Science

At Penponds our Science Curriculum follows the National Curriculum. Our school ethos celebrates all aspects of school life and endeavours to provide positive experiences for all pupils. This is reflected in our values and vision statements.

The main aim is to enable pupils to observe, question and be curious about their surroundings and the world in which they live. Throughout their learning, pupils will be taught different types of scientific enquiry and guided how best to put them into practice. The types of scientific enquiry are as follows: observing changes over time, pattern seeking, identifying, classifying and grouping, comparative and fair testing and research using secondary sources.

We believe that vocabulary underpins scientific understanding; at Penponds we equip our pupils with scientific terminology, allowing them to effectively communicate their findings and understanding. These skills not only help our pupils become scientists, it also enables them to use these skills and vocabulary to further access the rest of the curriculum.

We enrich our science curriculum by varying the ways in which we reach our learning objectives through our exciting and engaging topics. By doing so, we can take a child's imagination and curiosity to the next level. Teaching different aspects of science through topic work and discretely, we believe, gives pupils the best of both structure and freedom in their learning, allowing them to apply their scientific knowledge to abstract contexts.

Children learn through hands on investigation and memories which bring their learning to life. They are able to use skills they have acquired in the classroom and apply these to real world scenarios. We believe that by integrating these three different approaches we are able to give children a broad and balanced introduction to science: igniting their passion, encouraging curiosity, promoting a love of learning as well as the world and phenomena around them. In doing this we know that when children leave Penponds they are equipped to access and thrive in future scientific learning.

The Science Lead is responsible for supporting colleagues in their teaching, keeping them informed of current developments in the subject, and by providing a strategic lead and direction for Science including following the school's robust system for monitoring and assessing Science.

Developing Young Scientists

Science

Intent (curriculum design, coverage and appropriateness)	Implementation (curriculum delivery, teaching and assessment)	Impact (attainment and progress)
The aim of the Science curriculum is to ensure all children: • Develop knowledge and understanding of the world around them. • Develop an investigative approach which can be applied across the curriculum. • Work scientifically and use a variety of approaches to answer scientific questions – observing over time, comparative tests, identifying and classifying, pattern seeking and research • Develop a secure scientific vocabulary • Develop independent learning behaviours through choice and challenge. • Become confident, curious and passionate learners. • Progress from EYFS to the end of KS2 and form a solid base to enter into KS3 when transitioning into secondary education. • Cover the key aspects of the science national curriculum in engaging, immersive topics. • Receive high quality science lessons, taught by confident teachers. • Access a range of scientific equipment and understand how it is used	Termly topics have been designed to incorporate the science curriculum and ensure coverage. • Children are made aware when they are learning aspects of science and how it is in everything we do. • Teachers have access to CPD to improve their confidence and ability to teach science effectively and the school is a member of the Primary School Teaching Trust. • Children will be assessed termly to ensure gaps are being filled. • Progression and coverage is monitored closely to ensure continuation from EYFS to Year Two to the end of Year 6. • Curriculum leaders work alongside teachers from each year group to ensure the quality of teaching throughout the school. • Resources are checked to ensure they are suitable, appropriate and useful. • Our monitoring system, which includes planning scrutiny, book looks, subject coverage checks, lesson observations and pupil conferencing will enable the curriculum leaders to check coverage and progression.	Enthusiastic, excited and curious children. • Children will become more inquisitive, have a greater understanding of the world around them and will have the vocabulary to begin to communicate this. • Children are able to use different methods of scientific enquiry. • Children's progress is tracked using using the skills progression assessment. Any areas of development will have been identified. • Internal moderation of books provides evidence of consistent teaching and opportunities where all pupils have access to science and scientific enquiry. • Children are able to apply reasoning, enquiry and communication skills to all aspects of their life. • Children are equipped with the scientific knowledge which will enable them to understand the uses of science today and how vital it is to the world's future prosperity

Science

Science - Skills and knowledge components: Progression document building from previous year's learning

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Working Scientifically	Ask simple questions when prompted Make relevant observations Perform simple tests, with support Identify and classify Use observations and ideas to suggest answers to questions With prompting, suggest how findings could be recorded	Ask simple questions and recognise that they can be answered in different ways Observe closely, using simple equipment Perform simple tests Identify and Classify Use their observations and ideas to suggest answers to questions Gather and record data to help in	Ask relevant questions when prompted Set up simple practical enquiries, comparative and fair tests Make systematic observations using simple equipment With prompting, use various ways of recording, grouping and displaying evidence Suggest how findings could be reported	Ask relevant questions and using different types of scientific enquiries to answer them Set up simple practical enquiries, comparative and fair tests Make systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including	With prompting, plan different types of scientific enquiries to answer questions With prompting, recognise and control variables where necessary Select, with prompting, and use appropriate equipment to take readings Take precise measurements using standard units Take and process repeat readings	Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate recording data and results of increasing complexity using

Science

		answering questions	With prompting, suggest conclusions from enquiries Identify differences, similarities or changes related to simple scientific ideas and processes Use straightforward scientific evidence to answer questions or to support their findings. Suggest possible improvements or further questions to investigate	thermometers and data loggers Gather, record, classify and present data in a variety of ways to help in answering questions Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions Use results to draw simple conclusions, make	Record data and results Record data using labelled diagrams, keys, tables and charts Use line graphs to record data Report and present findings from enquiries, including conclusions and, with prompting, suggest causal relationships With support, present findings from enquiries orally and in writing With prompting, identify that not all	scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs Use test results to make predictions to set up further comparative and fair tests Reporting and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations Identify scientific evidence that has been used to

