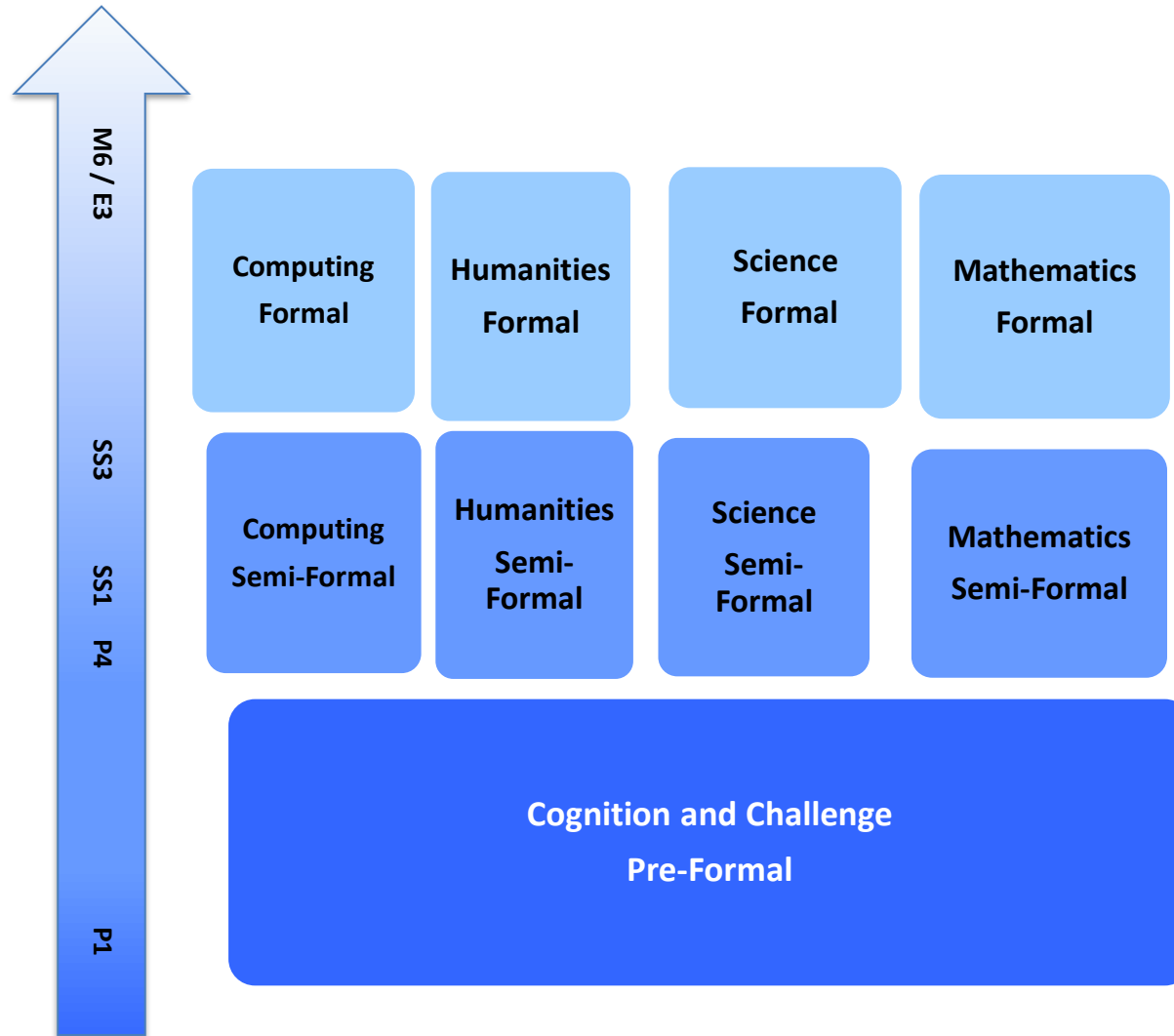


Curriculum Areas at St Giles

Cognition and Challenge



Cognition and Challenge

Semi-Formal Science Curriculum

Cognition and Challenge

The Semi-Formal Pathway curriculum for Cognition and Challenge recognises that learners with severe learning difficulties require a specialised approach to teaching and therefore there will be some differences in the design of the curriculum for these learners. The semi-formal curriculum at St Giles has been sub-divided into curricula for;

- Mathematics
- Science
- Computing
- Humanities – RE, History and Geography
- Modern foreign languages

These subject areas are mainly taught through termly cross curricular themed topics and some everyday activities that are part of the classroom routine providing opportunities for learners to link experiences to and make connections. Topics are organised in cycles by the Lower, Middle and Upper Schools. Cognition and Challenge subjects are delivered through a variety of core subject themed activities across the week, daily learning opportunities within the classroom routine as well as through termly cross curricular themed topics.

Science

Intent - What are we trying to achieve through our curriculum?

The semi-formal curriculum for science acknowledges that learners are likely to have difficulties making generalisations which, they can apply and link appropriately to future learning.

These difficulties may act as barriers in applying what they have learned in order to make the necessary connections when studying science. The learners may need support to remember previous experiences and link them to make sense out of a new one.

The intent of the semi-formal curriculum is to build on what the learners has experienced in the past and use this to support the learners to make connections and link future learning to these experiences.

Aims;

We aim to ensure ~~SLD~~ that learners have access to a semi-formal science curriculum that;

- Supports them to develop an awareness of, and interest in, themselves and their immediate surroundings and environment
- Enables learners to join in practical activities that link to ideas, for example, doing and thinking
- Encourages learners to use their senses to explore and investigate
- develop learners understanding of cause and effect.
- Supports them to link and apply scientific knowledge and understanding to everyday life, for example, to cooking, to their own health, and in the use of materials for functional purpose,
- Supports them to link experiences in the past with the science activity to make connections,

To achieve these aims we recognise that the themed topic that delivers science;

- must engage the learners,
- should contain learning experiences that are concrete and not abstract,
- should relate to the learners' environment
- must allow time for revision and repetition of learning experiences
- should emphasise the scientific links between different parts of the topic.

We also recognise that there are some functional activities that are part of the learners' daily routines that will provide opportunities for them to make scientific connections from these experiences e.g. choosing correct clothing for outdoor play, being supported with body awareness during personal care, consumption of fluids and nutrition either orally or via an ng tube or gastrostomy.

Curriculum Design;

Science is taught through cross curricular themed topics and some everyday activities that are part of the school routine that will provide opportunities for learners to make connections through their experiences. Topics are organised in cycles by the Lower, Middle and Upper Departments.

For learners at EYFS and in Year 1, the Semi-Formal Pathway curriculum for science is informed by the content of the EYFS Understanding the world: The world for learners aged between 11 and 36 months as well as the EYFS Characteristics of Effective Learning.

For learners from Year 2 onwards, it is informed by the EQUALS Semi -Formal Curriculum, “The World About Me” and “My Thinking and Problem Solving”. “My Thinking and Problem Solving” can support the learner to develop thinking skills to support them in developing scientific skills linked to memory, questioning, problem solving, observations and testing. “The World About Me” supports with developing knowledge around scientific themes.

Other curriculum documents that informs practice includes the National Curriculum and appropriate accreditations such as ASDAN and AQA UNIT Awards

Implementation - How is our curriculum being delivered?

Curriculum Coverage

Learners from Year 2 onwards may be supported with science (cognition and challenge) through;

Assessment Framework Level	Curriculum Content The learners is learning to;	What the Adults working with the learners does	Enabling Responsive Environment Learning Opportunities / What is provided?	Cross- Curricula Themed Topic Cycle Links
Development (P4 – semi-formal) Characterised by remembered responses and intentional communication	Explore objects and materials provided, changing some materials by physical means and observing the outcomes,	Adults will provide appropriate support (verbal and /or physical) to encourage learners to investigate and explore activities and resources, Adults will model how to engage in the activity and how to explore resources. Adults will adapt activities accordingly to learners’ abilities and needs.	Opportunities for the learners to investigate and explore a range of objects and materials using their senses e.g. smelling, touching, tasting, listening and looking. Providing a range of different substances to combine in order to observe and explore changes e.g. adding liquid to dry materials such as. mixing flour and water, water and sugar, adding food colouring to icing sugar. Exploring the changes to materials when they are cooled/frozen or heated. Looking at the effect of applying pressure to materials e.g. squashing fruit, using their hands or feet or a blender or mixer Observe objects, animals and the local environment. Set up feeding stations for birds, create a wormery,	Upper Year1 Different Places, Different People Science: Living things - me and my body Through the decades Science: Space, forces and motion - including gravity, magnetism and friction Summer the town where we live Science: Properties of everyday materials <u>Year 2</u> Let’s Celebrate Science: Science in the kitchen – solid, liquid gas, dissolving, heating and cooling Victorian Times/ I am not amused Science: Light, sound, electricity The Great Outdoors Science: Living things and their habitats Middle Year1 Who Am I? Science: Animals including humans Special people, special places
	Know that certain actions produce predictable results,	Adults will provide and set up necessary resources, Adults will help learners to access cause and effect activities. Adults will encourage learners to use resources and to observe the results of their actions, e.g. <i>that sponges can be squeezed.</i>	Opportunities to explore and revisit actions to support understanding the predictability of certain outcomes e.g. through water play, pouring water through a sieve, colander bucket with a hole. Wetting different materials e.g. paper, cloth, plastic and observing the results Playing with cause and effect toys with on/off buttons or switches. Pushing objects with wheels and without. Bouncing balls, hitting blocks, to make them fall, rolling objects	

