St Mary's RC Primary School
HEP SCIENCE EYFS – YEAR 6 PROGRESSION MAP

Rationale:

At St. Mary's, we encourage children to be inquisitive throughout their time at our school and beyond. Science is the most powerful method we have for understanding and explaining the natural world that God has gifted to us. Science fosters a healthy curiosity in children about our universe and promotes respect for the living and non-living.

Through the careful planning of an exciting and progressive curriculum, children are taught a wide range of scientific knowledge, conceptual understanding and skills. The children are able to make links with existing concepts, have the opportunity to develop their own ideas, assisting in gaining a greater understanding of the science of our wonderful world.

Early Years Foundation Stage (EYFS):

In Nursery and Reception, children are introduced to the world around them, exploring their immediate environment. They start to identify basic elements of everyday life, such as body parts, materials and the weather. They begin to look at changes in their immediate and wider environment in a purposeful way. This includes, changes in weather and seasons, effects of simple forces on objects and materials and changes in humans and other animals. Finally, they are able to describe differences between living and non-living things in their local and wider environment.

Key Stage 1 (Years 1 and 2):

At this stage, children begin to deepen their understanding of the world around them. They are taught to identify and name a variety of animals and plants. They compare common animals, plants and structures and distinguish between objects and the materials from which they are made. Pupils begin to understand the ways that habitats help living things to survive.

Key Stage 2 (Years 3 to 6):

Children begin to develop explanations about the human body systems and how variations in lifestyle can affect it. They also gain a deeper understanding of the relationship between animals, plants and the environment. Pupils begin to justify selection of materials for a variety of uses and use their knowledge to classify forces and a range of living and non-living things. Pupils begin to look at different sources and forms of energy and how they are used in everyday life.

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Topic/Year	Nursery (EYFS)	Reception (EYFS)	Year 1 (KS1)	Year 2 (KS2)	Year 3 (KS2)	Year 4 (KS2)	Year 5 (KS2)	Year 6 (KS2)
Animals, Including Humans, and Health	Understand basic human needs and characteristics. Learn simple differences between animals and humans. Identify and role-play different adult and young human and animal characters. Recognise basic body parts and their uses. Understand basic hygiene practices.	Understand human body parts and their functions. Use books, pictures or real-life observation to distinguish between different animals based on characteristics and habitats. Understand the importance of personal hygiene and healthy habits.	**Animals, Including Humans:** Identify and name common animals including fish, amphibians, reptiles, birds, and mammals, carnivores, omnivores and herbivores. Compare common structures. Identify, name, draw, and label the human body parts and senses.	**Animals, Including Humans:** Understand life cycles and differences in offspring and adults. Understand basic needs of animals and humans for survival. Importance of a healthy lifestyle.	**Animals, Including Humans:** Understand nutrition, transportation of water and nutrients in the body, and the skeletal and muscular system in humans and other animals.	**Animals, Including Humans:** Digestive system, teeth, and food chains.	**Animals, Including Humans:** Changes in humans from birth to old age.	**Animals, Including Humans:** Circulatory system, impact of diet, exercise and lifestyle on health.

Living Things and Their Habitats	Learn what a habitat is and experience diverse natural phenomena. Recognise that different animals live in different places.	Understand how different habitats meet the needs of the animals or plants living there. Identify changes in habitats across seasons.	n/a	**Living Things and Their Habitats:** Distinguish between living, dead, and non-living things. Understand how habitats and microhabitats meet the needs of organisms. Understand simple food chains.	n/a	**Living Things and Their Habitats:** Classification of living things in local and wider environment. Describe how environmental change can sometimes pose dangers to living things.	**Living Things and Their Habitats:** Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. Describe the life process of reproduction in some plants and animals.	**Living Things and Their Habitats:** Classify living things including micro-organisms. Understand reasons for classification. Understand fossils and evolution. Know offspring variation and environmental adaptation.

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Plants	Participate in simple activities like simple counting activities when planting seeds and caring for plants. Identify basic parts of a plant.	Identify the key features of the life cycle of plants and the need for water, light, and nutrients in plant growth.	**Plants:** Identify and name a variety of common plants, including garden plants, wild plants and trees, and those classified as deciduous and evergreen. Identify the basic structure of plants.	**Plants:** Observe and describe how seeds and bulbs grow into mature plants Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.	**Plants:** Understand the part that flowers play in the life cycle of flowering plants, including pollination, seed formation, and seed dispersal.	n/a	n/a	n/a
Materials and Their Properties	Sensory play to explore different materials and notice basic differences. Mixtures.	Understand and describe the properties of different materials. Recognise changes in materials under different conditions. Select materials based on their properties. Observe simple changes of state e.g., ice melting.	**Everyday materials:** Distinguish between an object and the material from which it is made. Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. Compare and group materials based on physical properties.	**Uses of everyday materials:** Understand the suitability of a material for a particular job. Understand how shapes can be changed by squashing, bending, twisting, and stretching.	n/a	**States of matter:** Compare and group materials based on states, evaporation, condensation, freezing and melting (changes of state).	**Properties and changes of materials:** Testing material properties, solubility, reversible and irreversible changes. Rationale for uses of materials.	n/a
Forces	Experience and observe simple forces e.g., pushing and pulling objects. Playing with building blocks.	Explore the impact of different forces on objects. Floating and sinking. Introduction to magnetism through play.	n/a	n/a	**Forces and magnets:** Explore and compare how forces, including magnetism, affect the movement of objects across different surfaces. Understand that magnets have two poles, can act at a distance, and attract certain materials, and predict the interactions between magnets.	n/a	**Forces:** Understand the effects of gravity, air resistance, water resistance and friction. Understand that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	n/a
Electricity	Problem solve, interact with and explore simple electrical toys.	Understand the safety aspects of using electricity. Know that batteries or electricity can make some toys and appliances work.	n/a	n/a	n/a	**Electricity:** Learn about simple electrical circuits and conductors and insulators.	n/a	**Electricity:** Understand how number and voltage of cells affects components. Use symbols to represent circuit diagrams.
Light	Recognise the difference between light	Understand how light interacts with	n/a	n/a	**Light:** Understand that we see	n/a	n/a	**Light:** Understand that light

