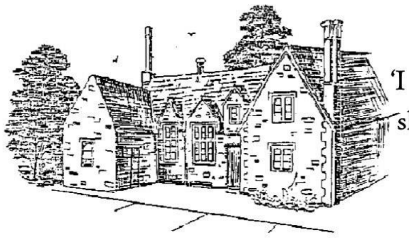
Enmore Church of England Primary School

'Those who are taught here must go out and teach others'

Rev J. Poole, Founder, 1810



'I have set you an example that you should do as I have done for you.'

John 13: 15

Science for website

Background

Science is the pursuit of knowledge, laws and truths that help us understand the physical world. Scientific study is systematic and conducted through observation and experimentation.

A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

Enmore follows the Early Years Foundation Stage Curriculum which can be found here, and the National Curriculum programmes of study which can be found here.

Vision

The school's vision and values underpin all subjects taught at Enmore. The page below illustrates how ***science*** *is influenced by these values and, as a result, illustrates what you would expect to see in classrooms.*

Vision and Values in Bold *What this looks like in science below*

- ***To be of high quality with high expectations***

Children's learning behaviours are excellent. Investigations and practical skills are encouraged.

Poor behaviour is uncommon and challenged.

Children work well in pairs and groups and are careful with equipment.

Marking is of high quality.

Teaching spaces are kept tidy and are organised efficiently..

- ***A broad curriculum offer***

Displays reflect a broad curriculum and are cross- curricular where necessary.

Work in books reflects a broad curriculum.

Much of science is taught through IPC topics but some areas are taught discretely.

IPC units cross- referenced with National Curriculum to ensure full coverage.

- ***An inclusive curriculum***

Science days are regularly held.

All children have access to the curriculum.

Pre, post and intervention teaching aimed at removing barriers to learning.

- ***A mastery approach***

All children have access to the curriculum.

More capable children have opportunities to support others in their learning.

Most groupwork is intentionally mixed ability in science.

- ***Expose children to diversity***

IPC emphasises scientific discovery from around the world.

Inventors and scientists from different cultures celebrated

- ***Emphasis on international element of the curriculum and issues***

Curriculum based on IPC themes and units.

- ***Asking big questions and enjoying enquiry***

Questions on displays, in books, on planning

- ***Close vocabulary gap for disadvantaged***

Planning to include key vocabulary/concepts sheet

Similar concept sheet used by children

- ***Reinforce Christian and British values***

Values to be incorporated into all teaching

Evident in classroom displays

- ***To develop as individuals***

Opportunities for classroom responsibility/ leadership

Safeguarding and internet safety given a high priority during research

Promotion of growth mindset

Science

Vision	What this will look like in science
• To be of high quality with high expectations	Children's learning behaviours are excellent. Investigations and practical skills are encouraged. Poor behaviour is uncommon and challenged. Children work well in pairs and groups and are careful with equipment. Marking is of high quality. Teaching spaces are kept tidy and are organised efficiently.
• A broad curriculum offer.	Displays reflect a broad curriculum and are cross- curricular where necessary. Work in books reflects a broad curriculum. Much of science is taught through IPC topics but some areas are taught discretely. IPC units cross- referenced with National Curriculum to ensure full coverage.
• An inclusive curriculum	Science days are regularly held. All children have access to the curriculum. Pre, post and intervention teaching aimed at removing barriers to learning.
• A mastery approach.	All children have access to the curriculum. More capable children have opportunities to support others in their learning. Most groupwork is intentionally mixed ability in science.
• Expose children to diversity.	IPC emphasises scientific discovery from around the world.
• Emphasis on international element of the curriculum and issues	Curriculum based on IPC themes and units.
• Asking big questions and enjoying enquiry	Questions on displays, in books, on planning
• Close vocabulary gap for disadvantaged	Planning to include key vocabulary/concepts sheet Similar concept sheet used by children
• Reinforce Christian and British values	Values to be incorporated into all teaching Evident in classroom displays
• To develop as individuals	Opportunities for classroom responsibility/ leadership Safeguarding and internet safety given a high priority during research Promotion of growth mindset

Subject Intent/Rationale

Class 1

Class	Topics	Intent	Notes
1		**General** asking simple questions and recognising that they can be answered in different ways. observing closely, using simple equipment performing simple tests identifying and classifying using their observations and ideas to suggest answers to questions. gathering and recording data to help in answering questions. **Plants (Biology)** identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. identify and describe the basic structure of a variety of common flowering plants, including trees. observe and describe how seeds and bulbs grow into mature plants. find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. **Animals (Biology)** identify and name a variety of common animals that are carnivores, herbivores and omnivores. Animals in local environment - throughout year as appropriate. **Materials (Chemistry)** distinguish between an object and the material from which it is made. identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. describe the simple physical properties of a variety of everyday materials. Identify natural and man- made materials. **Seasonal Change (Physics)** observe changes across the four seasons. observe and describe weather associated with the seasons and how day length varies. Sun safety.	Equipment used: Gardening equipment. Thermometers. torches. Ipads - cameras. Examples of simple tests: Ice - water. Growing conditions for plants. Insulation. Floating and sinking. Torches - transparency. Ramps - best shapes for rolling. What data do you gather? See above. How is data presented? Bar charts, pictograms and Venn diagrams.

Class 2

2	**Who am I? / The Stories People Tell The Great Fire of London / Sensational Flowers and Insects / All Dressed Up I'm Alive/ Buildings Titanic / Seeing the Light Our World / Hooray! Let's go on Holiday**	**General** asking simple questions and recognising that they can be answered in different ways. observing closely, using simple equipment performing simple tests using their observations and ideas to suggest answers to questions. Gathering and recording data to help in answering questions. **Animals incl. Humans (Biology)** explore and compare the differences between things that are living, dead, and things that have never been alive. notice that animals, including humans, have offspring which grow into adults. Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. find out about and describe the basic needs of animals, including humans, for survival (water, food and air) Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. identify and name a variety of plants and animals in their habitats, including micro-habitats. describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.	Equipment used: Thermometers, beakers, stethoscopes, stop watches. What is measured: Snow - water temperatures, daytime temperatures. Prediction and testing. Heart rate before, during and after exercise. Recorded and analysed. Over time we watch seeds grow and Bluetit eggs hatching. These are recorded and discussed. Investigation with cress seeds to establish what plants need to grow. Fair testing. Observing the order of germination via beans in a jam jar. Exercise and healthy eating are reinforced during 'Health Week'.

		Plants (Biology) identify and name a variety of common wild and garden plants. Identify and describe the basic structure of a variety of common flowering plants, including trees. observe and describe how seeds and bulbs grow into mature plants. find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. **Materials (Chemistry)** distinguish between an object and the material from which it is made. describe the simple physical properties of a variety of everyday materials. Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. Compare and group together a variety of everyday materials based on their simple physical properties. identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. **Seasonal Change (Physics)** observe changes across the four seasons Observe and describe weather associated with the seasons and how day length varies. Sun Safety	Pet 'display' to promote discussion. Through topics and visit to 'We the Curious'. Through topics. Walking around school grounds. Visitor guided walk along the Church route.

Class 3

3	**Explorers and Adventurers/ Shaping Up Footprints from the Past/ What's on the Menu? /Romans Gateways to the World/ Inventions that Changed the World Chocolate/ Pictures and Photographs Different Places, Similar lives (WWII)**	**General** asking relevant questions and using different types of scientific enquiries to answer them. setting up simple practical enquiries, comparative and fair tests making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. identifying differences, similarities or changes related to simple scientific ideas and processes using straightforward scientific evidence to answer questions or to support their findings. identify common appliances that run on electricity.	Fair testing/controls used wherever possible How is data presented? Use of tables, graphs, diagrams with labels, flow charts, mind maps, summary recorded by teacher of discussion and pasted into books, keys for diagrams of teeth, Venn diagrams for habitat, rocks in different groups, classification grids for animals and dinosaurs. Examples of experiments:

	Treasure/ Do you live around here?	**Animals incl. Humans (Biology)** identify that humans and some other animals have skeletons and muscles for support, protection and movement. describe the simple functions of the basic parts of the digestive system in humans identify the different types of teeth in humans and their simple functions How to look after our teeth About the human skeleton, organs, and muscles How the human heart works and how water, nutrients and oxygen are transported within the body How the digestive system works. About the harmful effects of cigarettes and alcohol How much physical exercise we need? About the effects of physical activity on our heart rate Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat What is meant by a balanced diet. About different habitats within the school grounds About pond life and how it has adapted How to sort animals into groups Who eats who – food chains and food webs recognise that living things can be grouped in a variety of ways. explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. recognise that environments can change and that this can sometimes pose dangers to living things.	Skipping tests within Shaping up topic - stamina and personal best targets, feeling pulse in chest, doing at same time each day, same amount of time or longer time, varying factors.
		Plants (Biology) How fruits and vegetables grow How we can grow our own food in the classroom Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant. Investigate the way in which water is transported within plants. explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	Use of planter to test conditions of growth outside compared to inside

		Materials (Chemistry) compare and group materials together, according to whether they are solids, liquids or gases. What a fossil is and how a fossil is formed About different types of rock using terms sedimentary, metamorphic and igneous Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) Reversible v irreversible changes.	Testing materials for insulation, hardness, waterproof, flexibility. Wood burning at year three camp changes to black and then ash. Pancake making - batter to cooked pancake. Chocolate changes states and use of thermometers to test melting point. Making carrying machines in construction equipment to see what works for larger or heavier loads, over different surfaces and using slopes.
		Forces (Physics) compare how things move on different surfaces. notice that some forces need contact between two objects, but magnetic forces can act at a distance. observe how magnets attract or repel each other and attract some materials and not others. compare and group together a variety of everyday materials based on whether they are attracted to a magnet, and identify some magnetic materials. describe magnets as having two poles. predict whether two magnets will attract or repel each other, depending on which poles are facing. How to make a compass About the air around us and the science of flight How to make a paper glider	Magnetic forces - tests for experimenting with repel and attract, through different materials and with different sized magnets. Air experiments - testing the different papers for how they fly when folded, react to wind flow, fall through the air flat or scrunched, react when held in front of the body and child runs, when immersed in water within a cup. Use Newton meters testing materials for strength and durability, as well as experiments within Forces. Using giant cardboard tubes to illustrate how big rocks or large pieces of wood are moved across long distances.
		Light and Sound (Physics) About using sound and echoes recognise that they need light to see things and that dark is the absence of light. notice that light is reflected from surfaces. recognise that light from the sun can be dangerous and that there are ways to protect their eyes. recognise that shadows are formed when the light from a light source is blocked by a solid object. find patterns in the way that the size of shadows change. How light, dark and shadows can be created. How certain materials can be described as transparent, opaque or translucent. How white light is made up of different colours. How colours can be separated How filters can be used to change the colours that we see How moving images are made.	Torches to do a variety of tests about different transparencies, translucency, opaqueness of varying materials. Use of filters of varying colours to create different colours by mixing light and films.