	<p>Communicate their awareness of changes in light, sound or movement.</p>	<p>Adults will provide learners with necessary resources and will encourage learners to investigate them.</p> <p>Adults will encourage learners to manipulate and operate light, sound and movement resources.</p> <p>Adults will provide and encourage learners to use simple, key vocabulary of changes in light, sound or movement., e.g. slow, fast, quiet. ‘</p> <p>Adults will set up activities for learners to enable them to observe difference between numerous light, sound or movement sources. Such as a race between different wheeled toys, during which learners will be encouraged to observe and indicate which toys are moving slowly and which toys are moving fast.</p>	<p>Provide and use simple vocabulary related to movement, light and sound e.g. Loud, bright, fast. Give opportunities to explore and investigate different light sources including sun and moon. Light in the environment related to night and day, comparisons between different light sources e.g. looking at strength of light from different bulbs, torches, shining light through different materials and observing how much light can be seen.</p> <p>Investigate different sound sources, environmental sounds, sounds in nature, musical sounds. Be able to indicate loud and quiet sounds and compare different sounds to identify which are loud or quiet. Experience sounds getting louder or quieter.</p> <p>Observe different speeds through movement e.g. using wheelchair bicycles, taking part in races, developing movement in PE.</p> <p>Have opportunity to make comparisons between slow and fast movement. Look at things that move fast and things that are slow. Observe animals, transport, throwing, pushing and rolling objects and identifying which are fast and which are slow.</p>	<p>Christmas/Winter Science: Light and electricity Long, Long Ago: Nurses Science: Plants We’re All Going On A Summer Holiday (Europe)/Summer Science: Everyday Materials and States of matter Year2 This Is Me! Science: Animals including humans Festivals of light. Christmas/Winter Science: Light, Electricity Long, Long Ago: Great Fire of London Science: Everyday Materials Passports Please (a country far away – Africa) Science: Living things and their habitats. <u>Year 3</u></p>
	<p>Imitate actions involving main body parts,</p>	<p><i>Action songs / rhymes with clapping or stamping.</i></p> <p>Adults will provide and recap regularly names of the main body parts with learners.</p> <p>Adults will provide learners with regular opportunities to participate in body awareness activities like: HandyPac, TacPac, Story Massage and others.</p> <p>Adults will make sure that during body awareness activities the learner’s environment is calm and distractions are minimized as much as possible.</p>	<p>Provide vocabulary for the main body parts, head, arm, leg, hand, foot, face. Give opportunities to participate in body awareness activities to support recognising different body parts. This can be supported through, Action songs, sensory stories, physical movements in dance, PE, stories and drama.</p>	<p>I’m Amazing, You’re Amazing, We’re All Amazing! Science: Animals including humans Is it a bird, is it a plane... (Superheroes, Forces) Christmas/Winter Science: Forces and magnets Long, Long Ago: Toys Science: Everyday Materials, sound Summer: South America: rainforests Science: Living things and their habits. Sound <u>Year 4</u> Me, Myself and I/Autumn Science: Animals including humans</p>

		Adults will encourage learners to imitate action involving main body parts, for example when singing songs that require actions, e.g. "Head, shoulders, knees and toes".		Here Comes the Aliens (Light + Dark, Space) Christmas/Winter Science: Space Long, Long Ago: Walk like a dinosaur
Make sounds using their own bodies,	<i>e.g. tapping, singing or vocalising</i> Adults will encourage learners to participate in activities which require to make sound by using their body, like stomping with feet or clapping with hands Learners will be encouraged to participate in Intensive Interaction, when Adults will be copying their sounds. Adults will provide learners with songs and rhymes to encourage them to use their body in order to make sounds, for example: "If you're happy and you know it, clap your hands".	Provide sensory experiences using their bodies to make sound through body mapping, tac pac, story massage, dance massage, handy pac. Making music with their bodies through tapping, clapping, stomping vocalising, During intensive interaction and by filling a turn using vocalisation.		Science: Living things and their habitats. Plants Long, Long Ago: Transport Science: Space, forces and magnets.
Imitate or copy sounds.	Adults will provide calm and quiet environment in which learners will be able to hear themselves making sounds. Adults will encourage learners to imitate or copy sounds by regular repetition of the activities such as Intensive Interaction. Adults will provide learners with variety of sounds which are easy to repeat.	Non-verbal learners will have opportunity to use Intensive interaction and call and response within their vocal range in order to support them to copy a sound. Use of switches to respond to copying sounds in context. Opportunities provided through stories and texts with repetitive sound words e.g. bang, whoosh as well as animal sounds can be used to encourage copying or imitating. Use of recorded devices can be used by non-verbal pupils to copy/share the sounds.		
Cause movement by a pushing or pulling action.	Comment on the ways in which learners investigate how to push, pull, lift or press parts of toys and domestic equipment.	Learners should have opportunity to explore a range of robust resources with knobs, flaps, keys or shutters. Have a range of play resources that can be pushed or pulled e.g. toy cars, crackers. Incorporate technology		Middle: <ul style="list-style-type: none"> • Is it a bird, is it a plane? (Superheroes, Forces) • Long, Long Ago: Transport

		Talk about the effect of learners' actions, as they investigate what things can do.	resources that learners recognise into their play, such as pushing a switch to activate a toy or pulling a string to make something move. Experience pushing musical instruments to make them move e.g. chimes or bells Using wheelchair swing and accessible roundabout to observe and participate in their movement,	<ul style="list-style-type: none"> Long, Long Ago: Toys
Exploration SS1(P5) Characterised by concentration, recall and observation	Observation Take part in activities focused on the anticipation of an enquiry into specific environments,	<i>e.g. finding the hamster under the straw, or the worms in a wormery.</i> Adults will explain to learners what is environment. Adults will teach learners about some of the specific environments. Adults will enable learners to investigate and explore various environments within the school and school's garden. Adults will provide learners with wide range of activities related to different environments. Adults will provide and encourage learners to explore wide range of resources linked to different environments. Adults will ask learners leading questions in relations to environments to develop their curiosity and enquiry.	Provide opportunities for pupils to explore where living things can be found, e.g. exploring different environments looking at where fish are in the tank. Display and talk about photographs of learners' favourite places. Develop the use of the outdoors so that learners can investigate features, e.g. a mound, a path or a wall. Create story and information books about places, such as the playground, the park, the playing field, a zoo or the beach, to remind learners of visits to real places.	Upper Year1 Different Places, Different People Science: Living things - me and my body Through the decades Science: Space, forces and motion - including gravity, magnetism and friction Summer the town where we live Science: Properties of everyday materials Year 2 Let's Celebrate Science: Science in the kitchen – solid, liquid gas, dissolving, heating and cooling Victorian Times/ I am not amused Science: Light, sound, electricity The Great Outdoors Science: Living things and their habitats Middle Year1 Who Am I? Science: Animals including humans Special people, special places Christmas/Winter Science: Light and electricity Long, Long Ago: Nurses Science: Plants We're All Going On A Summer Holiday
	Identifying and Classifying Match objects and materials in terms of single features or properties,	<i>e.g. temperature or colour.</i> Adults will provide learners with activities requiring to investigate and characterise range of objects.	Learners should have opportunities to explore and investigate range of objects characterised by same feature or property, for example: all blue, all cold, all soft, all hard, all sink, all float, all waterproof, etc. For example, learners can carry out investigation of variety of objects to check whether they will sink or float in the water and separate them into two groups.	

