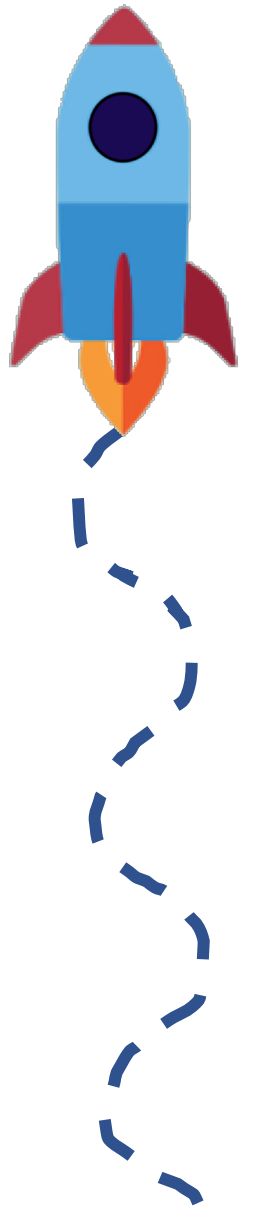


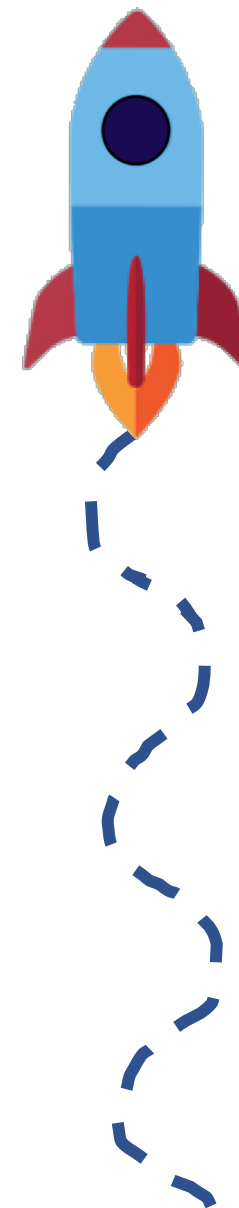
Year 6						
Block 1	Recommended Lesson Sequence	Scientific Enquiry Covered	Rocket Words Covered	Name of Task / Tasks	Resources Needed	Summative Quiz Questions
Light	1. Compare materials of different transparencies	1. Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary	1. man-made light, natural light, light source, transparent, opaque	1. Design and build your own lamp.	scissors, tape/ masking tape, coloured filters/ coloured sweet papers, acetate/ cling film, paper (coloured optional), card (coloured optional), tracing paper, torch/ circuit building kit	Which of these are natural light sources and which are artificial light sources? Fill in the blank - If something is _____, light can not travel through it. Which of these reflect light? (Tick 3 boxes), True or false: Light can only travel in straight lines. Complete the statement: Light enters your eye through the {{cornea}}, which is the eye's first layer. It next goes through the {{pupil}}. This is the dark opening in the {{centre}} of your eye. It is in the middle of the coloured part, which is called the {{iris}}.
	2. Describe how lenses can be used	2. Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate	2. ray, lens, refraction, haze, distort	2. Build a refracting telescope.	Rainbow of Bubbles Washing up liquid, Water, Glycerine, Straws, Paper plates Magic Coin Trick Glasses, Water, Coins (identical), Handout	When light rays pass from one transparent medium to another, they appear to change direction. What is this called? Which of these can you see light through? (Tick 2 boxes), Light moves faster through water than through air. Complete the statement: On an extremely {{hot}} day, you can see heat haze. This is when some {{air}} get hotter than the rest and changes the {{speed}} of light. Light {{rays}} get bent as they pass through the heat and things beyond the haze look {{distorted}}. When an object is placed in water, how will it appear?
	3. Explore water lenses	3. Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations	3. lens, magnify, camera, telescope, binoculars	3. Observe how a glass of water can be used as a lens.	Water Droplet Magnifier: 3x ruler transparent film/ acetate, water, Building a telescope: 2x Magnifying lenses, Sticky tack, metre ruler/ inflexible, piece of wood, Handout	Lenses in which of these helps us to see tiny things close up - things we can't even see with our naked eye? True or false: Water acts as a lens but things look distorted when you look at them through water. True or false: Lenses can only make things look bigger. Complete the statement: A lens is a {{curved}} piece of {{transparent}} material. The curve makes the light rays change {{course}}. When you hold a magnifying glass to a book, the light rays coming from the {{book}} have travelled through the {{lens}} and appear {{larger}} to your eyes. Lenses in which of these helps us to see things very far away, in Outer Space?
