# St Peter's CE(VA) Primary School

Love Christ
Love Learning
Love One Another

# Science

April 2020-2023

## Vision Statement St Peter's (VA) CE Primary

*"You shall love the Lord your God with all your heart, and with all your soul, and with all your strength, and with all your mind; and your neighbour as yourself." Luke 10:*

At St Peter's the life and teachings of Jesus Christ are at the heart of our school. Here pupils are valued, cared for and developed to their fullest potential; spiritually, intellectually and physically. The nurturing environment encourages and challenges the pupils to be creative, responsible, tolerant and have a love of learning to become citizens of the World who contribute to society.

This policy goes hand in hand with teaching and learning policy.

## Science Vision

At St. Peter's school, we encourage inquisitiveness and curiosity through delivering exciting and stimulating science topics. The science curriculum is embedded in a creative way into topics for each year group. Pupils complete one larger science unit and one smaller unit each year. Alongside the national curriculum, pupils are also provided with the opportunity to develop working scientifically skills in a progressive way, building upon prior learning, which enables them to become more independent inquirers.
Knowledge in science progresses throughout each year group, and unit topics are repeated in more depth as pupils move up through the school. We make sure that topics in KS2 build on prior learning in KS1.
Teaching of science is made exciting: by the use of hooks before science units, science visits out of school and giving pupils opportunity to use a range of equipment. To make learning more stimulating, classes often work together to plan and carry out investigations that are well differentiated to suit all abilities. This is done through paddling, swimming and diving differentiated lessons and scaffolding, such as the use of templates and vocabulary prompts for DL/SEN pupils.

At St. Peter's, exciting scientific displays (including relevant scientific vocabulary) and the use of vocabulary mats in lessons, immerse pupils in an environment that encourages the use of progressive scientific language with more in depth understanding.
Work in science units is valued through displays and feedback is provided to pupils promptly at the point of learning. Marking of science work enables pupils to be reflective and make the improvements they need.

Scientific knowledge plays an important part of science units and a knowledge assessment is completed at the end of each science topic.
Science unit planning is broken down into key questions, which flow throughout the unit and provide the building blocks of scientific learning. These key questions are assessed at the end of the science unit and knowledge assessment completed by the class teacher.
By the end of year 6 pupils will be able to think for themselves more independently, ask relevant questions to find the correct answers, logically plan investigations and be able to

identify accurate outcomes and work in groups sensibly and safely. This will stand our pupils in good stead as they move onto secondary education.

**Intent:**

At St Peter's we recognise that developed, thorough, focused planning leads to effective teaching and learning. The specific plan for science is as follows:

- Staff have a clear understanding of the wider curriculum and how the curriculum is built at St Peter's. They make pertinent links and connections amongst subjects, as well as devising activities to practise skills and learning.
- Staff will display a timeline in their classroom, that will include that class's previous topics for KS1 and all topics covered across the school for KS2. This will allow it to be used as a teaching resource.
- Staff in KS1 will teach through a two year rolling program (In Year A, one geography topic (Explorers) and two history topics (Music through the Ages and Victorians) and in Year B, one geography topic (Planes, trains and automobiles) and one history topic (The Great Fire).
- Staff in KS2 will teach through a four year rolling program.

At St. Peter's our Science teaching ensures that the National Curriculum science objectives are taught on a rolling programme of study for KS1 and KS2 where skills, objectives and investigations are progressive across the school through the use of a science progression map.

Past assessments set out expected standards and inform our future planning. Assessment for Learning is used throughout our science teaching and learning, informing planning and directing pupil progression. (Apendix 3)

We have KS1 and KS2 rolling programme of study. The F1 and F2 planning is closely linked to the Foundation Stage Early Learning Goals and is mainly cross-curricular. **KS1 science** work is planned to link with other curriculum topics and taught within topic blocks. **KS2 science** work is planned as 4 shorter units of study on a 2 year rolling programme. The science progression map is carefully referred to and utilised to ensure continuity and progression of science across key stages.