	<p>Adults will model how to match objects and materials based on their single feature or property.</p> <p>Adults will encourage learners to describe objects in order to match them. Adults will ask leading questions to enable learners to recognise when features or properties are the same.</p>	<p>Through activities learners should be encouraged to carry out investigations, in which using their senses, they will be able to observe, identify, classify and group objects based on their properties.</p> <p>Giving learners opportunities to explore various materials, to sort and classify them and to investigate how they behave will help to build their ability to understanding the world.</p>	<p>(Europe)/Summer Science: Everyday Materials and States of matter Year2 This Is Me! Science: Animals including humans Festivals of light. Christmas/Winter Science: Light, Electricity Long, Long Ago: Great Fire of London Science: Everyday Materials Passports Please (a country far away – Africa) Science: Living things and their habitats. <u>Year 3</u> I’m Amazing, You’re Amazing, We’re All Amazing! Science: Animals including humans Is it a bird, is it a plane... (Superheroes, Forces) Christmas/Winter Science: Forces and magnets Long, Long Ago: Toys Science: Everyday Materials, sound Summer: South America: rainforests Science: Living things and their habits. Sound <u>Year 4</u> Me, Myself and I/Autumn Science: Animals including humans Here Comes the Aliens (Light + Dark, Space) Christmas/Winter Science: Space Long, Long Ago: Walk like a dinosaur Science: Living things and their habitats. Plants</p>
<p>Testing Indicate the before and after of material changes.</p>	<p>Adults will support learners to observe how materials change by providing appropriate activities.</p> <p>Adults will provide learners with simple scientific experiments to enable observation of materials changes.</p> <p>Adults will encourage learners to observe and indicate before and after of material changes.</p>	<p>Provide learners with examples of material changes. Model and explain how various material can change their form and shape and why. Use key vocabulary, suitable to learners’ level. Provide learners with simple examples of material changes, observing and sharing how they were before and after the change. Provide learners with scientific experiences to help them to observe what happens to different materials when they are changed e.g. frozen or cooled or heated. This can also link to mixing solids in liquid - what changes do they see? Can also be linked to squashing, mashing or pureeing materials. Provide learners with scientific games/ experiments, to observe before and after a change e.g., what happens when materials are left out in the sun or put in the water?</p>	
<p>Use of Equipment Try out a range of equipment in familiar and relevant situations,</p>	<p><i>e.g. initiating the activation of a range of light sources.</i> Adults will provide learners with range of resources.</p> <p>Adults will model to learners how to use provided resources purposefully and will encourage learners to follow the lead and to try out equipment.</p>	<p>Provide safe equipment to play with, such as torches, cause and effect toys, iPads, cameras, Let learners use machines like the photocopier to copy their own pictures. Or take a photograph using the iPad or a camera, activate equipment using switches</p>	
<p>Questioning Respond to simple scientific questions,</p>	<p><i>for example, ‘Show me the flower?’ ‘Is it hot/cold?’</i></p>	<p>Provide students with opportunities to respond to simple scientific questions as part of ongoing</p>	

		<p>Based on previous teaching and learning Adults will ask learners simple questions.</p> <p>Adults will encourage learners to respond to simple scientific questions accordingly to their ability.</p>	<p>experiments, observation and investigations e.g. Did it float? Did it melt? Is it cold? Is it soft? Using the learners experiences questions should support learners observations and vocabulary development and reflect what they will have observed and understood.</p>	<p>Long, Long Ago: Transport Science: Space, forces and magnets.</p>
<p>Initiation SS2 (P6 – P7.4)</p> <p>Characterised by initiation and maintenance of established responses over increasing periods of time</p>	<p>Observations Recognises distinctive features of objects,</p>	<p><i>e.g. the features of living things in their environment.</i> Adults will introduce learners to the idea that objects have various features and properties that can be used to describe them.</p> <p>Adults will provide and encourage learners to use vocabulary linked to features of objects.</p> <p>Adults will encourage and help learners to discuss and raise questions about features of various objects so they become familiar with the vocabulary, for example: hard/soft, waterproof/not waterproof.</p> <p>Adults will provide learners with range of activities to enable them to make observations of various resources including different objects, living things in their habitats, etc. and their features. Adults will encourage learners to observe and describe objects by what look like, feel like, sound like and smell or taste like. In particular, where learners have VI and HI the adult should consider ways to enable the learner to observe using their other senses.</p>	<p>Provide the necessary vocabulary and language related to living things in order to recognise distinctive features.</p> <p>Provide a wide range of observational opportunities using a range of senses to observe living things both outside the classroom and in it. This can include observing and identifying the features of a plant, including plants in water and trees as well as animals, birds and insects. When focusing on key features, care should be taken to provide the necessary vocabulary when looking and observing these features. Plant/tree features could include leaves stem, flower, fruit, trunk, branch, roots.</p> <p>Animal, bird, fish and insect features could include head, leg, body, eyes, beak, wings, feathers, hair, scales, fins.</p> <p>In addition to identifying specific features observations should also be made about where these living things are found e.g. fish in water, birds in trees, insects in the earth or grass.</p> <p>Provide games which allow opportunities to recognise features of animals and plants e.g. match the feathers. How many leaves are on the tree? Which plants have blue flowers. Group plants and trees together to provide opportunities to recognise that they are part of one living group and grouping animals, insects, birds and fish together to recognise they are part of a different living group</p> <p>These experiences can be supported through outside activities and exploration of different environments such as the outside area in the school, school visits such as trips to the farm or zoo. Opportunities to have animals in school. Visits to gardens, woodland, the</p>	<p>Upper <u>Year1</u> Different Places, Different People Science: Living things - me and my body Through the decades Science: Space, forces and motion - including gravity, magnetism and friction Summer the town where we live Science: Properties of everyday materials <u>Year 2</u> Let's Celebrate Science: Science in the kitchen – solid, liquid gas, dissolving, heating and cooling Victorian Times/ I am not amused Science: Light, sound, electricity The Great Outdoors Science: Living things and their habitats Middle Year1 Who Am I? Science: Animals including humans Special people, special places Christmas/Winter Science: Light and electricity Long, Long Ago: Nurses Science: Plants We're All Going On A Summer Holiday</p>

			<p>beach. Opportunities to care for animals and observe them before letting them go by looking after a wormery, snails, caterpillars. Growing plants and observing plants, growing fruit and vegetables.</p> <p>Always treat animals being used for observations with care and ensure they are returned to their natural environment as quickly as possible</p>	<p>(Europe)/Summer Science: Everyday Materials and States of matter Year2 This Is Me! Science: Animals including humans Festivals of light. Christmas/Winter Science: Light, Electricity Long, Long Ago: Great Fire of London Science: Everyday Materials Passports Please (a country far away – Africa) Science: Living things and their habitats. <u>Year 3</u> I’m Amazing, You’re Amazing, We’re All Amazing! Science: Animals including humans Is it a bird, is it a plane... (Superheroes, Forces) Christmas/Winter Science: Forces and magnets Long, Long Ago: Toys Science: Everyday Materials, sound Summer: South America: rainforests Science: Living things and their habits. Sound <u>Year 4</u> Me, Myself and I/Autumn Science: Animals including humans Here Comes the Aliens (Light + Dark, Space) Christmas/Winter Science: Space Long, Long Ago: Walk like a dinosaur Science: Living things and their habitats. Plants</p>
	<p>Identifying and Classifying Knows where features belong,</p>	<p><i>e.g. feathers on a bird, leaves on a tree.</i> Adults will help learners to understand that different objects have specific features.</p> <p>Adults will provide learners with a range of activities which will provide learners with opportunities to sort objects and materials into groups based on their common features. Adults can support learners with leading questions like:</p> <ul style="list-style-type: none"> • What do they look like? • What are they used for? • What are they made of? 	<p>Prior knowledge should be embedded about the vocabulary for different features and which plants and animals they are connected to. Consolidate recognising where features belong by providing games which give opportunities to match features to animals or plants and identify groups of animals or plants with similar features e.g. all these animals have horns, all these plants have flowers.</p> <p>Put the features on the plant or animal. Group the features for a particular plant or animal together. E.g. which of these features would a bird have?</p>	
	<p>Questioning Begins to make generalisations, connections and predictions from regular experience,</p>	<p><i>e.g. expecting that ice cream will melt, or by predicting that wheeled objects move faster when pushed harder.</i></p> <p>Adults working with learners will model and teach how to generalise, make connections and predictions.</p> <p>Adults will provide learners with repeated practical activities and ask them leading questions to encourage them to make connections and predictions. Adults will provide learners with time and encouragement to discuss their observations and predictions related to activities.</p>	<p>Use routine classroom experiences e.g. what will I wear if it is raining outside? Share questions at the start of an activity to encourage predictions. Record answers to questions at the beginning of the activity and then revisit when the activity is complete Discuss what has happened and link back to responses to the original question. Consider what has happened and emphasise it to support learners to make sense of what has happened. e.g. “Look this car has gone further, who thought that would happen? Before beginning of an activity ask learners to say/indicate what is going to happen. Encourage them to consider what will happen to an object if something is done to it or if something is done to an object what might happen then. These activities will need to be repeated to support them becoming</p>	

