



Yr 1	Physical Processes (forces)	Materials and their properties	Physical Processes (light and sound)	Materials and their properties	Life Processes and Living Things (Animals)	Life Processes and Living Things (Plants)
Core	<p>To demonstrate simple properties of movement (for example fast/slow) To communicate related ideas and observations using simple phrases [for example, which food to give which animal]</p> <p>LO: To demonstrate understanding of fast and slow when carrying out different movements e.g. spin, slide, stretch, roll, bounce, kick. LO: To demonstrate different types of movements e.g. push and pull. LO: To observe how a range of objects move. LO: To investigate and record their findings of what products can be pushed. LO: To investigate and record their findings of what products can be pulled.</p>	<p>To understand the scientific use of some simple vocabulary, such as before, after, bumpy, grow, eat, move</p> <p>LO: To identify a range of everyday materials (wood, plastic, glass, metal, water and rock). LO: To identify features of a range of everyday materials. LO: To explore the materials a range of familiar objects are made from. LO: To begin to match objects to the material which they are made from. LO: To test a range of everyday materials and record their findings.</p>	<p>To demonstrate simple properties of light and sound (for example bright/dark, noisy/quiet) <u>Sound</u></p> <p>LO: To explore contrasting properties of sound through music e.g. noisy and quiet, fast and slow. LO: To reproduce contrasting properties of sound through music. LO: To describe changes in sound. <u>Light</u></p> <p>LO: To explore contrasting properties of light e.g. bright/ dark. LO: To begin to make generalisations and record their findings when exploring light sources around school. LO: To sort light sources according to a single criteria e.g. appliances that use electricity/ appliances that don't use electricity.</p>	<p>To communicate related ideas and observations using simple phrases [for example, which food to give which animal]</p> <p>LO: To demonstrate understanding of different types of movement e.g. squash, bend, twist and stretch. LO: To identify and name different types of movements e.g. squash, bend, twist and stretch. LO: To describe the changes when materials are mixed. LO: To describe the changes when materials are heated. LO: To describe the changes when materials are cooled.</p>	<p>To begin to make suggestions for planning their work [for example, responding to the question 'Was that right or wrong?']. 'Showing', 'demonstrating' 'trying out' 'responding' etc. may be done by any means appropriate to the pupil's preferred mode of communication and physical abilities</p> <p>LO: To explore the similarities and differences between a range of animals. LO: To sort animals according to a single criteria. LO: To investigate which footprint belongs to which animal. LO: To demonstrate understanding of the features of desert habitats. LO: To demonstrate understanding of the features of ocean habitats. LO: To create their own habitat.</p>	<p>To make simple records of their findings (for example, by putting pictures of an activity in sequence) To begin to make suggestions for planning and evaluating their work [for example, responding to the question 'Was that right or wrong?']. 'Showing', 'demonstrating' 'trying out' 'responding' etc. may be done by any means appropriate to the pupil's preferred mode of communication and physical abilities</p> <p>LO: To recognise flowers in a natural environment and record their findings. LO: To closely observe a range of plants and draw their findings. LO: To explore similarities and differences when observing a range of leaves. LO: To identify some features of a plant e.g. flower, stem, leaf. LO: To record a plant investigation. LO: To make a prediction about a plant investigation. LO: To evaluate a plant investigation.</p>
Functional	<p>To respond to simple scientific questions [for example, 'Show me the flower' 'Is this wet/dry?'] 'Showing', 'demonstrating' 'trying out' 'responding' etc. may be done by any means appropriate to the pupil's preferred mode of communication and physical abilities To begin to make generalisations, connections and predictions from regular experience [for example, expecting that ice cream will melt, or making wheeled objects move faster by pushing on a smooth surface or releasing them down a slope]</p> <p>LO: To explore different types of movements e.g. spin, slide, stretch, roll, bounce, kick. LO: To explore different types of movements e.g. push and pull. LO: To explore how different objects/toys move LO: To sort objects according to the type of movement. LO: To make wheeled objects move faster by pushing on a smooth surface or down a slope. (Push, pull, up, down, fast, slow).</p>	<p>To match objects and materials in terms of single features or properties. (for example temperature or colour) To sort materials according to a single criterion when the contrast is obvious.</p> <p>LO: To explore a range of everyday materials (wood, plastic, glass, metal, water and rock). LO: To explore features of a range of everyday materials. LO: To identify a single feature or property of everyday materials. LO: To sort objects and everyday materials according to single features or properties. LO: To make a prediction when testing a range of everyday materials.</p>	<p>To try out a range of equipment in familiar and relevant situations [for example, initiating the activation of a range of light sources] To show that they know some sources of sound and light [for example, remembering their location] To identify some appliances that use electricity <u>Sound</u></p> <p>LO: To experience and develop awareness of sounds made with instruments and noise makers. LO: To match sounds to their sources. LO: To give a positive or negative response towards what they have heard. <u>Light</u></p> <p>LO: To explore a range of light sources. LO: To match pictures to light sources around school. LO: To identify an appliance that uses electricity.</p>	<p>To indicate the before and after of material changes To closely observe the changes that occur [for example, when materials are heated, cooled or mixed]</p> <p>LO: To explore different types of movements e.g. squash, bend, twist and stretch. LO: To change materials by using different types of movements. LO: To observe the changes when materials mixed. LO: To observe the changes when materials are heated. LO: To observe the changes when materials are cooled.</p>	<p>To take part in activities focused on the anticipation of an enquiry into specific environments [for example, finding a hamster under straw, or a CD or video in a pile]. To recognise distinctive features of objects [for example, the features of living things in their environment, and know where they belong, for example, feathers on a bird, leaves on a tree]</p> <p>LO: To explore a range of animals. LO: To identify and name a range of animals. LO: To match some distinctive features to animals e.g. matching a trunk to an elephant. LO: To explore desert habitats. LO: To explore ocean habitats. LO: To sort animals according to their habitat.</p>	<p>To respond to simple scientific questions [for example, 'Show me the flower' 'Is this wet/dry?'] 'Showing', 'demonstrating' 'trying out' 'responding' etc. may be done by any means appropriate to the pupil's preferred mode of communication and physical abilities To recognise distinctive features of objects [for example, the features of living things in their environment, and know where they belong, for example, feathers on a bird, leaves on a tree]</p> <p>LO: To recognise a flower in a natural environment. LO: To explore plants in an appropriate way. LO: To explore leaves in an appropriate way. LO: To match symbols to parts of plants e.g. flower, leaf. LO: To engage in a plant investigation, using a range of equipment. LO: To observe the changes that has occurred during a plant investigation.</p>