At St Peter's we recognise that developed, thorough, focused science planning leads to effective teaching and learning of the science curriculum.

- Staff have a clear understanding of the science curriculum, long term planning and topic overviews, and how the science curriculum is built at St Peter's. They make pertinent links to previous science topics as well as devising activities to practise new skills and learning.
- Staff fully understand the expectations of the science curriculum coverage and standards of the year group they teach.

- Subject knowledge of science is strong and common misconceptions are understood and planning takes this into account.
- Through effective use of end of science topic assessment, future work will be planned that meets the working scientifically objectives and knowledge objectives missed.
- Planned science work by the use of paddling, swimming and diving, meets all the needs of the class from challenge for the able children, those who need scaffolds to develop.
- Ensuring that the children will be pushed to meet their own potential.
- Planned science investigations that answer a key question and investigate a line of enquiry enabling pupils of all ability to grow in independence as independent inquirers.
- Planning science experiments that enable pupils to reach their full potential in the writing up of science investigations with access to a wide range of science vocabulary.
- Planned science work will always be purposeful ensuring learning is progressing.
- Careful planning and organisation will ensure that staff are always prepared to give a high quality science lessons.
- Teachers effectively deploy a wide variety and range of suitable materials and appropriate resources.
- Teachers set clear learning objectives which are appropriate for the particular age and stage, and these are well understood by the learners themselves.

**Related Policies / Documents**

- Rolling science programme 2020-2024
- Curriculum planning file
- Science topic overviews
- Science knowledge assessment
- Working scientifically objectives

**Implementation:**

At St Peter's we recognise that each staff member brings different styles and skills to science. However, to ensure that there is a consistent approach across year groups teachers need to follow the following ethos as the foundation for their practise.

- Staff follow expectations for teaching and learning of science set out by the subject leaders and school policies.
- Teachers use science vocabulary mats during science lessons
- Teachers use the correct lesson objectives for science and ensure that ample opportunity is given to meet all WS objectives each year.
- Teachers use the science rolling programme of objectives to plan and develop accurate key questions which enable pupils to dive deeply into the science curriculum.

- Teachers use the science investigation planning sheets that have been differentiated for their year groups when applicable.
- Effective use of time is essential with pupils getting off to a flying start at the beginning of each science lesson.
- All staff must model the highest standard of english and maths through their teaching of science
- Understand how children learn and incorporate into lessons the teaching style most appropriate for the year group.
- Staff must create a positive atmosphere for learning during science lessons, including following the behaviour policy, providing a stimulating learning environment, promoting independence and responsibility, pushing the children out of their comfort zones and celebrating effort and success.
- Through daily science lesson plans, Staff share high expectations at the beginning of the lesson and provide a clear picture of what work is expected, what the standard of work looks like and model what pupils should be doing.
- Encourage pupils to challenge themselves and aim high in science lessons when choosing paddling, swimming or diving activities.
- Staff share information in a clear manner that has been planned to reduce cognitive overload.
- Staff use a range of styles / pedagogies which fit children's needs – scaffolding, modelling, questioning etc.
- Staff provide guidance throughout the science lesson to push progress.
- Staff adapt lessons / suite of lessons to ensure that children are meeting the standards for their year group and to make lessons inclusive for all.
- Staff support children to reflect on learning each lesson against focused objectives.
- Staff ensure that previous learning is constantly reinforced and maintained during science lessons
- Children are involved in their own learning:-
- Children understand how learning links together through the use of learning pathways.
- Children know what they are learning that session through learning objectives and why it is important / links with outcomes being explicit.
- Children have a clear understanding of what they are learning during science lessons and can verbalise this rather that just saying what they are doing.
- Children are directed to use higher order thinking skills to promote deeper thinking to become more independent inquirers.
- Children will know what they need to include for their work to be successful by using the success criteria displayed during science lessons.
- Children will self-check and self-assess independently and through set tasks.
- Children will work with one another to share positives and spot areas for development through peer assessment.