			familiar with the outcomes which will support them to make more accurate predictions.	Long, Long Ago: Transport Science: Space, forces and magnets.
Identifying and Classifying Sorts materials according to a single criterion when the contrast is obvious.	Adults will encourage learners to discuss previously gained knowledge materials and their features. Adults will provide learners with range of resources which can be easily sort accordingly to a single feature. Adults will help learners to explore materials with their senses prior to sorting them. Adults will model how to sort materials accordingly.	Sorting materials can be an activity suitable for a range of different subjects including, maths, art, DT, PE The objects provided to be sorted must have one obvious shared criterion e.g. colour, shape, size, texture. Can you put all the blue things in the blue box? This can encourage learners to see the similarities between materials and recognise specific criteria such as colours or shapes or sizes or textures.		
Observation Closely observes the changes that occur,	<i>e.g. when materials are heated, cooled or mixed.</i> Adults will teach learners about materials' changes through practical experience. Adults will provide learners with a range of activities and simple experiments to enable learners to observe the materials' changes. Adults will minimise distractions so learners can focus on the activity. During activities Adults will describe changes that are occurring using simple vocabulary.	Learn about the characteristics of materials by involving learners in practical, everyday activities e.g. melting chocolate or cooking eggs. By observing closely look at changes: from liquid to solid, solid to liquid, raw to cooked, cold to hot. This can be incorporated into cooking activities and practical activities which involve changing materials e.g. mixing powder paint with water; adding vinegar to baking soda. <u>What Happens When You Mix Vinegar and Baking Soda? Wonderopolis</u> Encourage learners s to observe using their dominant senses to support them to observe changes. Provide regular opportunities for them to observe changes in many different contexts. The emphasis is on observing the change not giving reasons for it. However by repeatedly giving pupils the opportunity to observe changes they will have the opportunity to start making connections between different changes e.g. solid liquids changing to liquid when it is warm (removed from cold environment,)		
Identifying and Classifying Identifies some appliances that use electricity.	Adults will teach learners what are electrical appliances.	Group different appliances together to identify which ones use electricity. Using a wall socket identify which objects can be plugged into the socket and what		

		<p>Adults will talk with learners about appliances that use electricity in their environment (home, school, etc.).</p> <p>Adults will provide learners with range of activities to embed new knowledge, for example: sorting cards showing items that require electricity and that do not.</p> <p>Adults will supervise and encourage learners to use various electrical appliances (blender, music player, etc.) with or without the use of switches and follow with discussion on how the appliances were activated.</p>	<p>happens when they are. Provide repetitive opportunities for learners to press switches to turn an appliance on.</p> <p>Provide similar activities with appliances that use batteries as an electrical source.</p> <p>Provide activities which encourage pupils to sort objects that use electricity from those that don't.</p> <p>Provide safety advice and support when using wall sockets and ensure unused sockets are switched off and have safety coverings.</p>	
	<p>Identifying and Classifying Shows they know some sources of sound and light,</p>	<p><i>e.g. remembering their location.</i></p> <p>Adults will have discussion with learners to share knowledge about sources of sound and light.</p> <p>Adults will teach learners about sound and light sources in their environment, find examples in the classroom.</p> <p>Adults will provide learners with activities to show them various examples of sources of sound and lights. Adults will encourage learners to explore various resources and to observe and name light and sound sources.</p>	<p>Opportunities to recognise sound and light sources can be through specific science activities or as part of regular class routines and other subjects. Taking opportunity to draw learners attention to different sources of light and sound will support them in being observant and making connections. Learners can be supported to switch on the light, turn on or of a piece of equipment which is producing light or sound. Identify where a sound or light is coming from.</p>	
	<p>Use of Equipment Begin to be familiar with equipment to support scientific observations or supporting recording information</p>	<p><i>e.g. linked to using switches to observe objects that use electricity or using equipment to support observations e.g. magnifiers. Use a voice recorder or recording</i></p>	<p>Introduce scientific equipment and environmental equipment to support with scientific knowledge and development. Provide a range of energy sources such as electrical sockets and battery holders to support understanding which objects use electricity. Provide a</p>	

		<p>equipment e.g. Big Mac to record activity and results. Adults will provide appropriate resources for the learning.</p> <p>Adults will model how to use specific resources accordingly to their function. Adults will engage learners with activities which will require to use specific scientific equipment for observation purposes.</p> <p>Adults will provide recording equipment adapted to learners' skills and abilities.</p> <p>Adults will model how to use recording equipment.</p> <p>Adults will provide learners with multiple opportunities to use recording equipment to secure their understanding of how to use it.</p>	<p>range of simple scientific equipment to support observations such as magnifiers and model their use. Provide recording equipment to aid recording observations, activities and/or results</p>	
	<p>Testing Discuss what they are doing and give a reason</p> <p>Extend this into what are they going to do and why</p>	<p>e.g. pushing a car to see how far it will go Adults should create an environment where learners are encouraged to share what they are doing and why and extend this in to being able to respond to questions about what will they do and why. Use of AAC, signing (Makaton) and use of symbols and gestures need to be embedded in the learning environment to support learners to communicate at their developmental level.</p>	<p>Building on from observations learners should be given opportunity to explore and create simple activities related to relevant scientific themes learners what they are doing and why. The adult should ask what they are doing and why e.g. learners is pushing toy cars across the floor; dropping objects into water; Through frequent adult observation and questioning introduce equipment for the learners to explore and ask what they are going to do and why before they engage with it. e.g. providing toy cars and a ramp</p>	
<p>Consolidation and Application SS3 (P7.6 – P8.8)</p>	<p>Questioning Begin to develop "how" questions</p>	<p>The adult will provide learners with wide range of interesting, highly motivating activities which will</p>	<p>As part of observations and testing learners should be exposed to "how" questions to extend their thinking.</p>	<p>Upper Year1 Different Places, Different People</p>

Characterised by the formation of skills, knowledge, concepts and understandings.		develop learners' curiosity in order for them to begin to develop "how" questions. Adults will model asking "how" question at appropriate times.	These "how" questions should be linked to practical experiences they can explore e.g. How far do you think the toy car will travel? How quickly will the ice turn to water (melt)? This can be extended into "how" questions related to what they might do e.g. How will you keep your head dry? How will you stop the soil from getting dry? How will you make bubbles?	Science: Living things - me and my body Through the decades Science: Space, forces and motion - including gravity, magnetism and friction Summer the town where we live Science: Properties of everyday materials Year 2 Let's Celebrate Science: Science in the kitchen – solid, liquid gas, dissolving, heating and cooling Victorian Times/ I am not amused Science: Light, sound, electricity The Great Outdoors Science: Living things and their habitats Middle Year1
	Vocabulary Understands the scientific use of some simple vocabulary,	<i>e.g. before, after, grow, eat, move.</i> Adults will carefully choose and teach simple scientific vocabulary. Adults will provide learners with explanation of the scientific vocabulary through different activities. Adults will use visual aids to help learners to embed meanings of the scientific vocabulary.	Specific science vocabulary should be identified and built in to the science activities and experiences the learners will be exposed to. The vocabulary should support the learners to be able to develop their observational, identification and classification skills. Each theme and topic should have identified vocabulary This should be shared with the learners regularly to support them to become familiar with it and recognise it. Simple science dictionaries, glossaries can be produced to support this using written words, symbols and recordings.	Who Am I? Science: Animals including humans Special people, special places Christmas/Winter Science: Light and electricity Long, Long Ago: Nurses Science: Plants We're All Going On A Summer Holiday (Europe)/Summer Science: Everyday Materials and States of matter Year2 This Is Me! Science: Animals including humans Festivals of light. Christmas/Winter
	Observations Communicates related ideas and observations using simple phrases,	<i>e.g. indicate which food to give which animal.</i> Adults will ask simple leading questions in relation to specific observations to encourage learners to communicate them. Adults will recap previously learned simple scientific vocabulary and will encourage learners to use it in simple sentences. Adults might provide learners with teaching aids to enable learners to communicate their observations, for example visual support	Learners will be provided with necessary vocabulary (recap of previously learned key vocabulary), resources and opportunities to communicate their gained knowledge, ideas and observations. Adults working with learners will encourage communication of their observations by responding to their comments and ideas and build on them using relevant vocabulary and terminology.	Science: Light, Electricity Long, Long Ago: Great Fire of London
	Identifying and Classifying	Demonstrates simple properties of light, sound and movement, <i>e.g. bright, noisy/quiet, fast/slow.</i>	Learners will be provided with observational opportunities to describe simple properties of light, sound and movement with well embedded vocabulary.	