Exploratory	<p>To remember learned responses over increasing periods of time and may anticipate known events [for example, balls falling and bouncing on the floor] To cause movement by a pushing or pulling action 'Explore' includes access through any sensory mode.</p> <p>LO: To copy different types of movements e.g. spin, slide, stretch, roll, bounce, and kick. LO: To explore different types of movements e.g. push and pull. LO: To explore how different objects/toys move LO: To show a preference for a preferred object or action LO: Explore using wheeled objects on different surfaces. (Push, pull, up, down, fast, slow).</p>	<p>To actively explore objects and events for more extended periods [for example, feeling the textures of different parts of a plant] To explore objects and materials provided, changing some materials by physical means and observing the outcomes [for example, when mixing flour and water]</p> <p>LO: To actively explore a range of materials. LO: To explore a preferred object or material for an extended period. LO: To use a range of actions to manipulate materials (e.g. squash, bend, scrunch, stretch) LO: To show an interest in manipulating materials. LO: To observe a group investigation.</p>	<p>To apply potential solutions systematically to problems [for example, tipping a container in order to pour out its contents]. To greet known people and may initiate interactions and activities [for example, switching on a favourite piece of equipment in the light and sound room] To communicate their awareness of changes in light, sound or movement.</p> <p>Sound LO: To use a range of instruments to create a sound. LO: To show a preference towards an instrument or sound. LO: To communicate their awareness of changes in sound.</p> <p>Light LO: To explore cause and effect through sources of light. LO: To explore light sources around school. LO: To know that certain results produce predictable results.</p>	<p>To begin to respond to options and choices with actions or gestures [for example, touching one substance rather than another] To explore objects and materials provided, changing some materials by physical means and observing the outcomes [for example, when mixing flour and water]</p> <p>LO: To copy different types of movements e.g. squash, bend, twist and stretch. LO: To explore different types of movements e.g. squash, bend, twist and stretch. LO: To use a range of actions to manipulate materials e.g. mix, chop, roll, pinch. LO: To show an interest in manipulating materials. LO: To select a material when given a choice of two.</p>	<p>To respond to options and choices with actions or gestures [for example, touching one substance rather than another] To imitate actions involving main body parts [for example, clapping or stamping]. They make sounds using their own bodies [for example, tapping, singing or vocalising], and imitate or copy sounds.</p> <p>LO: To explore a preferred toy animal for an extended period. LO: To imitate animal sounds. LO: To copy actions that represent animal movements. LO: To respond to choices by creating a 'desert word mat'. LO: To respond to choices by creating an 'ocean word mat'. LO: To explore habitats.</p>	<p>To actively explore objects and events for more extended periods [for example, feeling the textures of different parts of a plant] To explore objects and materials provided, changing some materials by physical means and observing the outcomes [for example, when mixing flour and water]</p> <p>LO: To show engagement with an event for an extended period e.g. a flower hunt. LO: To actively explore a range of plants. LO: To show an interest in handling and observing leaves. LO: To explore the parts of plants. LO: To show an interest in a plant investigation.</p>
Yr 2	Physical Processes (forces-floating and sinking)	Physical Processes (Light and Sound)	Life Processes and Living Things- (plants)	Life Processed and Living things (animals)	Materials and their properties (Everyday materials)	Materials and their properties (Investigating materials)
Core	<p>Pupils can demonstrate simple properties of movement (e.g. float/sink) They make simple records of their findings (e.g., by putting pictures of an activity in sequence) Pupils make their own observations of changes of movement that result from actions [e.g., using a volume control or a dimmer switch] and can describe the changes when questioned directly</p> <p>LO: To Investigate what floats and sinks using a range of materials. LO: To predict what will float or sink. LO: To record which objects float or sink. LO: To observe how changes affect objects ability to float or sink. LO: To design and choose materials to make a floating boat. LO: To test and record the results of the boat design.</p>	<p>To demonstrate simple properties of light and sound (e.g. bright/dark, noisy/quiet) To make their own observations of changes in light or sound (e.g., using a volume control or a dimmer switch) and can describe the changes when questioned directly)</p> <p>LO: to be able to operate a range of light and sound toys independently LO: to identify and label sources of light and sound. LO: to investigate changes of light – using a dimmer switch LO: to describe changes in light (e.g. is it bright or dark) LO: to investigate changes in sound (e.g. using a volume button to make something loud or quiet) LO: to describe changes in sound</p>	<p>To begin to make suggestions for planning their work [e.g., responding to the question 'Was that right or wrong?']. 'Showing', 'demonstrating' 'trying out' 'responding' etc. may be done by any means appropriate to the pupil's preferred mode of communication and physical abilities To make some contribution to planning and evaluation and to recording their findings To show that they have observed patterns or regular changes in features of objects, living things and events [e.g., chrysalis/butterfly day/night]</p> <p>LO: To identify living things within the environment – e.g. scavenger hunt for plants, trees, flowers etc. LO: to identify simple features of plants e.g. leaves, petals LO: to begin to plan and engage in a planting investigation LO: to observe changes in their own plants– is the soil wet or dry? Is the plant growing? LO: to observe and communicate the results of their experiment by any means appropriate LO: to order images of the growth of a seed into a plant.</p>	<p>Pupils can communicate related ideas and observations using simple phrases [e.g., which food to give which animal] Pupils show that they have observed patterns or regular changes in features of objects, living things and events [e.g., chrysalis/butterfly day/night]</p> <p>LO: To engage in a mini beast hunt and be able to observe and communicate their findings LO: To create a mini beast habitat using prior knowledge LO: To create a mini beast model and communicate its features using simple phrases (e.g., it has wings, it has 6 legs etc.) LO: To observe the changes that take place in a butterfly life cycle. LO: To communicate the life cycle of a butterfly through a preferred method.</p>	<p>To understand the scientific use of some simple vocabulary, such as before, after, bumpy, grow, eat, move To make simple records of their findings (e.g., by putting pictures of an activity in sequence) To sort materials using simple criteria and communicate their observations of materials in terms of these properties.</p> <p>LO: To identify and label a range of everyday materials. LO: To sort recycling items by their material LO: To begin to use adjectives to describe a range of materials LO: To sort object by a given property (e.g. shiny, dull, and bumpy) and create a visual record. LO: To create a recycling robot (junk model) using a range of materials LO: To use some scientific language to describe their robot and how they made it</p>	<p>They begin to make suggestions for planning and evaluating their work [e.g., responding to the question 'Was that right or wrong?']. 'Showing', 'demonstrating' 'trying out' 'responding' etc. may be done by any means appropriate to the pupil's preferred mode of communication and physical abilities They identify s range of common materials and know about some of their properties</p> <p>LO: To explore a range of waterproof and non-waterproof materials. LO: To explore the similarities and differences in the properties of paper. LO: To explore ways to make paper stronger. LO: To explore the absorbency of different papers. LO: To explore and predict which materials are good for boat making.</p>

Functional	<p>They match objects and materials in terms of single features or properties. (e.g. temperature or colour) They begin to make generalisations, connections and predictions from regular experience [e.g., expecting that ice cream will melt, or making wheeled objects move faster by pushing on a smooth surface or releasing them down a slope]</p> <p>LO: To Investigate floating and sinking using a range of materials. LO: To begin to say what is floating or sinking. LO: To record which objects float or sink. LO: To observe how changes affect objects ability to float or sink. LO: To choose materials to make a floating boat. LO: To test and record the results of the boat materials.</p>	<p>They try out a range of equipment in familiar and relevant situations [e.g., initiating the activation of a range of light sources] They show that they know some sources of sound and light [e.g., remembering their location] Pupils identify some appliances that use electricity</p> <p>LO: To actively investigate light and sound toys LO: To operate sound and light toys independently LO: To explore and recognise sources of light and sound (e.g. thorough a scavenger hunt) LO: To explore and recognise sources of sound LO: To identify some familiar sources of light and sound LO: To identify light and sound sources that use electricity.</p>	<p>They respond to simple scientific questions [e.g., 'Show me the flower' 'Is this wet/dry?'] 'Showing', 'demonstrating' 'trying out' 'responding' etc. may be done by any means appropriate to the pupil's preferred mode of communication and physical abilities Pupils recognise distinctive features of objects [e.g., the features of living things in their environment, and know where they belong, e.g., feathers on a bird, leaves on a tree]</p> <p>LO: To notice living things within the environment – e.g. scavenger hunt for plants, trees, flowers etc. LO: to recognise simple features of plants e.g. leaves, petals LO: to engage in a planting investigation LO: to engage appropriately in role play relating to planting, e.g. knowing to fill the plant pot with soil LO: to observe the results of their investigation and answer simple questions e.g. find the stem? Has it grown?</p>	<p>To take part in activities focused on the anticipation of an enquiry into specific environments [e.g., finding a hamster under straw, or a CD or video in a pile]. To recognise distinctive features of objects [e.g., the features of living things in their environment, and know where they belong, e.g., feathers on a bird, leaves on a tree]</p> <p>LO: To engage in a mini beast hunt and explore an outdoor environment LO: To create a mini beast habitat LO: To observe the mini beast habitat and know where mini beasts live LO: To create a mini beast model including distinct feature (e.g., wings, legs eyes etc.) LO: To recognise the distinct features of a butterfly, caterpillar, chrysalis and eggs.</p>	<p>To match objects and materials in terms of single features or properties. (e.g. temperature or colour) Pupils sort materials according to a single criterion when the contrast is obvious.</p> <p>LO: To begin to identify a range of everyday materials (wood, plastic, glass, metal, water and rock). LO: To sort recycling objects into 2 groups (e.g., metal and not metal) LO: To sort materials by a single property (e.g., shiny, bumpy, rough) LO: To create a recycling robot (junk model) out of a single material LO: To sort a range of materials when the contrast is obvious</p>	<p>They indicate the before and after of material changes They closely observe the changes that occur [e.g., when materials are heated, cooled or mixed]</p> <p>LO: To begin to explore a range of waterproof and non-waterproof materials. LO: To explore different types of paper through touch, ripping and scrunching. LO: To explore ways to make paper stronger. LO: To explore the absorbency of different papers. LO: To explore and predict which materials are good for boat making.</p>
Exploratory	<p>To remember learned responses over increasing periods of time and may anticipate known events [e.g., balls falling and bouncing on the floor] To cause movement by a pushing or pulling action 'Explore' includes access through any sensory mode</p> <p>LO: To engage in a floating and sinking activity. LO: To indicate what objects are floating or sinking. LO: To sort which objects float or sink, with support. (Read Who sank the boat first) LO: To observe how changes affect objects ability to float. LO: To investigate materials to make a floating boat, with support. LO: To test and record the results of the boat materials, with support.</p>	<p>To apply potential solutions systematically to problems [e.g., tipping a container in order to pour out its contents]. To greet known people and may initiate interactions and activities [e.g., switching on a favourite piece of equipment in the light and sound room] To communicate their awareness of changes in light or sound</p> <p>LO: To explore light and sound toys LO: To anticipate repeated sounds and sights when an adult demonstrates a light or sound toy LO: To be able to turn on a preferred piece of light room equipment or a toy LO: to be able to turn off a piece of equipment or toy LO: expresses a preference for a certain piece of equipment in the sensory room,</p>	<p>To actively explore objects and events for more extended periods [e.g., feeling the textures of different parts of a plant] To imitate actions involving main body parts [e.g., clapping or stamping]. They make sounds using their own bodies [e.g., tapping, singing or vocalising], and imitate or copy sounds</p> <p>LO: to explore living things (plants, grass, trees, flowers) within the environment LO: to actively explore plants using their senses (e.g. smelling flowers, touching leaves and soil) LO: To plant a seed with support by copying an adult model. LO: To engage in role play exploring plants, filling plant pots, digging soil etc. LO: to imitate actions and vocalisations through a topic related song, https://youtu.be/LCKEdDEr82k</p>	<p>To begin to respond to options and choices with actions or gestures To imitate actions involving main body parts [e.g., clapping or stamping]. They make sounds using their own bodies [e.g., tapping, singing or vocalising], and imitate or copy sounds</p> <p>LO: To engage in a mini beast hunt LO: To choose a range of materials to create a mini beast habitat with support LO: To create a mini beast model by imitating an adults actions (e.g. rolling dough, sticking pipe cleaners into playdough) LO: to engage in a topic related song by imitating actions or sounds (e.g. https://youtu.be/7xyXB8_BetQ) LO: to engage in a butterfly life cycle sensory circuit by copying movements</p>	<p>They actively explore objects and events for more extended periods [e.g., feeling the textures of different parts of a plant] Pupils explore objects and materials by physical means and observing the outcomes [e.g., when mixing flour and water]</p> <p>LO: To actively explore a range of materials LO: To engage in a recycling activity with support LO: To explore different textures of materials LO: To manipulate different materials to create a collage using different textures LO: To engage in a junk modelling activity with support</p>	<p>They may respond to options and choices with actions or gestures [e.g., touching one substance rather than another] Pupils explore objects and materials by physical means and observing the outcomes [e.g., when mixing flour and water]</p> <p>LO: To engage in the exploration of waterproof and non-waterproof materials. LO: To begin to explore different types of paper through touch, ripping and scrunching. LO: To engage in the exploration of ways to make paper stronger. LO: To engage in the exploration of absorbency of different papers. LO: To engage in the exploration of which materials are good for boat making.</p>
Yr 3	Life Processes and Living things (Animals)	Materials and their Properties	Physical Processes (light and Sound)	Materials and their Properties	Physical Processes (Forces)	Life Processes and Living Things (Plants)