Science

				predictions for new values, suggest improvements and raise further questions Identify differences, similarities or changes related to simple scientific ideas and processes Use straightforward scientific evidence to answer questions or to support their findings.	results may be trustworthy Suggest how evidence can support conclusions Suggest further comparative or fair tests	support or refute ideas or arguments
Plants	Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees	Observe and describe how seeds and bulbs grow into mature plants Find out and describe how	Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers			

Science

	Identify and describe the basic structure of a variety of common flowering plants, including trees	plants need water, light and a suitable temperature to grow and stay healthy	Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant Investigate the way in which water is transported within plants Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal			
Animals including humans.	Identify and name a variety of common animals including fish, amphibians,	Notice that animals, including humans, have offspring which grow into adults	Identify that animals, including humans, need the right types and amount of nutrition, and that	Describe the simple functions of the basic parts of the digestive system in humans	Describe the changes as humans develop to old age	Identify and name the main parts of the human circulatory system, and describe the functions of the

Science

	reptiles, birds and mammals Identify and name a variety of common animals that are carnivores, herbivores and omnivores Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense	Find out about and describe the basic needs of animals, including humans, for survival (water, food and air) Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene	they cannot make their own food; they get nutrition from what they eat Identify that humans and some other animals have skeletons and muscles for support, protection and movement	Identify the different types of teeth in humans and their simple functions Construct and interpret a variety of food chains, identifying producers, predators and prey		heart, blood vessels and blood Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function Describe the ways in which nutrients and water are transported within animals, including humans

Science

Everyday Materials	Distinguish between an object and the material from which it is made Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock Describe the simple physical properties of a variety of everyday materials Compare and group together a variety of everyday materials on the basis of their simple physical properties	Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching				

Science

Seasonal Changes	Observe changes across the 4 seasons Observe and describe weather associated with the seasons and how day length varies					
Living things and their habitats		Explore and compare the differences between things that are living, dead, and things that have never been alive Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they		Recognise that living things can be grouped in a variety of ways Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment Recognise that environments can change and that this can sometimes	Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird Describe the life process of reproduction in some plants and animals.	Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals Give reasons for classifying plants and animals based

Science

		depend on each other Identify and name a variety of plants and animals in their habitats, including microhabitats 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		pose dangers to living things		on specific characteristics
Rocks			Compare and group together different kinds of rocks on the basis of their appearance and			

Science

			simple physical properties Describe in simple terms how fossils are formed when things that have lived are trapped within rock Recognise that soils are made from rocks and organic matter			
Light			Recognise that they need light in order to see things and that dark is the absence of light Notice that light is reflected from surfaces Recognise that light from the sun can be dangerous and that there are			Recognise that light appears to travel in straight lines Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye Explain that we see things because

Science

			ways to protect their eyes Recognise that shadows are formed when the light from a light source is blocked by an opaque object Find patterns in the way that the size of shadows change			light travels from light sources to our eyes or from light sources to objects and then to our eyes Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them
Forces and Magnets			Compare how things move on different surfaces Notice that some forces need contact between 2 objects, but magnetic forces can act at a distance		Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object Identify the effects of air resistance, water resistance	

Science

			Observe how magnets attract or repel each other and attract some materials and not others 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 Describe magnets as having 2 poles Predict whether 2 magnets will attract or repel each other, depending on which poles are facing		and friction, that act between moving surfaces Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect	
Properties and changes of materials				Compare and group materials together,	Compare and group together everyday materials	

Science

				according to whether they are solids, liquids or gases Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature	on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through	

Science

					filtering, sieving and evaporating Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic Demonstrate that dissolving, mixing and changes of state are reversible changes Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on	

Science

					bicarbonate of soda	
Sound				Identify how sounds are made, associating some of them with something vibrating Recognise that vibrations from sounds travel through a medium to the ear Find patterns between the pitch of a sound and features of the object that produced it Find patterns between the volume of a sound and the strength of the vibrations that produced it		

Science

				Recognise that sounds get fainter as the distance from the sound source increases		
Electricity				Identify common appliances that run on electricity Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery Recognise that a switch opens and		Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches Use recognised symbols when representing a

Science

				closes a circuit and associate this with whether or not a lamp lights in a simple series circuit Recognise some common conductors and insulators, and associate metals with being good conductors		simple circuit in a diagram
Earth and Space					Describe the movement of the Earth and other planets relative to the sun in the solar system Describe the movement of the moon relative to the Earth Describe the sun, Earth and moon as	

Science

					approximately spherical bodies Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky	
Evolution and Inheritance						Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents

Science

						Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution

Science

We are scientists

Agreed teaching principles for Science:

- **Planning is carefully mapped across the school to ensure progression of scientific knowledge and concepts alongside working scientifically**
- **Opportunities are provided to explore the five enquiry types: observing changes over time, pattern seeking, identifying, classifying and grouping, comparative and fair testing and research using secondary sources**
- **Focus on learning key scientific vocabulary and using it accurately**
- **Using our location and investigating the 'science' around us within our locality**
- **To know that child-led enquiry to encourage children to both ask and seek to answer their own questions about the world around them is most effective**

Teaching Approaches:

- **Long and medium term plans (Sequence of Learning documents) created to ensure progression and sequence**
- **Specific key vocabulary and scientific terms are taught and tested**
- **The use of resources in lessons and getting out into our surroundings to bring science alive**
- **Visits to CSIA to extend science investigations and learning**
- **Knowledge organisers used to highlight key knowledge**
- **Check its, concept cartoons, mind maps, concept maps, Kahoot quizzes used to test understanding of taught content**
- **Use extension challenges to consolidate or extend**

To be a scientist I need to -

Question – ask questions about what might happen and predict what could happen
Observe changes over time by carefully monitoring
Gather scientific data and make observations, then look for patterns
Organise by identifying, grouping and classifying – solve enquiries by organising things into groups and make connections
Test – Carry out fair and comparative tests
Research – find answers using books, the internet or surveys

Science

Foundation Stage – Reception - some of the wonderful things we do in Science (UtW) at Penponds:

- Observe a real-life life cycle of a butterfly.
- Children will explore seasonal changes in their environment.
- Visit the park termly and record the changes in the environment through creating a Seasons snapshot photograph – child photographed in the place and observe the changes.
- Children will take part in a 'superhero challenge' afternoon, focusing on physical strength and strength of mind. Children will begin to learn about magnets and push and pull forces.
- Children will plant and care for a seed to gift to mothers on Mother's Day.
- Children will explore materials, identify their similarities and differences and sort them for recycling.
- Children will use model vehicles created in Design Technology and test them on different surfaces, exploring gravity, push, pull and magnetism.

Reception - Yearly Overview –Skills and knowledge components: Progression document coverage

	Autumn – **Superheroes Assemble** (PSED/RE- people and communities)	Spring – **Let's Crawl** (Science- weather, wildlife, habitats & growing)	Summer – **On the Move** (History/Geography/Seaside Cornwall)
Science- Understanding the World	Skills Components: Explores the natural world around them Can identify what you need to wear for each season and why Understand the effect of seasons on the natural world, discussing when and how things grow Names and orders seasons Understands the need to respect and care for the natural environment and all living things.	Skills Components: Explores the natural world around them Can identify what you need to wear for each season and why Understand the effect of seasons on the natural world, discussing when and how things grow Names and orders seasons	Skills Components: Explores the natural world around them Can identify what you need to wear for each season and why Understand the effect of seasons on the natural world, discussing when and how things grow Names and orders seasons

Science

	Explores and talks about forces (push and pull) Explores non-contact forces (gravity and magnetism)	Understands the need to respect and care for the natural environment and all living things. Uses senses in hands on exploration Can name their 5 senses Explain what their five senses are Can say what plants need to survive Can talk about different life cycles Can explain the life cycle of a butterfly and or frog Plants seeds and cares for growing plants with support Understands the difference between plants and animals	Understands the need to respect and care for the natural environment and all living things. Understands that the weather changes and that in different countries you have different weather Uses senses in hands on exploration Can name their 5 senses Explain what their five senses are Explore collections of materials Explore collections of materials, identifying similar and different properties Talks about differences between materials and changes they notice. Explores how things work Explores and talks about forces (push and pull) Explores non-contact forces (gravity and magnetism)
Sticky Knowledge	Understand the effect of seasons on the natural world, discussing when and how things grow. Understands the need to respect and care for the natural environment and all living things. Can identify what you need to wear for each season and why.	Understand the effect of seasons on the natural world, discussing when and how things grow. Explores the natural world around them. Can talk about different life cycles. Plants seeds and cares for growing	To be able name and describe plastic, glass, metal and paper. To know why materials are recycled. To know that the 5 senses are smell, sight, touch, taste and hearing. To know effects of pushing, pulling,

Science

	Names and orders seasons. Explores the natural world around them. Explores and talks about forces (push and pull). Explores non-contact forces (gravity and magnetism).	plants with support. Understands the difference between plants and animals.	magnetism and gravity. Know the weather changes as the year changes (awareness of seasonal change). Effects of summer in the environment.

Science

Year 1/2 Year A – some of the wonderful things we do in Science at Penponds

- Children explore materials and their properties and make links with the Voyage of the Mystery topic by investigating waterproof and absorbent materials
- After visiting a local woodland, children discover more about life cycles, varieties of trees and the animals that live there
- Children explore the beach and identify microhabitats and living things that live there
- Children learn about the impact humans have on a beach environment

Year 1/2 - Yearly Overview Year A – National Curriculum and Skills and knowledge components: Progression document coverage

Science	Everyday Materials NC objectives: Materials have physical properties which can be investigated and compared 1.2.1 Distinguish between an object and the material from which it is made Materials have physical properties which can be investigated and compared 1.2.2 Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock Materials have physical properties which can be investigated and compared 1.2.3 Describe the simple physical properties of a variety of everyday materials Materials have physical properties which can be investigated and compared 1.2.4 Compare and group together a variety of everyday materials on the basis of their simple physical properties	Plants NC objectives: Conducting Experiments 1.2.a.1 Make relevant observations (+) Recording Evidence 1.3.a.1 With prompting, suggest how findings could be recorded (+) Reporting Findings 1.4.a.1 Recognise findings (+) Life exists in a variety of forms and goes through cycles- Plants 1.4a.1 Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees Life exists in a variety of forms and goes through cycles- Plants 1.4a.2 Identify and describe the basic structure of a variety of common flowering plants, including trees Planning Investigations 1.1.a.1 Ask simple questions when prompted (+) Planning Investigations 1.1.b.1 Suggest ways of answering a question (+) Conclusions and Predictions 1.5.a.1 Gather and record data (+)	Animals, including humans NC objectives: Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense Conducting Experiments 1.2.b.1 Conduct simple tests, with support Conducting Experiments 1.2.a.1 Make relevant observations (+) Recording Evidence 1.3.a.1 With prompting, suggest how findings could be recorded (+) Reporting Findings 1.4.a.1 Recognise findings (+)