	<p>Describe an object they are familiar with giving several properties</p>	<p>Adults will talk with learners about senses they have to use in order to make observations of light, sound and movement properties.</p> <p>Adults will recap previously learned material in regards to light, sound, movement and their properties.</p> <p>Adults will recap with learners' key vocabulary in regards to properties of light, sound and movement, like: loud, quiet, fast, slow, bright, etc.</p> <p>Adults will provide learners with range of investigating activities to enable them observations of properties of light, movement and sound. These could be simple activities where Adults demonstrates characteristic of light, sound or movement or it could be hands-on cause and effect activity or activity with use of IT resources (activity on the computer or Interactive Board).</p> <p>During activities Adults will ask learner leading questions in order to guide to make accurate observations. Adults will discuss their observations with learners.</p>	<p>Learners will be able to participate in various activities and games where they will have chance to make simple observations and descriptions. For example, activating programme with different sounds: quiet, loud, etc. Learners can be asked to describe their environment by answering simple questions: "Is music loud or quiet?", "Is it dark or light in the room?", etc.</p> <p>This can be extended into describing a object using several properties e.g. size, colour, shape</p>	<p>Science: Everyday Materials Passports Please (a country far away – Africa) Science: Living things and their habitats. Year 3 I'm Amazing, You're Amazing, We're All Amazing! Science: Animals including humans Is it a bird, is it a plane... (Superheroes, Forces) Christmas/Winter Science: Forces and magnets Long, Long Ago: Toys Science: Everyday Materials, sound Summer: South America: rainforests Science: Living things and their habits. Sound Year 4 Me, Myself and I/Autumn Science: Animals including humans Here Comes the Aliens (Light + Dark, Space) Christmas/Winter Science: Space Long, Long Ago: Walk like a dinosaur Science: Living things and their habitats. Plants Long, Long Ago: Transport Science: Space, forces and magnets.</p>
	<p>Identifying and Classifying Show an awareness of a place/habitat,</p>	<p>e.g. conkers and acorns found near trees Adults will teach and explain to learners what a habitat is and what it means and provide various examples.</p>	<p>By exploring the local environment learners can be encouraged to be science detectives. This can be developed by going on learning walks to observe the local environment and using clues to support them to be aware of a place or a habitat. e.g. After discussion and extensive exposure to what is found near to trees give opportunity to answer the Question – Where would you find these things near?</p>	

		<p>Adult will provide learners with activities which will embed knowledge about habitats.</p> <p>Adult will provide learners with fun, engaging investigation/observation activities, e.g. visit school playground; local park; playing fields; to explore different plants and animal habitats.</p>	<p>from a series of clues, e.g. leaves, twigs, branches, conkers.</p> <p>This could be linked to a variety of habitats e.g. on in the playground, in the park, in the kitchen, in a street.</p>	
	<p>Recording Makes simple records of their findings,</p>	<p><i>e.g. relating pictures to their own experience by putting pictures of an activity in sequence or taking a photo.</i></p> <p>Adults will model and teach learners how to make simple records of the findings</p> <p>Adults will provide learners with appropriate resources to enable them to make simple records.</p> <p>Adults will provide learners with repetitive activities in order to embed the skills for making simple recordings. Adults will guide learners on the focus of the activities. Adults will adapt each activity according to the learners' access needs in order to provide them with the best understanding and support e.g. use of Makaton, symbols, etc.</p>	<p>Learners will be provided with activities enabling them to present simple records of their findings in suitable way, for example: conversation, drawings or use of ICT. For example, putting pictures of an activity in sequence, matching photographs to real objects used in the lesson or using programme on Interactive Board to move pictures/ photographs to the right section.</p>	
	<p>Observation Shows they have observed patterns or regular changes in features of objects, living things and events,</p>	<p><i>e.g. chrysalis/butterfly, day/night.</i></p> <p>Arouse awareness of features of the environment in the setting and immediate local area, e.g. make visits to a park.</p> <p>Adults will provide learners with engaging activities to encourage their</p>	<p>Through exposure to natural environmental changes learners should develop an understanding of the regular changes that occur and patterns of behaviour that occur.</p> <p>This can be linked to observing repeated patterns such as night and day, the seasons, changes to the climate, growth, age, height, trees losing their leaves etc.</p>	

		<p>natural curiosity and observational skills.</p> <p>Adults will provide learners with activities which will enable them to make observations of regular patterns of change that occur, for example through a day (day and night), month or a year (different seasons).</p> <p>Adults will provide learners with sufficient time to make observations and simple investigations.</p>		
	<p>Identifying and Classifying Identifies a range of common materials and knows about some of their properties.</p>	<p>Adults will provide learners with range of materials and will discuss their simple features.</p> <p>Adults will teach and recap key vocabulary (hard, soft, shiny, small, big, etc.) in regards to materials' features in order to enable learners to identify their common factors.</p> <p>Adults will provide learners with supportive questions, for example: "is it hard or soft?", "is it edible?", "what is it used for?".</p>	<p>Learners will be encouraged to handle and explore various materials to enable them to make observations and to categorise these materials based on their properties. Learners should be encouraged to focus on distinctive key features of the objects, like: size, texture, colour, etc.</p> <p>Provide opportunities to observe things closely through a variety of means, including magnifiers and photographs. Ensure that wherever possible learners can observe through first hand experiences</p>	
	<p>Identifying and Classifying Sorts materials using simple criteria.</p>	<p>Adults will provide learners with range of simple sorting activities focused on simple criteria, for example sorting toys based on their colour.</p> <p>Adults will model how to identify similarities and differences of materials in order to sort them based on their features (colour, shape, size, etc.).</p>	<p>Learners will have frequent opportunity to compare simple, observable features of science materials and resources in order to classify and sort them into groups. This should be developed through sharing materials looking at them and discussing their properties and modelling sorting using simple criteria e.g. all these objects are hard; these are all liquid etc.</p>	
	<p>Observations Communicates their observations of materials in terms of these properties.</p>	<p>Adults will help learners to use previously gained skills and vocabulary to communicate their observations in various ways.</p>	<p>By being exposed to a range of activities related to materials and their properties, learners will be encouraged to communicate their observations by</p>	

		<p>Adults will ask guiding questions in order to support learners in communicating their observations of materials. Adults will talk with learners what have they done during activities and what they have noticed.</p> <p>Adults will provide learners with appropriate resources to support learner in communicating their observations.</p>	<p>answering simple questions about the properties of relevant objects. Learners will have opportunity to investigate a range of objects and be encouraged to describe these them.</p>	
	<p>Observations Makes their own observations of changes in light, sound or movement that result from actions,</p>	<p><i>e.g. what happens after pressing a switch.</i> Introduce vocabulary to enable pupils to talk about their observations and to ask questions. Adults will engage with learners in discussion about what is happening in the activity.</p> <p>Adults will provide learners with hands-on activities and games that require observation and concentration.</p> <p>Adults will ask learners leading questions to enable and encourage them to make accurate observations.</p>	<p>Through opportunities to investigate and explore light sources, sound and movement prior knowledge should be embedded about their properties. By participating in practical, hands-on activities learners will be able to make their own observations of changes to light, sound and movement that they have caused by their action e.g. turning of a switch, turning down a volume dial, pushing a ball. Learners will also need to be given the vocabulary they need to support them to talk about and share their observations.</p>	
	<p>Questioning Describes changes when questioned directly.</p>	<p>Adults will go through previously learned key vocabulary and their meaning with learners.</p> <p>During range of simple Science investigation activities, adults will model how to describe observed changes.</p> <p>Adults will present learners with direct questions in relation to changes</p>	<p>Using direct and relevant questioning Learners should be supported to identify and describe changes using previously learned key vocabulary. Learners will be provided with range of activities which will enable them to observe and describe changes as they are happening. These changes can happen in a short amounts of time e.g. the change to paper when it gets wet. Or over longer periods of time such as the change to a bulb as the plant grows.</p>	

		<p>occurred in activities, for example during melting ice, adult will ask: "how is ice changing?" "Is ice melting?"</p> <p>Adults will provide learners with time to observe and describe changes in their appropriate way.</p>	
	<p>Observations Explores and observes similarities, differences, patterns and changes in features of objects, living things and events.</p>	<p>Building on previously gained knowledge adult will provide learner with range of engaging, explanatory activities.</p> <p>Adult will provide learner with range of comparing activities.</p>	<p>Make use of outdoor areas to give opportunities for investigations of the natural world, for example, provide chimes, streamers, windmills and bubbles to investigate the effects of wind.</p>
	<p>Observations Explain differences between events, living things, objects</p>	<p>Adult will provide learners with range of comparing activities which will include various materials and objects that appeal to senses and encourage the use of descriptive vocabulary (e.g., rough/smooth, sweet/sour).</p>	<p>Through a wide range of observation opportunities learners should identify simple, obvious differences between different events such as, the different distances a toy car might travel or a ball might roll. Differences between living things such as a bird and a fish or a carrot and a banana. Differences between a rock and plastic bottle.</p>
	<p>Testing Plan a simple activity and say/ demonstrate what they are going to do Adult will model to learners how to evaluate their work by asking and answering supporting questions, for example: "what can be done differently?", "how can I improve this?", "what/who can help me?".</p>	<p>Begin to make suggestions for planning Begin to explore simple testing</p> <p>Based on already gained knowledge and skills learners will be encouraged by adults to answer questions (including open questions) which will lead them to make suggestions for planning an activity</p> <p>Adults will guide learners on how to begin to contribute to the planning by taking small steps at the time.</p> <p>Adults will provide learners with opportunities to make simple</p>	<p>Building on previous experiences in observations and questioning to enable learners to plan an activity. This should be linked to the scientific themes being explored and be practical and accessible. Learners can be given a question to answer such as: Which car will go furthest? Which food does the snail like the most? Which material stop water coming through? Which object will sink? Through simple questions the learners will devise an activity to support them to find the answer and say what they are doing. Learners should be encouraged to compete the activity to see if it has given them the answer to the question.</p>