To recognise and identify a range of common animals, for example, fly, goldfish, and robin.
 To sort living things into groups, using simple features. To describe the basis for their groupings, for example, number of legs, shape of leaf.
 To identify ways in which an animal is suited to its environment, for example, a fish having fins to help it swim.
 To use scientific names for some major organs of body systems, for example, the heart at key stage 2, the stomach at key stage 3 and identify the position of these organs in the human body.

ARE Year 1

To identify and name a variety of common animals, including fish, amphibians, reptiles, birds and mammals.
 To identify and name a variety of common animals that are carnivores, herbivores and omnivores.
 To describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)
 To identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.

LO: To label my body parts.
 LO: To know which parts of my body I use to see, hear, taste, smell and feel.
 LO: To begin use my senses to do tests.
 LO: To identify common animals.
 LO: To describe common animals.
 To compare common animals.
 LO: To begin to match animals to their food source.

To know about a range of properties, for example, texture, appearance, and communicate observations of materials in terms of these properties.
 To describe similarities and differences between materials.
 To explain simply why some materials are particularly suitable for specific purposes, for example, glass for windows, copper for electrical cables.
 To use scientific terms, for example, evaporation, condensation, to describe changes.

ARE year 1

To distinguish between an object and the material from which it is made.

To identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock.

To describe the simple physical properties of a variety of everyday materials.

To compare and group together a variety of everyday materials on the basis of their simple physical properties.

LO: To identify and name different materials.

LO: To tell the difference between an object and the materials it is made from.

LO: To describe the properties of everyday materials.

LO: To identify which materials have certain properties.

LO: To test different materials.

LO: To sort objects by their properties.

To recognise that sound and light come from a variety of sources and can name some of these.
 To compare the brightness or colour of lights, and the loudness or pitch of sounds.
 To use their knowledge and understanding of physical phenomena to link cause and effect in simple explanations.
 To demonstrate knowledge and understanding of physical processes drawn from the Key stage 2 and Key stage 3 programme of study.

ARE Year 1

Subject not covered

LO: To join in with a light song and explore sources of light.

LO: To Investigate shadows.

LO: To Investigate how light travels.

LO: To listen to and identify different sounds.

LO: To investigate sound waves and vibrations.

LO: To explore how we can change the volume of sound.

To know about a range of properties, for example, texture, appearance, and communicate observations of materials in terms of these properties.
 To identify a range of common materials and know about some of their properties.
 To use their knowledge and understanding of materials when they describe a variety of ways of sorting them into groups according to their properties.
 To describe differences between the properties of different materials and explain how these differences are used to classify substances, for example, as solids, liquids, gases at key stage 2, as acids, alkalis at key stage 3.

ARE year 1

To distinguish between an object and the material from which it is made.

To identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock.

To describe the simple physical properties of a variety of everyday materials.

To compare and group together a variety of everyday materials on the basis of their simple physical properties.

LO: To sort materials into groups. (features/properties)

LO: To say if a material is waterproof.

LO: To take part in a science investigation.

LO: To use simple scientific vocabulary. (words/symbols)

LO: To show my results. (with symbols, with photos, in writing)

LO: To make a prediction. (words/symbols)

LO: To begin to evaluate my investigation.

To communicate observations of the changes of movement that result from actions. They recognise that movement can come from a variety of sources e.g. push/pull, and can name some of these.
 To compare the movement of different objects in terms of speed or direction.
 To use their knowledge and understanding of physical phenomena to link cause and effect in simple explanations.
 To make generalisations about physical phenomena.

ARE Year 1

Subject not covered

LO: To investigate pushes and pulls as a force.

LO: To investigate which ball will travel the furthest down a ramp.

LO: To investigate how a toy car moves over different surfaces.

LO: To investigate a friction car.

LO: To investigate how friction can be reduced.

LO: To investigate how friction can create movement.

To recognise and name external parts of the body, for example, head, arm, and of plants, for example, leaf, flower.
 To use their knowledge about living things to describe the basic conditions, for example, a supply of food, water, air, light, that animals and plants need in order to survive.
 To provide simple explanations for changes in living things, for example, diet affecting the health of humans or other animals, lack of light or water altering plant growth.
 To identify organs, for example, stamen at key stage 2, stigma, root hairs at key stage 3, of different plants they observe.

ARE year 1

To identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.

To identify and describe the basic structure of a variety of common flowering plants, including trees.

LO: To make a seed helicopter and try it out in the playground

LO: To make a burr and display in the classroom, with accompanying facts.

LO: To plant a bean in a bag and record its growth.

LO: To know what cress seeds need and plant them in contrasting locations

LO: To make careful observations about the beans.

LO: To make egg and cress sandwiches.