Science

	Conducting Experiments 1.2.b.1 Conduct simple tests, with support Conducting Experiments 1.2.a.1 Make relevant observations (+) Recording Evidence 1.3.a.1 With prompting, suggest how findings could be recorded (+) Reporting Findings 1.4.a.1 Recognise findings (+)	Conclusions and Predictions 1.5.b.1 Use observations to suggest answers to questions (+) Habitats NC objectives: Life exists in a variety of forms and goes through cycle - 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 Life exists in a variety of forms and goes through cycles - Explore and compare the differences between things that are living, dead, and things that have never been alive 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. Identify and name a variety of common animals that are carnivores, herbivores and omnivores. Plants- observe and describe how grow, their growth needs.	
	Sticky Knowledge: Materials and their properties listed and pictures of each one.	Sticky Knowledge: Pictures of deciduous and evergreen trees and information Diagram of a flowering plant Image of a life cycle of a seed and a tadpole Information showing what plants need to stay healthy Definitions of carnivore, herbivore and omnivore	Sticky Knowledge: Describe living things found in a beach habitat Draw a simple food chain

Science

		An example of a simple food chain Pictures of animals and birds in their habitats	
	Skills Components: **Everyday Materials** Distinguish between an object and the material from which it is made. Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. Describe the simple physical properties of a variety of everyday materials. Compare and group together a variety of everyday materials on the basis of their simple physical properties.	Skills Components: **Plants** Identify and name a variety of common wild and garden plants including deciduous and evergreen trees. Identify and describe the basic structure of a variety of common flowering plants including trees. **Plants** 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. **Living things and their Habitats** Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants and how they depend on each other. Identify and name a variety of plants and animals in their habitats, including microhabitats. 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. Identify that most living things live in habitats to which they are suited and describe how different	Skills Components: **Animals including humans** Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. Identify and name a variety of common animals that are carnivores, herbivores and omnivores. Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets).

Science

		habitats provide for the basic needs of different kinds of animals and plants and how they depend on each other. Identify and name a variety of plants and animals in their habitats, including microhabitats. 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.	

Science

Year 1/2 Year B – some of the wonderful things we do in Science at Penponds

- Through learning about the Amazon Rainforest children explore the variety of living things and food-chains
- Children learn what humans and plants need in order to survive
- Children investigate the effects of exercise on the body
- By studying dinosaurs children learn the differences between living, dead and non-living things and how animals and humans have survived and dinosaurs became extinct

Year 1/2 - Yearly Overview Year B – National Curriculum and Skills and knowledge components: Progression document coverage

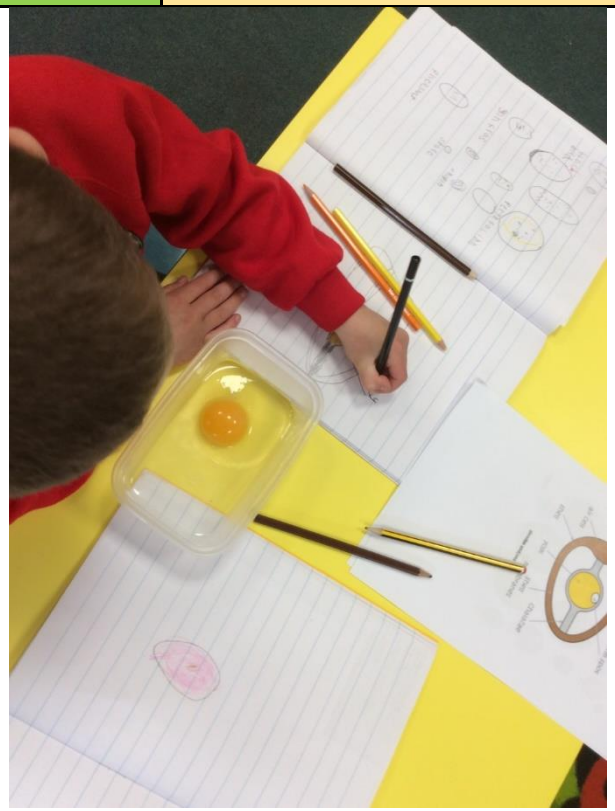
Science	NC objectives: Identify and classify Habitats Identify and name a variety of plants and animals in their habitats, including micro-habitats Identify that most living things live in habitats to which they are suited. Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food. Plants- observe and describe how grow, their growth needs.	NC objectives: Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene -Identify and classify Ask simple questions -Recognise that questions can be answered in different ways. -Observe closely, using simple equipment. -Perform simple tests -Gather and record data to help answer questions. -Use their observations and ideas to suggest answers to questions. Plants- observe and describe how grow, their growth needs.	NC objectives: Life exists in a variety of forms and goes through cycle - 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 Life exists in a variety of forms and goes through cycles - Explore and compare the differences between things that are living, dead, and things that have never been alive 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. Plants- observe and describe how grow, their growth needs.
	Sticky Knowledge Pictures and labels of different types of habitat and micro habitats	Sticky Knowledge Humans need food, water and oxygen in order to survive	Sticky Knowledge MRS GREN