4	**Being Human/ AD900 (Mayans) Going Global/ Space Explorers Full Power/ What a Wonderful World/ Rainforest (IOW week)** **Fairgrounds/Weather and Climate Building A Village/ Vikings/ Mountains The Holiday Show/ Bahrain/Investigators**	**General** planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs using test results to make predictions to set up further comparative and fair tests. reporting and presenting 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. identifying scientific evidence that has been used to support or refute ideas or arguments. **Animals, including humans. (Biology)** describe the simple functions of the basic parts of the digestive system in humans. identify the different types of teeth in humans and their simple functions. identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. describe the ways in which nutrients and water are transported within animals, including humans. How humans are different from other animals About the brain and the nervous system About the bones and muscles in the body How the human heart works How we breathe and what the lungs do How our environment affects us How the body uses food and water recognise that environments can change and that this can sometimes pose dangers to living things. **States of Matter (Chemistry)** identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. **Earth and Space (Physics)** describe the movement of the Earth, and other planets, relative to the Sun in the solar system. describe the movement of the Moon relative to the Earth. describe the Sun, Earth and Moon as approximately spherical bodies. use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. Finding out about the movements of the Earth, Sun and Moon and how they affect us. Finding out about how light travels Finding out more about the planets in our solar system	Practical work includes: - Friction tests including using Newton meters and a variety of materials. Electricity - constructing, testing and exploring circuits. Weather - measuring temperature, wind speed, rainfall. Forensic science - testing pens, ink, fingerprints. Fair testing done as it arises with science days used to reinforce formal investigations using prediction, apparatus, result, conclusion, etc. Variety of measuring equipment used: - Cylinders, jugs etc with scales. Anemometers, Newton meters, thermometers. Results shown in various methods including tally charts and graphs, diagrams and labels.

		Electricity (Physics) identify common appliances that run on electricity. construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. identify whether a lamp will light in a simple series circuit, based on whether the lamp is part of a complete loop with a battery. recognise that a switch opens and closes a circuit recognise some common conductors and insulators, and associate metals with being good conductors. compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. use recognised symbols when representing a simple circuit in a diagram. How to draw a circuit diagram How to build circuits from diagrams About different kinds of circuits About electricity and heat About the dangers of electricity **Sound (Physics)** identify how sounds are made, associating some of them with something vibrating. recognise that vibrations from sounds travel through a medium to the ear. find patterns between the pitch of a sound and features of the object that produced it. find patterns between the volume of a sound and the strength of the vibrations that produced it. recognise that sounds get fainter as the distance from the sound source increases. How light travels and how we see. How sound travels and how we hear.	
		Forces (Physics) explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. identify the effects of air resistance, water resistance and friction, that act between moving surfaces recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. How to identify and measure forces How forces act on everyday life How to use electricity as a source of power	

Class 5

5	**Myths and Legends/ Fascinating Forces/ Making New Materials (Bake it) The Time Tunnel/ Existing Extinct Endangered They see the World Like This/ Isle of Wight /Growing Up (yr6)**	**General** planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs using test results to make predictions to set up further comparative and fair tests. reporting and presenting 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.	More emphasis given to independent thought and cooperative working, as opposed to teacher led. Examples of experiments: Test Newton's first three laws. Use external sources to refute/confirm results. Explore the best conditions for microorganisms to grow. Make deductions. Assorted graphs - deciding upon the best graph for the situation. Chrome books used here. Discrete data. Greater scientific language used than C4.

	Making the News/ Go with the flow/ Christmas cookery Champions for Change/ Look Hear **Making Things Go / Art-specialist unit/ Growing Up (yr6)**	**Animals incl. Humans (Biology)** How a vertebrate and an invertebrate are different How to classify local plants and animals About the effects of food chains in our locality About friendly and unfriendly micro-organisms How fungi are different from plants and animals Why composting is good for the environment recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function describe the changes as humans develop to old age. describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird describe the life process of reproduction in some plants and animals. describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals give reasons for classifying plants and animals based on specific characteristics. recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. recognise that environments can change and that this can sometimes pose dangers to living things. construct and interpret a variety of food chains, identifying producers, predators and prey.	Year 5 'Growing up' unit. Use of fair testing and controls. Children get to plan, choose equipment, carry out and record independently. Draw conclusions. Discuss results Visiting reptiles to support classifying. Questioning classifying - why? Why not? Darwin and his theories are explored. Carbon dating as a method of aging is investigated.
		Materials and their properties (Chemistry) compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic demonstrate that dissolving, mixing and changes of state are reversible changes explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda. explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object identify the effects of air resistance, water resistance and friction, that act between moving surfaces What happens when foods are heated About the properties of water About solids, liquids and gases	Cooking - yeast. Baking bread. Difference between changing state and destroying state

		Forces (Physics) How a ball flies through the air What friction is and how it helps us How different objects fall What gravity is and how it pulls on objects How air resistance affects moving objects How water pushes up on floating objects Why some objects float and others sink About different kinds of energy How to make a solar oven Which materials absorb and reflect energy About energy and forces through: Making a rubber-band car Making a balloon rocket Making a lemon battery About ways of making energy savings	Fascinating Forces - Topic.
		Light (Physics) How we see light How the human eye works How light waves travel associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.	Solar, wind and hydro. Environmental impact. Climate change. Make a ' pizza box' oven. Solar windmill.

Light How we see light How the human eye works How light waves travel associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.	Greater scientific language used than C4.

Progression

Class 1				
Biology			**Chemistry**	**Physics**
Animals, including Humans	**Animals, including Humans**	**Plants**	**Materials**	**Seasonal Change**
• *Name common animals* • *Carnivores, etc*	• *Human body and senses*	• *Common plants* • *Plant structure*	• *Properties of materials* • *Grouping materials*	• *The four seasons* • *Seasonal weather*
• Know how to classify a range of animals by amphibian, reptile, mammal, fish and birds • Know and classify animals by what they eat (carnivore, herbivore and omnivore) • Know how to sort by living and non living things	• Know the names of parts of the human body that can be seen • Know the changes children will experience as they age • Be aware of healthy eating • Understand the term life-cycle	• Know and name a variety of common wild and garden plants • Know and name the petals, stem, leaves and root of a plant • Know and name the roots, trunk, branches and leaves of a tree • Know basic needs of plant life	• Know the name of the materials an object is made from • Know about the properties of everyday materials	• Name the seasons and know about the type of weather in each season • Have an awareness of sun safety

Class 1
Working Scientifically
❑ Ask questions such as: • Why are flowers different colours? • Why do some animals eat meat and others do not?
❑ Set up a test to see which materials keeps things warmest, know if the test has been successful and can say what has been learned
❑ Explain to someone what has been learned from an investigation they have been involved with and draw conclusions from the answers to the questions asked
❑ Measures (within Year R/1 mathematical limits) to help find out more about the investigations undertaken

Class 2				
Biology			**Chemistry**	**Physics**
All living things and their habitats	**Animals, including Humans**	**Plants**	**Everyday Materials**	**Seasonal Change**
• *Alive or dead* • *Habitats* • *Adaptations* • *Food chains*	• *Animal reproduction* • *Healthy living* • *Basic needs*	• *Plant and seed growth* • *Plant reproduction* • *Keeping plants healthy*	• *Identify different materials* • *Name everyday materials* • *Properties of materials* • *Compare the use of different materials* • *Compare movement on different surfaces*	• *The four seasons* • *Seasonal weather*
• Classify things by living, dead or never lived • Know how a specific habitat provides for the basic needs of things living there (plants and animals) • Match living things to their habitat • Name some different sources of food for animals • Know about and explain a simple food chain	• Know the basic stages in a life cycle for animals, (including humans) • Know why exercise, a balanced diet and good hygiene are important for humans	• Know and explain how seeds and bulbs grow into plants • Know what plants need in order to grow and stay healthy (water, light & suitable temperature)	• Know how materials can be changed by squashing, bending, twisting and stretching • Know why a material might or might not be used for a specific job	• Name the seasons and know about the type of weather in each season • Have an awareness of sun safety

Year 2
Working Scientifically
❑ Ask questions such as: • Why do our hearts beat faster after exercise? • How long are roots of tall trees? • Why do some animals have underground habitats?
❑ Use equipment such as thermometers and rain gauges to help observe changes to local environment as the year progresses
❑ Use magnification to find out more about small creatures and plants
❑ Know how to set up a fair test and do so when finding out about how seeds grow best
❑ Classify or group things according to a given criteria, e.g. deciduous and coniferous trees
❑ Draw conclusions from fair tests and explain what has been found out
❑ Use measures (within Year 1/2 mathematical limits) to help find out more about the investigations they are engaged with

Class 3					
Biology			**Chemistry**	**Physics**	
Animals, including humans	**Plants**	**Plants**	**Rocks**	**Forces**	**Light**
• *Skeleton and muscles* • *Nutrition* • *Exercise and health* • *Teeth*	• *Plant life* • *Basic structure and functions*	• *Life cycle* • *Water transportation*	• *Fossil formation* • *Compare and group rocks* • *Soil*	• *Different Forces* • *Magnets*	• *Reflections* • *Shadows*
• Know about the importance of a nutritious, balanced diet • Know how nutrients, water and oxygen are transported within animals and humans • Know about the skeletal and muscular system of a human • Identify and know the different types of human teeth • Know the functions of different human teeth	• Know the function of different parts of flowing plants and trees	• Know how water is transported within plants • Know the plant life cycle, especially the importance of flowers	• Compare and group rocks based on their appearance and physical properties, giving reasons • Know how soil is made and how fossils are formed • Know about and explain the difference between sedimentary, metamorphic and igneous rock	• Know about and describe how objects move on different surfaces • Know how a simple pulley works and use to on to lift an object • Know how some forces require contact and some do not, giving examples • Know about and explain how magnets attract and repel Predict whether magnets will attract or repel and give a reason	• Know that dark is the absence of light • Know that light is needed in order to see and is reflected from a surface • Know and demonstrate how a shadow is formed and explain how a shadow changes shape • Know about the danger of direct sunlight and describe how to keep protected

Class 3

Working Scientifically

❑ Ask questions such as: • Why are some materials attracted to magnets? • Why do shadows change during the day? • Where does a fossil come from?	❑ Use a thermometer to measure temperature and know there are two main scales used to measure temperature ❑ Gather and record information using a chart, matrix or tally chart, depending on what is most sensible
❑ Observe at what time of day a shadow is likely to be at its longest and shortest	❑ Group information according to common factors e.g. plants that grow in woodlands or plants that grow in gardens
❑ Observe which type of plants grow in different places e.g. bluebells in woodland, roses in domestic gardens, etc.	❑ Use bar charts and other statistical tables (in line with Year 3 mathematics statistics) to record findings
❑ Use research to find out how reflection can help us see things that are around the corner	❑ Know how to use a key to help understand information presented on a chart
❑ Use research to find out what the main differences are between sedimentary and igneous rocks	❑ Be confident to stand in front of others and explain what has been found out, for example which materials are magnetic
❑ Test to see which type of soil is most suitable when growing two similar plants	❑ Present findings using written explanations and include diagrams when needed
❑ Test to see if their right hand is as efficient as their left hand	❑ Make sense of findings and draw conclusions which help them to understand more about scientific information
❑ Set up a fair test with different variables e.g. the best conditions for a plant to grow	❑ Amend predictions according to findings
❑ Explain to a partner why a test is a fair one e.g. lifting weights with right and left hand, etc.	❑ Be prepared to change ideas as a result of what has been found out during a scientific enquiry
❑ Measure carefully (taking account of mathematical knowledge up to Year 3) and add to scientific learning	