	4. Describe the reflection of light	4. Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate	4. angle of incidence, reflection, angle of reflection, translucent, mirror	4. Design a laser system to protect a precious diamond.	Exploring Torchlight Per pair Torch, Shadow Investigation Per pair Pencil Modelling clay Paper Pens Scissors Sticky tape Ruler Torch 1 x Shadow Investigation page from Handout 2 x Shadow Investigation: Worksheet page from Handout	True or false: Light travels at the same speed through all mediums. Which of these allow light to pass through them? (Tick all that apply) The angle at which a light ray hits an object is called what? Complete the statement: We see things because light travels to an object and then {{bounces}} back off that object, right into our eyes. The bounced light travels in a {{straight}} line. The angle at which the light hits an object is called the angle of {{incidence}}. The angle at which it bounces off that object is called the angle of {{reflection}}. True or false: Light always travels in straight lines.
	5. Investigate light colour mixing	5. Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary	5. primary colours, secondary colour, light filter, magenta, cyan	5. Exploring light filters.	Colour Mixing Investigation: Green, blue, yellow and red transparent film. Torches, Red, blue, yellow, green, and white paper Handout	What are the primary colours of light? Which of these colours are used in a colour printer? (Tick all that apply) If red and green light are shined at the same spot of a piece of paper, what colour shows? Complete the statement: When mixing paint colours, the {{more}} paint you add, the darker the combined colour gets. This is because more {{light}} is being absorbed. Orange, purple and green are {{secondary}} colours and the shade will depend on the ratio of colours used. The thicker the mixture of paint, the more {{opaque}} the paint becomes. True or false: Red, blue and yellow lights are used in electronic lights.
	6. Explain how shadows form	6. Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate	6. shadow, opposite, obstruct, light ray, fluorescent	6. Investigate how distance from a light source effects the size of a shadow.	Casting Shadows Torches Books Rulers Paper Coloured pencils Light meters, Beaming Handout	The path of the light is blocked by what? True or false: Light is a form of energy. Complete the statement: Light travels in {{straight lines}}. A {{photon}} is the basic unit that light is made from. They travel together in {{narrow}} beams called {{rays}}. Light continues to travel until it is {{blocked}} by an object. Which of these are sources of light? True or false: Fluorescent lights are often bright.



**Block 2**

**Electricity**

1. Explain how objects become charged	1. Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary	1. static electricity, charge, electric shock, friction, discharge	1. Explore ways of generating static electricity.	Comparing Static Generators Fabric cloth Balloon Plastic ruler Wooden ruler PVC pipe Aluminium cloth Shredded tissue paper, Handout	What electrical charge do electrons have? Organise these as to whether they are static electricity or powered electricity. True or false: Electrons are particles that orbit the nucleus of an atom. What is static electricity caused by? Complete the statement: {{Friction}} creates a build up of electrical charge which is called {{static}} electricity. It is a flow of negatively charged {{electrons}}.
2. Describe the parts of an electric circuit	2. Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary	2. circuit, battery, filament, resistance, switch	2. Building a circuit.	Circuit building 2x 3V bulbs 2x 1.5V cells 5 connecting wires Switch (optional), Handout	What is the very thin wire in a light bulb called? When electricity flows through a filament bulb, what is created? (Tick the correct answer.) True or false: Batteries have a positive and neutral pole. Complete the statement: When the switch is turned {{on}}, {{electrons}} can travel through a wire because the circuit is {{closed}}. They travel from the {{negative}} pole, around the circuit and back to the {{positive}} pole. In a bulb, the filament is a very fine wire, which {{resists}} the fast flow of {{electrons}}. This resistance turns the electricity into light! True or false: The brightness of a lamp increases as the voltage of cells used in the circuit increases.