Functional	<p>To take part in activities focused on the anticipation of and enquiry into specific environments. To recognise distinctive features of objects and know where they belong. To make simple records of their findings. To show that they have observed patterns or regular changes in features of objects, living things and events.</p> <p>LO: To label my body parts. LO: To know which parts of my body I use to see, hear, taste, smell and feel. LO: To begin use my senses to do tests. LO: To identify common animals. LO: To describe common animals. To compare common animals. LO: To begin to match animals to their food source.</p>	<p>To match objects and materials in terms of simple features or properties. To make generalisations, connections and predictions from regular experiences. To understand the scientific use of some simple vocabulary, such as before, after, bumpy, grow, eat, move and can communicate related ideas and observations using simple phrases. To identify a range of common materials and know about some of their properties.</p> <p>LO: To explore and begin to name different materials. LO: To explore an object and the materials it is made from. LO: To begin describe the properties of everyday materials. LO: To begin to explore which materials have certain properties. LO: To test different materials, with support. LO: To sort objects by their properties, with support.</p>	<p>To respond to simple scientific questions. To can recall sources of sound and light. To observe some of the simple properties of light, sound. To make their own observations of changes in light, sound.</p> <p>LO: To join in with a light song and explore sources of light. LO: To begin to investigate shadows. LO: To begin to investigate how light travels. LO: To begin to listen to and identify different sounds. LO: To explore sound waves and vibrations. LO: To explore the volume of sound.</p>	<p>To indicate the before and after of material changes. To sort material according to a single criteria when the contrast is obvious. To make simple records of their findings. To sort materials using simple criteria and communicate their observations of materials in terms of these properties.</p> <p>LO: To sort materials into groups. (features/properties) LO: To say if a material is waterproof. LO: To take part in a science investigation. LO: To use simple scientific vocabulary. (words/symbols) LO: To show my results. (with symbols, with photos, in writing) LO: To make a prediction. (words/symbols) LO: To begin to evaluate my investigation.</p>	<p>To communicate their awareness of changes of movement. To respond to simple scientific questions. To demonstrate simple properties of movement e.g. fast/slow To make their own observations of changes of movement that result from actions e.g. change in speed on different surfaces, and can describe the changes when questioned directly.</p> <p>LO: To investigate pushes and pulls. LO: To investigate which ball will travel the furthest down a ramp. LO: To investigate how a toy car moves over different surfaces. LO: To investigate a friction car. LO: To investigate how friction can be reduced. LO: To investigate how friction can create movement.</p>	<p>They try out a range of equipment in relevant situations To closely observe the changes that occur. To make simple recording of their finding, e.g. by putting pictures of an activity in sequence. To make some contribution to planning and evaluation and to record their findings.</p> <p>LO: To engage in a seed dispersal experiment with support, and comment (symbol or sign) on what they observe, with support. LO: To engage in a model making activity with support, and comment (symbol or sign) on the model they make. LO: To engage in a planting and watering activity and predict what will happen to the plants. LO: To begin to know what plants need to grow. LO: To engage in observational activity and comment on what they can see with support. LO: To make and egg and cress sandwich with support, say if they like/don't like with support.</p>
Exploratory	<p>They can remember learned responses over increasing periods of time and may anticipate known events. They imitate actions involving main body parts.</p> <p>LO: To point my body parts. LO: To use parts of my body to see, hear, taste, smell and feel. LO: To use my senses to engage in tests. LO: To begin to identify common animals. LO: To begin to find common animals. LO: To begin to match animals to their food source, with support.</p>	<p>To use emerging conventional communication, e.g. using a communication board to express opinions about textures and properties of materials. To cause movement of materials by a pushing or pulling actions.</p> <p>LO: To explore to name different materials. LO: To explore an object and their textures. LO: To begin describe the properties of everyday materials. LO: To begin to explore which materials have certain properties. LO: To test different materials, with support. LO: To sort objects by their properties, with support.</p>	<p>To greet known people and may initiate interactions and activities, e.g. switches in the light room. To communicate their awareness of changes in light, sound or movement.</p> <p>LO: To join in with a light song and explore sources of light, with support. LO: To begin to investigate shadows, with support. LO: To begin to investigate how light travels, with support. LO: To begin to listen to and identify different sounds, with support. LO: To explore sound waves and vibrations, with support. LO: To explore the volume of sound, with support.</p>	<p>To may respond to options and choices with actions or gestures. To explore objects and materials provided, changing some materials by physical means and observing the outcomes.</p> <p>LO: To engage in a waterproof experiment. LO: To engage in a science investigation. LO: To begin use simple scientific vocabulary. (words/symbols) LO: To show my results. (with symbols, with photos, in writing) LO: To make a prediction. (words/symbols) LO: To begin to evaluate my investigation, with support.</p>	<p>To apply potential solutions systematically to problems. To show interest in a wide range of things, handling and observing them.</p> <p>LO: To investigate pushes and pulls, with support. LO: To engage with rolling a ball down a ramp. LO: To engage with toy car and different surfaces. LO: To investigate a friction car, with support. LO: To investigate how friction can be reduced, with support. LO: To investigate how friction can create movement, with support.</p>	<p>To actively explore objects and events for extended periods. To explore objects and materials provided, changing some materials by physical means and observing the outcomes.</p> <p>LO: To engage in a seed dispersal experiment with support, and comment (symbol or sign) on what they observe, with support. LO: To engage in a model making activity with support, and comment (symbol or sign) on the model they make. LO: To engage in a planting and watering activity and predict what will happen to the plants. LO: To begin to know what plants need to grow. LO: To engage in observational activity and comment on what they can see with support. LO: To make and egg and cress sandwich with support, say if they like/don't like with support.</p>
Yr 4	Materials and their properties (comparisons)	Physical Processes (Forces)	Physical Processes (Electricity)	Materials and their properties (Changes)	Life Processes and Living Things (animals)	Life Processes and Living Things (Plants)

To know about a range of properties, for example, texture, appearance, and communicate observations of materials in terms of these properties, e.g. can use a wide range of adjectives to describe materials, heavy, light, soft, hard.
To sort materials into groups and describe the basis for their groupings in everyday terms, for example, shininess, hardness, smoothness.
To use their knowledge and understanding of materials when they describe a variety of ways of sorting them.
To describe differences between the properties of materials and explain how these differences are used to classify substances, e.g. solid/liquid etc.

- Identify and compare the suitability of a variety of every day materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for practical uses.
- Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting, and stretching.

LO: To explore the properties of a variety of balls.
LO: To examine fabrics and explore its properties.
LO: To understand that some materials need to be able to 'give' a little and not break.
LO: To identify and discuss the materials/properties of objects and sort them according to criteria.
LO: To be challenged to find the strongest paper to wrap a present.
LO: To design and make a paper bridge to hold a toy car.

To communicate observations of changes in movement that result from different surfaces and forces, e.g. rough and smooth surfaces, hard pushes and gently pushes.
To compare the movement of different objects in terms of speed and direction.
To use their knowledge and understanding of physical events to link cause and effect in simple explanations, e.g. the speed or direction of a moving object changing because of a push or a pull.
To make generalisations about physical events, e.g. motion is affected by forces, these include gravitational attraction, magnetic attraction and friction.

LO: To begin to know about gravity and resistance.
LO: To investigate the effect friction has on movement.
LO: To investigate the effects of air resistance.
LO: To explore the effects of water resistance.
LO: To investigate how pulleys work.
LO: To explore how gears and gear ratios work.

To recognise that electricity powers sources of sound and light, and to name some of these sources.
To compare the way in which devices, e.g. bulbs, work in different electricity circuits
To use their knowledge and understanding of physical events to link cause and effect in simple explanations, e.g. a bulb failing because of a break in the electric circuit.
To describe and explain physical events, e.g. how a device may be connected to work in an electric circuit.

LO: To explore sources of light and identify the sun as a light source.
LO: To investigate if light is needed in order to see.
LO: To investigate if light travels in a straight line.
LO: To explore sound and how it is made.
LO: To investigate if the pitch and volume of sounds can be changed.
LO: To investigate how sound travels.

To know about a range of properties, for example, texture, appearance, and communicate observations of materials in terms of these properties.
They describe ways in which some materials are changed by heating or cooling or by processes such as bending or stretching.
To recognise that some changes, e.g. freezing water, can be reversed and some, e.g. baking clay, cannot, and they classify changes in this way.
To use knowledge about some reversible and non-reversible changes to make simple predictions about whether other changes are reversible or not.

- Identify and compare the suitability of a variety of every day materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for practical uses.
- Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting, and stretching.

LO: To compare materials according to their properties.
LO: To investigate materials which will dissolve.
LO: To investigate materials which will melt or solidify.
LO: To use different processes to separate mixtures of materials.
LO: To identify and explain irreversible chemical changes.
LO: To identify and explain reversible changes.

To recognise and identify a range of common animals, e.g. cow, dog, cat, elephant.
To recognise that living things grow and reproduce, e.g. match pictures of animals with their young; put pictures of human growth in order.
To use their knowledge and understanding of basic life process, e.g. growth, reproduction, when they describe differences between living and non-living things, e.g. live animals have live babies, toy animals do not.
To demonstrate knowledge and understanding of life processes and living things drawn from the key stage 2 or key stage 3 programme of study.