Class 4

Biology		Chemistry	Physics	
Animals, including humans	**All living things and their habitats**	**States of Matter**	**Electricity Forces**	**Sound Earth and Space**
• *Digestive system* • *Food chains* • *The circulatory system*	• *Grouping living things* • *Classification keys* • *Adaptation of living things*	• *Compare and group materials* • *Solids, liquids and gases* • *Changing state* • *Water cycle*	• *Uses of electricity* • *Simple circuits and switches* • *Conductors and insulators* • *Electrical components* • *Fuses and voltage* • *Forces and motion of mechanical devices*	• *How sounds are made* • *Sound vibrations* • *Pitch and Volume* • *Movement of the Earth and the planets* • *Movement of the Moon* • *Night and day*
• Identify and name the parts of the human digestive system • Know the functions of the organs in the human digestive system • Use and construct food chains to identify producers, predators and prey • Identify and name the main parts of the human circulatory system • Know the function of the heart, blood vessels and blood • Know the ways in which nutrients and water are transported in animals, including humans	• Use classification keys to group, identify and name living things • Know how changes to an environment could endanger living things	• Know the temperature at which materials change state • Know about and explore how some materials can change state • Know the part played by evaporation and condensation in the water cycle • Group materials based on their state of matter (solid, liquid or gas)	• Identify and name appliances that require electricity to function • Construct a series circuit • Identify and name the components in a series circuit (including cells, wires, bulbs, switches and buzzers) • Predict and test whether a lamp will light within a circuit • Know the function of a switch • Know the difference between a conductor and an insulator; giving examples of each • Compare and give reasons for why components work and do not work in a circuit • Draw circuit diagrams using correct symbols • Know how the number and voltage of cells in a circuit links to the brightness of a lamp or the volume of a buzzer • Explain how levers, pulleys and gears allow a smaller force to have a greater effect	• Know how sound is made, associating some of them with vibrating • Know how sound travels from a source to our ears • Know the correlation between pitch and the object producing a sound • Know the correlation between the volume of a sound and the strength of the vibrations that produced it • Know what happens to a sound as it travels away from its source • Know about and explain the movement of the Earth and other planets relative to the Sun • Know about and explain the movement of the Moon relative to the Earth • Know and demonstrate how night and day are created • Describe the Sun, Earth and Moon (using the term spherical)

Class 4

Working Scientifically

❑ Ask questions such as: • Why are steam and ice the same thing? • Why is the liver important in the digestive systems? • What do we mean by 'pitch' when it comes to sound?	❑ Gather and record information using a chart, matrix or tally chart, depending on what is most sensible
	❑ Group information according to common factors e.g. materials that make good conductors or insulators
❑ Use research to find out how much time it takes to digest most of our food	❑ Use bar charts and other statistical tables (in line with Year 4 mathematics statistics) to record findings
❑ Use research to find out which materials make effective conductors and insulators of electricity	❑ Present findings using written explanations and include diagrams, when needed
❑ Carry out tests to see, for example, which of two instruments make the highest or lowest sounds and to see if a glass of ice weighs the same as a glass of water	❑ Write up findings using a planning, doing and evaluating process
❑ Set up a fair test with more than one variable e.g. using different materials to cut out sound	❑ Make sense of findings and draw conclusions which helps them understand more about the scientific information that has been learned
❑ Explain to others why a test that has been set up is a fair one e.g. discover how fast ice melts in different temperatures	❑ When making predictions there are plausible reasons as to why they have done so
❑ Measure carefully (taking account of mathematical knowledge up to Year 4/5) and add to scientific learning	❑ Able to amend predictions according to findings
❑ Use a data logger to check on the time it takes ice to melt to water in different temperatures	❑ Prepared to change ideas as a result of what has been found out during a scientific enquiry
❑ Use a thermometer to measure temperature and know there are two main scales used to measure temperature	

Class 5

Biology		Chemistry	Physics	
Animals, including humans Evolution and inheritence	**All living things and their habitats**	**States of Matter Materials**	**Forces**	**Light**
• *Changes as humans develop from birth to old age* • *Impact of exercise on body* • *Identical and non identical off-spring* • *Fossil evidence and evolution* • *Adaptation and evolution*	• *Life cycles – plants and animals* • *Reproductive processes* • *Famous naturalists* • *Classification of living things and the reasons for it*	• *Compare properties of everyday materials* • *Soluble/ dissolving* • *Reversible and irreversible substances*	• *Gravity* • *Friction*	• *How light travels* • *Reflection* • *Ray models of light*
• Create a timeline to indicate stages of growth in humans • Know the impact of diet, exercise, drugs and lifestyle on health • Know how the Earth and living things have changed over time • Know how fossils can be used to find out about the past • Know about reproduction and offspring (recognising that offspring normally vary and are not identical to their parents) • Know how animals and plants are adapted to suit their environment • Link adaptation over time to evolution • Know about evolution and can explain what it is	• Know the life cycle of different living things e.g. mammal, amphibian, insect and bird • Know the differences between different life cycles • Know the process of reproduction in plants • Know the process of reproduction in animals • Classify living things into broad groups according to observable characteristics and based on similarities and differences • Know how living things have been classified • Give reasons for classifying plants and animals in a specific way	• Compare and group materials based on their properties (e.g. hardness, solubility, transparency, and response to magnets • Know and explain how a material dissolves to form a solution • Know and show how to recover a substance from a solution • Know and demonstrate how some materials can be separated (e.g. through filtering, sieving and evaporating) • Know and demonstrate that some changes are reversible and some are not • Know how some changes result in the formation of a new material and that this is usually irreversible	• Know what gravity is and its impact on our lives • Identify and know the effect of air and water resistance • Identify and know the effect of friction	• Know how light travels • Know and demonstrate how we see objects • Know why shadows have the same shape as the object that casts them • Know how simple optical instruments work e.g. periscope, telescope, binoculars, mirror, magnifying glass etc.

Class 5	
Working Scientifically	
❑ Know which type of investigation is needed to suit particular scientific enquiry e.g. looking at the relationship between pulse and exercise	❑ Use a range of written methods to report findings, including focusing on the planning, doing and evaluating phases
❑ Set up a fair test when needed e.g. does light travel in straight lines?	❑ Clear about what has been found out from their enquiry and can relate this to others in class
❑ Know how to set up an enquiry based investigation e.g. what is the relationship between oxygen and blood?	❑ Explanations set out clearly why something has happened and its possible impact on other things
❑ Know what the variables are in a given enquiry and can isolate each one when investigating	❑ Aware of the need to support conclusions with evidence
❑ Justify which variable has been isolated in scientific investigation	❑ Keep an on-going record of new scientific words that they have come across for the first time and use these regularly in future scientific write ups
❑ Use all measurements as set out in Year 6 mathematics (measurement), including capacity, mass, ratio and proportion	❑ Use diagrams, as and when necessary, to support writing and be confident enough to present findings orally in front of the class
❑ Able to record data and present them in a range of ways including diagrams, labels, classification keys, tables, scatter graphs and bar and line graphs	❑ Able to give an example of something they have focused on when supporting a scientific theory e.g. classifying vertebrate and invertebrate creatures or why certain creatures choose their unique habitats
❑ Make accurate predictions based on information gleaned from their investigations and create new investigations as a result	❑ Frequently carry out research when investigating a scientific principle or theory
❑ Able to present information related to scientific enquiries in a range of ways including using IT such as power-point, animoto and iMovie	

Key Sticky Knowledge

Class 1

Science Knowledge

- Know and name a variety of common wild and garden plants e.g. daffodil, poppy,
- Know and name the petals, stem, leaves and root of a plant. Can you point to a …
- Know and name the roots, trunk, branches and leaves of a tree What is this called?
- Know how to classify a range of animals by amphibian, reptile, mammal, fish and birds
- Know how to sort by living and non living things
- Know the name of parts of the human body that can be seen
- Know the name of the materials an object is made from e.g. wood, glass, metal, plastic
- Know about the properties of everyday materials- strong, see- through,
- Name the seasons and know about the type of weather in each season

Year 2

Science Knowledge

- Classify things by living, dead or never lived
- Know how a specific habitat provides for the basic needs of things living there (plants and animals).
- Match living things to their habitat
- Know and classify animals by what they eat (carnivore, herbivore and omnivore)
- Name some different sources of food for animals
- Know about and explain a simple food chain
- Know and explain how seeds and bulbs grow into plants
- Know what plants need in order to grow and stay healthy (water, light and suitable temperature)
- Know the basic stages in a life cycle for animals, including humans and plants
- Know why exercise, a balanced diet and good hygiene are important for humans
- Know why a material might or might not be used for a specific job
- Know how materials can be changed by squashing, bending, twisting and stretching

Class 3

Science Knowledge

- Know the function of different parts of flowering plants and trees
- Know that dark is the absence of light
- Know that light is needed in order to see and is reflected from a surface
- Know the plant life cycle, especially the importance of flowers
- Know and demonstrate how a shadow is formed
- Know about the importance of a nutritious, balanced diet
- Know about the danger of direct sunlight and describe how to keep protected
- Know how nutrients, water and oxygen are transported within humans
- Know about the skeletal and muscular system of a human
- Identify and know the different types of teeth that humans have
- Compare and group rocks based on their appearance and physical properties, giving a reason for choices

- Know about and explain how objects attract and repel in relation to objects and other magnets
- Know how soil is made and fossils formed
- Predict whether magnets will attract or repel and give a reason
- Know about and explain the difference between sedimentary, metamorphic and igneous rock

Year 4

Science Knowledge

- Know about and explain the movement of the Earth and moon and other planets relative to the Sun
- Know how sound is made associating this with vibration
- Know the correlation between the volume of a sound and the strength of the vibrations that produced it
- Know the correlation between pitch and the object producing a sound
- Know what happens to a sound as it travels away from its source
- Know the ways in which nutrients and water are transported in animals, including humans
- Know how sound travels from a source to our ears
- Identify and name the parts of the human digestive system and the functions of the organs in the human digestive system
- Know the function of the heart, lungs, blood vessels and blood
- Know and demonstrate how night and day are created
- Know how a simple pulley works and use making lifting an object simpler
- Explain how levers, pulleys and gears allow a smaller force to have a greater effect
- Identify and name appliances that require electricity to function
- Group materials based on their state of matter (solid, liquid, gas
- Know how some forces require contact and some do not, giving examples
- Know about and explore how some materials can change state
- Construct a series circuit
- Know the temperature at which materials change state
- Identify and name the components in a series circuit (including cells, wires, bulbs, switches and buzzers)
- Know the part played by evaporation and condensation in the water cycle

- Predict and test whether a lamp will light within a circuit
- Know the difference between a conductor and an insulator; giving examples of each
- Know the function of a switch in a circuit

