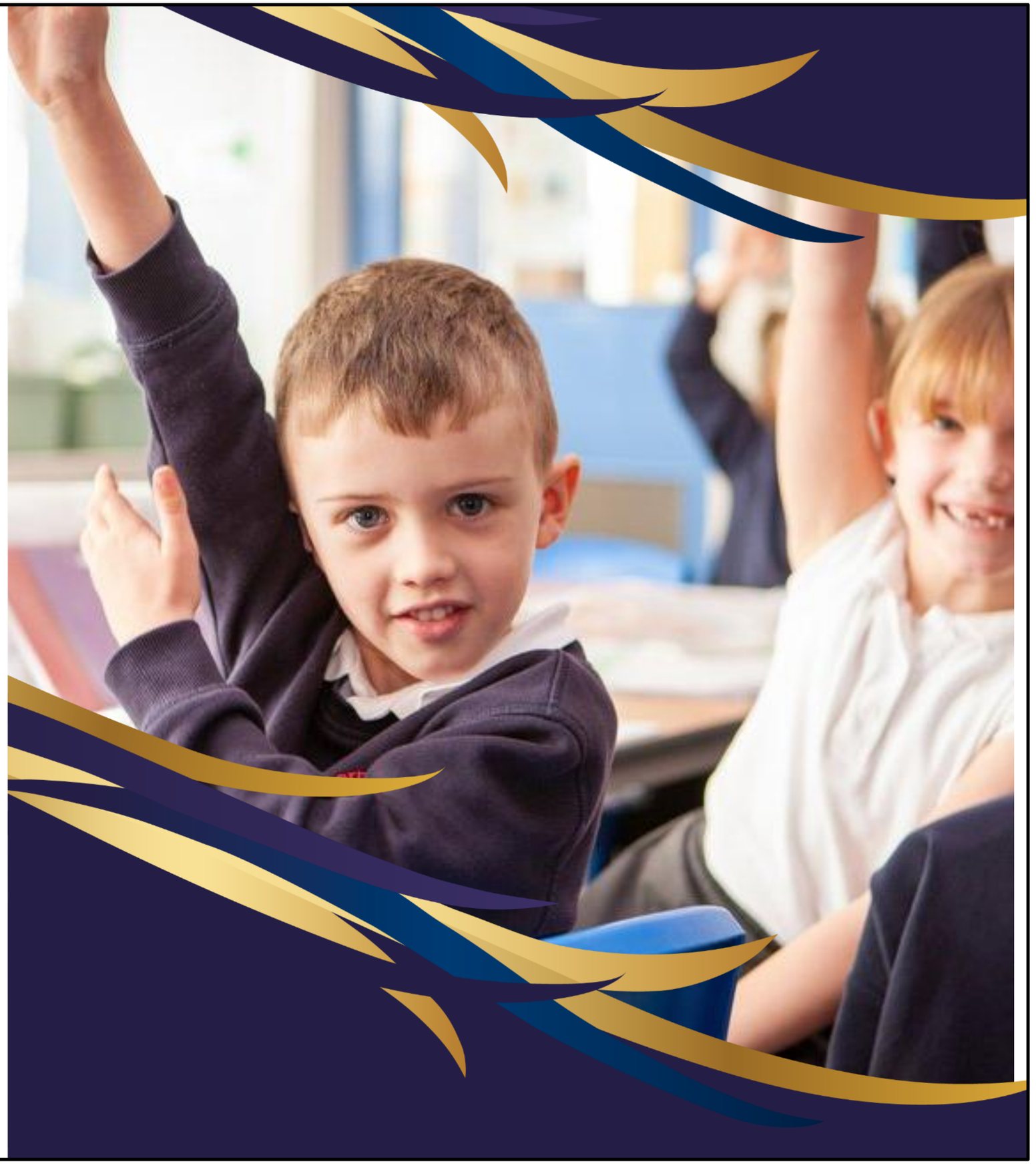
Barnburgh Primary Academy

Progression Document

Science



Barnburgh Primary Academy
Vision & Values

Barnburgh Primary Academy Vision

Learning to SHINE together!

Barnburgh Primary Academy Core Values

PERSEVERANCE To never give up	**AMBITION** To aim high	**RESPECT** To think and act in a positive way towards everyone and everything	**COURAGE** To take risks in my learning	**INDEPENDENCE** To have a go all by myself

Leger Education Trust Values

Our Core Values are the skills we focus on to achieve 'Truly Great' things. We call this...

ASPIRE

INTENT

"The important thing is to never stop questioning."
Albert Einstein

At Barnburgh, we recognise the importance of Science in every aspect of daily life. As one of the core subjects taught in our primary curriculum, we give the teaching and learning of Science the prominence it requires.

By teaching science in our primary school, we aim to ignite a passion for discovery and inquiry among our children, fostering critical thinking and problem-solving skills. We believe that by providing hands-on experiences and encouraging curiosity, we can inspire our young learners to explore the natural world around them. Our goal is to equip them with the knowledge and skills needed to ask questions, conduct experiments, and develop a deep understanding of scientific concepts. Ultimately, we want to nurture **truly great** scientists who are not only knowledgeable but also compassionate and innovative, ready to tackle the challenges of tomorrow.

Our Core Values provide the platform on which we have built our curriculum offer at Barnburgh Primary Academy. Our science curriculum is underpinned by our Core Values in the following ways;

COURAGE
We teach our children to develop the courage to take risks in their scientific exploration and experimentation and to view mistakes as a valuable part of the scientific learning process.

PERSEVERANCE
We teach that perseverance in science is important in order to tackle complex problems and overcome setbacks that often arise during experiments and research. By persevering, our children can make meaningful discoveries and advancements, ultimately leading to a deeper understanding of the world around us.

AMBITION
We teach our children that ambition helps scientists to set and pursue challenging goals, pushing the boundaries of knowledge and innovation. This desire for discovery and improvement fuels the passion needed to conduct research and develop solutions that can positively impact society and the environment

RESPECT
We teach our children that respect is important in science because it fosters a collaborative and inclusive environment where diverse ideas and perspectives can flourish. Mutual respect among scientists encourages open dialogue, constructive criticism, and the sharing of knowledge. This will consequently lead to more robust scientific enquiry and innovation.

INDEPENDENCE
We teach that independence is important in science because it empowers scientists to think critically and make decisions based on their observations and analysis, fostering a sense of ownership over their work. This ability to investigate and explore ideas encourages innovation and creativity.

Implementation

HOW WE TEACH SCIENCE IN EYFS

In EYFS, we introduce children to the **foundations of science** by providing a rich balance **of child-led exploration** through **continuous provision and adult-led, focused learning experiences**. These opportunities are carefully designed to nurture curiosity, develop observation and enquiry skills, build confidence, and encourage children to explore, question, and make sense of the world around them.

THROUGH OUT THE YEAR	THROUGH CONTINUOUS PROVISION	Through Direct Teaching
• The children will develop curiosity and a sense of wonder about the natural world. • They will build confidence in asking questions and exploring answers. • Adults will model careful observation, thinking, and discussion to support learning. • The children will develop early investigative skills, noticing changes, patterns, and relationships. • They will build the ability to communicate ideas and observations using words, gestures, and drawings. • Adults will encourage reflection and discussion to help children make sense of their experiences.	• The children will explore scientific ideas through hands-on, sensory, and practical activities. • They will build fine motor skills by handling materials, planting seeds, or observing small creatures. • Adults will model using language to describe what they see, hear, and feel. • The children will develop observation and prediction skills by exploring natural phenomena. • They will build confidence in expressing ideas and sharing findings with peers. • Adults will create an environment rich in resources, encouraging exploration, problem-solving, and experimentation.	• The children will learn about key topics such as animals, plants, materials, the weather, and their senses. • Adults will model scientific vocabulary, processes, and ways of thinking. • The children will build the skills to observe, describe, and compare features of living things, materials, and the environment. • They will explore simple patterns, changes, and cause-and-effect relationships through structured activities. • Adults will guide children in recording observations using drawings, simple charts, or photographs. • The children will build confidence in discussing their ideas and findings, making connections to their experiences.

HOW WE TEACH SCIENCE IN KEY STAGE 1 AND KEY STAGE 2

In Key Stages 1 and 2, we build on children's natural curiosity by providing a blend of practical, hands-on investigations and structured learning experiences. These opportunities are designed to develop scientific knowledge and conceptual understanding, as well as essential skills such as observing, questioning, predicting, experimenting, and drawing conclusions. Through engaging, enquiry-based activities, children are encouraged to explore the world around them, make connections, and develop a deeper understanding of the scientific concepts outlined in the National Curriculum.