- Pupils notice that animals, including humans, have offspring which grow into adults.
- Find out about and describe the basic needs of animals, including humans, for survival (water, food and air).
- Describe the importance for humans to exercise, eating the right amounts of different types of food, and hygiene.

LO: To match animals and their babies.
LO: To describe how animals change as they grow.
LO: To describe how humans change as they grow.
LO: To describe the basic needs of humans and animals.
LO: To ask and answer questions about a pet.
LO: To identify healthy and unhealthy food, and say how much of them I should eat.
LO: To give reasons why humans need to exercise.
LO: To know how and why I should keep myself clean.

To recognise and name external parts of a plant, e.g. leaf, flower, stem.
To use their knowledge about living things to describe the basic conditions, e.g. food, air, water and light that plants need in order to survive.
To provide explanations for changes in living things, e.g. lack of light or water altering plant growth.
To use keys based on observable external features to help them identify and group living things systematically, e.g. answer some questions to group plants or animals.

- Pupils observe and describe how seeds and bulbs grow into mature plants.
- Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.

LO: To look closely at plants and trees and record what I see.
LO: To plant seeds and bulbs and suggest how to care for them.
LO: To set up a test and make a prediction.
LO: To use my observations to explain what plants need to grow and stay healthy.
LO: To use my observations to say what food crops will need to grow and stay healthy.
LO: To make a bar chart to show the growth of my plants.

Functional	<p>They respond to simple scientific questions, e.g. is it solid or bendy. To explore objects and materials provided in an appropriate way. Pupils actively join in scientific investigations, e.g. respond to request to touch materials. To know about a range of common materials and knows about some of their properties.</p> <p>LO: To explore the properties of a variety of balls. LO: To examine fabrics and explore its properties. LO: To test which materials 'give' and which break. LO: To investigate materials/properties of objects and sort them using a criteria with an obvious contrast, e.g. bend/not bend. LO: To be challenged to find the strongest paper, e.g. which will tear and not tear. LO: To engage in a group activity to design and make a paper bridge to hold a toy car.</p>	<p>To group objects and materials in terms of simple features or properties, e.g. objects that need pushing or pulling. To explore objects and materials provided in an appropriate way, e.g. try cars on different surfaces. To understand some simple scientific vocabulary, e.g. push/pull, fast/slow, bumpy/smooth. To make their own observations of changes in movement that results from an action, e.g. cars travel faster as the ramp is raised higher. They can describe the changes when questioned directly.</p> <p>LO: To explore gravity and resistance. LO: To explore the effect friction has on movement. LO: To explore the effects of air resistance. LO: To explore the effects of water resistance. LO: To explore how pulleys work. LO: To explore how gears and gear ratios work.</p>	<p>To anticipate and join in activities focused on enquiry into specific environments, e.g. finding a CD in a pile. To identify some appliances that use electricity. To begin to make suggestions for planning and recording their work. To make their own observations of changes in light, sound or movement resulting from an action, e.g. pressing a switch, turning the volume control, changes to an electric circuit.</p> <p>LO: To explore sources of light and begin to understand the sun is a light source. LO: To investigate if light is needed in order to see. LO: To investigate if light travels in a straight line. LO: To explore sound and how it is made. LO: To investigate if the pitch and volume of sounds can be changed. LO: To investigate how sound travels.</p>	<p>To engage in experimentation with a range of materials in familiar and relevant situations, e.g. explores different textures in the forest. To recognise distinctive features of objects and know where they belong, e.g. leaves on a tree. To sort materials reliably with a given criteria, e.g. hard or soft. To identify a range of common materials and know about some of their properties, e.g. play dough can be twisted, rolling pins cannot.</p> <p>LO: To compare materials according to their properties. LO: To investigate materials which will dissolve. LO: To investigate materials which will melt or solidify. LO: To use different processes to separate mixtures of materials. LO: To identify and explain irreversible chemical changes. LO: To identify and explain reversible changes.</p>	<p>to indicate the before and after of changes, e.g. animals that have grown from babies to adults. To sort animals according to single criteria, e.g. four legs. To make simple records of their findings, e.g. pictures of a food chain in order. To sort animals using a simple criteria and communicate their observations of animals in terms of these properties.</p> <p>LO: To match animals and their babies. LO: To sort pictures of how animals change as they grow. LO: To sort pictures of how humans change as they grow. LO: To know some of the basic needs of humans and animals. LO: To ask and answer questions about a pet, with support. LO: To identify healthy and unhealthy food. LO: To know that humans need to exercise. LO: To know how to keep myself clean.</p>	<p>To match objects and materials in terms of simple features, e.g. colour, leaf shape-pointy/not pointy. To begin to make generalisations, connections and predictions from regular experience, e.g. plants will die without water. To understand the scientific use of some simple vocabulary, such as before, after, bumpy, grow, eat, move and can communicate related ideas and observations using simple phrases, e.g. giving water, not crisps, to plants. To sort plants using simple criteria and communicate their observations about plants in terms of these properties, e.g. long or short leaves, hairs or no hairs.</p> <p>LO: To look closely at plants and trees and record what I see. LO: To can plant seeds and bulbs and suggest how to care for them. LO: To set up a test and make a prediction, with support. LO: To begin to know what plants need to grow and stay healthy. LO: To begin to know what food crops will need to grow and stay healthy. LO: To make a bar chart to show the growth of my plants, with support.</p>
Exploratory	<p>To remember learned responses over increasing periods of time and may anticipate known events. To know that certain actions produce predictable results, e.g. sponges can be squashed and squeezed.</p> <p>LO: To explore the properties of a variety of balls. LO: To examine fabrics and materials by touching, pulling and stretching. LO: To engage briefly in a test to see which materials 'give' and which break. LO: To investigate materials and sort them using a criteria with an obvious contrast, e.g. bend/not bend. LO: To engage in a challenge to find the strongest paper, e.g. which will tear and not tear. LO: To engage in a group activity to design and make a paper bridge to hold a toy car, e.g. push the car along the bridge.</p>	<p>To actively explore objects and events for a more extended period, e.g. repeatedly rolling cars down a ramp, exploring the effects of different magnets. To know that certain actions will produce predictable results, e.g. cars will roll down the ramp, magnets will pick up objects.</p> <p>LO: To engage in activities about gravity and resistance. LO: To engage in a group activity exploring the effect friction has on movement. LO: To engage in a group activity exploring the effects of air resistance. LO: To engage in water activates exploring the effects of water resistance. LO: To engaging in activity using pulleys. LO: To engage in an activity using gears.</p>	<p>To use emerging conventional communication to express opinions, e.g. pupil voice, making a prediction. To communicate their awareness of changes in light, sound or movement, e.g. respond to a light being switched on, to music starting to play.</p> <p>LO: To explore different sources of light. LO: To engage in an investigation to discover if light is needed in order to see. LO: To engage in an investigation to discover if light travels in a straight line. LO: To explore sound and how it is made. LO: To investigate if the pitch and volume of sounds can be changed. LO: To investigate how sound and vibrations.</p>	<p>To apply potential solutions systematically to problems, e.g. squeezing dough to change its shape. To communicate their awareness of changes in materials, e.g. water becoming colder under a running tap, clay becoming softer as it warms through handling.</p> <p>LO: To explore materials and their properties. LO: To engage in an investigation to dissolve materials. LO: engage in an investigation exploring which materials which will melt or solidify. LO: To engage in processes to separate mixtures of materials. LO: To observe irreversible chemical changes. LO: To observe reversible changes.</p>	<p>To respond to actions and choices with actions or gestures, e.g. choosing an animal to stroke. To make sounds using their own bodies, e.g. tapping, singing, roaring or vocalising and imitate sounds or copies sounds.</p> <p>LO: To match animals and their babies. LO: To sort pictures of how animals change as they grow. LO: To sort pictures of how humans change as they grow. LO: To know some of the basic needs of humans and animals. LO: To ask and answer questions about a pet, with support. LO: To identify healthy and unhealthy food. LO: To know that humans need to exercise. LO: To know how to keep myself clean.</p>	<p>To greet known people and may initiate interactions and activities, e.g. picking up watering can to water plants. To communicate their awareness of changes, e.g. a plant that has died due to lack of water/light.</p> <p>LO: To look closely at plants and trees. LO: To engage in an activity to plant seeds and bulbs. LO: To engage in a test and make a prediction, with support. LO: To water plants to help them grow and stay healthy. LO: To water a food crop to help it grow and stay healthy. LO: To use an iPad to take photos to show the growth of my plants,</p>
Yr 5	Physical processes - Light	Materials and their Properties	Life Processes and Living Things - Animals	Materials and their Properties - Rocks	Life Processes and Living Things - Plants	Physical Processes - Magnets