Class 5

Science Knowledge

- Classify living things into broad groups according to observable characteristics and based on similarities and differences
- Know how animals and plants are adapted to suit their environment
- Use and construct food chains to identify producers, predators and prey
- Use classification keys to group, identify and name living things
- Know how changes to an environment could endanger living things
- Know how and why living things have been classified
- Know about evolution and can explain what it is
- Know the process of reproduction in plants and animals incl pollination and fertilization
- Know how light travels and how we see
- Know the life cycle of different living things, e.g. mammal, amphibian, insect bird
- Know the impact of diet, exercise, drugs and life style on health
- Know and can demonstrate that some changes are reversible and some are not. Know how some changes result in the formation of a new material and that this is usually irreversible
- Know why shadows have the same shape as the object that casts them
- Know how the Earth and living things have changed over time. Link adaptation over time to evolution
- Know how simple optical instruments work, e.g. periscope, telescope, binoculars, mirror, magnifying glass etc
- Know how fossils can be used to find out about the past
- Know how a material dissolves to form a solution; explaining the process of dissolving. Know and show how to recover a substance from a solution. Know and demonstrate how some materials can be separated (e.g. through filtering, sieving and evaporating)
- Know about reproduction and offspring (recognising that offspring normally vary and are not identical to their parents)
- Know what gravity is and its impact on our lives

- Explain photosynthesis
- Identify and know the effect of air and water resistance and friction

Class 5

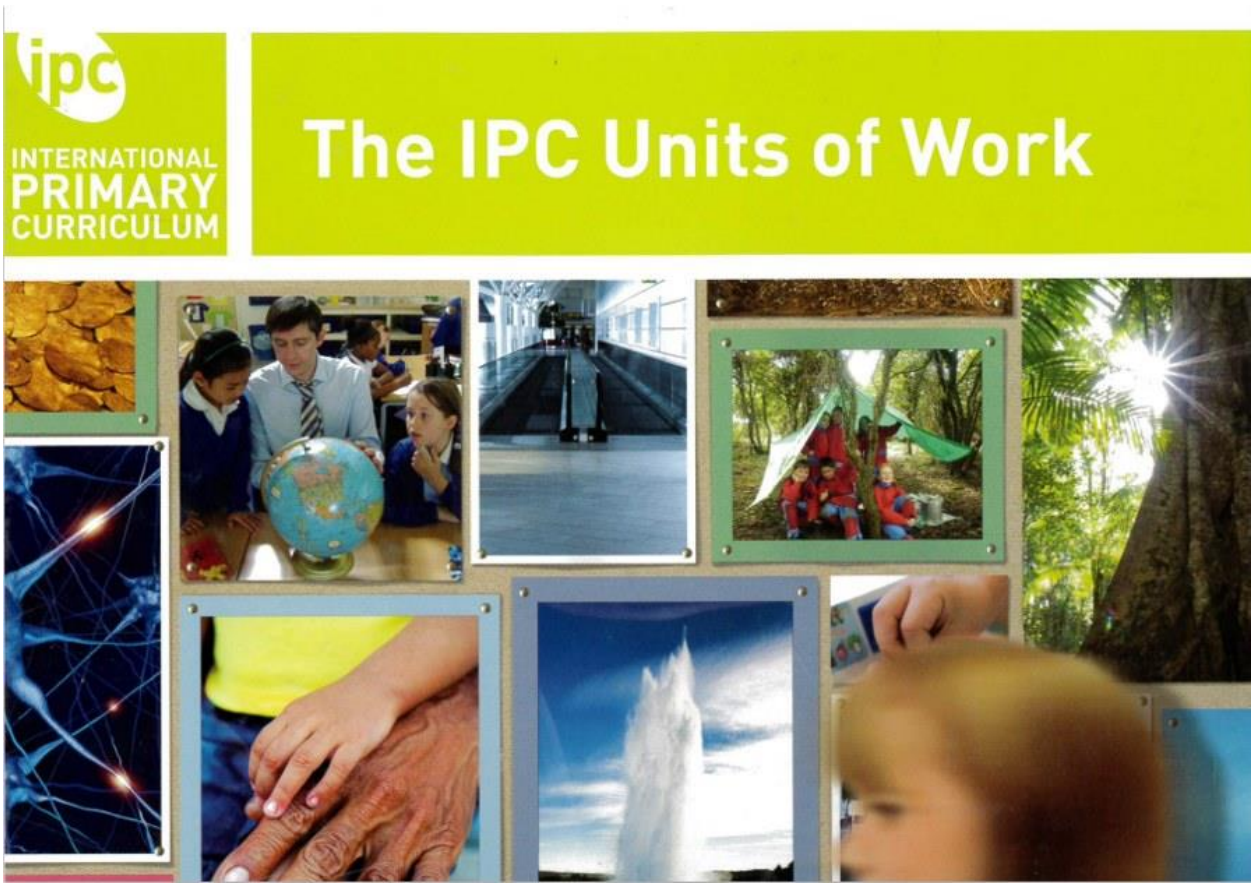
Working Scientifically

- Know which type of investigation is needed to suit particular scientific enquiry, e.g., looking at the relationship between pulse and exercise
- Use a range of written methods to report findings, including focusing on the planning, doing and evaluating phases
- Set up a fair test when needed, e.g., does light travel in straight lines?
- Be clear about what has been found out from their enquiry and can relate this to others in the class
- Know how to set up an enquiry based investigation, e.g., what is the relationship between oxygen and blood
- Explanations set out clearly why something has happened and its possible impact on other things
- Know what the variables are in a given enquiry and can isolate each one when investigating
- Aware of the need to support conclusions with evidence
- Justify which variable has been isolated in scientific investigation
- Keep an on-going record of new scientific words that they have come across for the first time and use these regularly in future scientific write ups
- Use all measurements as set out in Year 6 mathematics (measurement), this includes capacity, mass, ratio and proportion
- Use diagrams, as and when necessary, to support writing and be confident enough to present findings orally in front of the class
- Able to record data and present them in a range of ways including, diagrams, labels, classification keys, tables, scatter graphs and bar and line graphs
- Able to give an example of something they have focused on when supporting a scientific theory, e.g., classifying vertebrate and invertebrate creatures or why certain creatures choose their unique habitats
- Make accurate predictions based on information gleaned from their investigations and create new investigations as a result
- Frequently carry out research when investigating a scientific principle or theory

- Able to present information related to scientific enquiries in a range of ways including using IT such as power-point, animoto and iMovie

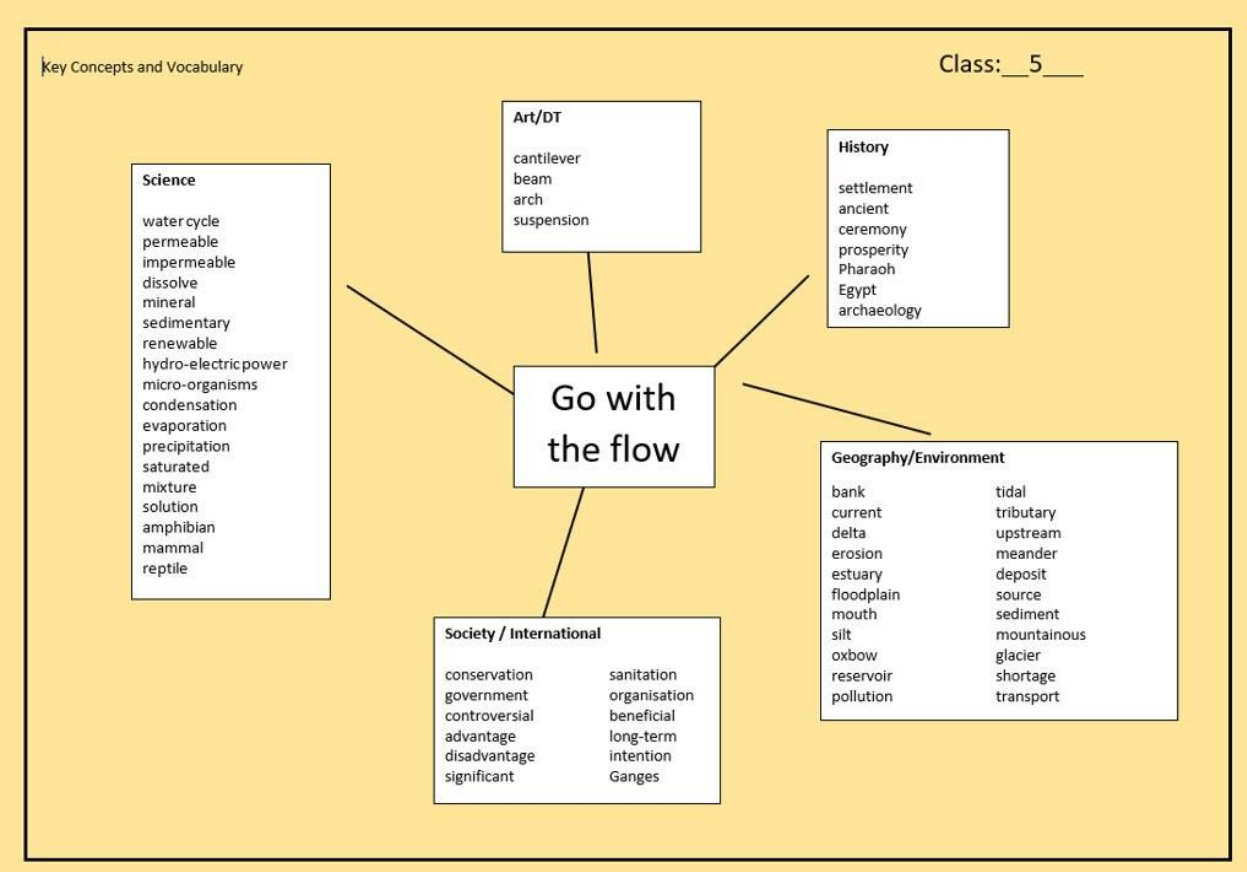
Subject Implementation

Planning



This subject is generally taught in discrete lessons following topics from the International Primary Curriculum. The objectives within the National Curriculum have been cross- referenced with the IPC to ensure coverage.

For each topic, class teachers will produce a Key Concepts and Vocabulary Overview:



Teachers are responsible for planning the teaching of their units and put weekly We Are Learning To (WALTs) onto their weekly plans:

	9.00	9.15	9.30	9.45	10.00	10.15	10.30	11.00	11.15	11.30	11.45	12.00	1.30	1.45	2.00	2.15	2.30	3.00	3.15
Mon	Assembly		SUBJECT					SUBJECT					SUBJECT WALT:						
Tues			SUBJECT					SUBJECT					SUBJECT WALT:			SUBJECT WALT:			
Wed			SUBJECT					SUBJECT					SUBJECT WALT:					SUBJECT WALT:	
Thur			SUBJECT					SUBJECT					SUBJECT WALT:					SUBJECT WALT:	
Fri			SUBJECT					SUBJECT					SUBJECT WALT:			SUBJECT WALT:			

Planning in EYFS can be found here.