Science

	Simple food chain of animals living in the rainforest Examples of different animals and plants living in the Amazon Rainforest (Sloth, Tree frog, Toucan, Orangutan, tiger, chameleon, bats, butterflies)	Exercise keeps humans healthy Labelled drawing showing the effect exercise on the body Examples of a healthy diet Labelled pictures showing how to keep well (washing hands, brushing teeth) The importance of eating fresh fruit and vegetables (in space they grow salad!) (Make lkinks with Astronaut training and survival in space)	Pictures of things that are dead, alive or never been alive Examples of carnivores, herbivores and omnivore dinosaurs Life cycle diagram of a dinosaur Food chains showing who ate who and how we know (size, teeth, claws) Examples of how living things live in family groups
	Components: Ask simple questions and recognise that they can be answered in different ways Observe closely, using simple equipment Perform simple tests Identify and Classify Use their observations and ideas to suggest answers to questions Gather and record data to help in answering questions 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) Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs	Components: Ask simple questions and recognise that they can be answered in different ways Observe closely, using simple equipment Perform simple tests Use their observations and ideas to suggest answers to questions Gather and record data to help in answering questions 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 Find out about and describe the basic needs of animals, including humans, for survival (water, food and air) Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene	Components: Ask simple questions and recognise that they can be answered in different ways Observe closely, using simple equipment Perform simple tests Identify and Classify Use their observations and ideas to suggest answers to questions Gather and record data to help in answering questions 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) Explore and compare the differences between things that are living, dead, and things that have never been alive Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different

Science

	of different kinds of animals and plants, and how they depend on each other Identify and name a variety of plants and animals in their habitats, including microhabitats 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		kinds of animals and plants, and how they depend on each other



Science

Year 3/4 Year A– some of the wonderful things we do in Science at Penponds

- Investigate mirrors and reflection.
- Explore how shadows are formed and investigate how to change the size of a shadow.
- Create simple circuits using bulbs, wires and cells. Explore how circuits work by testing different methods and adding switches, buzzers and motors.
- Find out about nutrition and healthy living – create a display for the school hall.
- Learn about looking after our bodies from visitors that are invited into school, for example, the school nurse.
- Create and use musical instruments to create a variety of different sounds and to show how sound travels through vibrations.

Year 3/4 Year A - Yearly Overview – National Curriculum and Skills and knowledge components: Progression document coverage

Science	**NC objectives:** **Year 3** ♣ recognise that they need light in order to see things and that dark is the absence of light ♣ notice that light is reflected from surfaces ♣ recognise that light from the sun can be dangerous and that there are ways to protect their eyes ♣ recognise that shadows are formed when the light from a light source is blocked by an opaque object ♣ find patterns in the way that the size of shadows change. **Year 4** ♣ identify common appliances that run on electricity ♣ construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers ♣ identify whether or not a lamp will light in a simple series circuit, based on whether or not the	**NC objectives:** **Year 3** identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat ♣ identify that humans and some other animals have skeletons and muscles for support, protection and movement **Year 4** describe the simple functions of the basic parts of the digestive system in humans ♣ identify the different types of teeth in humans and their simple functions ♣ construct and interpret a variety of food chains, identifying producers, predators and prey.	**NC objectives:** **Year 4** ♣ identify how sounds are made, associating some of them with something vibrating ♣ recognise that vibrations from sounds travel through a medium to the ear ♣ find patterns between the pitch of a sound and features of the object that produced it ♣ find patterns between the volume of a sound and the strength of the vibrations that produced it ♣ recognise that sounds get fainter as the distance from the sound source increases.

Science

	lamp is part of a complete loop with a battery ♣ recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit ♣ recognise some common conductors and insulators, and associate metals with being good conductors.		
	Components: **Year 3** Recognise that they need light in order to see things and that dark is the absence of light Notice that light is reflected from surfaces Recognise that light from the sun can be dangerous and that there are ways to protect their eyes Recognise that shadows are formed when the light from a light source is blocked by an opaque object Find patterns in the way that the size of shadows change **Year 4** Identify common appliances that run on electricity	**Components:** **Year 3** Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat Identify that humans and some other animals have skeletons and muscles for support, protection and movement **Year 4** Describe the simple functions of the basic parts of the digestive system in humans Identify the different types of teeth in humans and their simple functions Construct and interpret a variety of food chains, identifying producers, predators and prey	**Components:** **Year 4** identify how sounds are made, associating some of them with something vibrating Recognise that vibrations from sounds travel through a medium to the ear Find patterns between the pitch of a sound and features of the object that produced it Find patterns between the volume of a sound and the strength of the vibrations that produced it Recognise that sounds get fainter as the distance from the sound source increases

Science

	Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit Recognise some common conductors and insulators, and associate metals with being good conductors		
	Sticky knowledge: A light source is an object that makes its own light. Surfaces that reflect light best are smooth, shiny and flat. A shadow appears when light is blocked by an opaque object. Opaque – an object that will not let any light pass through it. Transparent – lets light travel through it easily so you can see through it.	**Sticky knowledge:** • Living things need food to grow and to be strong and healthy. • Plants can make their own food, but animals cannot. • To stay healthy, humans need to exercise, eat a healthy diet and be hygienic. • Animals, including humans, need food, water and air to stay alive. Skeletons do three important jobs:	**Sticky knowledge:** Sound is a type of energy. Sounds are created by vibrations. The louder the sound, the bigger the vibration. Pitch is a measure of how high or low a sound is. A whistle being blown creates a high-pitched sound. A rumble of thunder is an example of a low-pitched sound. Sound can travel through solids, liquids and gases. Sound travels as a wave, vibrating the particles in the medium it is travelling in. Sound cannot travel through a vacuum.