Core	<p>To recognise that they need light in order to see things and that dark is the absence of light. To notice that light is reflected from surfaces. To recognise that light from the sun can be dangerous and that there are ways to protect their eyes. To recognise that shadows are formed when light from a source is blocked by a solid object. To find patterns in the way that the size of shadows change.</p> <p>LO: To recognise that I need light to see things, and that dark is the absence of light. LO: To investigate which surfaces reflect light. LO: To use a mirror to reflect light and explain how mirrors work. LO: To know that light from the sun can be dangerous and that there are ways we can protect our eyes LO: To investigate which materials block light to form shadows. LO: To find patterns when investigating how shadows change size.</p>	<p>To identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper, and cardboard for particular uses. To find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p> <p>LO: To explore the properties of different kitchen papers and disposable cloths. LO: To think about hard materials and their absorbent properties. LO: To explore different fabrics and investigate how waterproof they are using a dropper of water. LO: To explore the textures and properties of different materials by printing with a selection of items. LO: To learn about the waterproof properties of wax by creating a wax resist picture. LO: To talk about how some materials change shape when they are heated up.</p>	<p>To identify that animals, including humans, need the right types and amounts of nutrition, and that they cannot make their own food; they get nutrition from what they eat. To identify that humans and some animals have skeletons and muscles for support, protection and movement.</p> <p>LO: To explain how living things obtain food. LO: To say why animals, including humans, need the right type of nutrients LO: To sort animals based on their skeletons. LO: To identify and name bones. LO: To identify and explain the three main functions of a skeleton. LO: To know why we need muscles to move.</p>	<p>To compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. To describe in simple terms how fossils are formed when things that have lived are trapped within the rock. To recognise that soil is made from rocks and organic matter.</p> <p>LO: To compare different types of rocks. LO: To group rocks based on their properties. LO: To explain how fossils are formed. LO: To explain Mary Anning's contribution to palaeontology. LO: To explain how soil is formed. LO: To investigate different soil types.</p>	<p>To identify and describe the function of different parts of flowering plants; roots, stem/trunk, leaves and flowers. To 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. To investigate the way in which water is transported within plants To explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</p> <p>LO: To name the different parts of flowering plants and explain their jobs. LO: To set up an investigation to find out what plants need to grow well. LO: To record my observations. LO: To investigate how water is transported in plants. LO: To name the different parts of a flower and explain their role in pollination and fertilisation. LO: To understand and order the stages of the life cycle of a flowering plant.</p>	<p>To compare how things move on different surfaces. To notice that some forces need contact between two objects, but magnetic forces can act at a distance. To observe how magnets attract or repel each other and attract some materials and not others. To 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. To describe magnets as having two poles. To predict whether two magnets will attract or repel each other, depending on which poles are facing.</p> <p>LO: To identify the forces acting on objects. LO: To investigate how a toy car moves over different surfaces. LO: To sort magnetic and non-magnetic materials. LO: To investigate the strength of magnets. LO: To explore magnetic poles. LO: To observe how magnets attract some materials.</p>
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<p style="text-align: center;">Functional</p>	<p>To make their own observations of changes in light, sound or movement that results from actions and can describe the changes when questioned directly. To communicate observations of the changes of light, sound or movement that result from actions. To recognise that sound and light come from a variety of sources and can name some of these. To compare the brightness or colour of lights, and the loudness or pitch of sounds. To use their knowledge and understanding of physical phenomena to link cause and effect in simple explanations. To begin to make simple generalisations about physical phenomena. To demonstrate knowledge and understanding of physical processes drawn from the Key stage 2 and Key stage 3 programme of study. To describe and explain physical phenomena. To make generalisations about physical phenomena. To use physical ideas to explain simple phenomena.</p> <p>LO: To investigate that I need light to see things. LO: To explore which surfaces reflect light. LO: To investigate how a mirror reflects light. LO: To know that light from the sun can be dangerous and that there are ways we can protect our eyes LO: To investigate how some materials block light to form shadows. LO: To investigating how shadows change size and position.</p>	<p>To identify a range of common materials and know about some of their properties. To know about a range of properties, for example, texture, appearance, and communicate observations of materials in terms of these properties. To identify a range of common materials and know about some of their properties To explain simply why some materials are particularly suitable for specific purposes, E.G., glass for windows, copper for electrical cables To demonstrate knowledge and understanding of materials and their properties drawn from the key stage 2 or key stage 3 programme of study. To distinguish between an object and the material from which it is made. To identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock. To describe some simple physical properties of a variety of everyday materials. To compare and group together a variety of everyday materials on the basis of their simple physical properties.</p> <p>LO: To explore the properties of different kitchen papers and disposable cloths. LO: To investigate hard materials and their absorbent properties. LO: To explore different fabrics and investigate how waterproof they are. LO: To explore the textures and properties of different materials by printing with a selection of items. LO: To learn about the waterproof properties of wax by creating a wax resist picture. LO: To investigate how some materials change shape when they are heated up.</p>	<p>To make some contributions to planning and evaluation and to recording their findings. To communicate observations of a range of animals and plants in terms of features, e.g. their skeletons, To recognise that different living things are found in different places, e.g. pond, woods and begin to know there is a link between habitat and food source. To identify ways in which an animal is suited to its environment, for example, a fish having fins to help it swim. To use scientific names for some major organs of body systems, for example, the heart at key stage 2, the stomach at key stage 3 and identify the position of these organs in the human body. To identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. To identify and name a variety of common animals that are carnivores, herbivores and omnivores.</p> <p>LO: To draw my body and label my body parts LO: To know which parts of my body I use to see, hear, taste, smell and feel. LO: To use my senses to do tests LO: To identify common animals. LO: To describe how to sort animals into groups. LO: To name some animals that are carnivores, herbivores and omnivores.</p>	<p>To sort materials using simple criteria and communicate their observations of materials in terms of these properties. To know about a range of properties, for example, texture, appearance, and communicate observations of materials in terms of these properties. To sort materials into groups and describe the basis for their groupings in everyday terms, for example, shininess, hardness, smoothness. To use their knowledge and understanding of materials when they describe a variety of ways of sorting them into groups according to their properties. To describe some methods, for example, filtration, distillation, that are used to separate simple mixtures. They use scientific terms, for example, evaporation, condensation, to describe changes. To distinguish between an object and the material from which it is made. To identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock. To describe some simple physical properties of a variety of everyday materials. To compare and group together a variety of everyday materials on the basis of their simple physical properties.</p> <p>LO: To begin compare to compare different types of rocks. LO: To group rocks based on their properties, were the contrast is explicit. LO: To explain how fossils are formed, e.g. role play pressing a toy dinosaur between layers of playdough. LO: To begin to know that Mary Anning found fossils. LO: To explore and investigate how soil is formed. LO: To explore and investigate different soil types.</p>	<p>To show they have observed patterns or regular changes in features of objects, living things and events, e.g. they can record the growth of a seed. To recognise and name external parts of plants, root, e.g. leaf, and flower. To sort living things into groups, using simple features. They describe the basis for their groupings, e.g. shape of leaf. To provide simple explanations for changes in living things, e.g. lack of light or water altering plant growth. To identify organs, for e.g. stamen at key stage 2, stigma, root hairs at key stage 3, of different plants they observe. To identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. To identify and describe the basic structure of a variety of common flowering plants, including trees.</p> <p>LO: To describe how to plant a bean. LO: To identify and name common wild plants. LO: To identify and name some garden plants. LO: To identify trees by their leaves. LO: To identify and describe the parts of plants and trees. LO: To talk about how my bean plant has grown.</p>	<p>To identify a range of common materials and know about some of their properties. To use, more complex sentences to describe changes, e.g. can suggest if a magnet will attract or repel. To sort and group examples of simple physical phenomena, e.g. magnetic and non-magnetic. To link cause and effect where they need to use knowledge and understanding of abstract concept, e.g. can say which end of the magnet will attract or repel. To make generalisations about phenomena which are less easy to observe, e.g. can say which type of materials are likely to be magnetic. To distinguish between an object and the material from which it is made. To identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock. To describe some simple physical properties of a variety of everyday materials. To compare and group together a variety of everyday materials on the basis of their simple physical properties.</p> <p>LO: To identify and name different magnetic materials. LO: To tell the difference between an object and the materials it is made from. LO: To describe the properties of everyday materials. LO: To identify which materials have certain properties. LO: To test different materials. LO: To sort objects by their properties.</p>
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Exploratory P4 and below	<p>They greet known people and may initiate interactions and activities. Pupils explore objects and materials provided, changing some materials by physical means and observing the outcomes.</p> <p>LO: To investigate a variety of light sources LO: To explore reflective surfaces. LO: To explore mirrors and lights. LO: To know that light from the sun can be dangerous and that there are ways we can protect our eyes LO: To investigate shadows. LO: To investigating how to change shadow shapes.</p>	<p>To use emerging conventional communication. They cause movement by a pushing or pulling action.</p> <p>LO: To explore the properties of different kitchen papers and disposable cloths. LO: To explore different type's hard materials. LO: To explore different fabrics and textures. LO: To explore the textures and materials by printing with them. LO: To create a wax resist picture. LO: To investigate how some materials change shape.</p>	<p>To apply potential solutions systematically to problems, e.g. find the right to give to the right animal. To imitate actions involving main body parts, e.g. using a spoon to fed the doll, 'walking' a toy dog.</p> <p>LO: To label my body parts LO: To show which parts of my body I use to see, hear, taste, smell and feel. LO: To use my senses to do tests. LO: To identify common animals. LO: To sort animals into groups. LO: To begin to sort animals into groups of carnivores, herbivores and omnivores.</p>	<p>To respond to options and choices with actions or gestures, e.g. to select a symbol to indicate their choice. To explore objects and materials provided, changing some materials by physical means and observing the outcomes, e.g. pressing or pushing a dinosaur into playdough.</p> <p>LO: To begin investigate different types of rocks. LO: To begin to select a rock on request, e.g. "Give me a smooth rock." LO: To explore pressing a toy dinosaurs into playdough. LO: To explore a selection of fossils. LO: To explore and investigate soil, e.g. scooping, filling and emptying with soil, observing the results. LO: To explore and investigate different soil types.</p>	<p>To actively explore objects and events for extended periods, e.g. explore a sensory tray with leaves, soil and seeds. To explore objects and materials provided, changing some materials by physical means and observing the outcomes, e.g. gathering and moulding soil from the sensory tray.</p> <p>LO: To plant a bean seed with support. LO: To begin to select leaves or flowers on request. LO: To explore, with support, a variety of garden plants. LO: To begin to sort leaves by their shape. LO: To construct and plant or tree picture or model, with support. LO: To observe how my bean plant has grown.</p>	<p>P3 - To remember learned responses over increasing periods of time and may anticipate known events, e.g. know that magnets attract some materials. P4 - To show interest in a wide range of things, handling and observing them, e.g. they explore magnets and a variety of resources.</p> <p>LO: To explore magnets and magnetic materials. LO: To repeat and action, indicating an understanding of what is happening, e.g. directing the magnet at the same object to watch it move. LO: To describe, with symbol, sign or verbally the properties of everyday materials, e.g. hard/soft, rough/smooth. LO: To consistently select materials in response to, "Show me something hard/soft." LO: To interact with different materials. LO: To sort objects by their properties, with support</p>
Yr 6	Life Processes and Living Things- Humans	Materials and their Properties	Materials and their Properties	Life Processes and Living Things - Animals	Physical Processes - electricity	Physical Processes - Sound
Core ARE Year 4	<p>To recognise that some materials can change their state, for example from a solid to a liquid or a liquid to a gas. To recognise that when a material changes its state, this is a reversible change because the material has changed physically but not chemically. To recognise that some changes of materials are irreversible and that this is because there have been chemical changes to the materials, resulting in the formation of new materials. To recognise that when a solid dissolves, it forms a solution in which it remains as a solid and has simply mixed with the liquid. To recognise therefore that dissolving and melting are different processes.</p> <p>LO: To compare materials according to their properties. LO: To investigate materials which will dissolve. LO: to investigate reversible changes. LO: To carry out investigations that attempt to separate mixed materials LO; To carry out oxidation investigations. LO: To identify and explain irreversible chemical changes.</p>	<p>To recognise the main properties of solids, liquids or gases: To know that solids are fairly rigid and tend to keep their shape unless a force is applied, that liquids will pour and flow into any shape, that gases spread out to fill a space and will escape from an unsealed container. To recognise that materials change state when they are heated or cooled and that different materials will respond differently depending on the temperature, that melting, evaporating, condensing and freezing are changes of state. To recognise that changes of state are crucial to our water cycle: that evaporation of water changes it to a gas (water vapour). Bodies of water on Earth evaporate and put water vapour into the air. That evaporation requires heat energy and is faster at higher temperatures. To know that condensation is the process by which water vapour in the air cools down and changes to drops of liquid. Water vapour in the cold air condenses into drops, which return water to the Earth as rain or snow.</p> <p>LO: To sort and describe materials. LO: To investigate gases and explain their properties. LO: To investigate materials as they change state.</p>	<p>To recognise that living things can be grouped in a variety of ways. To explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. To recognise that environments can change and that this can sometimes pose dangers to living things.</p> <p>LO: To use a range of methods to sort living things. LO: To identify vertebrates by observing their similarities and differences. LO: To use a key to identify invertebrates. LO: To show the characteristics of living things in a table and a key. LO: To recognise positive and negative changes to the local environment. LO: To describe environmental dangers to endangered species.</p>	<p>To recognise that humans have a digestive system made up of different parts that play a particular role in the digestive process. To recognise that the digestive system in humans is adapted to the food they eat. To recognise that humans have a mix of different types of teeth that are adapted to the food they eat To recognise that food chains show how living organisms depend on other living organisms for survival. To recognise that a food chain is made of a series of plants and animals that eat each other and shows how energy is transferred from one organism to another via food.</p> <p>LO: To identify and name parts of the human digestive system. LO: To explain the functions of the digestive system. LO: To identify the types and functions of teeth. LO: To create an enquiry or test for investigate the causes of tooth decay. LO: To investigate how food chains work. LO: To construct and interpret food chains.</p>	<p>To recognise that common appliances run on electricity To recognise that electricity can flow through the components of an electrical circuit and will only flow if the circuit is closed i.e. has no gaps. To recognise that the components of a circuit will usually include an energy source such as a battery, something that uses energy such as a bulb or buzzer, connecting wires, and switches to open and close the circuit. All components must be connected into and made part of the circuit. To recognise that electricity can flow more easily through some materials than others. To know that materials that electricity can pass through easily are called conductors and materials that electricity passes through poorly or not at all are called insulators. Recognise that all metals are good conductors and many plastics are insulators.</p> <p>LO: To explain ways that electricity is generated. LO: To identify electrical appliances and the types of electricity they use. LO: To identify complete and incomplete circuits.</p>	<p>To recognise that there is an association between sound and vibrations – that sound is made when an object vibrates. To recognise that vibrations travel through air (or if we're under water, through water) to the ear and that we hear these as sound. To recognise that pitch and volume describe different characteristics of a sound, and that these are related to the characteristics of the vibrations: the volume of a sound varies with the size of the vibrations (amplitude), the pitch with the number of vibrations per second (frequency). To recognise that these characteristics depend upon the properties of the object making the sound, such as the material it is made from. To recognise that sounds get fainter as the distance from the sound source increases.</p> <p>LO: To describe and explain sound sources. LO: To explain how different sound travels. LO: To explore ways to change the pitch of a sound. LO: To investigate how vibrations from sounds travel through a medium to the ear. LO: To investigate ways to absorb sound.</p>