KEY STAGE 1

Throughout the year:

- The children curiosity and begin to ask simple scientific questions about the world around them.
- Children observe closely, using simple equipment to explore and investigate.
- They perform simple tests and experiments to find answers.
- Begin to gather, record, and discuss findings using drawings, charts, and simple data.
- The children will use observations and evidence to form basic conclusions.
- They build knowledge and understanding across key areas: plants, animals (including humans), everyday materials, and seasonal changes.
- Children in Key stage one will begin to develop confidence in using scientific language to describe what they see and discover.
- The children will begin to understand how science helps us to make sense of and care for the world around us.

In direct teaching:

- Children will develop a secure understanding of key scientific topics: plants, animals (including humans), everyday materials, and seasonal changes.
- Adults model how to ask and answer simple scientific questions with increasing confidence.
- Children make careful observations and record findings in different ways.
- Adults model how to carry out simple investigations and experiments to explore ideas.
- Children begin to use evidence and observations to form and explain conclusions.
- The children build on their scientific vocabulary to describe and discuss their learning.
- Children begin to develop confidence in using scientific enquiry skills during structured activities.
- Children begin to understand how science helps explain the world around them.

KEY STAGE 2

Throughout the year:

- Children will develop curiosity and a sense of wonder about the natural and physical world.
- They will gain resilience and confidence in asking scientific questions and seeking answers.
- Adults will demonstrate how to think like a scientist, using careful observation, evidence, and logical reasoning.
- Skills in planning and conducting fair tests, making predictions, and recording results will be built over time.
- Children will learn to use scientific vocabulary accurately and express their ideas clearly.
- Connections between different scientific concepts and real-life applications will be explored and reinforced.
- Adults will encourage reflection and discussion to deepen understanding and critical thinking.

In direct teaching:

- Deeper understanding of key scientific concepts, including living things, materials, forces, Earth and space, and the environment, will be developed.
- Accurate scientific knowledge and methods will be modeled by adults to support conceptual understanding.
- Children will build their ability to plan and carry out fair tests and use results to draw conclusions.
- Safe and accurate use of scientific equipment will be taught and reinforced.
- Adults will demonstrate how to record, interpret, and present data using scientific diagrams, tables, and graphs.
- Communication skills will be strengthened as children describe their findings using appropriate vocabulary.
- Links between different areas of science and everyday life will be highlighted to deepen understanding.
- **Subject examples:** classification of living things, human anatomy, light and shadows, properties and changes of materials, Earth and space, sound, electricity, and forces.

Working Scientifically

Throughout the Year:

- The children will develop curiosity and confidence in asking relevant scientific questions.
- They will build the ability to plan and carry out investigations independently and collaboratively.
- Adults will model careful observation, evidence-based thinking, and logical reasoning.
- Children will learn to make predictions and record results accurately using different formats, including tables, charts, and diagrams.
- They will explore patterns, relationships, and trends in their data to draw simple conclusions.
- Adults will encourage children to reflect on their methods and consider improvements.
- Children will build skills to communicate findings clearly, using appropriate scientific vocabulary.

In direct teaching:

- Adults will model planning and conducting fair tests, highlighting variables and controlled conditions.
- Children will develop the ability to identify what to measure, observe, or record in structured investigations.
- They will build skills in collecting, presenting, and interpreting data using scientific diagrams, tables, and graphs.
- Adults will guide children in using evidence to draw conclusions and justify their ideas.
- Children will explore how to improve their methods and refine their investigations over time.
- Scientific vocabulary and reasoning will be reinforced as children explain their findings clearly.

- Make links between working scientifically skills and broader scientific concepts will be highlighted to deepen understanding.

HOW WE TEACH SCIENCE TO YEARS 1 TO 6

Year 1:	Year 2:	Year 3:	Year 4:	Year 5:	Year 6:
Subject Area Learning: Children are introduced to basic scientific topics (e.g., plants, animals, materials, seasonal changes). **Discussion:** Adults lead discussions to develop curiosity and ask questions about what children notice. **Observe:** Children make simple observations using senses and simple tools (magnifying glasses, hand lenses). **Research:** Introduce simple research using books, pictures, and videos to find out more. **Use Visuals/Materials:** Children handle and explore real objects, materials, or plants to support understanding. **Outcome:** Children begin to record observations through drawings, simple tables, or labels.	**Subject Area Learning:** Build on prior knowledge, introducing more detailed concepts (e.g., habitats, life cycles, everyday materials). **Discussion:** Children share ideas and ask simple "what, how, why" questions. **Observe:** More careful observations with prompts; comparing and contrasting objects or living things. **Research:** Use books, videos, and simple online resources to answer questions. **Use Visuals/Materials:** Explore materials and living things to notice patterns and changes. **Outcome:** Children begin to explain observations and start linking them to cause/effect.	**Subject Area Learning:** Introduce new concepts such as forces, light, skeletons, and nutrition. **Discussion:** Children discuss predictions and ideas with peers and adults. **Observe:** Make more detailed observations, using charts and simple measurement tools. **Research:** Begin guided research to answer more structured questions. **Use Visuals/Materials:** Use diagrams, models, and materials to support understanding of processes. **Plan & Investigate:** Begin planning simple investigations with support. **Outcome:** Children record observations more systematically, using labelled diagrams, simple tables, and charts.	**Subject Area Learning:** Cover topics such as states of matter, electricity, habitats, and human digestion. **Discussion:** Children engage in questioning and reasoning discussions about what they observe. **Observe:** Use accurate observation and measurement techniques; start noticing patterns. **Research:** Conduct guided research to answer scientific questions. **Use Visuals/Materials:** Handle materials, make models, and use diagrams to support learning. **Plan & Investigate:** Plan simple investigations and accurately identifying different variables of investigations with support. **Outcome:** Begin to interpret results and explain them in simple conclusions.	**Subject Area Learning:** Introduce more complex topics (e.g., Earth and space, forces, properties of materials, life cycles). **Discussion:** Children hypothesize and predict before observing or experimenting. **Observe:** Record observations using a wider range of tools and measurements. **Research:** Use books, videos, and online sources to explore questions independently or in groups. **Use Visuals/Materials:** Conduct practical activities and manipulate materials to test ideas. **Plan & Investigate:** Plan investigations, identifying variables, including fair tests and display accurate testing predictions. **Outcome:** Children record results systematically and start drawing conclusions supported by evidence.	**Subject Area Learning:** Cover advanced topics (e.g., classification, evolution, light and electricity, human body systems). **Discussion:** Children ask their own questions and develop hypotheses to explore. **Observe:** Make precise observations and measurements, using appropriate equipment. **Research:** Carry out independent or small-group research to support investigations. **Use Visuals/Materials:** Use diagrams, models, and materials to test and explain scientific ideas. **Plan & Investigate:** Children independently plan and carry out investigations to answer questions, controlling variables where possible. **Outcome:** Record, interpret, and present findings in detailed diagrams, charts, and explanations, using evidence to support conclusions.

Impact

General Assessment Principles Across All Ages

- **Formative Assessment:** Ongoing observations, questioning, conversation and informal feedback during lessons.
- **Summative Assessment:** Reviews of science books, assessments against programmes of study on Sonar and what I know now questions.
- **Pupil Involvement:** Encouraging children to discuss their learning and ask questions about the world we live in and reflect on their learning journey
- **Contextualised Judgement:** Considering individual starting points and development, valuing curiosity, creativity in problem-solving, and commitment to the scientific process just as much as technical skill or accuracy

EYFS	KS1	LOWER KS2	UPPER KS2
In Early Years, assessment focuses on developing curiosity about the natural world, asking questions, observing changes, and exploring materials and living things through play and practical experiences. **What we look for:** • Ability to notice and describe features of the environment and living things • Curiosity, questioning, and willingness to explore how things work • Use of simple scientific language (e.g. hot/cold, float/sink, plant/animal) • Ability to observe, compare, and talk about processes such as growth and change **Assessment methods:** • Observations and conversations • Photos and notes of investigations and explorations • Evidence from continuous provision and outdoor learning • Reference to Development Matters to track progress towards ELGs	Assessment focuses on developing working scientifically skills and beginning to apply knowledge of everyday materials, plants, animals, and seasonal change. **What we look for:** • Ability to observe closely and describe simple patterns • Use of basic equipment appropriately • Simple predictions and conclusions based on evidence • Growing scientific vocabulary • Ability to record findings in pictures, charts, or simple writing **Assessment methods:** • Review of science books and enquiry records • Practical assessment during simple investigations • Teacher assessment against National Curriculum objectives • Pupil voice and simple self-assessment	Children in Lower Key Stage 2 are expected to work more independently, deepen conceptual understanding, and carry out increasingly systematic investigations. **What we look for:** • Accurate observations and measurements • Ability to set up simple fair tests • Logical predictions and evidence-based conclusions • Use of scientific vocabulary, diagrams, and results tables • Clear progression in recording and presentation of findings **Assessment methods:** • Book scrutiny and investigation write-ups • Observation during practical work and group tasks • Use of success criteria linked to NC objectives • Discussion and explanation to demonstrate reasoning	Upper Key Stage 2 assessment focuses on scientific depth, reasoning, independence, and a secure command of scientific enquiry skills, vocabulary, and knowledge. **What we look for:** • Planning and carrying out controlled investigations independently • Confident use of equipment and accurate data recording • Use of scientific models, diagrams, graphs, and data interpretation • Clear, reasoned conclusions supported by evidence • Ability to evaluate methods and suggest improvements **Assessment methods:** • Detailed review of science books and investigation reports • Practical assessment and teacher questioning • Pupil presentations/explanations of scientific thinking • Success criteria and mastery indicators for knowledge and enquiry