Science

	Translucent – lets some light through it but we can't see through it properly. Lightning and static electricity are examples of electricity occurring naturally but for us to use electricity to power appliances, we need to make it. Electricity can only flow around a complete circuit that has no gaps. There must be wires connected to both the positive and negative end of the power supply/battery Switches can be used to open or close a circuit. When off, a switch 'breaks' the circuit to stop the flow of electricity. When on, a switch 'completes' the circuit and allows the electricity to flow. A conductor of electricity is a material that will allow electricity to flow through it. Metals are good conductors. Materials that are electrical insulators do not allow electricity to flow through them. Wood, plastic and glass are good insulators.	• protect organs inside the body; • allow movement; • support the body and stop it from falling on the floor. To help prevent tooth decay: • limit sugary food and drink; • brush teeth at least twice daily using a fluoride toothpaste; • visit your dentist regularly. The teeth of an animal are designed to eat different foods depending on the diet of the animal. Examples of a herbivore, a carnivore and an omnivore skull:	Sound energy can travel from particle to particle far easier in a solid because the vibrating particles are closer together than in other states of matter.

Science

Year 3/4 Year B– some of the wonderful things we do in Science at Penponds

- Explore magnets and how they attract and repel each other and some objects.
- Use magnets to explore magnetic and non-magnetic objects and materials.
- Test a variety of surfaces to explore the impact of friction.
- Plant seeds, plants and look after our garden area – explore how to care for plants and the stages of plant growth.
- Dissect flowers to identify the key parts of a flowering plant.
- Explore the local environment and the habitats that it provides.
- Use the King Edward mine resources to explore and group different types of rock.
- Observe the process of evaporation, condensation, precipitation by creating our own greenhouses and through other everyday examples.

Year 3/4 Year B - Yearly Overview – National Curriculum and Skills and knowledge components: Progression document coverage

Science	NC objectives: compare how things move on different surfaces ♣ notice that some forces need contact between two objects, but magnetic forces can act at a distance ♣ observe how magnets attract or repel each other and attract some materials and not others ♣ compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials ♣ describe magnets as having two poles ♣ predict whether two magnets will attract or repel each	NC objectives: Year 3 Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant. Investigate the way in which water is transported within plants. Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. Year 4	NC objectives: Year 3 Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. Describe in simple terms how fossils are formed when things that have lived are trapped within rock. Recognise that soils are made from rocks and organic matter. Year 4 Compare and group materials together, according to whether they are solids, liquids or gases. Observe that some materials change state when they are heated or cooled, and measure

Science

	other, depending on which poles are facing.	Recognise that living things can be grouped in a variety of ways. Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. Recognise that environments can change and that this can sometimes pose dangers to living things.	or research the temperature at which this happens in degrees Celsius (°C). Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.
	Sticky Knowledge: A force is a push or a pull. Different surfaces create different amounts of friction, depending of the roughness of the surface and the force between them. Forces can make things, move, speed up, slow down or stop. An object is magnetic if it is attracted to a magnet. Like poles attract, opposite poles repel.	Sticky Knowledge: Name parts of a plant. Explain what plants need to grow. Explain how water moves through a plant. Explain the life cycle of a plant. Revise MRS GREN. An environment contains many habitats, and these include areas where there are both living and non-living things. Animals can be grouped in many ways, including, vertebrates, invertebrates, mammal, amphibian, reptile, bird etc.	Sticky Knowledge: Some rocks are natural, some are man-made. There are 3 types of rock, ingenious, sedimentary and metamorphic. Explore how fossils are formed. Particles in a solid are close together and cannot move. They can only vibrate. Particles in a liquid are close together but can move around each other easily. Particles in a gas are spread out and can move around very quickly in all directions. When water and other liquids reach a certain temperature, they change state into a solid or a gas. The temperatures that these changes happen at are called the boiling, melting or freezing point. Evaporation occurs when water turns into water vapour. This happens very quickly when the water is hot, like in a kettle, but it can also happen slowly, like a puddle evaporating in the warm air. Condensation is when water vapour is cooled down and turns into water. You can see this when droplets of water form on a window. The water vapour in the air cools when it touches the Condensation cold surface.

Science

	Skills Components: Compare how things move on different surfaces. Notice that some forces need contact between 2 objects, but magnetic forces can act at a distance. Observe how magnets attract or repel each other and attract some materials and not others. Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials. Describe magnets as having 2 poles. Predict whether 2 magnets will attract or repel each other, depending on which poles are facing.	Skills Components: Year 3 Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant. Investigate the way in which water is transported within plants. Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. Year 4 Recognise that living things can be grouped in a variety of ways. Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. Recognise that environments can change and that this can sometimes pose dangers to living things.	Skills Components: Year 3 Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. Describe in simple terms how fossils are formed when things that have lived are trapped within rock. Recognise that soils are made from rocks and organic matter. Year 4 Compare and group materials together, according to whether they are solids, liquids or gases. Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C). Identify the part played by evaporation and condensation in the water cycle (Geog. link) and associate the rate of evaporation with temperature.