		<p>LO: To explore how water changes state.</p> <p>LO: To investigate how water evaporates.</p> <p>LO: To identify and describe the different stages of the water cycle.</p>			<p>LO: To identify and sort materials into electrical conductors or insulators.</p> <p>LO: To explain how a switch works and why they are needed.</p> <p>LO: To record and report on an investigation.</p>	<p>LO: To make a musical instrument to play different sounds.</p>
	<p>To show that they have observed patterns or regular changes in materials, e.g. water into ice. Pupil can use adjectives to describe the changes of the materials, e.g. hard, soft. To use adjectives to describe and compare materials, e.g. "This one is rough but this one is smooth" or "This one's hot, this one's cold".</p> <p>To classify changes as reversible and irreversible, e.g. complete a table of simple changes in the kitchen, making toast, melting butter, making chocolate drops, making coffee.</p> <p>To describe differences between solids and liquids in terms of simple properties, e.g. maintenance of its shape.</p> <p>To find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting, and stretching.</p> <p>LO: To sort materials according to their properties.</p> <p>LO: To investigate materials which will dissolve.</p> <p>LO: to investigate reversible changes.</p> <p>LO: To carry out investigations that attempt to separate mixed materials.</p> <p>LO; To know about and to carry out oxidation investigations.</p> <p>LO: To identify and share facts about irreversible chemical changes.</p>	<p>To show that they have observed patterns or regular changes in solids, liquids or gases, e.g. water to ice.</p> <p>To communicate what they did, e.g. can say "We froze the water."</p> <p>To describe how to change materials, e.g. "The butter goes runny when it's hot", "The plasticine stretched when I pulled it".</p> <p>to say why a material is suitable or unsuitable for a particular purpose, e.g. explain that a chocolate kettle is no good because it would melt.</p> <p>To describe what happens when a liquid is heated e.g. say that water boils, turns to a gas and use the term 'evaporation'.</p> <p>To identify and compare the suitability of a variety of every day materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for practical uses.</p> <p>LO: To identify uses of different everyday materials, e.g. door made of wood, would a paper door work?</p> <p>LO: To investigate gases and explain their properties, e.g. air to blow up a balloon.</p> <p>LO: To investigate materials as they change state, butter softening as it warms up, play dough.</p> <p>LO: To explore how water changes state. Explore water, steam and ice.</p> <p>LO: To create a water cycle window, observe and record findings.</p> <p>LO: To identify and describe the different stages of the water cycle.</p>	<p>To make some contribution to planning, evaluating and recording their findings, e.g. recording which animals live in the desert.</p> <p>To can use simple adjectives to communicate observations of animals and plants, e.g. brown, green, big, small.</p> <p>To recognise that different living things are found in different places, e.g. they match pictures of animals with their habitats.</p> <p>To identify features of animals appropriate to their environments, e.g. when asked "Why do fish have fins?" can suggest that these are to help it swim.</p> <p>To describe relationships between plants and animals in a habitat, e.g. construct simple food chains.</p> <p>To identify that most living things live in habitats to which they are suited and describe how different habitats provide the basic needs of different kinds of animals and plants, and how they depend on each other.</p> <p>To identify and name a variety of plants and animals in their habitats, including micro-habitats</p> <p>LO: To sort objects as those that are living, dead and those that have never been alive.</p> <p>LO: To create a habitat map and identify what is in it.</p> <p>LO: To identify animals in their habitat.</p> <p>LO: To research a habitat, describe and identify animals live in it.</p> <p>LO: To identify how an animal is suited to its habitat.</p> <p>LO: To describe how animals get their food.</p>	<p>To make some contribution to planning, evaluating and recording their findings, e.g. record the food chains for humans and animals.</p> <p>To communicate observations by drawing, e.g. a picture of a teeth.</p> <p>To know what a humans or animal needs to survive, e.g. they select from pictures to show that a human needs food and water.</p> <p>To explain more abstract changes in living things, e.g. that sugary foods can damage the teeth of a human.</p> <p>To use scientific names for some major organs of body systems, e.g. the heart.</p> <p>To explore and compare the differences between things that are living, dead, and things that have never been a live.</p> <p>To 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.</p> <p>LO: To identify and name parts of the human body.</p> <p>LO: To say which part of the body is linked to the 5 senses.</p> <p>LO: To identify the types and functions of teeth.</p> <p>LO: To create an enquiry or tests to investigate the causes of tooth decay.</p> <p>LO: To investigate how food chains work.</p> <p>LO: To construct a simple food chain.</p>	<p>To sort materials using simple criteria and communicate their observations of materials in terms of these properties, e.g. uses electricity/doesn't use electricity. Pupil can communicate what they did, e.g. say "We switched on the light...?"</p> <p>To describe similarities and differences in physical phenomena using an increased range of more abstract terms. e.g. "This light is brighter than this one".</p> <p>To make simple generalisations about physical phenomena, e.g. can say that the more layers of tracing paper, the less light will come through.</p> <p>To make generalisations about simple, observable phenomena, e.g. can say that a shadow is always made when a light shines on an opaque object.</p> <p>LO: To investigate different electricity supplies.</p> <p>LO: To identify electrical appliances and the types of electricity they use.</p> <p>LO: To make a simple circuit.</p> <p>LO: To identify and sort materials into electrical conductors or insulators.</p> <p>LO: To explain how a switch works and why they are needed.</p> <p>LO: To record and report on an investigation.</p>	<p>(P8) To make their own observations of the changes in sound, e.g. using the volume control and commenting on the change in sound levels.</p> <p>(L1) To can use simple language to communicate observations of changes, e.g. name sources of sound.</p> <p>(L2) To can use increasingly abstract ways of sorting physical phenomena, e.g. high sounds and low sounds.</p> <p>(L3)To can make simple generalisations about more abstract phenomena, e.g. explains that sounds become fainter as they get further from the source.</p> <p>(L4) To can make generalisations about phenomena which are less easy to observe, e.g. can say that a sound is always made when an object vibrates.</p> <p>LO: To investigate and name different sound sources.</p> <p>LO: To investigate how sound travels.</p> <p>LO: To identify and sort the pitch of a sound.</p> <p>LO: To investigate the link between vibrations and sound.</p> <p>LO: To investigate the link between distance and volume.</p> <p>LO: To make a musical instrument to play different sounds.</p>
Exploratory P4 and below	<p>To explore objects and materials provided, changing the materials and observing the outcomes, e.g. mixing water and flour.</p> <p>To respond to options and choices, either with an action or gesture, e.g. touch one material on preference to another showing a clear choice.</p> <p>LO: To sort materials according to a single property.</p> <p>LO: To begin to make mixtures of materials.</p>	<p>To communicate their awareness of changes temperature, e.g. hot to cold.</p> <p>To use emerging conventional communication to show awareness of change, e.g. use words, signing or symbols to indicate an awareness of change, e.g. hot to cold.</p> <p>LO: To sort materials according to a single property.</p> <p>LO: To fill and empty different containers, making comments using speech, signs or symbols.</p>	<p>To imitate actions involving main body parts, e.g. moving like an elephant/monkey.</p> <p>To explore a set of animals in a setting of its habitat, e.g. fish in the water.</p> <p>LO: To sort animals using single criteria, e.g. fur/no fur.</p> <p>LO: To create a habitat sensory picture.</p> <p>LO: To match animals to their habitats, with support.</p>	<p>To imitate actions involving main body parts, e.g. cleaning teeth, washing hands.</p> <p>To apply potential solutions systematically to problems, e.g. turning on tap to wash hands.</p> <p>LO: To join in with songs about the human body, e.g. If your happy and you know it.</p> <p>LO: To explore the senses though sensory play, e.g. scented/textured playdough.</p> <p>LO: To engage in a teeth cleaning activity.</p>	<p>To cause an event involving electricity, e.g. pushing or pulling a switch or button.</p> <p>To greet known people and initiate interactions and activities, e.g. switching on the bubble tube in the light room.</p> <p>LO: To investigate different electricity supplies.</p> <p>LO: To identify electrical appliances and the types of electricity they use.</p> <p>LO: To make a simple circuit.</p>	<p>To create sounds using their own body parts to imitate animals, e.g. clapping hands quietly/loudly.</p> <p>To remember learned responses over increasing periods of time and may anticipate known events, e.g. knowing which instruments to tap, blow or shake to make a sound.</p> <p>LO: To investigate different sound sources.</p> <p>LO: To investigate how to make sounds using their body parts.</p> <p>LO: To investigate the pitch of different instruments.</p>