Statutory Links

STATUTORY LINKS FOR WORKING SCIENTIFICALLY

Birth to 5 Matters & Early Learning Goals	KS1 Science National Curriculum	KS2 Science National Curriculum	KS2 Science National Curriculum
Communication & Language: understanding • Beginning to understand why and how questions (range 5) • Understands questions such as who, why, when, where and how (range 6) • Make comments about what they have heard and ask questions to clarify their understanding (ELG) **Communication & Language: Speaking** • Use talk to explain what is happening and anticipate what might happen next (range 5) • Questions why things happen and gives explanations. Asks who, what, when, how (range 5) • Links statements and sticks to a main theme or intention (range 6) **Physical Development: health & self care** • Takes practical action to reduce risk, showing their understanding that equipment and tools can be used safely (range 5) **Understanding the World: the world** • Looks closely at similarities, differences, patterns and changing nature (range 6) • Make observation of animals and plants and explains why some things occur, and talks about changes (range 6)	asking simple questions and recognising that they can be answered in different ways observing closely, using simple equipment performing simple tests identifying and classifying using their observations and ideas to suggest answers to questions gathering and recording data to help in answering questions	asking relevant questions and using different types of scientific enquiries to answer them setting up simple practical enquiries, comparative and fair tests making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers gathering, recording, classifying and presenting data in a variety of ways to help in answering questions recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions identifying differences, similarities or changes related to simple scientific ideas and processes using straightforward scientific evidence to answer questions or to support their findings.	planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs using test results to make predictions to set up further comparative and fair tests reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations identifying scientific evidence that has been used to support or refute ideas or arguments

KNOWLEDGE PROGRESSION MAP FOR WORKING SCIENTIFICALLY

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
.Children will know: • That asking simple questions helps us to find things out • That they can make simple observations • That they can find out about the world	Children will know: • That asking simple questions is important when investigating • That they can answer a question by using the words yes and no • That making relevant observations using simple equipment is important • That they can conduct simple tests • That they can identify and classify different animals, objects and materials • That they can gather and record data • That they can recognize different findings • That they can use their observations and ideas to suggest answers to simple questions	Children will know: • That they can ask simple questions • That questions can be answered in different ways • That they can use close observation, using simple equipment • That they can perform simple tests • That they can identify and classify different animals, objects and materials • That there are a series of different ways to record and communicate findings • That they can use simple scientific language • That they can gather and record data to help answer questions • That using observations and ideas will help to suggest answers to simple questions	Children will know: • That asking relevant questions is important • That there are a variety of different types of scientific enquiry to answer questions • That they can set up simple and practical enquiries, comparative and fair tests, with some support • That they can make systematic and careful observations, using simple equipment • That they can use standard units when taking measurements • That gathering, recording, classifying and presenting data in a variety of ways will help to answer questions • That they can use various ways of recording, grouping and displaying evidence and suggest how findings may be tabulated with support • That it is important to suggest conclusions from enquiries, with support • That findings could be reported • That they can suggest possible improvements or further questions when investigating	Children will know: • That asking relevant questions is important • That there are a variety of different types of scientific enquiry to answer questions • That they can set up simple and practical enquiries, comparative and fair tests • That they can make systematic and careful observations, using simple equipment, including thermometers and data loggers • That they can take accurate measurements using standard units, where appropriate • That they can gather, record, classify and present data in a variety of ways to help to answer questions • That they can record findings using simple scientific language, drawings and labelled diagrams • That they can record findings using keys, bar charts, and tables • That they can report on findings from enquiries, including oral and written explanations, of results and conclusions • That they can report on findings from enquiries using displays or presentations • That they can identify differences, similarities or changes related to simple scientific ideas and processes • That using straightforward scientific evidence to answer questions or to support their findings is important when investigating • That they can use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions	Children will know: • That planning different types of scientific enquiries will help to answer questions • That recognising and controlling variables is necessary • That it is crucial to use appropriate equipment to take accurate readings, with support • That they can take precise measurements using standard units • That there is need for repeat readings • That it is important to take and process repeat readings • That recording data and creating results will develop accuracy • That they should record data using labelled diagrams, keys, tables and charts • That they can use line graphs to record data • That it is important to report and present findings from enquiries, including conclusions • That they can suggest causal relationships within data • That they can present findings from enquiries orally and in writing (with support)	Children will know: • That planning different types of scientific enquiries will help to answer questions • That recognising and controlling variables is necessary • That using a range of scientific equipment will help to take measurements • That taking measurements with increasing accuracy and precision will help create valid results • That they can repeat readings when appropriate • That they can record data and results (of increasing complexity) using scientific diagrams and labels, classification keys, tables, bar charts and line graphs • That they can report and present findings from enquiries, including conclusions and causal relationships • That they can report and presents findings from enquiries in oral and written forms such as displays and other presentation • That they can report and present findings from enquiries, including explanations of, and degree of, trust in results • That they can identify scientific evidence that has been conducted to support or refute ideas or arguments • That test results can be used to make predictions to set up further comparative and fair tests

SKILLS PROGRESSION MAP FOR WORKING SCIENTIFICALLY

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
Children will be able to: • Ask simple questions with support • Answer a simple question with support • Make a relevant observation. • Conduct a simple test with an adult.	Children will be able to: • Ask simple questions with support • Answer a question with support • Make relevant observations using simple equipment • Conduct simple tests, with support • Identify and classify with support • Gather and record data • Recognise findings • Use their observations and ideas to suggest answers to simple questions	Children will be able to: • Ask simple questions • Recognise that questions can be answered in different ways • Observe closely, using simple equipment • Perform simple tests • Identify and classify • Record and communicate findings in a range of ways • Use simple scientific language with support • Gather and record data to help answer questions • Use their observations and ideas to suggest answers to simple questions	Children will be able to: • Ask relevant questions with support • Use different types of scientific enquiry to answer them • Set up simple and practical enquiries, comparative and fair tests with some support • Make systematic and careful observations, using simple equipment • Use standard units when taking measurements • Gather, record, classify and present data in a variety of ways to help to answer questions with support • Use various ways of recording, grouping and displaying evidence and suggest how findings may be tabulated with support • Suggest conclusions from enquiries with support • Explain how findings could be reported • Suggest possible improvements or further questions to investigate	Children will be able to: • Ask relevant questions • Use different types of scientific enquiries to answer their questions • Set up simple and practical enquiries, comparative and fair tests • Make systematic and careful observations using a range of equipment, including thermometers and data loggers • Take accurate measurements using standard units, where appropriate • Gather, record, classify and present data in a variety of ways to help to answer questions • Record findings using simple scientific language, drawings and labelled diagrams • Record findings using keys, bar charts, and tables • Report on findings from enquiries, including oral and written explanations, of results and conclusions • Report on findings from enquiries using displays or presentations • Identify differences, similarities or changes related to simple scientific ideas and processes • Use straightforward scientific evidence to answer questions or to support their findings • Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions	Children will be able to: • Plan different types of scientific enquiries to answer questions • Recognise and control variables where necessary with support • Use appropriate equipment to take readings with support • Take precise measurements using standard units • Explain why there is need for repeat readings • Take and process repeat readings • 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 • Suggest causal relationships within data • Present findings from enquiries orally and in writing, with support	Children will be able to: • Plan different types of scientific enquiries to answer questions • Recognise and control variables where necessary • Use a range of scientific equipment to take measurements • Take measurements with increasing accuracy and precision • Take repeat readings when appropriate • Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, bar charts and line graphs • Report and present findings from enquiries, including conclusions and causal relationships • Report and presents findings from enquiries in oral and written forms such as displays and other presentation • Report and present findings from enquiries, including explanations of, and degree of, trust in results • Identify scientific evidence that has been used to support or refute ideas or arguments • Use test results to make predictions to set up further comparative and fair tests