Science

Year 5/6 Year A– some of the wonderful things we do in Science at Penponds

- Explore materials and their properties.
- Use mirrors and prisms to learn about light.
- Study the life cycles of all living things.
- Plant seeds, plants and look after our garden area – explore how to care for plants and the stages of plant growth.
- Investigate how we can look after ourselves and stay healthy.
- Explore the local environment and the habitats that it provides.
- Build electrical circuits safely and test out how power can be controlled by using more or less devices.

Year 5/6 Year A - Yearly Overview – National Curriculum and Skills and knowledge components: Progression document coverage

Science	NC objectives: Properties and Changes of Materials · compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets · know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution · use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating · give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic · demonstrate that dissolving, mixing and changes of state are reversible changes	NC objectives: Living things and their habitats · describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird · describe the life processes of reproduction in some plants and mammals. Animals including humans · identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood · recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function · describe the ways in which nutrients and water are transported within animals, including humans.	NC objectives: Electricity · associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit · compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches · use recognised symbols when representing a simple circuit in a diagram.

Science

	· explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda. Light · recognise that light appears to travel in straight lines · use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye · explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them		
	Sticky Knowledge: Understand properties (of materials) , including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets Know some materials will dissolve in liquid; and how to recover the substance from a solution Understand how mixtures might be separated Understand the reasons for the particular uses of everyday materials Know how some changes are reversible and some irreversible	Sticky Knowledge: Humans develop inside their mothers and are dependent on their parents for many years. Amphibians such as frogs are laid in eggs then, once hatched, go through many changes until they become an adult. Some animals, such as butterflies, go through metamorphosis to become an adult. Birds are hatched from eggs and they are looked after by their parents until they are able to live independently.	Sticky Knowledge: More batteries (or a higher voltage) create more power to flow through a circuit Shortening the wires means the electrons have less resistance to flow through More buzzers or bulbs mean the power is shared by more components If any part of a circuit is broken, the circuit is broken and the flow of current stops Current is the flow of electrons, measured in amps Voltage is the force that makes the current move through the wires

Science

	Know the terms reactants and product Light travels in straight lines Objects are seen because they give out or reflect light into the eye Light travels from light sources to our eyes – or from light sources to objects – then to our eyes Shadows have the same shape as the objects that cast them	Mammals have hearts which pump blood around the circulatory system Blood transports gases, nutrients and waste products Regular exercise improves all aspects of our health, even stopping us from getting ill	
	Skills Components: Properties and Changes of Materials · compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets · know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution · use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating · give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic · demonstrate that dissolving, mixing and changes of state are reversible changes · explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible,	Skills Components: Living things and their habitats · Observe life cycle changes in a variety of living things. · Find out about the work of naturalists, for example, David Attenborough. · Find out about different types of reproduction, including sexual and asexual reproduction in plants, and sexual reproduction in animals. · Grow new plants from different parts of the parent plant, for example, seeds stem and root cuttings, tubers, bulbs. Animals including humans · Describe the changes as humans develop to old age · Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood	Skills Components: Electricity · Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit · Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches · Use recognised symbols when representing a simple circuit in a diagram Revision Block · Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird · Describe the life process of reproduction in some plants and animals · Compare and group together everyday materials on the basis of their properties,

Science

	including changes associated with burning and the action of acid on bicarbonate of soda. Light · recognise that light appears to travel in straight lines · use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye · explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.	· Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function · Describe the ways in which nutrients and water are transported within animals, including humans	including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets

Science

Year 5/6 Year B– some of the wonderful things we do in Science at Penponds

- Learn about how all living things can be classified.
- Consider the life cycle of humans – and how our bodies change with age.
- Discover the wonders of our solar system.
- Investigate how living things have evolved – and are continuing to evolve.
- Explore the local environment and the habitats that it provides.
- Carry out experiments to test how forces work and how simple mechanisms can help us move weights.

Year 5/6 Year B - Yearly Overview – National Curriculum and Skills and knowledge components: Progression document coverage

Science	NC objectives: Living Things and their Habitats i. Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals ii. Give reasons for classifying plants and animals based on specific characteristics Animals, including humans i. Describe the changes as humans develop to old age.	NC objectives: Earth and space i. Describe the movement of the Earth, and other planets, relative to the Sun in the solar system ii. Describe the movement of the Moon relative to the Earth iii. Describe the Sun, Earth and Moon as approximately spherical bodies iv. Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky Evolution and Inheritance i. Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago	NC objectives: Forces i Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object ii Identify the effects of air resistance, water resistance and friction, that act between moving surfaces iii Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect Revision Block Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution Use knowledge of solids, liquids and gases to decide how mixtures might be separated,

Science

		ii. Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents iii. Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution	including through filtering, sieving and evaporating Demonstrate that dissolving, mixing and changes of state are reversible changes Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda
	Sticky Knowledge: · In 1735 Carl Linnaeus first published a system for classifying all living things · Living things can be classified by eight levels · This helps us to observe and understand the characteristics of living things more clearly · Microorganisms are very tiny living things · Scientists who sort and group living things are called taxonomists	Sticky Knowledge: Mercury, Venus, Earth and Mars are rocky planets Jupiter, Saturn, Uranus and Neptune are mostly made up of gases. The moon orbits earth while spinning on its axis The moon rotates around earth and is lit up by the sun in different ways, appearing to change the moon's shape Pluto used to be considered a planet but was reclassified as a dwarf planet in 2006 The earth rotates on its axis once in every 24 hours. It also orbits the sun every 365 days Daytime occurs when the earth is facing the sun; night when it is facing away from the sun You can see variation within any species There are many different types of environment around the world Fossils are the preserved remains of ancient animals and plants Living things are continuously evolving	Sticky Knowledge: Forces push or pull The Earth's gravitational pull keeps us on the ground Isaac Newton developed the theory of gravity Mass is how much matter is inside an object Weight is how strongly gravity is pulling an object down Water and air resistance are forms of friction Something streamlined will reduce resistance and friction

