all mammals have the same life cycle.	**Question** **Plan** plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. suggest ideas for conservation of living or imaginary life **Set-up** **Observe** compare the process of metamorphosis in amphibians and insects. **Record** represent key information about a chosen living organism. represent knowledge learnt about life cycles.

mammary glands - an organ in female mammals where milk is produced. **pouch** - a small pocket located on the front of marsupial mammals. **marsupial** - a mammal who carries their young in a pouch on the front of their bodies. **amphibian** - a cold-blooded vertebrate. **metamorphosis** - when insects and amphibians transform from their larval stage to their adult form. **larva** - the form an insect or amphibian takes between egg and adult. **caterpillar** - a small, worm-like animal that feeds on plants and eventually develops into a butterfly or moth. **pupa** - the inactive stage of an insect's life between larva and adult. **egg** - a round object laid by some types of animals which contains a developing embryo. **fledgling** - the stage of life a bird goes through between hatching and being able to fly.	 what a life cycle is.  key facts about the structure of an egg. important facts about 2 key members of the scientific community.	the life cycle of an amphibian. the life cycle of an insect. the life cycle of birds and reptiles. the differences between a mammal and a bird or reptile life cycle. the importance of documenting living things and highlighting their decline in the world. the importance of studying living organisms.	**Conclude** report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. **Evaluate** identify scientific evidence that has been used to support or refute ideas or arguments.

egg tooth - a hard bump on the beak or jaw of an embryo bird or reptile that is used for breaking out of the shell and later falls off. **embryo** - an unborn or unhatched offspring in the process of development. **hatch** - when a young bird, reptile, insect, or amphibian emerges from its egg. **primatologist** - a person who carries out a scientific study of primates. **endangered** - an animal is considered endangered when there are very few of them alive. **natural sciences** - a branch of science which deals with the physical world. **documentary** - a film or radio programme that provides a factual report on a particular subject. **naturalist** - an expert in the studies of natural history. **life cycle** - a series of stages a living thing goes through during its life. **vertebrate** - an animal of a large group which have a backbone or spinal column, including mammals,			

birds, reptiles, amphibians, and fishes. **warm-blooded animals** - (mainly mammals and birds) which maintain a constant body temperature, typically above that of the surroundings. **living organism** - something that can move, use energy and reproduce.			

St Anne's C of E Primary School Curriculum Plan

Subject: Science	Year: 5	Term: Summer 2

Unit: Animals including Humans

Vocabulary	Knowledge	Understanding	Skills
	Children will know (that)	Children will understand (that)	Children will be able to
adolescent - a mammal's young adult offspring. **adolescence** - a period of life caused by the onset of puberty; when a young person develops from a child into an adult. **reproduce** - producing offspring. **dependent** - needing others to look after it. **puberty** - the period of life when a human's sexual organs mature. **foetus** - the term for an unborn offspring still within the female mammal's body. **gestation** - the period of time an animal is pregnant for.	the key stages of a mammal's life cycle. developments during each stage of a life cycle. some ways that the growth of children is measured. changes that take place during puberty. some key signs of ageing in humans.	what gestation is. the stages during pregnancy. reasons behind extreme gestation periods. how all children grow. all children go through puberty. humans age differently depending on their lifestyle.	**Question** **Plan** **Set-up** **Observe** compare the human life cycle with another mammal. learn some differences between the gestation periods of mammals. compare the changes experienced by boys and girls. suggest ways to stay healthy in old age. **Record** accurately create and plot points on a line graph. compare the mass and length lines.

pregnant - human containing a foetus within the body. **breeding** - mating and producing offspring. **extreme** - the highest/lowest value of something. **duration** - how long a period of time is. **embryo** - a foetus before it is 10 weeks old. **trimester** - 3 months of pregnancy. **midwife** - a healthcare professional who cares for a pregnant mother. **umbilical cord** - connection between the mother and foetus. **womb** - part of the body where a foetus grows. **growth spurt** - to grow quickly in a short period of time. **childhood** - a stage of life which starts at birth and ends when someone enters adolescence. **motor skills** - any action that involves using muscles.			take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. **Conclude** report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. **Evaluate** begin to link data with scientific thinking on growth. identify scientific evidence that has been used to support or refute ideas or arguments.

milk teeth - first set of human teeth that humans grow. **constant** - not changing. **bloodstream** - the blood circulating through the body of a person or animal. **hormone** - a natural substance produced in the body that influences the way the body grows. **growth** - the process of increasing in size. **appetite** - a physical desire for food.			