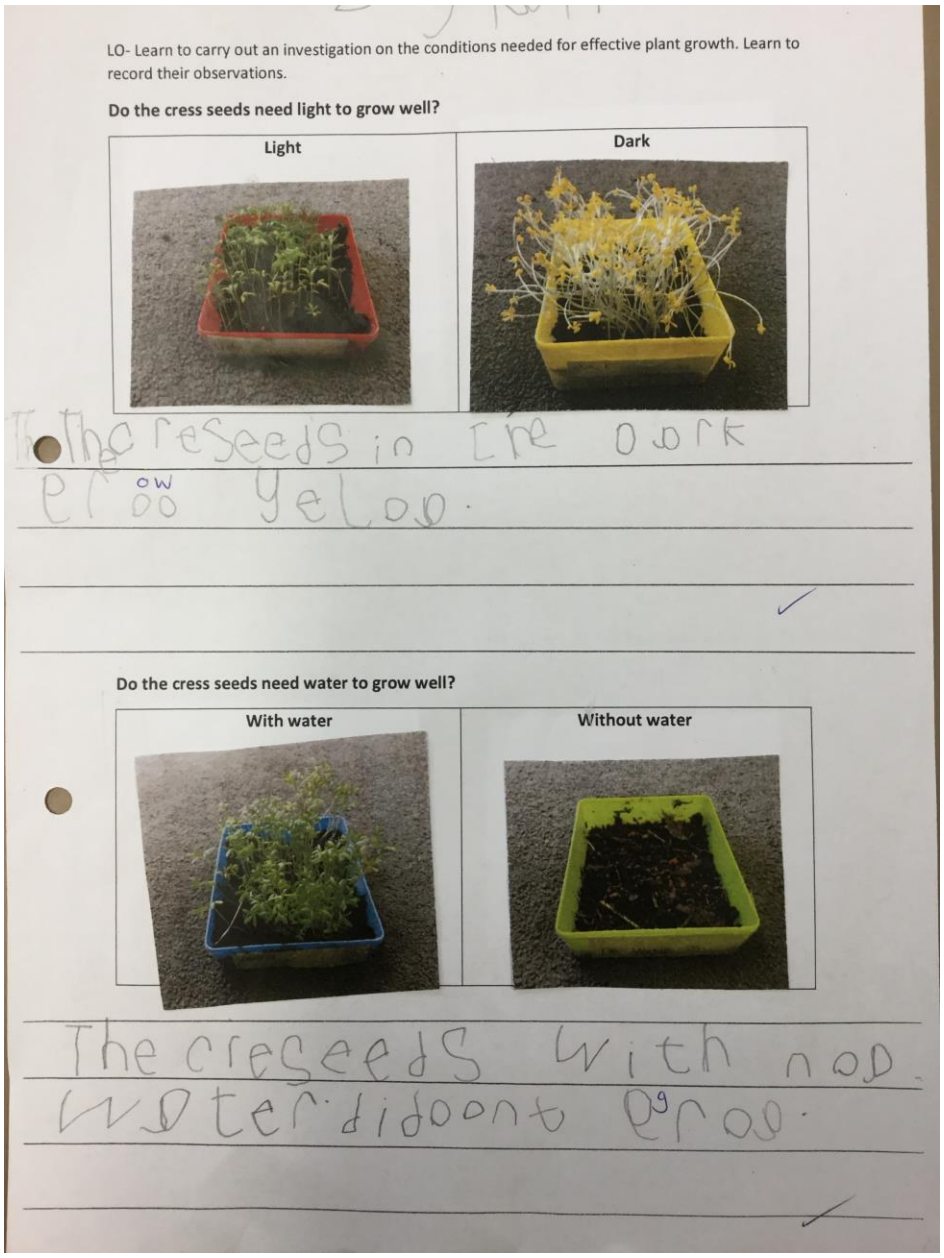
Examples of Work

Class 1

This video shows Yr R children discussing a science investigation, exploring the growing conditions needed for plant growth. These children are working at the expected level for the end of the EYFS. They are able to notice similarities and differences, and talk about their observations in some detail. They can explain why some locations were chosen (dark cupboard having no windows) and can say what they discovered about plant growth. To achieve exceeding, I would expect greater involvement in the planning stage of the investigation which would then show some familiarity with the experimentation process.

1 - Observation of frost as part of work on changing seasons.

Some investigative work. Learning about the factors that affect plant growth. The children brainstormed the requirements for plant growth and with support came up with soil and warmth. They then thought about how we could find out if the really did need these things and what would happen if they didn't have them. They needed support to come up with the investigation. They then looked at the cress after a week and discussed similarities and differences. Some children were interested in knowing why there were differences and so we talked a bit about photosynthesis and nutrients. The children were encouraged to use the vocabulary roots, stems and leaves when discussing their observations. They also introduced the term 'germination'. The written evidence attached is a YrR piece of work.



LO- Learn to carry out an investigation on the conditions needed for effective plant growth. Learn to record their observations.

Do the cress seeds need light to grow well?

Light	Dark

The reseeds in the dork grow yelow.

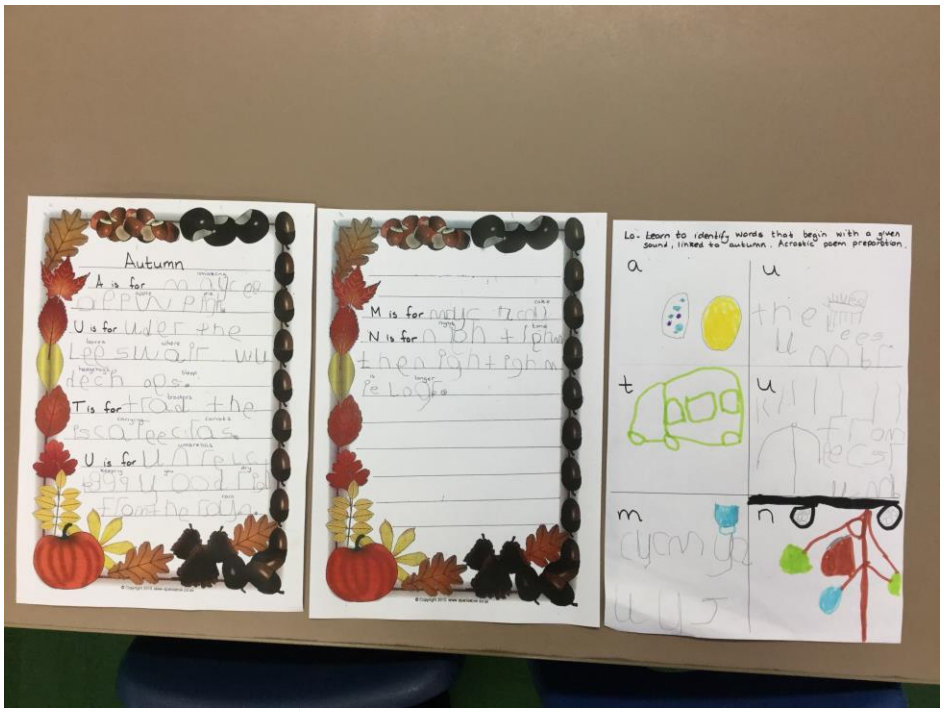
Do the cress seeds need water to grow well?

With water	Without water

The creseeds with nod water didoont grow.

This video shows the children planting violas as part of their Forest School activities and naming the parts of a plant.

2 - Autumn collages produced.

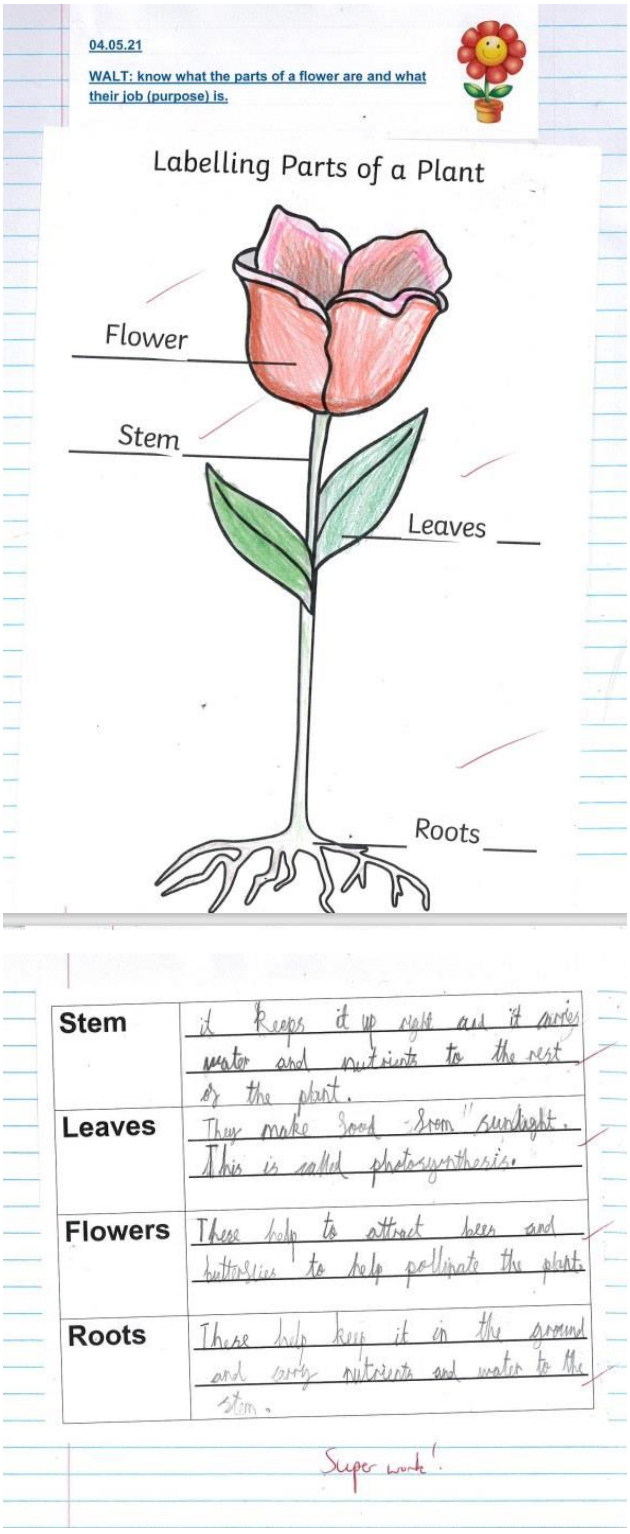


3 - Autumn acrostic poems written by year 1s.

4 - Using ICT to develop their understanding of the seasons. They needed to navigate their way around the Cbeebies game A Year on the Farm. They have tasks to do within the various seasons e.g. sowing seeds, harvesting carrots etc.

Class 2

Class 2 children able to name plan parts and describe their function.



04.05.21

WALT: know what the parts of a flower are and what their job (purpose) is.