VOCABULARY PROGRESSION MAP FOR WORKING SCIENTIFICALLY

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
Look Question Explore Discover Test	Observe Conduct Test Observation Data	Conduct Explain Data Classify Identify	Systematic Enquiry Conclusion Standard units Classify Identify	Prediction Evidence Systematic Enquiry Classify Conclusion	Orally Variables Accuracy Process	Orally Variables Accuracy Process Complexity

STICKY KNOWLEDGE FOR WORKING SCIENTIFICALLY

These questions are used in ASPIRE events, as our throwback links and for our unit assessments

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
	• **What is it important to do when investigating?** Ask questions. • **How can we record data?** Tables, observations and notes	• **How do observations help when investigating?** We can see the results and discuss the findings.	• **What is a conclusion?** The last idea/ findings that researcher has collected. • **How can we improve our findings after conducting an experiment?** Ask questions or retest the findings.	• **What is important to include when conducting an experiment?** Our findings and evidence to back it up. • **What is the process called when we guess what will happen before an experiment takes place?** Prediction.	• **How can we display information from experiments or enquires?** Tables, Line graphs, labeled diagrams, Keys and Charts. • **Why do we record results of an experiment?** To make the research valid and so the findings can be used if the experiment is conducted again.	• **How do we plan an experiment?** Answers will vary. Children should discuss Aim, Prediction, Method, Results, Conclusion and fair test. • **What can we use to make our findings more accurate when conducting experiments?** Suitable Scientific equipment.

Animals Including Humans

Curriculum Link with PE: Health and fitness (all year groups) & PSHE: Health and wellbeing (all year groups)

STATUTORY LINKS FOR ANIMALS INCLUDING HUMANS

Birth to 5 Matters & Early Learning Goals

Physical Development: health & self-care

- Develops some independence in self-care and shows an awareness of routines such as handwashing or teeth cleaning but still often needs adult support (range 4)
- Observes and can describe in words or actions the effects of physical activity on their bodies (range 5)
- Can name and identify different parts of the body (range 5)
- Show some understanding that good practices with regard to exercise, eating, drinking water, sleeping and hygiene can contribute to good health (range 6)

Understanding the World: The world

- Can talk about some of the things they have observed such as plants, animals, natural and found objects. (Range 4)
- Developing an understanding of growth, decay and changes over time (range 5)
- Makes observations of animals and plants and explains why some things occur, and talks about changes (range 6)

The Natural World
Explore the natural world around them making observations and drawing pictures of animals and plants (ELG)

KS1 Science National Curriculum

- 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)
- identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense
- 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 of exercise, eating the right amounts of different types of food, and hygiene

KS2 Science National Curriculum

- 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
- 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

KS2 Science National Curriculum

- 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
- 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

KNOWLEDGE PROGRESSION MAP FOR ANIMALS INCLUDING HUMANS

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
Children will know: • Where these body parts are: head, face, shoulders, legs, arms, knees, toes, ankles • That exercise is a way to help their bodies stay strong and healthy. It involves moving our bodies in activities like running. jumping, dancing or playing games • That their heart beats faster when they do exercise • That they breath faster when they do exercise • That their skin gets hotter when they do exercise • That healthy foods include fruit and vegetables • That milk makes their bones stronger • How to brush their teeth effectively • That they should brush their teeth twice a day, for two minutes, using a fluoride toothpaste • The names of some carnivores, herbivores and omnivores	Children will know: • That there are a variety of common animals including fish, amphibians, reptiles, birds and mammals • That there are a variety of common animals that are carnivores, which include lions, crocodiles and snakes • That there are a variety of common animals that are herbivores, which include cows, rabbits and sheep. • That they are a variety of common animals that are omnivores, including pig, bear and sloth. • That there are different structures of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) Considering gills, vertebrates, invertebrates, eyes • That they can compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). Considering gills, vertebrates, invertebrates, eyes • That the human body consists of a brain, heart, skeleton, lungs, liver and kidneys. Whilst also labelling which parts of the body is associated with each sense, such as eyes, nose, ears, mouth and hands.	Children will know: • That animal, including humans, have offspring which grow into adults • That the basic needs of animals, including humans, for survival are water, food and air. • That it is important for humans to exercise, eating the right amounts of different types of food, and hygiene	Children will know: • 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 • That humans and some other animals have skeletons and muscles for support, protection and movement	Children will know: • That the simple functions of the basic parts of the digestive system in humans include, the Mouth, Oesophagus, Stomach, Intestines and Anus. • That there are different types of teeth in humans which include incisor, canine and molars • That incisors help you bite off and chew pieces of food. • That canines are used for tearing and ripping food. • That molars help you crush and grind food. Our teeth will change with age. So, the teeth you have when you are a baby aren't the same as the one's you will have as an adult. • That there are a variety of food chains, which include producers, predators and prey. • A food chain is a sequence describing how different animals eat each other, showing the order in which living things depend on each other for food • A food chain always starts with a producer. A producer is something that makes it's own food like green plants as they use photosynthesis. The living things that eat producers and other animals are called consumers. A predator is an animal that eats other animals. The animals that are eaten are called prey. That they can interpret a variety of food chains by identifying different producers, predators and prey.	Children will know: • That changes happen as humans develop to old age. Such as skin wrinkling, change of hair colour and bones become more fragile. • That physical and emotional changes occur during puberty. Which can include, body hair, deepening voice (Boys), periods and breast development (Girls). • That there are several functions of the male reproductive system (production of testosterone and to transport sperm to the female's reproductive system) and the female reproductive system (production of eggs and develop a fetus ready for delivery).	Children will know: • That the main parts of the human circulatory system are the heart, blood vessels, blood, veins and arteries. • That the main functions of the heart, blood vessels and blood is to supply tissues in the body with nutrients and oxygen. • That the diet, exercise, drugs and lifestyle can have positive or negative impacts on the way their body's function. • That nutrients and water are transported throughout the circulatory system within most animals, including humans. •

SKILLS PROGRESSION MAP FOR ANIMALS INCLUDING HUMANS

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
Children will be able to: • Point to these body parts: head, face, shoulders, legs, arms, knees, toes, ankles • Say what happens to their body when they do exercise • List a range of exercises • Identify fruits and vegetables as healthy foods • Say that milk makes their bones strong • Brush their teeth for 2 minutes twice a day • identify some carnivores, herbivores and omnivores	Children will be able to: • 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 • identify and name a variety of common animals that are herbivores • identify and name a variety of common animals that are omnivores • describe the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) • 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	Children will be able to: • understand that animals, including humans, have offspring which grow into adults • 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	Children will be able to: • identify that animal, 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	Children will be able to: • describe the simple functions of the basic parts of the digestive system in humans • identify the different types of teeth in humans • identify the simple functions of the types of teeth • construct a variety of food chains, identifying producers, predators and prey. • interpret a variety of food chains, identifying producers, predators and prey.	Children will be able to: • describe the changes as humans, develop to old age. • identify the physical and emotional changes during puberty. • name and describe the functions of the male and female reproductive system.	Children will be able to: • identify and name the main parts of the human circulatory system • 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.

VOCABULARY PROGRESSION MAP FOR ANIMALS INCLUDING HUMANS

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
Observe animal Carnivore Herbivore Human	Amphibians Reptiles Mammals Carnivore Herbivore Omnivore Label Senses	Hygiene Diet Offspring	Protection Movement Nutrition Skeleton	Digestion Mouth Oesophagus Stomach Intestines Anus. Incisors Canines Molars Prey Predators	Puberty Fertility Period Reproduction Fragile Sperm Ovulation	Circulatory Veins Artery Nutrients Vessels

STICKY KNOWLEDGE FOR ANIMALS INCLUDING HUMANS

These questions are used in ASPIRE events, as our throwback links and for our unit assessments

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
	• **Name five common animals.** Fish, amphibians, mammals, Bird and Reptile • **What is an omnivore?** An animal or person that eats a variety of food of both plant and animals • **What is a carnivore?** An organism that mostly eats meat, or the flesh of animals • **What is a herbivore?** An animal that eats plants • **What organs does the human body consist of?** Brain, Heart, Skeleton, Lungs, Liver and Kidneys.	• **What is meant by the term offspring?** Child or children. • **What are the basic needs of animals?** Water, food and air.	• **What is the purpose of a skeleton?** To support and protect their body and to help it move. • **Why do animals have muscles?** To pull on the joints, allowing us to move. • **What is nutrition and why is it important for animals and humans?** Nutrition is all about the nutrients in food and how the body uses them.	• **Name the stages of the digestive system in order.** Mouth, Esophagus, Stomach, Intestines and Anus. • **What are the three different types of teeth?** Incisor, Molar and Canine. • **What does a food chain begin with?** Producer. • **Name three different types of predators.** Lions, Dogs and Humans (Answers may vary).	• **What is the change called that happens as a child develops into a young adult?** Puberty • **What are the changes that happen as humans develop into old age?** Skin wrinkling, change of hair colour, fragile bones. • **What are the changes that occur during puberty?** Developing body/pubic hair, deepening voice, mood swings, periods and breast development. • **What is the function of the male reproductive system?** To produce testosterone and to transport sperm. • **What is the function of the female reproductive system?** To produce eggs and develop a foetus.	• **What are the main parts of the human circulatory system?** Heart, blood vessels, blood, veins and arteries. • **What things can positively or negatively impact on the human bodily functions?** Exercise, diet, drugs, alcohol (lifestyle choices).