- Children are encourage to drive the learning and ask questions so they are active participators in their own learning.

**Related Policies / Documents**

- Teaching and Learning policy
- Learning environment / resources policy (appendix 2)
- Assessment for Learning Expectations (appendix 3)

**Teaching Methods and Resources**

We believe that the best way to learn science is through first - hand experience, through a range of domestic and environmental contexts that are familiar and of interest to the children.

A range of teaching resources are used which include:
Computer-bases packages and concept
Espresso Programme
BBC Bitesize Science clips
CDs, DVDs and web-based science films
and information
BBC science website

A Science Resource Centre has been established and is organised by the Science Coordinator.
All equipment is labelled and stored in its own place. It is the responsibility of the staff to return all equipment to the Science Resource Centre. The Co-ordinator maintains oversight and purchases new material sources at regular intervals.

Topic related boxes have been established and include: Sound, Light, Teeth and Eating, The Human Body, Pond Life, Plants, Magnetism, Electricity, Forces, Rocks and Fossils, Earth and Space, Moving and Growing, Life Cycles and Keeping Healthy.

We aim to use a range of secondary sources: video and DVD, IT software, intranet and internet and continue to investigate new ways of recording through ICT.
Digital cameras and ipads are often used to record findings and assist with science work.

Links are regularly made with local schools and agencies e.g. school nurse, hearing support teachers, wildlife experts, Blythe Bridge High School etc.
Groups of KS2 children have the opportunity to attend various Science Challenges and workshops each year. Most year groups go on Science-based Educational Trips each year.

**Related Policies/Documents**

Science Audit

**Impact:**

- Staff constantly review science lessons and practise ensuring effective teaching and learning is happening or understanding what changes need to be made to future teaching.
- In science lessons and throughout science units, children are given timely oral feedback to ensure that misconceptions are addressed and to push learning on.
- Children know how well they have done through positive marking and feedback in science topic books and STEM books.
- Children will be encouraged to make their work better through feedback questions or actions.
- Teaching points during science lessons move children forward in their learning and are acted on immediately in science lessons.
- To make against the punctuation progression poster to identify spelling and punctuation errors in science work.
- Science WS assessments are filled in half termly and the science knowledge assessment completed after each science unit.
- Staff analyse data regularly using the data to adapt planning, regroup children, provide children with personalised targets, celebrate successes.

**Related Policies / Documents**

- Assessment Policy
- Feedback and marking strategies (appendix 5)

**Professional Responsibilities:**

- Staff model positive attitudes to learning.
- Parental support is encouraged to help support children at home and give parents a clear idea of what is expected of the children this is done through half termly data sharing, termly parents evening, open door policy and yearly written reports.
- Staff hold accountability for pupil outcomes and complete data analysis termly.
- Staff attend and provide continuing professional development, support and keep up to date with developments in education.

**Monitoring of Science**

The role of the Science co-ordinator is:

- To co-ordinate the teaching of science throughout the school
- To be involved in the induction of new staff
- To keep up to date with training
- To monitor the use of the policy and scheme of work
- To ensure continuity and progression of the teaching and learning of Science across the key stages and the school
- To meet with the Science-link Governor to report on Science teaching and to discuss new initiatives with other staff and Headteacher.
- To make changes to the policy and scheme of work if necessary.
- To order and maintain resources

- To make staff aware of changes/thinking in Science
- To support staff who are less confident with Science
- To make staff aware of Science courses on offer and encourage them to attend
- To provide where necessary, staff training and development
- To show by example good Science practice.