3. Explain how voltage affects bulb brightness	3. Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations	3. voltage, dynamo, generator, power, rechargeable battery	3. Write a report which explains the importance of generating a light source in different situations.	Generating Power Lined paper A2 paper Marker pens, Handout	In a wind-up torch, who or what is the energy created by? Which of these are benefits to using a wind-up torch? (Tick 3 boxes) True or False: Every torch needs a battery to work. Complete the statement: If you put a metal wire near a magnet and move either the wire or the magnet, electricity flows through the {{wire}}. A wind-up torch converts {{mechanical}} energy into {{electrical}} energy. This is an example of a generator or {{dynamo}}. The energy is created by turning or cranking a handle. A {{light}} in the torch gets {{stronger}}, when it gets more power. Power in the wind-up torch is generated by spinning what, inside a wire coil?
4. Compare electrical conductors & insulators	4. Using test results to make predictions to set up further comparative and fair tests	4. insulator, conductor, copper, short circuit, fuse	4. Exploring electrical conductors and insulators.	Dough Circuits Conductive and Insulating dough (instructions in Handout) LED lights Battery packs, Handout	How does electricity flow through insulators? True or false: Cables are made of both conducting and insulating material. Complete the statement: The wire inside the cable must be made from a {{conductor}} but the outside must be made from an {{insulator}}. This stop you from getting an electric {{shock}}. A {{fuse}} is a tiny ceramic tube surrounding a thin metal strip. A short circuit is a connection on an electric circuit that allows a current to follow an {{unplanned}} path. Which of these conduct electricity and which are insulators? Which of these are important electrical safety measures? (Tick 3 boxes)
5. Build a set of traffic lights	5. Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations	5. signal, timer-based, synchronised, receiver, sensor	5. Design and make your own traffic lights then explain how they work to your class.	Traffic Lights Corrugated card/ cardboard box Connecting wires Crocodile clips 1.5V LEDs - caution as higher voltages may break the LEDs, test you LEDs before giving them to children. 2x 1.5V batteries small piece of cardboard, 1 paperclip, drawing pin Teacher guidance sheet, Handout	Which colours of the traffic light are lit up to tell the driver to get ready to move? Some traffic lights work based on detectors - where are these located? (Tick 2 answers) True or false: Emergency vehicles are able to change some traffic lights in order to save time. What is the sequence a traffic light shows? (Start with when the driver is stopped). True or false: All traffic lights have the same amount of time between signal changes.
6. Explain how variable resistors can work like a switch	6. Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate	6. dimmer switch, component, resistor, variable adjust	6. Constructing a circuit and vary and record what happens.	Resistance is Futile 1.5V cell x 3 per group of 3 pupils LEDs Bulbs Buzzers Breadboard Wire Wire strippers Variable resistor	True or false: If you remove a resistor from a circuit with a light, the circuit is incomplete so the light will turn off. What is the function of a resistor? Which of these is a resistor? Complete the statement: A resistor is an electrical {{component}}, which {{resists}} the flow of the current. In a circuit, it controls the amount of current going through the {{wire}}. Some can control only a fix amount of current but other can act like a dial switch. These are called {{variable}} resistors. On a resistor, what indicates the resistor's value?



Block 3						
Living things and their Habitats	1. Classify living things	1. Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations	1. classify, group, class, kingdom, similarities	1. Classifying biscuits.	Classifying Data Challenge/Classification Tree, Ruler, Coloured pencils, Individually wrapped biscuits, Paper, Mission log, Handout only	In which country was Carl Linnaeus born? Which language is used when allocating a scientific name to an animal? True or false: All animals are given a genus and species name. In which year was Carl Linnaeus born? Sort the words into their genus and species name.
	2. Explore the kingdoms of life	2. Identifying scientific evidence that has been used to support or refute ideas or arguments	2. fungus, excretion, MRS GREN, prokaryote, nutrition	2. Research the kingdoms of life. 2. Growing mould.	Mould Growing Investigation: 4 slices of bread per work station, 4 sealable sandwich bags per work station, sticky labels, marker pens, mould spores, masks, gloves, handout	Which food source is incredibly important in the ocean? What were the first two kingdoms scientists agreed on? True or false: Under a microscope, scientists discovered new organisms that needed a new classification as they were neither plants nor animals. Complete the statement: Scientists have classified living things into {{large}} groups called {{kingdoms}} based on different {{features}}. One of these features is how an organism gets its {{food}}. {{Plants}} make their own {{food}} but {{animals}} do not. {{Animals}} can usually move themselves around, whilst {{plants}} cannot. Sort these by whether they are a kingdom or not.