Living Things and their Habitats

Curriculum Link with Geography: Human and Physical (year 1 to 6) & PSHE: Health and Wellbeing (year 1 to 6) & Maths: statistics (years 1 to 6) & Computing: using data (years 1 to 3), Science: Evolution and Inheritance (Y6)

STATUTORY LINKS FOR LIVING THINGS AND THEIR HABITATS

Birth to 5 Matters & Early Learning Goals

Understanding the World: The world

- Can talk about some of the things they have observed such as plants, animals, natural and found objects. (range 4)
- Developing an understanding of growth, decay and changes over time (range 5)
- Shows care and concern for living things and the environment (range 5)
- Looks closely at similarities, differences, patterns and changing nature (range 6)
- Make observation of animals and plants and explains why some things occur, and talks about changes (range 6)

The Natural World

Know some similarities and differences between the natural world around them and contrasting environments; drawing on their experiences and what has been read in class (ELG)

KS1 Science National Curriculum

- 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 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

KS2 Science National Curriculum

- 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

KS2 Science National Curriculum

- describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird
- describe the life process of reproduction in some plants and animals
- describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals
- give reasons for classifying plants and animals based on specific characteristics

KNOWLEDGE PROGRESSION MAP FOR LIVING THINGS AND THEIR HABITATS

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
Children will know: • about some of the things they observe such as plants, animals, natural and found objects. • About growth, decay and changes over time • How to care for living things and the environment such as not dropping litter • about similarities, differences, patterns and changing nature • why some things occur • know some similarities and differences between the natural world around them and contrasting environments; drawing on their experiences and what has been read in class		Children will know: • That there are differences between things that are living, dead, and things that have never been alive. Study; animals, plants and stationary (such as crayons). • That the characteristics of living are MRSGREN • That MRS GREN is an acronym often used to help remember all the necessary features of living organisms: Movement, Respiration, Sensitivity, Growth, Reproduction, Excretion and Nutrition. • That most living things live in habitats to which they are suited for example lizards in warm environments and Penguins in the cold etc. • That different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. • That several plants and animals can be identified within their individual habitats, including micro-habitats. • That animals obtain their food from plants and other animals, using the idea of a simple food chain. Highlighting a source, producers, predators and prey. • That a producer is something that makes it's own food. The living things that eat producers and other animals are called consumers. A predator is an animal that eats other animals. The animals that are eaten are called prey.		Children will know: • That living things can be grouped in a variety of ways including mammals, fish, amphibians, birds, insects, reptiles and insects. • That using classification keys can help group, identify and name a variety of living things in their local and wider environment. That environments can change in a variety of different ways and that this can sometimes pose dangers to living things. For example, a drought drying up rivers causes fish to die.	Children will know: • That the life cycle of a mammal begins with an embryo, then a young mammal, before reaching adulthood. • That life cycles of an amphibian starts with an egg mass, hatching, tadpole/larvae, juvenile tadpole and then an adult amphibian. • That the life cycles of an insect begins with an egg and then develops into a larva, then a pupa then metamorphosis takes place before turning into an adult. • That life cycles of a bird starts with an egg, then develops to a chick, a young bird then an adult bird.	Children will know: • That living things are classified into broad groups according to common observable characteristics and based on similarities and differences, such as the amount of legs, mammal or not, gills etc. This includes micro- organisms, plants and animals. • That the reasons for classifying plants and animals based on specific characteristics is to see how different organisms are related to each other, to understand how to take care of different plants and animals, to organise knowledge about lots of different species and to make guesses about new species that may be discovered • That a microorganism cannot be seen by the human eye. • That the 5 main groups of micro-organisms are fungi, virus, algae, bacteria, protozoa

SKILLS PROGRESSION MAP FOR LIVING THINGS AND THEIR HABITATS

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
Children will be able to: • observe plants, animals, natural and found objects. • Talk about growth, decay and changes over time • care for living things and the environment such as not dropping litter • talk about similarities, differences, patterns and changing nature • explain why some things occur • talk about some similarities and differences between the natural world around them and contrasting environments; drawing on their experiences and what has been read in class		Children will be able to: • explore the differences between things that are living, dead, and things that have never been alive. • 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 depend on each other. • identify and name a variety of plants and animals in their habitats, including micro- habitats. • 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		Children will be able to: • recognise that living things can be grouped in a variety of ways • 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.	Children will be able to: • describe the differences in the life cycles of a mammal. • describe the differences in the life cycles of an amphibian. • describe the differences in the life cycles of an insect. • describe the differences in the life cycles of a bird. • describe the life process of reproduction in some plants and animals.	Children will be able to: • describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals. • give reasons for classifying plants and animals based on specific characteristics. • identify what a microorganism is • name the 5 main groups of micro-organisms

VOCABULARY PROGRESSION MAP FOR LIVING THINGS AND THEIR HABITATS

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
Herbivore Carnivore Animal Plants Living/		Living Respiration Dead Habitats Source		Classification Mammals Amphibians Reptiles Birds insects Habitat	Embryo Larvae Reproduction Metamorphosis	Micro- organisms Classification Organisms Species

STICKY KNOWLEDGE FOR LIVING THINGS AND THEIR HABITATS

These questions are used in ASPIRE events, as our throwback links and for our unit assessments

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
		• **What are the features of a living organism? Using the acronym MRSGREN.** Movement, Respiration, Sensitivity, Growth, Reproduction, Excretion and Nutrition • **What is the meaning of a consumer?** An organism that eats a producer. • **What do animals live in?** Habitats.		• **What are clarification keys used for?** To help group, identify and name living things. • **How can a change in environment impact living things?** It can cause danger. Example; a drought can dry up the rivers and kill fish.	• **What is a lifecycle?** The different stages of life for a living thing. • **Name the stages of a mammal's lifecycle.** Embryo, young mammal and adulthood. • **What are the stages of a bird's lifecycle?** Egg, chick, young bird and adult bird.	• **What is classification?** Putting things into groups, such as living things. • **What is the purpose of classification?** To see how different organisms are related to each other. • **What are the 5 main groups of micro-organisms?** Fungi, Virus, Algae, Bacteria, Protozoa.

Plants

Curriculum Link with Geography: human and physical (year 2 to year 6) & Geography: place knowledge (year 5 and year 6)

STATUTORY LINKS FOR PLANTS

Birth to 5 Matters & Early Learning Goals

Understanding the World: The world

- Can talk about some of the things they have observed such as plants, animals, natural and found objects. (range 4)
- Developing an understanding of growth, decay and changes over time (range 5) plants
- Shows care and concern for living things and the environment (range 5)
- Looks closely at similarities, differences, patterns and changing nature (range 6)
- Make observation of animals and plants and explains why some things occur, and talks about changes (range 6)

The Natural World

Explore the natural world around them making observations and drawing pictures of animals and plants (ELG)

KS1 Science National Curriculum

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

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

observe and describe how seeds and bulbs grow into mature plants

find out and describe how plants need water, light and a suitable temperature to grow and stay healthy