# Assessment for Learning Expectations Science

- Science WS and knowledge assessment skills ladders completed and up to date.
- To ensure all WS objectives are covered by the end of the year.
- Science L.Os with WS objectives and differentiated tasks.
- Clear line of enquiry in the form of a question to investigate.
- Success criteria and key science vocab displayed for lessons.
- High expectations of presentation and content when writing science investigations
- GD pupils should be using more complex science vocabulary.
- Investigations well differentiated, i.e opportunity for GD pupils to plan and carry out their own investigations or explore the line of enquiry more deeply to test more thoroughly.
- Use Bloom terminology, explain, prove, justify, the use of 'why?' to help pupils think more deeply, reason scientifically and move GD pupils on further.
- Investigations challenge pupils' thinking about why things happen.
- Pupils understand the reason why certain things have to remain the same in order for it to be a fair test.
- Aim, prediction, results and conclusion discuss at the end of a science lesson/s referring back to the L.O/key questions:

  Why do you think this happened?
  What are the reasons?
  Explain
  Could we have used another investigation to test the same line of enquiry?

- Teaching points are evident and more children forward in their learning and into deeper thinking scientifically.
- Progression in punctuation display is referred to in science investigations and guide lines to be used.
- GD pupils to be GD in science have to become independent enquirers, they have to plan and carry out their own investigations (with teacher guidance) and be challenged to deeper thinking scientifically through explain, justify, investigate, prove and 'why?' etc.
- GD pupils not to use planning template for investigations in UKS2. (this could limit children)
- Include peer assessment
- Ensure children are on task
- Higher expectations for presentation
- Topic learning pathways to include science

- Griffin learning referred to in lessons
- Science vocab lesson at the start of science topics
- Use of science vocabulary mats

# St Peter's CE (VA) Primary School

## Science Coverage - Rolling Programme Objectives

### Key Stage 1

| Year A | | Year B | |
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| Explorers (Geography) 8 wks | • Identify and name a variety of plants and animals in their habitats, including micro-habitats.<br>• 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.<br>• Explore and compare the differences between things that are living, dead, and things that have never been alive.<br>• 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. | Enchanted Wood (Science) | • Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.<br>• Identify and describe the basic structure of a variety of common flowering plants, including trees.<br>• Observe changes across the four seasons.<br>• Observe and describe weather associated with the seasons and how day length varies. |
| Core Investigation | • What happens when part of the food chain is missing?<br>completing the chain<br>• How can we group animals? (Australian/British)<br>Use a key with questions and yes and no answers to group them | Core Investigation | • How can we sort these trees? Evergreen and deciduous<br>Use a key and questions with yes/no answers<br>• What materials are waterproof?<br>Test a variety of materials over a bowl and pour water.<br>(More able measure how much water passes through to find out the most waterproof material) |
| Sports Camp 4wks (Science) | • Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.<br>• Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. | | |

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| Core Investigation | • Do taller people have bigger feet?<br>• What happens to our bodies when we exercise? | Animals 3wks (Science) | • Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals and their habitats including micro habitats.<br>• Identify and name a variety of common animals that are carnivores, herbivores and omnivores.<br>• Notice that animals, including humans, have offspring which grow into adults.<br>• 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.<br>• Find out about and describe the basic needs of animals, including humans, for survival and how they rely on each other (water, food and air).<br>• Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). |
| Sunflowers 7wks (Science) | • Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.<br>• Identify and describe the basic structure of a variety of common flowering plants, including trees.<br>• Observe and describe how seeds and bulbs grow into mature plants.<br>• Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy | Core Investigation | • How can we classify and organise animals? (fish, amphibians, reptiles, birds and mammals)<br>Create classification key through questions. Sorting pictures investigation (large scale- children stepping onto the correct pictures)<br>Does it live on land? (yes/no) Does it have 4 legs? Etc<br><br>Experiment offspring observation over time (tadpoles/caterpillars to butterflies/eggs hatching to chicks) |
| Core Investigation | • Does a plant need soil and water to grow?<br>Germination investigation- Soil and water<br>Soil no water<br>No soil and water<br>No soil and no water<br>• Does a plant need a suitable temperature to grow? | Great Fire (History) | • 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.<br>• Describe the simple physical properties of a variety of everyday materials. Compare and group together a variety of everyday materials on the basis of their simple physical properties.<br>• Identify and compare the suitability of a variety of |
| Wacky Races (DT) | • Distinguish between an object and the material from which it is made. | | |