	<p>LO: To use resource to spate materials, e.g. magnet for metal in sand, sieve for rice in sand.</p> <p>LO: To observe a liquid freeze and then melt.</p> <p>LO: To observe an irreversible change, e.g. oubleck.</p> <p>LO: To observe an irreversible chemical change, e.g. toast.</p>	<p>LO: To interact with Playdough, using tools and hands to change it shape, making comments using speech, signs or symbols.</p> <p>LO: To observe ice as it melts, making comments using speech, signs or symbols, making comments using speech, signs or symbols.</p> <p>LO: To interact with a water cycle, using sponges to show evaporation.</p> <p>LO: To order water cycle pictures, with support.</p>	<p>LO: To describe the features of a habitat through speech, sign or symbol.</p> <p>LO: To match animals to their food.</p>	<p>LO: To sort foods that cause tooth decay.</p> <p>LO: To investigate food that animals eat.</p> <p>LO: To construct a simple food chain, with support.</p>	<p>LO: To identify and sort materials into electrical conductors or insulators.</p> <p>LO: To explain how a switch works and why they are needed.</p> <p>LO: To record and report on an investigation.</p>	<p>LO: To investigate vibrations made by a variety of materials.</p> <p>LO: To investigate how sound changes by using a volume switch.</p> <p>LO: To make a musical instrument.</p>
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