		<p>choices and decisions with appropriate support.</p> <p>Adults should encourage the learners to reflect on the activity they planned. Did it answer their question?</p>		
	<p>Testing Describes the results of actions and begin to compare results</p>	<p>Adult will provide learners with range of cause and effect activities.</p> <p>Adult will provide learners with multiple opportunities to observe results of actions. Adult to enhance learners' observation will ask leading questions in relation to the activity.</p> <p>Adult will discuss with learners occurred actions and their results to enhance their understanding.</p>	<p>When completing an activity, the learners should be given the opportunity to describe their results e.g. identifying which objects sink. Did all the objects they chose sink or did some float? Did the sinking objects do so at the same speed? The activity may be repeated and refined to increase the learners observation of results</p>	
	<p>Testing Try to explain the reason for their results</p>	<p>Begin to make some contributions to planning and evaluation and to recording their findings. Learners are encouraged to speculate on the reasons why things happen or how things work.</p> <p>Adults will encourage learners to express their ideas in relation to what they have learnt and what they are learning.</p> <p>Adults will ask learners leading questions in order to enable them to evaluate their work.</p> <p>Adults will provide learners with educational resources to encourage learners to be actively engaged and to contribute to their planning, e.g. pictures, photos.</p>	<p>When completing activities and identifying and recording results learners should be asked the question why? Learners should be encouraged to give reasons even if their reasons are not scientifically accurate. Creating an environment where learners are encouraged to speculate and to think about the reason for a result to support them in developing their reasoning skills.</p>	

	<p>Testing Repeat actions to see if results can be repeated</p>	<p>Adult will model to learners how to evaluate their work by asking and answering supporting questions, for example: “what will happen if we do this again?”, “did we get the same results?”, “why do you think that happened?”</p> <p>Adults will provide learners with activities containing repetitive actions. During these activities the adult will ask questions and discuss the results of the repetitive actions with learners to encourage their predictions and ideas.</p>	<p>Repeat activities to review them and see if the results remain the same or cannot be repeated. Use this to further discuss the results and the reasons for them.</p>	
<p>Bridging 1</p>	<p>Questioning Begin to use questions beginning with Why and What? unprompted.</p>	<p>Provide opportunities to promote why and what questions. Through investigation and observation and the use of drama activities to promote question development. Give learners relevant experiences to develop their understanding and curiosity. Adults will model to learners the process of asking simple questions.</p> <p>Adults will create opportunities for learners to observe various simple scientific activities which will intrigue them.</p> <p>Adults will acknowledge all questions asked by learners and will give positive responses to motivate learners to use more questions.</p> <p>Adults will provide learners with a repetitive activity/pattern, which requires the learner to ask and answer simple questions beginning with why</p>	<p>Use known experiences to build confidence in devising questions e.g. Formulate questions after investigating a snail’s life Use hot seating to encourage question development. Use a structure for questions as a scaffold to support personal question development. Through brainstorming, provide opportunities to observe why something might happen or what something might do. Reflect on what the learners already knows and why they know it to build on deeper understanding.</p>	

		and what until learners will start to formulate these questions with minimal prompting.	
	<p>Questioning Ask relevant questions on their observations</p>	<p>Adults will model how to ask questions in relations to the learning.</p> <p>Adults will engage with learner in discussion about their observations and model how to ask relevant questions.</p> <p>Using previous experiences adults will encourage learners to analyse and reflect on their learning to develop their curiosity and to encourage them to question their observations.</p>	<p>Model questions related to observations and about something they have observed. Provide opportunities to develop relevant questions to ask an adult or peer about their observation e.g. Set up a question and answer session based on group observations or investigations. Such as: Where do plants grow in the playground? Why are there no plants growing on the tarmac? Model the information that they will need in order to respond to questions. Provide this structure to support devising own questions from a different observation or investigation.</p>
	<p>Observations Answer simple questions on their observations. e.g., why does Ice feel wet? Because it is cold. (Not always correctly)</p>	<p>Encourage pupils to answer questions in a positive environment without worrying about right or wrong answers.</p> <p>Adult will model how to answer simple questions about their observations.</p> <p>Adult will provide learner with necessary resources to enable them to answer questions.</p> <p>Adult will acknowledge and give positive feedback to learner whenever they will attempt to answer simple questions in relation on their observations to develop learners' confidence.</p>	<p>Provide learners with a range of observations linked to science themes and concepts to develop their knowledge and build awareness and curiosity. Create an interest table or question table with questions to consider e.g. why do bubbles in fizzy drinks go up? Why doesn't oil mix with water? Why does water in an open container disappear?</p>
	<p>Testing Start to understand and answer questions on fair testing using Yes or No</p>	<p>Introduce fair testing by modelling changing only one variable https://www.theschoolrun.com/what-is-a-fair-test</p>	<p>Provide experiences to support the pupils to understand the concept of fairness. This could be developed as part of PSHE curriculum. Focus on</p>

		<p>Focus on questions that can have a yes or no answer</p> <p>e.g. did this lolly melt the fastest?</p> <p>Did this car roll the furthest?</p> <p>Is this plant the shortest?</p> <p>Adults will explain and teach learners the meaning of fair testing.</p> <p>Adult will provide learners with simple practical activities to explain them the concept of fair testing, understanding that only one thing can be different.</p> <p>Adult will provide learners with a range of investigations.</p> <p>Adult will provide learners with range of simple and engaging fair tests.</p> <p>Using fair testing learners will be encouraged to make simple observations about one thing having effect on another.</p> <p>Adult will provide learners with simple Yes or No questions in relation to activities and will model how to answer them.</p>	<p>providing the same experience, opportunity, amount to everyone.</p> <p>Using the learners understanding of fairness – same for everyone provide opportunities to create or investigate simple tests where the testing environment is the same with only one variable to support the test questions</p> <p>e.g. Where do ice lollies melt the fastest? (only the position of the ice lolly is different.</p> <p>Which car will roll the furthest down this slope? (only the type of car is different)</p> <p>Do larger ice cubes melt more slowly?</p> <p>Melt different sized ice cubes in the same place and observe which melts faster/slower.</p> <p>Confirm only the size of the ice cubes is different.</p> <p>Encourage pupils to answer yes or no questions from observing outcomes from the tests.</p>	
	<p>Identifying and Classifying Group and classify items using own agenda</p>	<p>Model putting objects together as a groups. Explain and demonstrate during play activities how you are grouping objects. Demonstrate making a collection of.....</p> <p>When the learner has grouped a set ask what they are a group of or what are they making a collection of.</p>	<p>Provide different familiar materials to group together such as small world items, clothes, toys, scarves.</p> <p>Give a mixture of items to group together, keep amounts small to begin with to make activity simple.</p> <p>Ask simple questions to encourage pupil to classify the items in the group e.g. What is this a group of?</p> <p>Why is this in your group?</p> <p>Can you add any more items to your group?</p>	