KS2 Science National Curriculum

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

KNOWLEDGE PROGRESSION MAP FOR PLANTS

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
Children will know: • about some of the things observed such as plants. • How to ask questions about aspects of their familiar world such as the place where they live or the natural world. • How to make observations of plants and explain why some things occur, and talk about changes • How to look closely at similarities, differences, patterns and change in nature. • How to explore the natural world around them, making observations and drawing pictures of animals and plants	Children will know: • That a variety of common wild and garden plants include holly, yew, oak and larch. • That evergreen trees keep their leaves all year round and deciduous trees lose them. • That branches are grow from the trunk of the tree. They transport water, sugar and nutrients to the leaves and canopy • That a trunk is the main woody stem of a tree as distinct from its branches and roots. • That fruit can be grown on trees • That a stem holds up the plant and carries water to the leaves. • That leaves are attached to a stem or branch and can come in many shapes and sizes. One of their main jobs is to help the plant to collect sunlight; plants need sunlight in order to make their food or energy • That a flower is the bloom or blossom of a plant. The flower is the part of a plant that produces seeds, which in time become other flowers • That roots of a plant take up water and nutrients from the soil. They also anchor the plant to the ground and keep it steady.	Children will know: • That seeds and bulbs grow into mature plants • That when the seed cracks open and starts to grow, it has the right amount of water warmth and nutrients • That plants need water, light and a suitable temperature to grow and stay healthy.	Children will know: • That there are a number of parts of flowering plants • That roots absorb water and nutrients from the soil. • That the stem/trunk transports water and nutrients up from the roots all the way to the leaves • That leaves change sunlight into energy through photosynthesis. The leaves are the primary food-making part of the plant. • That the primary purpose of the flower is reproduction • That plants need a variety factors to begin life and continue growth. This includes the right amount of air, light, water, nutrients from soil, and room to grow. • That water is transported within plants by transpiration. • That the flower allows the plant to reproduce via pollination (an insect goes into the flower to drink the nectar, some grains of pollen brush off the anthers onto their body), seed formation within the plant and seed dispersal (seeds spread away from each other and from their parent plant, by wind, insects, explosion and water).			

SKILLS PROGRESSION MAP FOR PLANTS

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
Children will be able to: • name some common plants or flowers • name the basic parts of a plant e.g stem, leaf, roots • Talk about why changes occur e.g it will die without any water • draw simple plants • ask questions about aspects of their familiar world such as the place where they live or the natural world. • make observations of plants and explain why some things occur, and talk about changes • look closely at similarities, differences, patterns and change in nature. • explore the natural world around them, making observations and drawing pictures of animals and plants	Children will be able to: • 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.	Children will be able to: • observe and describe how seeds and bulbs grow into mature plants • research and describe how plants need water, light and a suitable temperature to grow and stay healthy	Children will be able to: • 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.			

VOCABULARY PROGRESSION MAP FOR PLANTS

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
Leaves Stem Flower Roots grow	Evergreen Deciduous Branches Trunk Fruit Stem Leaves Flower Roots.	Temperature Mature plants Observe	Seed dispersal Explosion Transpiration Pollination Nutrients Evaporation Photosynthesis Absorb			

STICKY KNOWLEDGE FOR PLANTS

These questions are used in ASPIRE events, as our throwback links and for our unit assessments

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
	• **Name a variety of common wild and garden plants.** Holly, Yew, Oak, Larch. • **What happens to the leaves on an evergreen tree throughout the year?** They keep their leaves. • **What is a tree trunk?** A main wood stem of a tree. • **What is the purpose of the roots of a plant?** To take water and nutrients from to soil into the plant.	• **What do seeds and bulbs eventually grow into?** Plants. • **What do you need for a seed to crack and begin to grow?** Right amount of warmth, water and nutrients. • **How does a plant stay healthy?** By keeping a good light source, water and temperature.	• **What are the main parts of a plant?** Roots, Stem, Leaves, Flower • **What is photosynthesis?** Where leaves turn sunlight and carbon dioxide and water into food and nutrients for the plant. • **What is the primary purpose of the flower of the plant?** Reproduction. • **How is water transported throughout the plant?** Transpiration. • **What is pollination?** Where insects, birds and the wind take pollen between flowering plants, which means the plants can make seeds and reproduce.			

Seasonal Changes

Curriculum Link with Science: Earth and Space (year 5) & Geography: Locational Knowledge (year 6)

STATUTORY LINKS FOR SEASONAL CHANGES

Birth to 5 Matters & Early Learning Goals

Understanding the World: The world

- Developing an understanding of growth, decay and changes over time (range 5)
- Shows care and concern for living things and the environment (range 5)
- Looks closely at similarities, differences, patterns and changing nature (range 6)
- Talk about features of their own immediate environment and how environments might vary from one another (range 6)

The Natural World

Explore the natural world around them making observations and drawing pictures of animals and plants (ELG)

Understand some important processes and changes in the nature world around them including the seasons and changing states of matter (ELG)

KS1 Science National Curriculum

- observe changes across the 4 seasons
- observe and describe weather associated with the seasons and how day length varies

KNOWLEDGE PROGRESSION MAP FOR SEASONAL CHANGES

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
Children will know: • about changes over time including it is cold in winter and hot in summer and some green leaves turn brown in autumn and fall off trees in winter • how to care for living things and the environment at different points in the year (hedgehogs in autumn, chicks in spring etc) • how to look closely at similarities, differences, patterns and changing nature • about features of their own immediate environment and how environments might vary from one another • About some important processes and changes in the natural world around them including the seasons **The Natural World** Explore the natural world around them making observations and drawing pictures of animals and plants (ELG)	Children will know: • That the four seasons are Spring, Summer, Autumn and Winter. • That winter is recognized as the colder season • That summer is hotter in temperature • That in summer and autumn the days are longer (have more sunlight) • That is spring and winter the days are shorter (have less sunlight)					

SKILLS PROGRESSION MAP FOR SEASONAL CHANGES

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
Children will be able to: • Talk about and describe changes over time including it is cold in winter and hot in summer and some green leaves turn brown in autumn and fall off trees in winter • Describe and demonstrate how to care for living things and the environment at different points in the year (hedgehogs in autumn, chicks in spring etc) • describe similarities, differences, patterns and changing nature • talk about features of their own immediate environment and how environments might vary from one another • describe some important processes and changes in the natural world around them including the seasons • make observations and draw pictures of animals and plants	Children will be able: • To observe changes across the four seasons. • To observe and describe weather associated with the seasons and how day length varies.					

VOCABULARY PROGRESSION MAP FOR SEASONAL CHANGES

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
Changes Observe seasons	Spring Summer Autumn Winter Light Observe					

STICKY KNOWLEDGE FOR SEASONAL CHANGES

These questions are used in ASPIRE events, as our throwback links and for our unit assessments

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
	• **What are the four seasons?** Spring, Summer, Autumn, Winter. • **Which season is usually the coldest?** Winter. • **Which season is usually the hottest?** Summer. • **Which seasons have longer days? (more sunlight).** Summer and Autumn. • **Which seasons have shorter days? (less sunlight).** Winter and Spring.					

MATERIALS

Curriculum Link with Art and Design and Sculpture (all year groups) & Design Technology: Textiles and construction (all year groups)

STATUTORY LINKS FOR MATERIALS

Birth to 5 Matters & Early Learning Goals

Understanding the World: The natural world

- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter (ELG)

KS1 Science National Curriculum

- 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

KS2 Science National Curriculum

- 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 and associate the rate of evaporation with temperature

KS2 Science National Curriculum

- compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets
- know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution
- use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating
- give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic
- demonstrate that dissolving, mixing and changes of state are reversible changes
- explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda

KNOWLEDGE PROGRESSION MAP FOR MATERIALS

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
Children will know: • which material would be the best to keep something dry • that materials are different and some of the properties e.g soft, transparent, hard • that changes happen when the seasons change • that in Autumn the leaves change colour from green to yellows, browns and red. • That in spring flowers and leaves start to grow	Children will know: • That an object and the material which it is made from are different. Such as a chair and wood. • That we use certain materials on a daily basis including wood, plastic, glass, metal, water, and rock. • That properties of materials can be described using words such as soft, hard, light, heavy bendy, stiff, warm and cold. • That everyday materials can be grouped on the basis of their simple physical properties.	Children will know: • That different everyday materials are suitable for different purposes including wood, metal, plastic, glass, brick, rock, paper and cardboard. • That the shapes of solid objects made from materials, such as clay and rubber can be changed by squashing, bending, twisting and stretching.		Children will know: • That materials can be grouped according to whether they are solids, liquids or gases. • That solids have a definite shape and volume. • That liquids have a definite volume, but take the shape of the container. • That gases have no definite shape or volume. • That some materials change state when they are heated or cooled, such as wax or chocolate and the melting/solidifying temperature can be measured using degrees Celsius (°C). • That evaporation is the process of changing liquid water into gas when it is heated within the water cycle. • That condensation is the process where water vapor cools to form clouds.	Children will know: • That everyday materials can be grouped on the basis of their properties, solubility, transparency, conductivity (electrical and thermal), and response to magnets. • That some materials, such as salt will dissolve in a liquid to form a solution and that this process can be reversed. • That filtering, sieving and evaporating can be used to separate mixtures. • That a mixture made of solid particles of different sizes, for example sand and gravel, can be separated by sieving. • That you can separate a mixture of sand and water by passing it through a piece of filter paper. The water is able to pass through the tiny gaps in the paper but the sand particles are too big and are left on the surface of the filter paper. • That by dissolving salt in water you make a solution. You can separate the salt from the water again by boiling the solution. The water will evaporate until it is all gone. The salt will be left behind. • That fair tests can produce evidence to support why we use particular everyday materials, including metals, wood and plastic. • That dissolving, mixing and changing of state are reversible changes • That some changes result in the formation of new materials, and that this kind of change is not usually reversible, including burning and the action of acid on bicarbonate of soda.	