Labelling Parts of a Plant

Flower

Stem

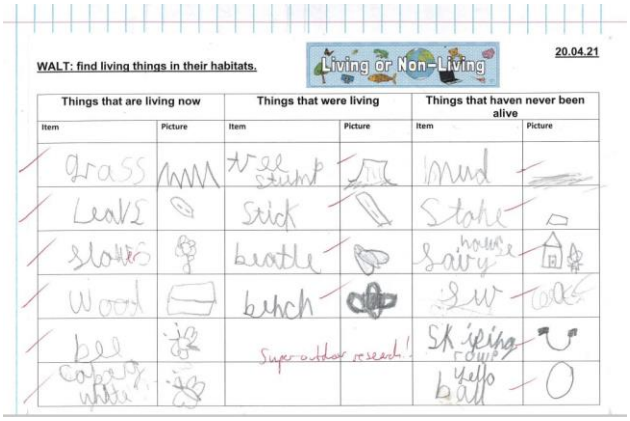
Leaves

Roots

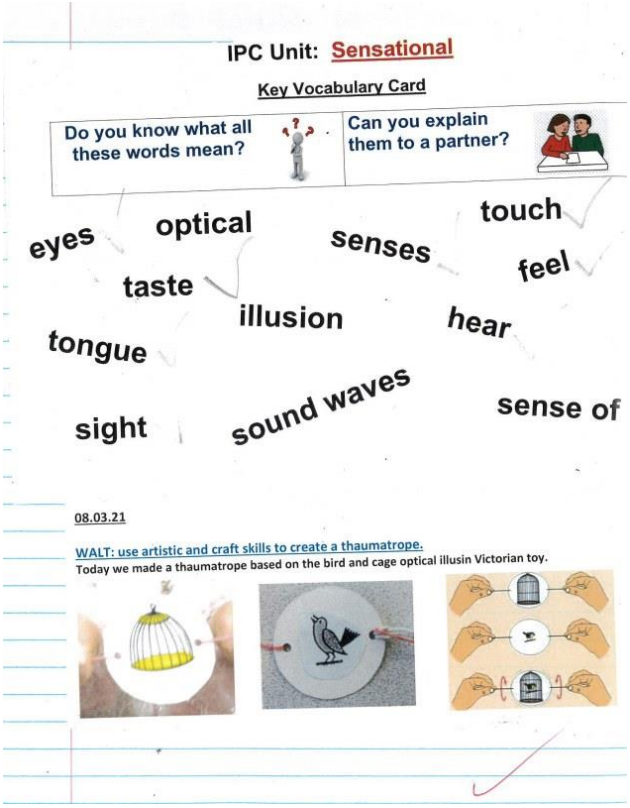
Stem	it keeps it up right and it carries water and nutrients to the rest of the plant.
Leaves	They make food from sunlight. This is called photosynthesis.
Flowers	These help to attract bees and butterflies to help pollinate the plants.
Roots	These help keep it in the ground and carry nutrients and water to the stem.

Super work!

Classifying living and non- living things in different habitats.

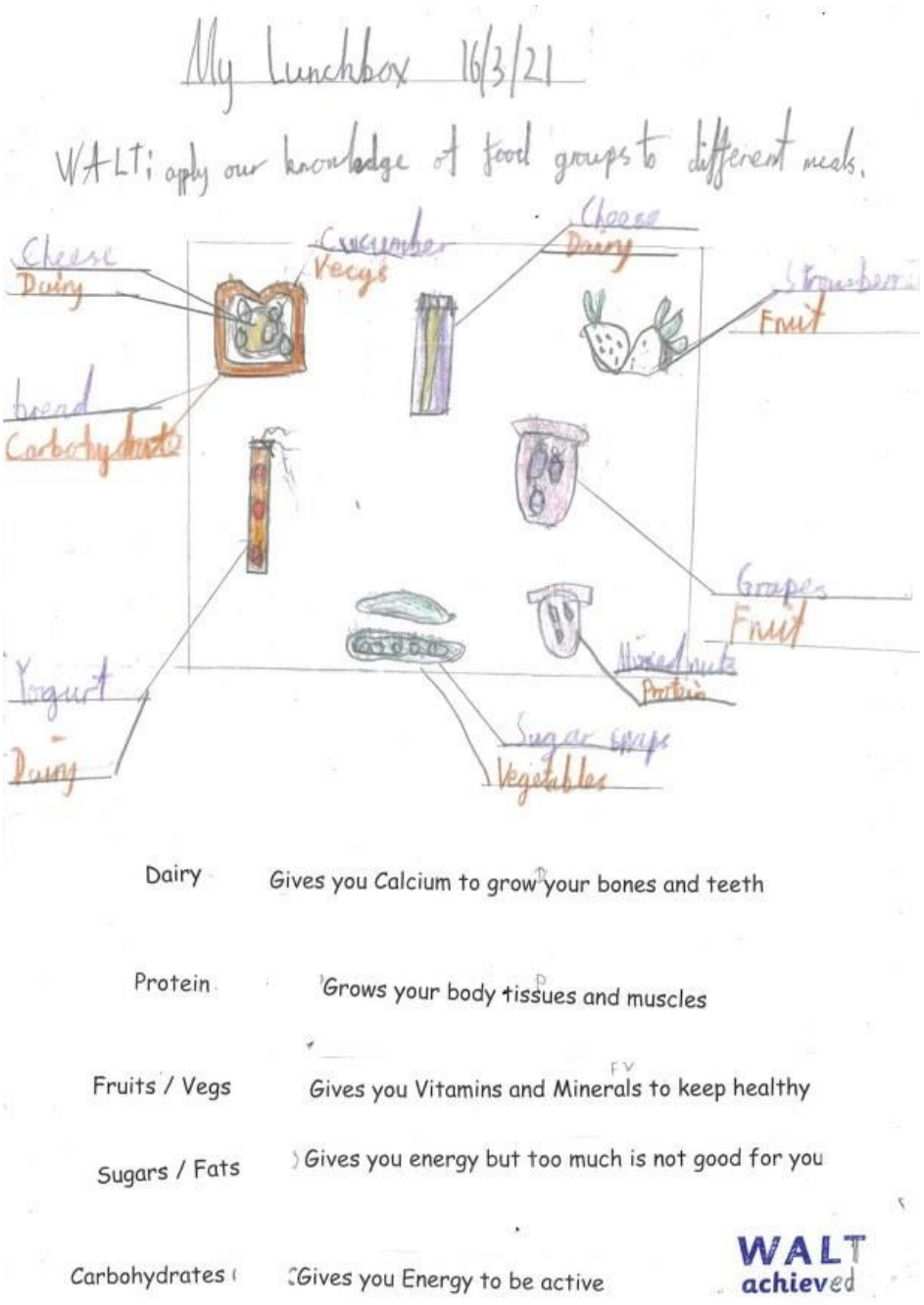


Key vocab sheet used by the children during a topic.

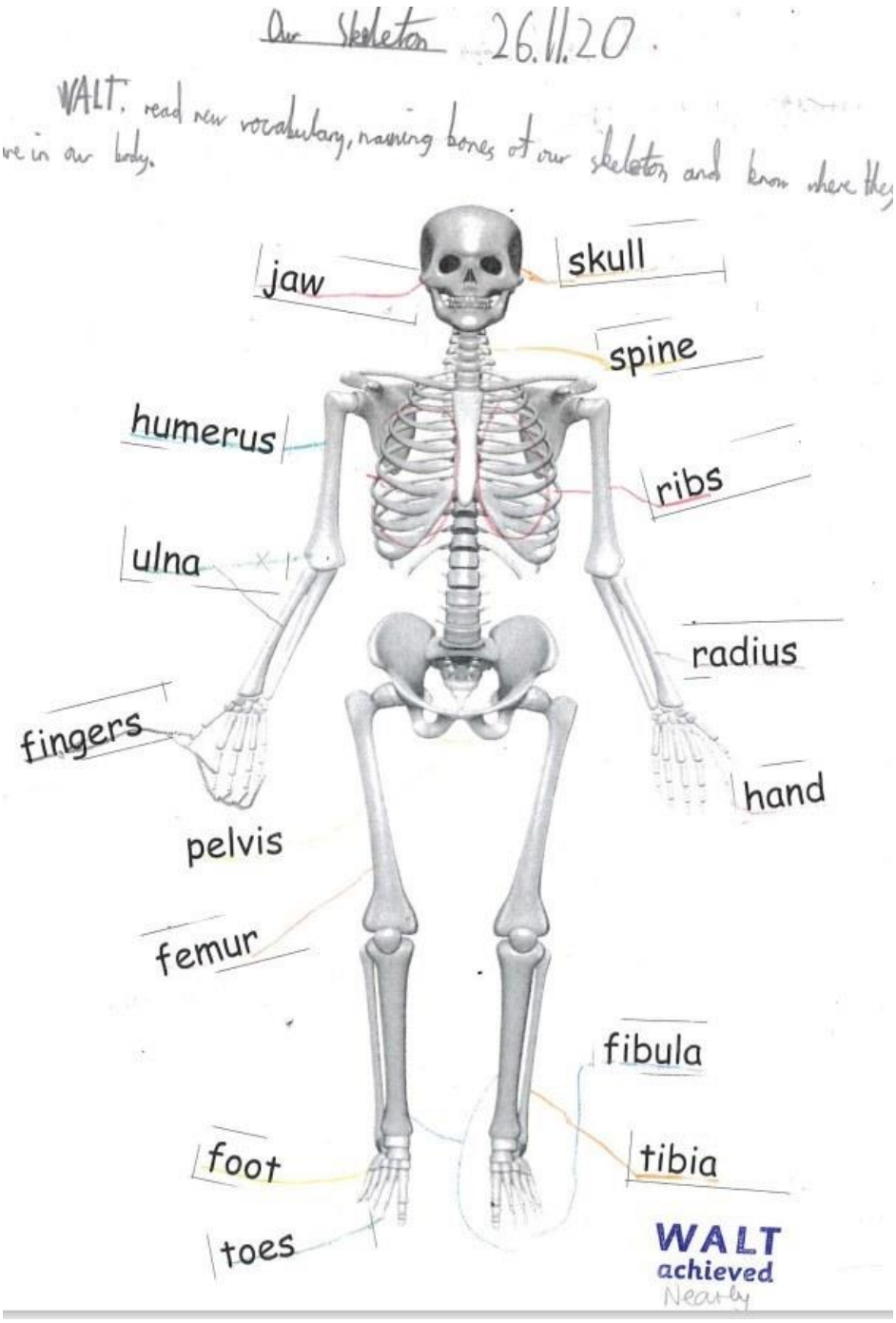


Class 3

Evidence of class 3 children able to identify a nutritious and balanced diet.



Class 3 work on the human skeletal system.



Class 4

Class 4 children testing circuits and making different types of switches.

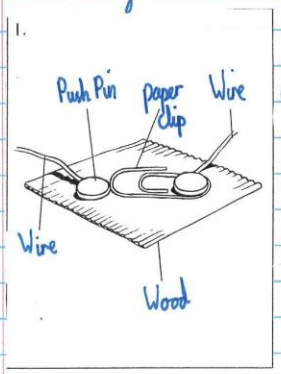
Report on switch work.

Friday 7th May, 2021

WALT: investigating and building Switches.

We investigated how to create our own Switches for a closed circuit.

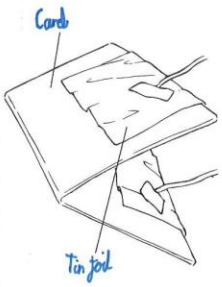
1.



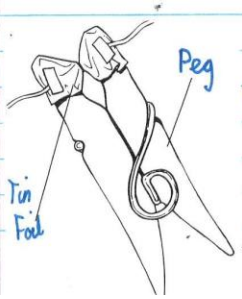
I needed to make sure the wires with the clips are attached to the push pins. ~~one~~ I also needed to make sure the paper clip was touching the two pins. The stand had to be wood because if it was metal, it would be very ~~dangger~~ dangerous, and unsafe. So the base needs to be an insulator.