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| | • Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.<br>• Describe the simple physical properties of a variety of everyday materials.<br>• Compare and group together a variety of everyday materials on the basis of their simple physical properties and suitability for a purpose.<br>• Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. | | everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.<br>• Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching |
| Core Investigations | • Which material is the strongest? Tissue paper, printing paper, card, wood, plastic<br>• Which surface is the best surface for a car to travel on? | Core Investigations | • Which material is the best to build a house with?<br>• Which materials can be found around the school? Investigate<br>• Which objects are made from the same material? Sorting investigation |

# Key Stage 2

| Year A/C | Lower KS2 | Upper KS2 |
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| Electricity 3wks | • Identify common appliances that run on electricity<br>• Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers<br>• Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery<br>• Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit<br>• Recognise some common conductors and insulators, and associate metals with being good conductors. | • Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit<br>• 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<br>• Use recognised symbols when representing a simple circuit in a diagram.<br>• 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 |
| Core Investigation | • Which materials conduct electricity? Conductor or insulator experiment (text a variety of items to see which ones are | • Conductor experiment- Does the voltage affect the brightness of the bulb? Explain why |

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| | conductors and which are insulators.<br>• Identify metals as good conductors. What are the best conductors? What are the best insulators? | • How can we change the brightness of the bulb in a circuit?<br>• Does the length and thickness of wire affect the brightness of bulb. Use wire of different lengths and diameter to see if it affects the brightness of the bulb. |
| Humans<br>3wks | • Describe the simple functions of the basic parts of the digestive system in humans<br>• Recognise the impact of diet, exercise, drugs and lifestyle on the ways our bodies function.<br>• Identify the different types of teeth in humans and their simple functions<br>• Identify that humans have skeletons and muscles for support, protection and movement.<br>• Identify that, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat | • Recognise that living things have changed over time<br>• Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents<br>• Describe the changes as humans develop to old age.<br>• Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood<br>• Describe the ways in which nutrients and water are transported within animals, including humans. |
| Core Investigation | • Nutrition- Which foods contain the most sugar? Use packaging on food to measure how much sugar is in different foods. 4grams of sugar= 1 tsp. Make a prediction which food is highest in sugar. | • Do younger children have a slower heart rate that older people? Experiment- Measure the heart rate of different ages to find out if younger children have a slower heart rate.<br>• How does movement affect our heart rate?<br>• How is fitness measured? (investigate) |
| Plants<br>2wks | • Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers<br>• Investigate the way in which water is transported within plants<br>• recognise that environments can change and that this can sometimes pose dangers to living things. | • Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.<br>• 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<br>• Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. |
| Core Investigation | • How do plants transport water? Water transport experiment using celery and food colouring in water<br>• What affect does the environment have on a plant? Change of environment on a plant experiment- Put water cress in sunlight at room temperature observe it. Then place it in a fridge and then observe it weekly. What happens? | • What does a plant need to grow? Germination experiment- Cress seeds:- Soil no water no light<br>Soil with water no light<br>Soil water and light<br>No soil, just water no light<br>No soil water and light<br>No soil water or light |