		<p>Encourage the learner to classify the items in the group</p> <p>Encourage the learner to think through their groupings.</p> <p>The adult should not judge groupings or classification at this stage but ask questions to promote thinking</p> <p>Create collectors table with groups of items</p>	<p>Provide information around collections often things are the same or similar - they have something in common</p> <p>Provide displays of groups and share what they have in common e.g. groups of stamps, groups of pencils, groups of toy cars.</p>	
	<p>Questioning</p> <p>Answer questions about how they will know if something has worked (not necessarily correct)</p>	<p>Adults will help learners to plan and carry out simple experimental activities.</p> <p>Adults will discuss with learner possible results of the experiments and criteria for its success.</p> <p>Adults will ask learners leading questions to support and encourage them to reflect and state whether something has worked.</p> <p>Adults will acknowledge the learners' answers regardless of their accuracy.</p>	<p>The learners will be given the opportunities to plan an activity to test whether something will happen – this could include making something float, catching rain water, keeping something dry, keeping a plant healthy. Before completing the activity, they should be given the opportunity to speculate on how they will know if the activity has been successful. The emphasis is on encouraging the learners to reflect on their expectation of the activity not on the accuracy of their answers. The accuracy of their answers should be explored as part of the review of the activity.</p>	
	<p>Identifying and Classifying</p> <p>Sort and group information giving more detailed explanations</p>	<p>Adults will provide learners with a range of activities and resources enabling them to sort and group information.</p> <p>Adult will model to learners how to sort and group information based on identifying their multiple characteristics.</p> <p>Based on the learners' previous knowledge and ability to sort adults will encourage and support learners to investigate, reflect and describe similarities and differences from a set of objects.</p>	<p>When devising sorting and grouping activities learners will be encouraged to expand upon their reasons for sorting or grouping using more detail. This can mean they give several reasons for sorting and grouping as they have or they give a more detailed explanation of the sorting criteria e.g. all these objects are grouped together because they float and are made of plastic.</p>	

		Adults will support learners to state whether objects in a group have more than one common factor.		
Bridging 2	<p>Questioning Begin to use questions beginning with Why, What and How? unprompted</p>	<p>Based on previously gained skills adults will scaffold learners' interest and focus to encourage them to begin to ask questions in regards to learning.</p> <p>Adult will provide highly motivating activities and resources for learner to respond to and to develop their interest.</p> <p>Adult will provide learners with activities and will model asking and answering questions beginning with why? what? and how?</p> <p>Adult will respond positively to learners' spontaneous questions.</p>	<p>Learners should have had a range of simple questioning modelled to them. Building on what they know or have experience of during observational activities learners should have why, what and how questions modelled for them.</p> <p>Learners should be given opportunities to use this questioning as part of their own observations, activities, and planning for simple tests</p>	<p>Upper Year1 Different Places, Different People Science: Living things - me and my body Through the decades Science: Space, forces and motion - including gravity, magnetism and friction Summer the town where we live Science: Properties of everyday materials Year 2 Let's Celebrate Science: Science in the kitchen – solid, liquid gas, dissolving, heating and cooling Victorian Times/ I am not amused Science: Light, sound, electricity The Great Outdoors Science: Living things and their habitats Middle Year1 Who Am I? Science: Animals including humans Special people, special places Christmas/Winter Science: Light and electricity Long, Long Ago: Nurses Science: Plants We're All Going On A Summer Holiday (Europe)/Summer</p>
	<p>Questioning Ask relevant questions using more descriptive language on their observations</p>	<p>Adult will model how to ask questions using more descriptive language.</p> <p>Adult will recap with students using descriptive vocabulary.</p> <p>Adult will practice with learners to describe objects with their senses by asking them leading questions (e.g. How does it feel? What noise can you hear?).</p> <p>Adult will encourage learners to use their five senses to describe what they would like to ask for.</p> <p>Adult will provide learners with activities requiring them to use descriptive language.</p>	<p>When asking questions learners should begin to include a growing repertoire of descriptive language. In order to develop this learners should be asked to extend their questioning to include descriptions and be given relevant vocabulary to draw on. Greater emphasis should now be on the relevance of the questions being asked</p>	

	<p>Observations Answer simple questions on their observations. With more accuracy.</p>	<p>e.g., why does Ice feel wet? ...because it has melted...because it is water...because it is liquid...</p> <p>Adult will provide learners with simple, open-ended questions that encourage their observations and reflections and that help learners answer using their previously gained knowledge and vocabulary.</p> <p>Adult will provide learners with highly engaging science activities to encourage learners to make more accurate and detailed observations what will help them to answer questions easier.</p> <p>Adult will respond to learners' answers with positivity and enthusiasm.</p>	<p>By building on vocabulary, repeated experiences and growing scientific understanding learners should make their answers to simple questions relevant to the context and the activity. They should use vocabulary that accurately describes what is being observed.</p>	<p>Science: Everyday Materials and States of matter Year2 This Is Me! Science: Animals including humans Festivals of light. Christmas/Winter Science: Light, Electricity Long, Long Ago: Great Fire of London Science: Everyday Materials Passports Please (a country far away – Africa) Science: Living things and their habitats. Year 3 I'm Amazing, You're Amazing, We're All Amazing! Science: Animals including humans Is it a bird, is it a plane... (Superheroes, Forces) Christmas/Winter</p>
	<p>Testing Start to understand and answer questions on fair testing using Yes or No with reasons (not necessarily correct)</p>	<p>Adults will provide learners with various simple science activities which will include fair testing. Adults will begin these activities with yes or no question, which will encourage learners to make vital observation to enable them to justify their answer.</p> <p>Adults will model to learners how to answer questions on fair testing and explaining the reasoning for it.</p> <p>Adults will provide learners with simple yes or no questions.</p>	<p>Using the context of fair testing learners should answer yes or no questions relevant to the test e.g. Will an ice lolly melt if it is in a freezer? Learners should be asked to give a yes/no response with a reason Although their response and reason may not be correct it is responding to the question with a reason that should be encouraged and developed.</p>	<p>Science: Forces and magnets Long, Long Ago: Toys Science: Everyday Materials, sound Summer: South America: rainforests Science: Living things and their habits. Sound Year 4 Me, Myself and I/Autumn Science: Animals including humans Here Comes the Aliens (Light + Dark, Space) Christmas/Winter Science: Space Long, Long Ago: Walk like a dinosaur</p>
	<p>Identifying and Classifying Group and classify items using own agenda, using</p>	<p>Adults will provide learners with multiple opportunities to group and classify items and talk about their sorting rules in several contexts.</p>	<p>Learners should be given the opportunity to devise their own reasons for grouping and classifying objects and having the opportunity to extend their descriptions of the groups and ways they have</p>	<p>Science: Living things and their habitats. Plants Long, Long Ago: Transport</p>

	<p>more descriptive language (not necessarily correct)</p>	<p>Adults will ask learners leading questions in relation to grouping and classifying to encourage them to use their reasoning skills.</p> <p>Adults will encourage learners to use identification of different features to sort, using as many senses as appropriate.</p> <p>Adults will discuss with learners what criteria they used to group and classify items, adult will ask them to define of the common attributes of the items.</p>	<p>classified objects. They should be supported to reflection their grouping and classifications through relevant questioning. This can be in the context of science activities or as part of other subject specific work or activities. The objects should be familiar, relevant and engaging to the learners. For example, when sorting and classifying clothes to wear when it is cold and clothes to wear when it is warm the learners may group clothes by material and type e.g. these clothes would be worn when it is cold because they are thick and heavy and/or they have long sleeves and/or they are made of wool.</p>	<p>Science: Space, forces and magnets.</p>
	<p>Questioning Answer questions about how they will know if something has worked using more descriptive language</p>	<p>Adults will provide learners with descriptive vocabulary, ensuring that learners have good understanding of these words' meaning. Adults will model how to use descriptive vocabulary to give simple explanation if something has worked.</p> <p>Based on previous learning adults will model to learners how to answer questions with reasoning behind it.</p> <p>Adults will encourage learner to provide reasoning/ explanation to question if something has worked and why and if necessary support learners with leading questions.</p>	<p>Building on from. answering questions about how learners know if something has worked greater emphasis is on extending vocabulary to provide more detail and description. e.g. I know the object floats when it sits on top of the water and does not let any water on top of or inside it. It will not drop down and fall through the water, so that it sinks.</p>	
	<p>Data Sort and group information using ICT on some occasions</p>	<p>Adults will provide learners with ICT resources and equipment appropriate to learners' needs and skills.</p> <p>Adults will teach and model to learners how to use various ICT</p>	<p>Depending on the access and their ICT skills, learners can sort and group information using pre prepared software or formats devised by the teacher such as simple tables and excel sheets.</p>	