Itp

2.



Switch 2: In this switch I had to make sure the foil was attatched to the folded card, The wires where attached the the foil, so when you closed it the bulb would light. If the card was closed, the bulb would not light.

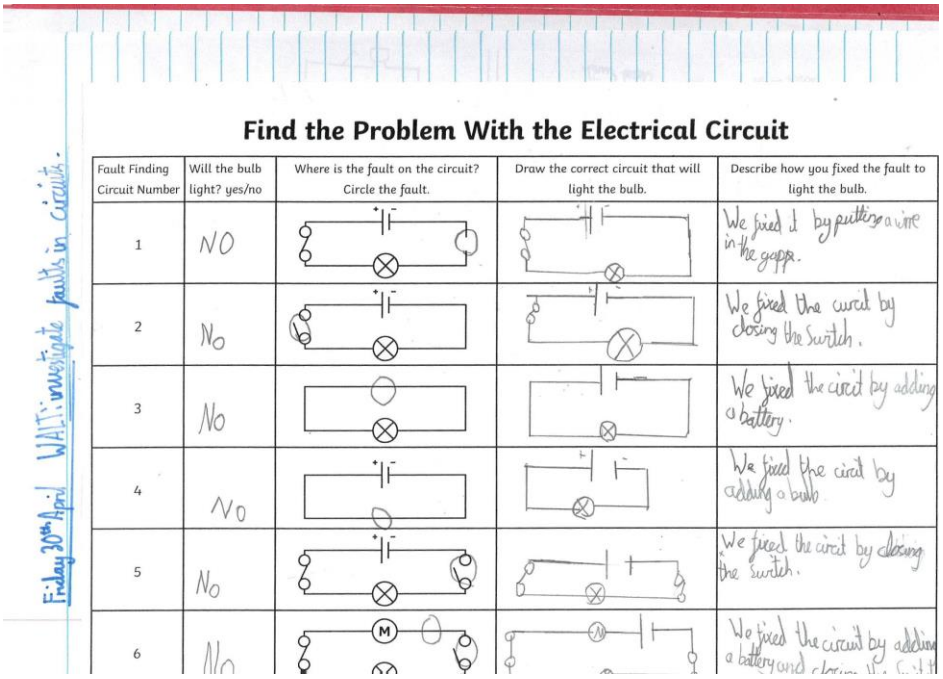


Switch 3: In this switch I needed to make sure the foil was on the top of the peg and the clips where attatched to the foil. If you hold the bottom of the peg, the light wont work, if it is touching, it will work.

We discovered that it is essential to have a metal object because it is a conductor and it will allow our switch to work.

Brilliant explanations

Identifying problems with circuits from circuit diagrams and drawing circuit diagrams.

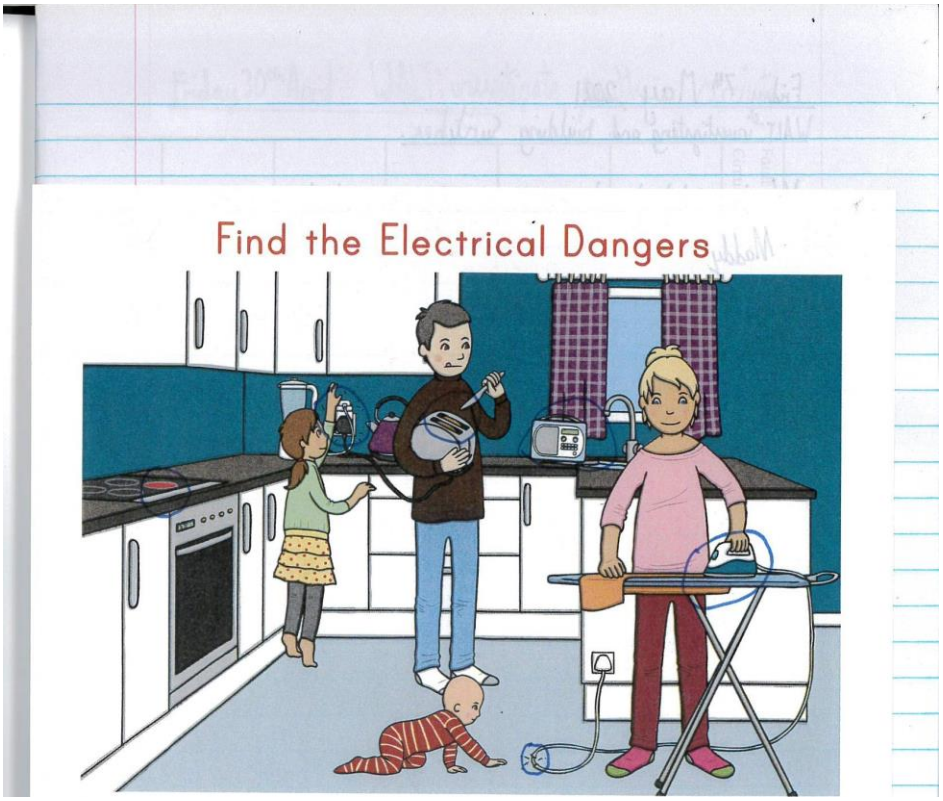


Friday 30th April WALT: investigate faults in circuits.

Find the Problem With the Electrical Circuit

Fault Finding Circuit Number	Will the bulb light? yes/no	Where is the fault on the circuit? Circle the fault.	Draw the correct circuit that will light the bulb.	Describe how you fixed the fault to light the bulb.
1	NO			We fixed it by putting a wire in the gapp.
2	No			We fixed the circut by closing the Switch.
3	No			We fixed the circt by adding a battery.
4	No			We fixed the circt by adding a bulb
5	No			We fixed the circt by closing the switch.
6	No			We fixed the circuit by adding a battery and closing

Awareness of the dangers of electricity.

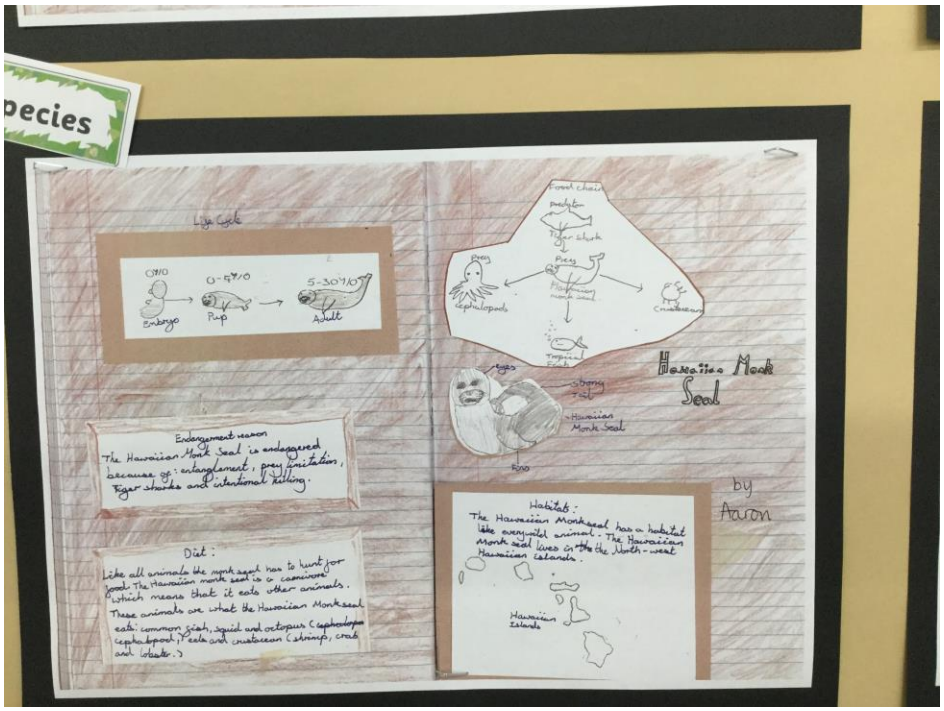


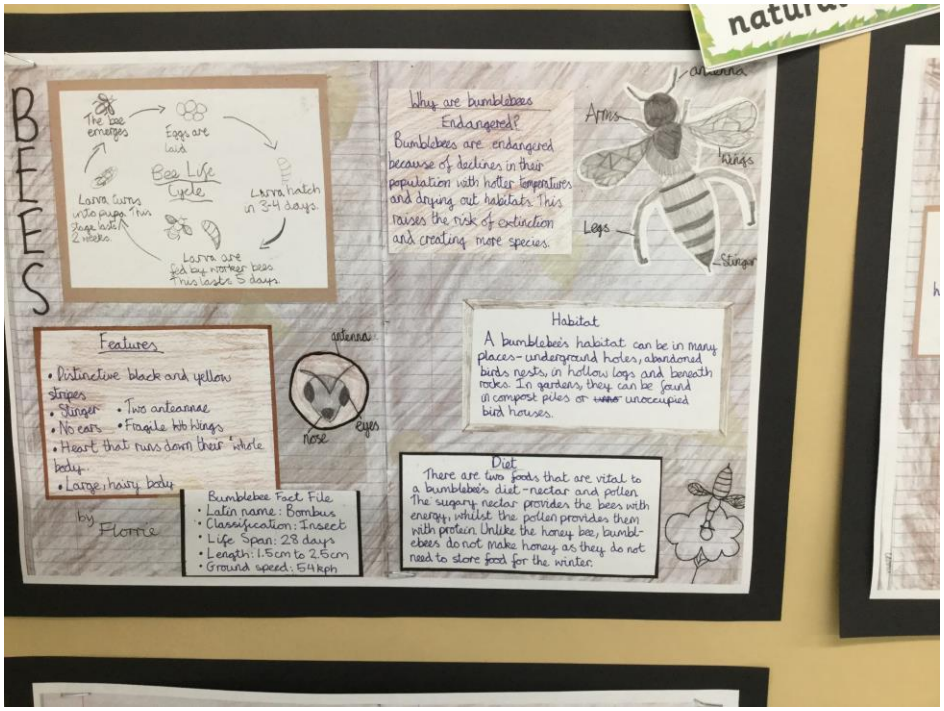
Investigating Friction- measuring and fair testing

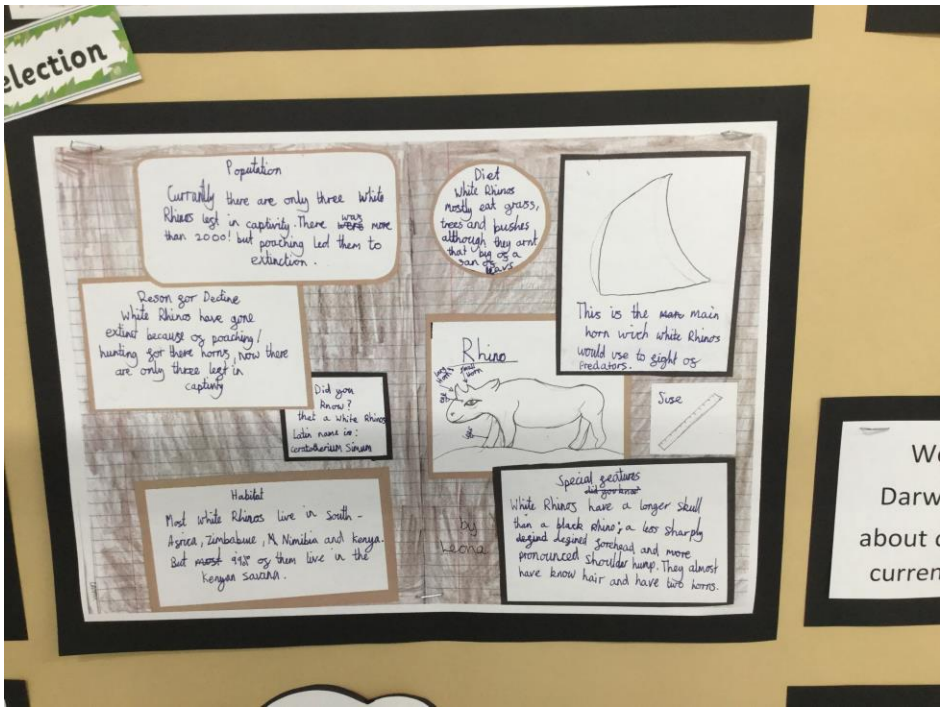
Looking at forces in action at Bridgwater Fair.