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| | | • Investigate temperature as well. |
| Space<br>2wks | • Describe the movement of the Earth, and other planets, relative to the Sun in the solar system<br>• Describe the movement of the Moon relative to the Earth<br>• Describe the Sun, Earth and Moon as approximately spherical bodies<br>• Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. | • Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object<br>• Recognise that they need light in order to see things and that dark is the absence of light<br>• Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. |
| Core Investigation | • How does the angle of the torch affect the shape of the shadow? Light and shadow experiment. | • Do heavy objects fall faster? Do larger objects fall faster? Gravity experiment |

| Year B/D | Lower KS2 | Upper KS2 |
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| Animals<br>3wks | • 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<br>• Identify that some animals have skeletons and muscles for support, protection and movement.<br>• Construct and interpret a variety of food chains, identifying producers, predators and prey.<br>• Recognise that living things can be grouped in a variety of ways<br>• Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment<br>• Recognise that environments can change and that this can sometimes pose dangers to living things. | • Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution<br>• Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents<br>• Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird<br>• Describe the life process of reproduction in some plants and animals.<br>• 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<br>• Give reasons for classifying plants and animals based on specific characteristics.<br>• Describe the ways in which nutrients and water are transported within animals |
| Core Investigation | • Does the size of an animal determine where it is on the food chain?<br>• Do the jaws of animals link to the kind of food it eats?<br>• Do carnivores and herbivores have the same kind of teeth?<br>• Animals either live in water or on land-true or false (investigate) | • How do human skeletons differ to animal's skeletons?<br>• How can vertebrates be classified? Mammals, reptiles, amphibians, fish and birds – develop their own key from their own questions.<br>• Are all invertebrates small? (investigate) |

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| Materials<br>3wks | • Compare and group materials together, according to whether they are solids, liquids or gases<br>• 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)<br>• Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. | • Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution<br>• Demonstrate that dissolving, mixing and changes of state are reversible changes<br>• 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.<br>• Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating |
| Core<br>Investigation | • What affect does heat have on water?<br>• Can steam turn back to water?<br>• Does temperature affect the speed of evaporation? | • Which materials are soluble?<br>• Does salt dissolve faster in warmer water?<br>• How many teaspoons of sugar dissolve in (?) amount of water?<br>• Will sugar/salt eventually stop dissolving? Explain<br>• Can filtration be used to purify water? |
| Forces<br>2wks | • Notice that some forces need contact between two objects, but magnetic forces can act at a distance<br>• Observe how magnets attract or repel each other and attract some materials and not others<br>• Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials<br>• Describe magnets as having two poles<br>• Predict whether two magnets will attract or repel each other, depending on which poles are facing.<br>• Identify the effects of air resistance, water resistance and friction, that act between moving surfaces<br>• Compare how things move on different surfaces | • 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<br>• Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic<br>• Identify the effects of air resistance, water resistance and friction, that act between moving surfaces<br>• Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. |
| Core<br>Investigation | • How can we measure magnetism?- Investigate<br>• Does the size of the magnet effect its magnetism? | • Does surface area affect air resistance as a force that acts against gravity? (parachute experiment)<br>• Water resistance experiment using plasticine and varying surface area of objects.<br>• What is made from metal and how do you know? |

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| Light/Sound 2wks | • Notice that light is reflected from surfaces<br>• Recognise that light appears to travel in straight lines<br>• Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes.<br><br>• Identify how sounds are made, associating some of them with something vibrating<br>• Recognise that vibrations from sounds travel through a medium to the ear<br>• Recognise that sounds get fainter as the distance from the sound source increases. | • Recognise that shadows are formed when the light from a light source is blocked by a solid object<br>• Find patterns in the way that the size of shadows change<br>• Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye.<br>• Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.<br><br>• Find patterns between the pitch of a sound and features of the object that produced it<br>• Find patterns between the volume of a sound and the strength of the vibrations that produced it<br>• |
| Core Investigation | • How does water volume affect pitch in glasses?<br>• How does distance affect sound? Musical instrument distance experiment. | • How does the size of an instrument affect its pitch?<br>• Can a bigger instrument be heard from further away? |

<u>Geography (Earth) KS2</u>

- Recognise that living things have changed over time and that fossils provide information about living things that inhabited the earth millions of years ago.
- Compare and group together different kinds of rocks on the basis of their appearance and simple physical features.
- Describe in simple terms how fossils are formed when things that have lived are trapped within rock
- Recognise that soils are made from rocks and organic matter