	3. Describe the work of Carl Linnaeus	3. Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations	3. Latin, genus, Carl Linnaeus, Homo sapiens, species	3. Outline a day in the life of Carl Linnaeus.	Kingdoms Reference books/internet Paper Pens Pencils, It's Classified Handout - Lesson Resource Scissors, Handout	What do botanists study? Which of these species belong to the Felis genus? (Tick all that apply) Linnaeus's system for classification is rarely used today. Complete the statement: Linnaeus gave {{two}} names to the species he identified. The {{genus}} name was more general. Homo sapiens is the {{Latin}} word for human beings; {{homo}} means human beings and {{sapiens}} means wise. Carl Linnaeus published a book called Systema Naturae. What does this mean?
	4. Identify different classes of vertebrates	4. Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations	4. vertebrate, cold-blooded, amphibian, reptile, mammal	4. Classifying animals.	Classifying animals: reference books, internet, glue, scissors, handout	What does the word amphibian mean? Which of these are vertebrates? (Tick all that apply) Animals are classified as birds if they can fly and build nests. Which of these animals are warm-blooded and which are cold-blooded? Why are whales classified as mammals and not fish? (Tick all that apply)
	5. Explore soil habitats	5. Using test results to make predictions to set up further comparative and fair tests	5. carbon dioxide, microorganism, plant, oxygen, microscopic	5. Investigate woodlice habitats.	Soil and Habitat Investigation: spade, soil samples, investigation sheet, gloves, water, sieve. Exploring the properties of soil: Paper cups, soil, water, plastic covering/table cloths. Woodlice Habitat: data gathering aids (light/heat/water content meters) if available, Handout	What fraction of all living things use soil as their habitat? Which of these organisms are found in soil? Tick all that apply Life above the ground relies on the help of life below ground. Complete the statement: Soil is a {{habitat}} for many living organisms. Weather affects which type of plants and animal lives in a particular soil, because of differences in {{temperature}} and how much {{rain}} there is. Billions of {{microorganisms}} live in the soil and they are very important to the health of the planet. What does soil provide for a seed when it is growing?
	6. Describe different types of fungi and yeasts	6. Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	6. pilobolus, fungi, mushrooms, yeast, spore	6. The scientific drawing challenge!	A pattern of spores: Large flat open mushroom portabello, plain white paper, pencil handout	Where do fungi get their energy from? Why were fungi once thought to be part of the plant kingdom? (Tick all that apply) All mushrooms are poisonous. Complete the statement: Mushrooms are created by {{colonies}} of fungi. When they are fully grown, the mushrooms release millions of tiny {{spores}}. These are blown off by the {{wind}}. {{Pilobolus}} fungus grows on cow manure and its {{cap}} flies through the air to spread its spores. What yeast is used for?



**Block 4**

	1. Explain why animals can look different to the parents	1. Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate	1. generation, species, evolution, offspring, DNA	1. Extract the DNA from a banana.	Strawberry DNA Strawberries Resealable plastic bag 5ml of rubbing alcohol 10ml shampoo 1 teaspoon salt Rubber band Tweezers Muslin Small container Jug 90ml water, Handout	What are an animal's offspring? True or false: Every living organism in the wild has to compete to live. Which of these animals are extinct? Complete the statement: Every offspring is {{unique}} but it may share {{characteristics}} from one or both of its parents. The parents and the young are from {{different}} generations. Animals with characteristics that are better adapted to survive in a habitat will survive but others, which aren't, will eventually die out or become {{extinct}}. Which characteristics do the cat species share?