SKILLS PROGRESSION MAP FOR MATERIALS

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
Children will be able to: • Select appropriate materials to keep something dry • distinguish between an object and the materials from which it is made. • Talk about some seasonal changes • Identify that in Autumn the leaves change colour from green to yellows, browns and red. • Identify that in spring flowers and leaves start to grow	Children will be able to: • 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.	Children will be able 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 • research how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.		Children will be able to: • 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 and associate the rate of evaporation with temperature	Children will be able to: • 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. • identify 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. • investigate 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	

VOCABULARY PROGRESSION MAP FOR MATERIALS

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
Material Changes Compare Soft hard	Material Compare Soft Hard Light Heavy Bendy Stiff Warm Cold	Suitability Compare Materials Bend Twist Squashing		Change of state Heated Cooled Temperate Celsius Evaporation Condensation Water cycle	Reversable Bicarbonate soda Dissolving Mixing Fair test Thermal Electrical Evaporating	

STICKY KNOWLEDGE FOR MATERIALS

These questions are used in ASPIRE events, as our throwback links and for our unit assessments

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
	• **What material is a chair made from?** Wood. • **Name 5 materials we use on a daily basis.** Plastic, Glass, metal, Wood and Water (Answers may vary). • **What are the properties of a material?** A physical property is something we can measure without changing the material. Examples; strong, weak, heavy, light in weight, rough, smooth, shiny, dull, hard, soft, flexible.	• **How can we change the shapes of solid objects, such as clay?** Squashing, twisting, Bending and Stretching.		• **What are the three main groups of materials?** Solid, Liquid and Gas. • **What is a solid?** An object that has a definite shape and volume. • **What is a liquid?** Has a definite volume but takes the shape of its container. • **What is a gas?** Has no definite shape or volume. • **How can we change the state of an object?** By cooling or heating its temperature. • **What is evaporation?** The process of changing liquid water into gas when it is heated. • **What is condensation?** The process where water vapor cools to form clouds.	• **Name three materials that dissolve in liquid?** Salt, Sugar and Coffee (answers may vary). • **What is a solution?** A mixture of two or more substances. • **How can we separate a mixture?** Sieving and Filter paper • **How do you separate a saltwater solution?** By hearting it up, so it evaporates.	

ROCKS

Curriculum Link with Science: Evolution and Inheritance (year 6) & Geography: Human and physical (all year groups) & Sculpture (years 1 to 4)

STATUTORY LINKS FOR ROCKS			
		KS2 Science National Curriculum 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	

KNOWLEDGE PROGRESSION MAP FOR ROCKS						
EYFS	**YEAR 1**	**YEAR 2**	**YEAR 3**	**YEAR 4**	**YEAR 5**	**YEAR 6**
			Children will know: • That igneous rocks are formed from melted rock deep inside the Earth. • That sedimentary rocks are formed from layers of sand, silt, dead plants, and animal skeletons. • That metamorphic rocks formed from other rocks that are changed by heat and pressure underground. • That fossils are formed when things that have lived are trapped within rock over millions of years. • That soils are made from rocks and other organic matter.			

SKILLS PROGRESSION MAP FOR ROCKS

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
			Children will be able to: • 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. • identify that soils are made from rocks and organic matter.			

VOCABULARY PROGRESSION MAP FOR ROCKS

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
			Sedimentary Metamorphic Igneous Fossil Physical properties			

STICKY KNOWLEDGE FOR ROCKS

These questions are used in ASPIRE events, as our throwback links and for our unit assessments

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
			• **How are igneous rocks formed?** Formed from melted rock deep inside the Earth. • **How is sedimentary rock formed?** Formed by layers of sand, silt, rock, dead plants and animal skeletons. • **How are metamorphic rocks formed?** Formed from other rocks that are changed by heat and pressure underground. • **How is a fossil formed?** Fossils are formed when things that have lived are trapped within rocs for millions of years.			

LIGHT

Curriculum Link with Science: Earth and Space (year 5) & Geography: Locational Knowledge (year 6) & Art and Design: Painting and Drawing (all year groups)

STATUTORY LINKS FOR LIGHT

		KS2 Science National Curriculum • 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	**KS2 Science National Curriculum** • 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

KNOWLEDGE PROGRESSION MAP FOR LIGHT

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
			Children will know: • That light is needed in order to see things and that darkness is the absence of light. • That light is reflected from surfaces. • That light from the sun can be dangerous and that there are ways to protect their eyes, such as the use of sunglasses. • That shadows are formed when the light from a light source is blocked by a solid object. • That the size of shadows can change when more light is blocked by an object.			Children will know: • That light appears to travel in straight lines • That when light hits an object, it is reflected by that object and travels in straight lines to our eyes. Our eyes take in some of this light and information is sent to the brain. This is how we see the object.

SKILLS PROGRESSION MAP FOR LIGHT

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
			Children will be able to: • identify that they need light in order to see things and that dark is the absence of light. • identify that light is reflected from surfaces. • understand that light from the sun can be dangerous and that there are ways to protect their eyes. • understand that shadows are formed when the light from a light source is blocked by a solid object. • find patterns in the way that the size of shadows change			Children will be able: • explain that light appears to travel in straight lines • explain how we see objects • explain that because light travels in straight lines shadows have the same shape as the objects that cast them.

VOCABULARY PROGRESSION MAP FOR LIGHT

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
			Light Shadow Solid Reflected Absence			Transparent Opaque Reflection Light source

STICKY KNOWLEDGE FOR LIGHT

These questions are used in ASPIRE events, as our throwback links and for our unit assessments

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
			• **Why is light important for humans and other animals?** We need light to see things. • **How can we protect our eyes from the sunlight, which can be dangerous?** Using sunglasses. • **How are shadows formed?** When the light from a light source is blocked by a solid object.			• **How does light travel?** It appears to travel in straight lines. • **How do animals and Humans see?** Light is reflected from an object and travels in straight lines into our eyes. Messages are sent to the brain so we can see the object.

SOUND

Curriculum Link with Music (all year groups)

STATUTORY LINKS FOR SOUND

		KS2 Science National Curriculum • 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	

KNOWLEDGE PROGRESSION MAP FOR SOUND

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
				Children will know: • That sounds are made when something is vibrating the air. • That vibrations from sounds travel through a medium to the ear. • That there are patterns between the pitch of a sound and features of the object that produced it. • That there are patterns between the volume of a sound and the strength of the vibrations that produced it. • That sounds get fainter as the distance from the sound source increases.		

SKILLS PROGRESSION MAP FOR SOUND

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
				Children will be able to: • identify how sounds are made, associating some of them with something vibrating. • identify 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. • identify that sounds get fainter as the distance from the sound source increases.		

VOCABULARY PROGRESSION MAP FOR SOUND

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
				Vibrations Medium Pitch Volume Produced		

STICKY KNOWLEDGE FOR SOUND

These questions are used in ASPIRE events, as our throwback links and for our unit assessments

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
				• **How are sounds made?** When something is vibrating the air, which travels to the ear. • **Why do we get louder sounds?** The vibrations are stronger. • **What happens to the sound if the source is travelling away from you?** The sound gets fainter.		