Science

	Skills Components: · Look at the classification system in more detail · Micro-organisms, plants and animals can be subdivided · Find out about the significance of the work of scientists such as Carl Linnaeus · Use classification systems to identify animals and plants in the immediate environment · Draw a timeline to indicate stages in the growth and development of humans. Learn about the changes experienced in puberty. · Work scientifically by researching the gestation periods of other animals and comparing them with humans; by finding out and recording the length and mass of a baby as it grows.	Skills Components: Describe the movement of the Earth, and other planets, relative to the Sun in the solar system · Describe the movement of the Moon relative to the Earth · Describe the Sun, Earth and Moon as approximately spherical bodies · Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky · Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago · Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents · Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution	Skills Components: · Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object · Identify the effects of air resistance, water resistance and friction, that act between moving surfaces · Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect · Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution · Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating · Demonstrate that dissolving, mixing and changes of state are reversible changes · Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda

Strategies for supporting pupils with Special Educational Needs and Disabilities in Science lessons.

	Here's how we will help.
Attention Deficit Hyperactivity Disorder	• Practical activities – Science lessons have practical activitiesat their heart – if a child needs support for this, the classroom TA to be on hand to HELP (but not lead) the activity.
Anxiety	• Children are prepared the child BEFORE the Science lesson – instructions for carrying out the experiment are given and children are talked through the steps, predictions are discussed beforehand and children are prepared for any reactions/noises. • Sometimes experiments go wrong and building resilience in this area is important. If the anxiety is around errors/disappointing a group/teacher, children are reassured – Edison quote "I haven't failed, I've just found 10,000 ways that won't work."
Autism Spectrum Disorder	Depending on the child and their specific needs, children on theAutism Spectrum may benefit from: • Group work (they may be given a role within the group thatthey have chosen or can observe) • One-to-one TA support – children can complete the experiment with tailored support • Preparation if there will be loud noises/mess etc • Being allowed to meet their own sensory needs eg: wash hands/give themselves distance if required • Use annotate photographs as evidence – scribe if needed

Dyscalculia	The most difficult element for dyscalculia in Science isrecording accurately. To help we will: • Give the child a pre-made graph with some data already completed • Have a range of ways to show their learning including: photographs, diagrams, labels to stick onto pictures, worksheets, posters, presentations (oral and visual), workingin groups, verbal contributions, practical experiments and • observations, matching activities etc.
Dyslexia	Provide a range of ways for the child to show their learning including: photographs, diagrams, labels to stick onto pictures, worksheets, posters, presentations (oral and visual),working in groups, verbal contributions, practical experimentsand observations, matching activities etc. so writing does not interfere with showing knowledge
Dyspraxia	• Give opportunity for working in groups to allow children towork to their strengths • Experiments will be altered to allow access to all TA/Teacher support will be given where required
Hearing Impairment	• Provide written and pictorial instructions • Allow discussion and sharing of ideas to build verbal skills • Have group members face the child when sharing
Toileting Issues	• Allow time to complete the experiment – give extra time if required
Cognition and Learning Challenges	• We will allow for a range of ways for children to explain an experiment/results including in words, pictures, comparisonsto real-life situations and contextualisation • We will have a range of ways for children to show their learning including: photographs, diagrams, labels to stick ontopictures, worksheets, posters, presentations (oral and visual),working in groups, verbal contributions, practical experiments • and observations, matching activities etc.

Speech, Language & Communicatio nNeeds	• We will have a range of ways to show their learning including: photographs, diagrams, labels to stick onto pictures, worksheets, posters, presentations (oral and visual), working in groups, verbal contributions, practical experiments and observations, matching activities etc. • Vocabulary cards/mats with visual representations will be used to give instructions and to structure the sessions.
Tourette Syndrome	• Depending on frequency and severity of tics, some experiments may need to be adapted to accommodate spillage and experiments will be carefully supervised.
Experienced Trauma	• As with anxiety, trauma can stop a child learning in Sciencedue to associations e.g. sights, smells, textures – • We will prepare the child regarding noises, mess etc. if the experiment has the potential to trigger them. • We will allow the child to observe rather than participate if needed – in group work, this could be allowing them to scribe,give instructions etc. to be involved in the experiment without handling the ingredients/equipment.
Visual Impairment	• Familiarise the child with the equipment being used beforehand – let them feel the equipment and create an image in their mind. Discuss the experiment beforehand andprepare the child for any noises/textures. • The child will complete the experiment with support given by TA/teacher as needed. • We will provide a range of ways to show their learning including: photographs, diagrams, labels to stick onto pictures, worksheets, posters, presentations (oral and visual),working in groups, verbal contributions, practical experimentsand observations, matching activities etc. • We will explain the representation to the child and scribe responses to experiment, predictions beforehand etc.