Class 5

Class 5 looked at the work of Charles Darwin. They learned about evolution and the classification of living things. They also looked at life cycles and habitats and considered why some animals are now considered endangered.


pecies
Life Cycle
Embryo
Pup
Adult
Food chain
Prey
Hawaiian Monk Seal
Endangered reason
The Hawaiian Monk Seal is endangered because of: entanglement, prey limitation, tiger sharks and intentional killing.
Diet:
Like all animals the monk seal has to hunt for food. The Hawaiian monk seal is a carnivore which means that it eats other animals. These animals are what the Hawaiian Monk seal eat: common fish, squid and octopus (cephalopods), cephalopod, crabs and crustacean (shrimp, crab and lobster.)
Habitat:
The Hawaiian Monk seal has a habitat like every other animal. The Hawaiian monk seal lives in the the North-west Hawaiian Islands.
Hawaiian Islands
by
Aaron


BEES
The bee emerges
Eggs are laid
Bee Life Cycle
Larva hatch in 3-4 days.
Larva are fed by worker bees this lasts 5 days.
Larva turns into pupa this stage lasts 2 weeks.
Why are bumblebees Endangered?
Bumblebees are endangered because of declines in their population with hotter temperatures and drying out habitats. This raises the risk of extinction and creating more species.
Antenna
Arms
Wings
Legs
Stinger
Features
• Distinctive black and yellow stripes
• Stinger
• Two antennae
• No ears
• Fragile two wings
• Heart that runs down their whole body
• Large hairy body
antenna
eyes
nose
Habitat
A bumblebee's habitat can be in many places - underground holes, abandoned birds nests, in hollow logs and beneath rocks. In gardens, they can be found in compost piles or ~~under~~ unoccupied bird houses.
Diet
There are two foods that are vital to a bumblebee's diet - nectar and pollen. The sugary nectar provides the bees with energy, whilst the pollen provides them with protein. Unlike the honey bee, bumblebees do not make honey as they do not need to store food for the winter.
Bumblebee Fact File
• Latin name: Bombus
• Classification: Insect
• Life Span: 28 days
• Length: 1.5cm to 2.5cm
• Ground speed: 54kph
by
Florrie


election
Population
Currently there are only three White Rhinos left in captivity. There was more than 2000! but poaching led them to extinction.
Diet
White Rhinos mostly eat grass, trees and bushes although they aren't that big as a can be.
This is the main horn wich white Rhinos would use to fight of predators.
Reason for Decline
White Rhinos have gone extinct because of poaching / hunting for there horns, now there are only three left in captivity
Rhino
Size
Did you Know?
that a White Rhinos Latin name is: ceratotherium Simum
Special gestures
White Rhinos have a longer skull than a black rhino; a less sharply angled forehead and more pronounced shoulder hump. They almost have know hair and have two horns.
Habitat
Most White Rhinos live in South - Africa, Zimbabwe, N. Nimibia and Kenya. But 93% of them live in the Kenyan Savanna.
by Lana
W
Darw
about
curren

Predictions

1st apple 2nd bread 3rd cheese

I think the apple will go mouldy first then the bread and then the cheese. Why? I think that the apple will go mo first due to moisture; I think that the others will go mouldy next because there is not much moisture but it will go mouldy eventually.

✓

PENICILLIN

Penicillin is used to treat certain infections caused by bacteria such as pneumonia[1] and other respiratory tract infections.

Penicillin is effective only against Gram-positive[2] germs/bacteria because Gram negative[3] bacteria has a lipopolysaccharide[4] and protein layer that surrounds the peptidoglycan[5] layer of the cell wall preventing penicillin from attacking.

If you take penicillin 4 times a day it will take only a few days to work.

It was invented in 1928 by Alexander Fleming.

It taken 75 years to be invented

✓ Great research. Some micro organisms are very useful!

1 pneumonia is an infection that inflames the air sacs in one or both lungs. The air sacs may fill with pus or fluid causing cough, fever chills and difficulty breathing.

2 In bacteriology, gram-positive bacteria are bacteria that give a positive result in the Gram stain test, which is traditionally used to quickly classify bacteria in two broard categories according to their type of cell wall.

3 Gram-negative bacteria that do not retain the crystal violet stain used in the gram staining method of bacterial differentation.

4 Lipopolysaccharides (LPS), also known as endotoxins, are large molecules consisting of lipid and a polysaccharide composed of O-antigen, outer core and inner core joined by a covalent bond; they are found in the outer membrane of gram-negative bacteria.

5 Peptidoglycan is a polymer consisting of sugars and amino acids that forms a mesh-like layer outside the plasma membrane of most bacteria, forming a cell wall. The

Monday 22nd March

Earth Worm: An earth worm is a very old creature. It is an Annelaid and has no limbs. It has very small bristles outside of his bodddie. It is an invertebrate.

Centrepead / millipead: A Centrepead / millipead is a cold blooded animal and is and insect. It is a invertebrate.

We found 6 small earth worms and two baby millipeads.

Earth worm habbitat

2 of the small earth worms.

baby millipead No.1

baby millipead No.2

Monday 26th April

WALT: plan a fair test and make predictions

What foods go mouldy quickest?

How we will make it fair?

We will make this a fair test by keeping all the weights, containers and changing only one thing which will be the food.

Materials

- 3 equal containers
- cheese
- apple
- bread
- scales

Weight: 17g each

Daily Check

What will you look for?

- colour change darkening, blue, green, yellow/orange, white, black.
- hair

Procedure

- weighing the bread and then weighing everything the same weight
- cutting them the same weight
- putting them in containers and sealing them
- leaving it for 3 weeks checking every day

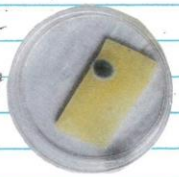
Daily Check — apple, cheese, bread

Tuesday	Yes	(No)	Saturday	Yes	No
Wednesday	Yes	(No)	Sunday	Yes	No
Thursday	Yes	(No)	Monday	(Yes)	No
Friday	Yes	(No)	Tuesday	(Yes)	No
Saturday	Yes	No	Wednesday	(Yes)	No
Sunday	Yes	No	Thursday	(Yes)	No
Monday	Yes	No	Friday	(Yes)	No
Tuesday	(Yes)	No	Saturday	Yes	No
Wednesday	(Yes)	No	Sunday	Yes	No
Thursday	(Yes)	No	Monday	Yes	No
Friday	(Yes)	No			

Friday 11th May

WALI: draw conclusions from investigation

When we first observed the mould / fresh food nothing much was happening. The cheese went mouldy first, because the mould had food, moisture and a small amount of heat since it was above the radiator. During the experiment we observed that our bread didn't go mouldy at all. The mould on our cheese only grew. My hypothesis was incorrect and the cheese then the apple went mouldy first. Our apple had small patches of mould. Our bread went crispy and lost moisture.



cheese

This is the cheese. It has started to sweat. It had green and white mould. The cheese has produced moisture and stuck to the bottom of the dish. The spores multiplyed and grown.

bread

This is the bread. It has gone crispy, because mould doesn't like dry and not moisturised.

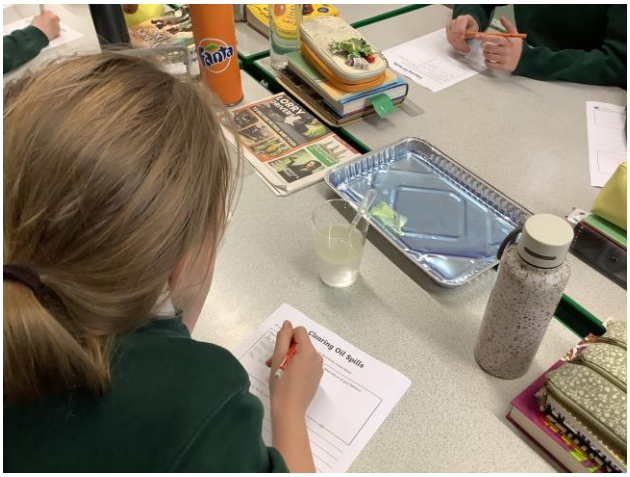
apple

This is the apple. The mould likes the apple and made it rott. This is because, it is moist and has food for it to eat.

You have evaluated your results and made conclusions.

Science Day- Water- February 2022

5 - Class 3 looking at splashes.



6 - Class 5 trying to clear up oil spills.

Subject Impact

Impact

The vast majority of children meet age related expectations. We know this from online tracking, work sampling and discussions with pupils.

Subject Monitoring Interview

Interview with class 3.

What is Science*?*

Where you find germs.

Mix things together.

You discover things you didn't know.

When you study fossils.

People trying to find things out.

Why is this subject important?

Make medicines to cure viruses and colds.

We would not understand anything without science.

Hard to do any job without science.

What have you been learning about this year?

How colours are mixed together.

How chocolate melts from a solid to a liquid.

What can you remember about what you learned about in the past?

Magnets and forces.

Light can create shadows.

Importance of water.

Food groups and diet.

Parts of the body and what the heart does.

What do you know about plants?

Plants need light.

They give oxygen.

They grow in the sun.

They need water.

Some plants live in the desert like cacti.

They trap carbon dioxide.

Subject Monitoring Interview

Interview with group of pupils from class 5.

What is Science*?*

Reactions of different things.

Studying objects so we can get an understanding of what they are.

Science tries to give us a better understanding of everything around us and what we can do with our resources.

Why is this subject important?

Without scientists we would not know how to solve problems and be happy and healthy.

We probably would not be alive.

What have you been learning about this year?

We have been separating gravel, salt and sand.

Salt was difficult to separate without evaporation.

Dissolves and forms a solution.

What can you remember about what you learned about in the past?

In class 4 we made volcanoes- baking soda and vinegar reacted releasing carbon dioxide.

Newton's Law of Gravity.

Made an electrical circuit in year 4.

Looked at a compass in class 3.

What do you know about plants?

Plants take water and nutrients through their roots.

They need sun to make sugar, stay alive and grow.

They need carbon dioxide- the opposite way of us.

Photosynthesis.

Flowers attract bees for pollen.