FORCES & MAGNETS

Curriculum Link with Science: Earth & Space (year 5) and Maths: measurement (year 3 and 5)

STATUTORY LINKS FOR FORCES & MAGNETS

		KS2 Science National Curriculum • 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	**KS2 Science National Curriculum** • 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

KNOWLEDGE PROGRESSION MAP FOR FORCES & MAGNETS

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
			Children will know: • That they can compare how different objects move on different surfaces • That some forces need contact between two objects, but magnetic forces can act at a distance • That magnets attract or repel each other and attract some materials, such as metals and not others, like plastics. • That everyday materials can be grouped together on the basis of whether they are attracted to a magnet or not. • That magnets have a north and south pole. • That a north and south pole will attract but the same poles will repel.		Children will know: • That unsupported objects fall because of the force of gravity. • That air resistance, water resistance and friction can decrease the speed of moving surfaces. • That friction is A force between two surfaces as they move across each other that always slows an object down. • That air resistance is a frictional force that acts to slow an object's movement when it moves through air. • That water resistance is a frictional force that acts to slow an object's movement when it moves through water. • Mass is the amount of matter that an object or substance contains Mass is measured in grams (g) or kilograms (kg) using a scale or the kg scale on a force meter. • Weight is a measure of gravitational force. Weight is measured in newtons (N) using a force meter. • That some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	

SKILLS PROGRESSION MAP FOR FORCES & MAGNETS

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
			Children will be able to: • compare how things move on different surfaces • identify 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		Children will be able to: • explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object • investigate the effects of air resistance, water resistance and friction, that act between moving surfaces • identify that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	

VOCABULARY FOR FORCES & MAGNETS

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
			Magnetism Poles Predict Forces Repel		Gravity Resistance Levers Pully Gears Mass Weight	

STICKY KNOWLEDGE FOR FORCES AND MAGNETS

These questions are used in ASPIRE events, as our throwback links and for our unit assessments

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
			• **What are the two main parts of a magnet called?** North pole and south pole. • **Which poles of a magnet attract?** Both north and South together. • **What happens if the same poles are placed together?** They will repel each other.		• **Why do unsupported objects fall to the ground?** Gravity. • **What is friction?** The force of two surfaces that are moving past each other, slowing the object down. • **What is mass?** Is the amount of matter that a substance contains. • **What measurement do we use to measure gravitational force?** Newtons.	

ELECTRICITY

STATUTORY LINKS FOR ELECTRICITY

Curriculum Link with Design Technology: Construction (year 4 and year 6)

		KS2 Science National Curriculum • 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 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	**KS2 Science National Curriculum** • 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

KNOWLEDGE PROGRESSION MAP FOR ELECTRICITY

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
				Children will know: • That common appliances run on electricity, including a kettle, a lamp and television. • That a circuit is a collection of components connected by wires through which electricity can flow. • That a circuit contains several basic parts • That a battery is a number of cells connected together. • That a buzzer is a component that makes a sound when part of a complete circuit. • That a switch is component that can make or break a circuit. • That a wire is a conductive core coated in insulating plastic that an electric current flow through, connecting other electrical components. • That a conductor is a material through which an electric current can flow. • That an insulator is a material that does not allow an electric current to pass through. • That some common conductors are iron, silver, copper and aluminum. • That some common insulators are plastic, glass, wood and rubber. • That metals are good conductors.		Children will know: • That the brightness of a lamp or the volume of a buzzer is caused by the number and voltage of cells used in a circuit. • That an electric current is the flow of electric charge through a circuit. For an electric current to flow, a circuit must be complete. The electric current flows from the cell through the components and back to the cell. • That in a circuit, the cell acts like a pump, pushing electric charge around the circuit. This pushing force can be measured using a voltmeter or multimeter. The pushing force is known as voltage, which is measured in volts (V). • That cells have different names, such as AA, AAA and D. They are labelled with the voltage they supply to a circuit. For example, an AA cell is labelled with 1.5V. As cells are used, their voltage, or pushing force, decreases.

SKILLS PROGRESSION MAP FOR ELECTRICITY

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
				Children will be able to: • identify common appliances that run on electricity. • construct a simple series electrical circuit, identifying and naming its basic parts • identify whether or not a lamp will light in a simple series circuit • identify that a switch opens and closes a circuit • name some common conductors and insulators, and associate metals with being good conductors.		Children will be able to: • 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.

VOCABULARY FOR ELECTRICITY

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
				Circuit Conductor Insulator Series circuit Switch Electricity		Representations Volume Simple circuit Cells Voltage

STICKY KNOWLEDGE FOR ELECTRICITY

These questions are used in ASPIRE events, as our throwback links and for our unit assessments

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
				• **Name some common appliances that run using electricity.** Kettle, Toaster, lamp, television. • **What is a circuit?** A collection of components connected by wires, where electricity can flow. • **What is a battery?** A series of cells connected together. • **What is an insulator?** A material that does not conduct electricity. • **What is a conductor?** A material that allows electricity to pass through it.		• **What causes a bulb to become brighter?** The voltage of cells in a circuit • **What is an electric current?** The flow of electricity through a circuit. • **How do we measure an electric current?** Using a voltmeter or a multimeter

EARTH & SPACE

STATUTORY LINKS FOR EARTH & SPACE

Birth to 5 Matters & Early Learning Goals **Understanding the World: the natural world** • Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter (ELG)			**KS2 Science National Curriculum** • 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

KNOWLEDGE PROGRESSION MAP FOR EARTH & SPACE

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
Children will know: • they live on Earth • the difference between day and night • That the sun provides light during the day • They can sometimes see the moon at night • They can sometimes see stars at night • That the seasons make changes happen					Children will know: • That there are eight planets in the Solar System: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, and Neptune. • That the planets closer to the Sun are terrestrial planets because they are made of rock. • That planets that are farther from the Sun are made of gas and are called gas giants. • That the Earth is the only one to support life • That the Earth rotates on an axis. One rotation takes 24 hours, which is one day. • That the Earth orbits the Sun once every 365.25 days, which is a year. • That the Moon takes 27.5 days to do one full orbit the Earth. • That the Sun, Earth and Moon are spherical shaped bodies. • That day and night are caused by the Earth's rotation on its axis, which takes 24 hours. Half of the Earth is always facing the sun, which is the half where it is daytime. Whilst the other half is facing away from the sun, which is night time.	

SKILLS PROGRESSION MAP FOR EARTH & SPACE

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
Children will be able to: • Understand we live on planet Earth • Describe the difference between day and night • Explain that the sun provides light during the day • Explain that they can sometimes see the moon at night • Explain that they can sometimes see stars at night • talk about some changes that occur when seasons change					Children will be able to: • 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.	

VOCABULARY FOR EARTH & SPACE

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
Earth Sun Moon Stars Day Night					Axis Spherical body Orbit Approximately Solar system Space	

STICKY KNOWLEDGE FOR EARTH & SPACE

These questions are used in ASPIRE events, as our throwback links and for our unit assessments

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
					• **Can you name and order the place of planets from the sun?** Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune • **How dos day and night occur?** The Earth spins on an invisible line — called 'an axis'. Half of the Earth is always facing the Sun, meaning it is lit up. The other half is in darkness until the planet turns around. • **What shape is the Sun, Moon and Earth?** Spherical. • **How long does it take for the moon to orbit the Earth?** 27.5 days.	

EVOLUTION & INHERITENCE

Curriculum Link with Science: Rocks (year 3), Living things and their habitats (Y2,4,5,6)

STATUTORY LINKS FOR EVOLUTION & INHERITENCE

			KS2 Science National Curriculum • 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

KNOWLEDGE PROGRESSION MAP FOR EVOLUTION & INHERITENCE

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
						Children will know: • That living things have changed over time • That fossils provide information about living things that inhabited the Earth millions of years ago • That living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents • That animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.

SKILLS PROGRESSION MAP FOR EVOLUTION & INHERITENCE

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
						Children will be able to: • identify that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago- • identify 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.

VOCABULARY FOR EVOLUTION & INHERITENCE

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
						Evolution Offspring Environment Inhabited Fossil

STICKY KNOWLEDGE FOR EVOLUTION & INHERITANCE

These questions are used in ASPIRE events, as our throwback links and for our unit assessments

EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
						• **What does it mean for an animal or plant to evolve?** The change in a species' characteristics over several generations. • **As they evolve, what do both animals and plants adapt to suit?** Their environment. • **What evidence can fossils provide about evolution?** It can provide information about living things that inhabited the Earth millions of years ago; such as their characteristics.

SCIENCE ENRICHMENT

TERM	EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
AUTUMN							
SPRING							
SUMMER		**STEM Day** • LI: to explain that STEM means Science, Technology, Engineering and Mathematics. • LI: to identify basic parts of a rocket (body, nose cone, fins).	**STEM Day** • LI: to identify basic electrical components (battery, bulb, wire, switch). • LI: to understand that batteries provide power to a circuit, (which make bulbs light up etc.) • LI: to explain that rockets need force to launch and move upwards.	**STEM Day** • LI: to explain the concept of a circuit as a path for electricity. • LI: to recognise simple circuits can be made with a battery, simple component (like bulb or buzzer), and wires. • LI: to explain that rockets use a force called thrust to take off into the sky/space.	**STEM Day** • LI: to describe how current flows through a circuit. • LI: to identify different industries where circuits can be used.	**STEM Day** • LI: to understand the role of gravity pulling rockets back down to Earth. • LI: To explain why some circuits are safer or more efficient than others.	**STEM Day** • LI: To explain how forces act on a rocket during launch and flight. • LI: To study an electrical circuit and explain why errors may occur.