	2. Describe the process of natural selection	2. Identifying scientific evidence that has been used to support or refute ideas or arguments	2. Charles Darwin, habitat, ancestor, Natural selection, extinct	2. Exploring how adaptations can help species survive.	Camouflaged worms - Whole Class model 250 natural coloured toothpicks 250 toothpicks painted green Grassy area. Stopwatch. or 40 natural coloured toothpicks 40 toothpicks painted green 40 toothpicks painted red 40 toothpicks painted yellow 40 toothpicks painted blue Grassy area. Stopwatch. Handout 2 - Toothpick Graph Challenge. Camouflaged worms - Individual model 20 plain toothpicks 20 toothpicks painted to match the floor/carpet Stopwatch. Cups. Tweezers. Handout 1 Which Beak? Spoons. Tweezers. Chopsticks. Pegs. Dried beans. Washers. Toothpicks. Dry macaroni. Stopwatch.	A naturalist is someone who studies..? Tick all that apply. The Darwin Medal was first awarded to Charles Darwin in 1890. What was the ship called that Charles Darwin sailed to the Galapagos Islands on? Complete the statement: On the Galapagos Islands in the {{Pacific}} Ocean, he found lots of birds that looked like {{finches}}. They were all very similar, except for their {{beaks}} and had evolved from one, shared ancestor. He also noticed that the {{tortoises}} were not all the same. They had {{adapted}} themselves to suit the {{habitats}} of the islands they were on. Order these events of Charles Darwin's life.
Evolution and Inheritance	3. Explain what fossils can tell us	3. Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations	3. fossil, fossilisation, evidence, sediment, coprolite	3. Building a dinosaur skeleton.	Fossilised, plaster of Paris, Modelling clay, Flexible container, Plastic tubing, Wire, Paints, Paintbrushes Handout	True or false: Many plants and animals end up as fossils. Order these in the correct order to explain how a fossil is made. Sediment is made up of...? Tick all that apply. What is a coprolite? True or false: Land animals are never fossilised.
	4. Explore the work of palaeontologist Mary Anning	4. Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations	4. Mary Anning, specimen, prehistoric, Jurassic Coast, palaeontologist	4. Create a model and drawing of your own skeleton dinosaur.	Dinosaur Skeleton Picture Matchsticks (safe ones - preferably ones without heads) Black card PVA glue Pencils, Handouts	Mary Anning was the first person to discover which fossilised full skeleton? Mary Anning was a famous... Find 3 answers. The Jurassic Coast is a World Heritage Site. Complete the statement: Mary Anning lived in Lyme Regis, Dorset, which had once been {{underwater}}. It is called the Jurassic Coast because so many {{prehistoric}} fossils have been found there. She often went fossil hunting after {{a storm}} and would sell her findings to make money for her family. What did Mary Anning use belemnites to create?
	5. Describe the process of genetic modification	5. Identifying scientific evidence that has been used to support or refute ideas or arguments	5. genetically modified crops, toxin, resilience, breeding, yield	5. Question challenge. 5. Hold a debate on GM crops.	Dandelion Challenge Rulers Pens Paper, The Great GM Debate Pens Paper Reference books/internet, Handout	What does GM stand for? GM crops may cause harm to...? No GM crops are grown commercially in the UK. Complete the statement: A GM crop is one that scientists have {{altered}} - it has not {{evolved}} naturally. Scientists want to improve crops by changing their {{DNA}} to give them new characteristics. For example, they may take a gene that allows a crop to hold more water and put it into a plant that grows in a {{drier}} climate. Which of these GM products are allowed to be imported to the UK?
	6. Explain how animals can be bred for a specific purpose	6. Identifying scientific evidence that has been used to support or refute ideas or arguments	6. scientific research, husbandry, livestock, competition, conservation	1. The Dog breed Challenge.	Dog Breed Challenge: Handout	Why are animals bred? (Tick all that apply) True or false: Livestock are the plants and animals kept on a farm. Complete the statement: We are {{responsible}} for the animals within our care but we have a duty of care to {{all}} living things. True or false: Animal breeders often attempt to create offspring which inherit certain characteristics. True or false: Thoroughbred horses are bred for racing.



Block 5						
	1. Explain what happens when blood vessels constrict	1. Using test results to make predictions to set up further comparative and fair tests	1. blood vessels, heart attack, blood clot, fatty deposits, circulatory system	1. Investigate blood clotting!	Restricting Blood Flow 4x disposable cups pin/ sharp pencil to puncture holes modelling clay Water red food colouring (optional), Handout	What invention was used to investigate William Harvey's claim that the heart was at the centre of a blood circulating system? True or false: People have always known that the heart pumps blood in a circuit through the body. Complete the statement: Exercising makes your heart muscle {{stronger}} and can help you live longer. Eating {{sensibly}} is another key to a healthy heart. When you eat {{more}} fat that your body can use, it make build up as fatty deposits inside your blood vessels. These deposits can cause blood {{clots}}. Doctors were watching blood flow in the tail of which live animal, when they realised Harvey was right? True or false: All fats that you are eat are bad for you.