		<p>formats and resources to successfully sort and group information.</p> <p>Adults will provide learners with simple, fun ICT sorting games to get learners' interest and teach them concept of sorting and grouping information with use of ICT.</p> <p>Adults will give right support level to learners to enable them to use ICT to sort and group data.</p>		
Bridging 3	<p>Questioning Begin to use questions beginning with Why, What and How and which? unprompted</p>	<p>During science activities adults will keep modelling asking questions relevant to teaching and learning.</p> <p>Adults will acknowledge all questions asked by students to develop learners' enthusiasm and enquiry.</p> <p>Adults will provide learners with simple hands-on science activities/ experiments to provide learners with observation and enquiry opportunities to encourage them to begin to ask questions: why? what?, how? and which?</p>	<p>Building on the questioning skills developed earlier learners should now be able to use why, what and how questions with accuracy when involved in their own observations, activities, and when planning for simple tests. They should also have included 'which' questions to increase the range of questioning skills they have developed. These questions should be used by the learners without prompting but learners should be supported to extend their questioning if they demonstrate restricted use. 'Which' questions can be used to support learners in determining the different behaviour of a particular object or event e.g. Which ice lolly will melt faster? Which object will sink faster? Which ball will bounce the highest?</p>	<p>Upper Year1 Different Places, Different People Science: Living things - me and my body Through the decades Science: Space, forces and motion - including gravity, magnetism and friction Summer the town where we live Science: Properties of everyday materials Year 2 Let's Celebrate Science: Science in the kitchen – solid, liquid gas, dissolving, heating and cooling Victorian Times/ I am not amused Science: Light, sound, electricity The Great Outdoors Science: Living things and their habitats Middle Year1 Who Am I? Science: Animals including humans Special people, special places Christmas/Winter</p>
	<p>Questioning Asking questions that are relevant using more technical language on their observations</p>	<p>Adult will provide learners with scientific language that is important and relevant to their learning.</p> <p>Adult will teach and clarify meanings of provided scientific vocabulary and will ensure that learners have good understanding of it.</p> <p>Adult will expose learners to simple scientific vocabulary, for example with use of charts, displays, images, etc.</p>	<p>Learners will need to be exposed to technical and scientific language as part of the science curriculum and in line with the themes and scientific areas being explored. By exposing pupils to more technical vocabulary they will be able to begin to use this in their own questions and observations This language should be introduced as part of information sharing, scientific dictionaries, glossaries and through other subject areas such as English, maths, geography and D.T.</p>	

		Adult will provide learners with activities which will enhance learners' curiosity and inquiry and will motivate them to ask questions. Adult will model and encourage learners to use simple science vocabulary.		Science: Light and electricity Long, Long Ago: Nurses Science: Plants We're All Going On A Summer Holiday (Europe)/Summer Science: Everyday Materials and States of matter Year2 This Is Me! Science: Animals including humans Festivals of light. Christmas/Winter Science: Light, Electricity Long, Long Ago: Great Fire of London Science: Everyday Materials Passports Please (a country far away – Africa) Science: Living things and their habitats. Year 3 I'm Amazing, You're Amazing, We're All Amazing! Science: Animals including humans Is it a bird, is it a plane... (Superheroes, Forces) Christmas/Winter
Observations Answer simple questions on their observations. With more accuracy and using more descriptive and technical language	e.g., why does Ice feel wet?... because it is melting and turning into water/liquid Adults will provide learners with accurate vocabulary and will ensure that meaning of it is well embedded. Based on previously gained knowledge and skills learners will be encouraged by adults to answer simple questions using descriptive and technical language linked to various science activities, tests and simple experiments. Adult will ask learners open questions in relation to their observations to deepen their curiosity and encourage them to answer.	By building on vocabulary, repeated experiences and growing scientific understanding learners should make their answers to simple questions relevant to the context and the activity. They should use vocabulary that accurately describes what is being observed. Learners should be able to build on previous observations to support them in being accurate Building on the questioning skills developed earlier Learners should now be able to use why, what and how questions with accuracy when involved in their own observations, activities, and when planning for simple tests. They should also have included 'which' questions to increase the range of questioning skills they have developed. These questions should be used by the learners without prompting but learners should be supported to extend their questioning if they demonstrate restricted use. 'Which' questions can be used to support learners in determining the different behaviour of a particular object or event e.g. Which ice lolly will melt faster? Which object will sink faster? Which ball will bounce the highest?	Science: Forces and magnets Long, Long Ago: Toys Science: Everyday Materials, sound Summer: South America: rainforests Science: Living things and their habits. Sound Year 4 Me, Myself and I/Autumn Science: Animals including humans Here Comes the Aliens (Light + Dark, Space) Christmas/Winter Science: Space	
Testing Start to understand and answer questions on fair testing using Yes or No with reasons using more technical language	Through discussion and questioning adults will recap with learners previously gained knowledge and experience on the fair testing. Adults will ensure that learners have good understanding of the technical language required for reasoning on fair testing, e.g. "variable". Prior to hands-on activities adult will discuss with learners what variable will change and which will stay	Building on previous experiences in observing and devising simple fair tests learners should begin to respond to yes and no questions about fair tests with greater accuracy and begin to use reasons for their answers which include some technical language. The learner should demonstrate frequent accuracy in responding to questions about these tests where the tests are within their understanding and experience. Where the learner is demonstrating consistently accurate responses further support should be given to extend their technical vocabulary in line with the scientific context of the activities.		

		<p>constant (the same), what equipment will be required and what are learners' predictions.</p> <p>Adults will provide learners with a wide range of cause and effect investigations activities/experiments on fair testing, e.g. floating or sinking activity.</p> <p>During these activities/experiments adult will provide learners with Yes or No questions to deepen the learner's reflection and understanding.</p> <p>Adults will encourage learners to explain their reasoning.</p>		<p>Long, Long Ago: Walk like a dinosaur</p> <p>Science: Living things and their habitats. Plants</p> <p>Long, Long Ago: Transport</p> <p>Science: Space, forces and magnets.</p>
	<p>Identifying and Classifying Group and classify items using own agenda and by using more technical language</p>	<p>Adults will provide learners with the technical language required for the task.</p> <p>Adults will ensure that learners have an accurate understanding of the technical language.</p> <p>Adults will provide learners with activities to embed the use of technical language.</p> <p>Adults will model the use of technical language, for example by using it in the sentence.</p> <p>Based on previous learning, learners will be provided with range of more complex activities requiring grouping and classifying.</p> <p>Adults will ask learners supporting questions to enable them to explain their reasoning and to be reflective.</p> <p>Adults will provide learners with multiple opportunities to talk about how many things are the same, and how they are different.</p>	<p>Learners should continue to be given the opportunity to devise their own reasons for grouping and classifying objects and having the opportunity to extend their descriptions of the groups and ways they have classified objects. They should be supported to reflect on their grouping and classifications through relevant questioning. This can be in the context of science activities or as part of other subject specific work or activities. The objects should be familiar, relevant and engaging to the learners. They should now be demonstrating greater accuracy in the way they are organising, sorting and classifying their objects. With the development of increased accuracy and use of description more technical vocabulary should be introduced and encouraged to be used. e.g. these clothes would be worn when it is cold because they are dense and heavy and/or they have long sleeves and/or they are made of material that keeps heat in and are good insulators</p>	

		<p>Adults will encourage learners to participate in the multiple activities which will require them to group and classify items/ objects based on their own criteria. Adults will ask learners to explain their decision and will discuss with them why they grouped or classified the way they did. Adults might take turns with the learner during different parts of the activity to encourage them and model at the same time.</p> <p>For these activities adult will provide learners with appealing resources.</p>		
	<p>Questioning Answer questions about how they will know if something has worked using more technical language</p>	<p>Depending on the theme and topic of the learning adult will provide learners with appropriate technical vocabulary and will ensure that meaning of it well understood.</p> <p>Adults will provide learners with range of investigation activities to enable learners to observe if something has worked.</p> <p>Adults will provide learners with supportive questions in relation to their observations to encourage learners to explain their reasoning.</p> <p>Adults will ask learners to explain if something has worked in their own words but will encourage learners to use learned technical words.</p>	<p>The technical language relevant to the scientific theme and topic should be collected as part of the science planning and introduced as appropriate. The introduction and use of this language by the learners should be established as they become more confident and accurate in their responses to direct questioning about how something has worked. Their descriptions should now begin to include relevant technical terms e.g. <i>I know the object floats when it sits on top of the water and is buoyant. It does not leak or let any water on top of or inside it. It will not submerge and sink under the water..</i></p>	
	<p>Data</p>	<p>Adults will provide learners with appropriate resources and</p>	<p>Learners will have opportunity to gather their own evidence through pictures, photographs, recordings and images to keep a record of their own sorting and</p>	

	Sort and group information using own pictures/photos/recordings	<p>opportunities to enable them to gather their own evidences.</p> <p>Adults will model to learners how to sort and group information with use of their own data resources like pictures/photos and recordings.</p> <p>Adults will provide learners with multiple opportunities to sort and group information using their own relevant resources, like photos/pictures and recordings.</p>	grouping. This may take the form of sorting and grouping games, matching games which they can share to support their classifications.	
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Impact - What difference is our curriculum making?

Progress in the science Semi-Formal Curriculum is assessed using P Levels, Stepping Stones and Bridging levels.

Individual outcomes for learners in this curriculum area are set for each key stage through the learners' Education, Health and Care Plan under Cognition and learning. Annual targets are set and broken into smaller steps on Timelines. Progress is recorded regularly using the Timelines. These are discussed and moderated on a termly basis at Progress meetings and reported on annually through the EHCP Annual Review. Older learners in key stage 4 will work towards accreditations including unit awards and entry levels for science.