	2. Describe how your heart moves blood around the body	2. Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations	2. atrium, ventricle, aorta, respiratory, bloodstream	2. Create a model of the heart.	Modelling the heart: plastic bottles with wide neck, water, balloons, skewer or pencils, straws, sticky tape, Handout	The heart is divided into how many chambers? Which of these are part of your circulatory system? Tick all that apply. True or false: The aorta is the biggest vessel of all. Complete the statement: Your heart is a powerful {{muscle}}. Every time it {{beats}}, it pumps blood to all parts of your {{body}}. When you exercise, your heart beats {{faster}} because it is having to work harder. Order the journey of blood.
	3. Describe how oxygen is moved around the body	3. Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	3. trachea, bronchi, alveoli, capillary, diaphragm	3. Make a model lung.	Make a model lung: plastic bottle, balloon, elastic bands, modelling clay or dough, straws, scissors, handout	Which organ cause you to breathe? The respiratory and circulatory systems meet at the trachea. Complete the statement: The respiratory and circulatory system meet in the {{alveoli}}. They contain tiny {{capillaries}} and your {{red}} blood cells absorb the oxygen from the breath you took. It carries this oxygen to all the cells in your {{body}}. The blood also picks up {{carbon dioxide}} as it travels around your body, which is no use to the body. Order the route air takes through your body. When the diaphragm arches down, what happens?
Animals including humans	4. Describe the composition of blood	4. Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations	4. blood cell, platelet, haemoglobin, plasma, antibody	4. Create a model of the circulatory system.	Modelling the Circulatory System Clear tubing Water Scissors Tape Red food colouring	Plasma forms how much of human blood? What can pass through the walls of capillaries? Tick all the boxes that apply. True or false: Antibodies make your blood thicker in order to stop you bleeding if you get injured. Complete the statement: The blood vessels which carry oxygen-rich blood away from your heart are called {{arteries}}. {{Veins}} carry blood back to your heart to collect more oxygen. Capillaries branch off from {{arteries and veins}} and are {{smaller}} blood vessels. Which of these are blood vessels?
	5. Describe what affects your heart rate	5. Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	5. blood pressure, exercise, pulse, heart rate, stroke	5. Measuring your heart beat the draw a bar graph to show your results!	Stopwatch, Handout, Reference books/internet, paper, pens, handout	Blood pressure is of one the things that nurses and GPs check to make sure which system is working properly? Blood pressure is of one the things that nurses and GPs check to make sure which system is working properly? True or false: Everyone's heart rate is 90 pulses per minute. Complete the statement: Your {{pulse}} is how often your heart squeezes to pump blood around the body. Your {{blood pressure}} is the pushing force caused by heart pumping the blood through the body. When you exercise heart rate {{increases}} because your cells are using lots more {{oxygen}}. Complete the statement: {{Capillary}} walls are very thin so oxygen and nutrients can easily pass through.
	6. Explain how blood is filtered	6. Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations	6. spleen, liver, red blood cells, organ, nutrient	6. Creating a model of the liver or spleen.	Handout, modelling clay.	Red blood cells last for about how long? Which of these organs help to cleanse your body. True or false: Your red blood cells die at a rate of two million per day. Complete the statement: One of the liver's job is to remove {{dead}} blood cells. It breaks them down and {{reuses}} what it can. The liver can put up with {{a lot of}} damage. Another {{cleansing}} organ is the spleen which helps to filter your blood and remove harmful {{wastes}}. It is located near the {{stomach}}. True or false: In a transplant, when a person is given half of a new liver, the other half will grow back!



Year 6						
Block 1	Recommended Lesson Sequence	Scientific Enquiry Covered	Rocket Words Covered	Name of Task / Tasks	Resources Needed	Summative Quiz Questions
Light	1. Compare materials of different transparencies	1. Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary	1. man-made light, natural light, light source, transparent, opaque	1. Design and build your own lamp.	scissors, tape/ masking tape, coloured filters/ coloured sweet papers, acetate/ cling film, paper (coloured optional), card (coloured optional), tracing paper, torch/ circuit building kit	Which of these are natural light sources and which are artificial light sources? Fill in the blank - If something is _____, light can not travel through it. Which of these reflect light? (Tick 3 boxes), True or false: Light can only travel in straight lines. Complete the statement: Light enters your eye through the {{cornea}}, which is the eye's first layer. It next goes through the {{pupil}}. This is the dark opening in the {{centre}} of your eye. It is in the middle of the coloured part, which is called the {{iris}}.
	2. Describe how lenses can be used	2. Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate	2. ray, lens, refraction, haze, distort	2. Build a refracting telescope.	Rainbow of Bubbles Washing up liquid, Water, Glycerine, Straws, Paper plates Magic Coin Trick Glasses, Water, Coins (identical), Handout	When light rays pass from one transparent medium to another, they appear to change direction. What is this called? Which of these can you see light through? (Tick 2 boxes), Light moves faster through water than through air. Complete the statement: On an extremely {{hot}} day, you can see heat haze. This is when some {{air}} get hotter than the rest and changes the {{speed}} of light. Light {{rays}} get bent as they pass through the heat and things beyond the haze look {{distorted}}. When an object is placed in water, how will it appear?
	3. Explore water lenses	3. Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations	3. lens, magnify, camera, telescope, binoculars	3. Observe how a glass of water can be used as a lens.	Water Droplet Magnifier: 3x ruler transparent film/ acetate, water, Building a telescope: 2x Magnifying lenses, Sticky tack, metre ruler/ inflexible, piece of wood, Handout	Lenses in which of these helps us to see tiny things close up - things we can't even see with our naked eye? True or false: Water acts as a lens but things look distorted when you look at them through water. True or false: Lenses can only make things look bigger. Complete the statement: A lens is a {{curved}} piece of {{transparent}} material. The curve makes the light rays change {{course}}. When you hold a magnifying glass to a book, the light rays coming from the {{book}} have travelled through the {{lens}} and appear {{larger}} to your eyes. Lenses in which of these helps us to see things very far away, in Outer Space?
	4. Describe the reflection of light	4. Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate	4. angle of incidence, reflection, angle of reflection, translucent, mirror	4. Design a laser system to protect a precious diamond.	Exploring Torchlight Per pair Torch, Shadow Investigation Per pair Pencil Modelling clay Paper Pens Scissors Sticky tape Ruler Torch 1 x Shadow Investigation page from Handout 2 x Shadow Investigation: Worksheet page from Handout	True or false: Light travels at the same speed through all mediums. Which of these allow light to pass through them? (Tick all that apply) The angle at which a light ray hits an object is called what? Complete the statement: We see things because light travels to an object and then {{bounces}} back off that object, right into our eyes. The bounced light travels in a {{straight}} line. The angle at which the light hits an object is called the angle of {{incidence}}. The angle at which it bounces off that object is called the angle of {{reflection}}. True or false: Light always travels in straight lines.
	5. Investigate light colour mixing	5. Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary	5. primary colours, secondary colour, light filter, magenta, cyan	5. Exploring light filters.	Colour Mixing Investigation: Green, blue, yellow and red transparent film. Torches, Red, blue, yellow, green, and white paper Handout	What are the primary colours of light? Which of these colours are used in a colour printer? (Tick all that apply) If red and green light are shined at the same spot of a piece of paper, what colour shows? Complete the statement: When mixing paint colours, the {{more}} paint you add, the darker the combined colour gets. This is because more {{light}} is being absorbed. Orange, purple and green are {{secondary}} colours and the shade will depend on the ratio of colours used. The thicker the mixture of paint, the more {{opaque}} the paint becomes. True or false: Red, blue and yellow lights are used in electronic lights.
	6. Explain how shadows form	6. Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate	6. shadow, opposite, obstruct, light ray, fluorescent	6. Investigate how distance from a light source effects the size of a shadow.	Casting Shadows Torches Books Rulers Paper Coloured pencils Light meters, Beaming Handout	The path of the light is blocked by what? True or false: Light is a form of energy. Complete the statement: Light travels in {{straight lines}}. A {{photon}} is the basic unit that light is made from. They travel together in {{narrow}} beams called {{rays}}. Light continues to travel until it is {{blocked}} by an object. Which of these are sources of light? True or false: Fluorescent lights are often bright.