	and dark. Notice light sources such as torches, light up toys and room lights. Notice shadows. Play peek-a-boo.	different surfaces and explore the concept of shadows.			things because light reflects off surfaces. Understand the danger of sunlight and how to protect eyes.			travels in straight lines, allowing us to see objects either because they emit or reflect light into our eyes. Explain that this principle causes shadows to take the shape of the objects casting them.
Sound	Enjoy making sounds with their voice and different objects. Recognise loud and soft sounds. Pitch matching.	Understand how sounds can be changed and match sounds to their sources.	n/a	n/a	n/a	**Sound:** Understand how sounds are made, associate sounds with vibrations. How sound travels and is detected. Understanding pitch and volume.	n/a	n/a
Space and Seasons	Understand the concepts of day and night. Notice changes in the weather and seasons, experience different types of weather.	Stars, planets, and the moon. Observe and discuss changes in the moon's appearance. Identify the cycle of seasons and how it affects the world around them. Describe different types of weather and how it changes.	**Seasonal changes:** Observe changes across the 4 seasons observe and describe weather associated with the seasons and how day length varies. Use the local environment throughout the year to explore and answer questions about plants and animals in their habitat.	Pupils should use the local environment throughout the year to observe how plants grow.	n/a	Pupils should use the local environment throughout the year to raise and answer questions that help them to identify and study plants and animals in their habitat. They should identify how the habitat changes throughout the year.	**Earth and space:** Describe the movement of the Earth and other planets in the solar system. Describe the movement of the Moon. Understand the spherical shape of celestial bodies.	Pupils should study and raise questions about their local environment throughout the year.

Working Scientifically:

In the Early Years Foundation Stage, working scientifically is mostly about fostering curiosity, encouraging exploration, and developing a sense of wonder about the world. It should be a fun, hands-on, and engaging process that cultivates a child's natural curiosity and desire to learn.

The progression from Key Stage 1 to Key Stage 2 involves increasing complexity, precision, and autonomy in scientific investigation and understanding. There is a growth in the type of questions pupils ask, their understanding of scientific enquiry, their use of equipment and accuracy of measurements, their data recording and presentation skills, and their ability to draw conclusions, make predictions, and understand the nature of scientific evidence.

Working Scientifically at EYFS
These the exploratory skills include:

- **Observing and exploring:** Children should be encouraged to notice details in their surroundings, exploring the world around them through their senses. They might observe patterns, colours, and changes over time, such as the growth of a plant or changes in weather.
- **Questioning:** Children can begin to ask simple questions about what they observe, showing curiosity about their environment.
- **Predicting:** Even at this early stage, children can start to make basic predictions. For example, guessing what might happen next in a simple sequence or event.
- **Experimenting:** Through play and exploration, children engage in a form of experimentation. They see what happens when they mix colours or what happens to a toy when it's submerged in water.
- **Communicating:** Children should be encouraged to talk about what they see, think, and feel. This might be describing what they've observed, discussing an experiment, or expressing a prediction or conclusion. This begins to develop their scientific vocabulary.

Working Scientifically at Key stage 1
During Key Stage 1 (Years 1 and 2), the focus is on introducing pupils to basic scientific principles and methods. They learn to ask simple questions, make observations, perform simple tests, classify objects, and gather and record data. They're encouraged to use simple equipment and begin using basic scientific language.

Working Scientifically at lower Key Stage 2 (Years 3 and 4):
The focus shifts towards developing these foundational skills. Pupils learn to ask more relevant questions and to use different types of scientific enquiries. They start setting up simple practical enquiries and comparative tests. Measurement and equipment use become more accurate and varied. Pupils are also taught to draw conclusions, make predictions, and suggest improvements from their findings. Data recording and presentation skills are enhanced, and they're expected to use relevant scientific language to communicate their findings.

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Working Scientifically at upper Key Stage 2 (Years 5 and 6):
Pupils are expected to plan different types of scientific enquiries, including controlling variables where necessary. Precision and accuracy in taking measurements increase, and they start taking repeat readings. Data recording becomes more complex, using scientific diagrams, classification keys, and various graphs. Pupils use their test results to make predictions for further tests. They are taught to present findings, including conclusions, causal relationships, and degree of trust in results, in oral and written forms. They also learn to identify scientific evidence that supports or refutes ideas or arguments. They have more autonomy in their decision-making process related to observations, measurements, and equipment use. Pupils learn to differentiate between opinion and fact and understand how scientific ideas have developed over time.

Working scientifically skill/ Stage	Nursery and Reception	Key Stage 1	Lower Key Stage 2	Upper Key Stage 2
Exploring their environment	Y			
Asking simple questions	Y	Y	Y	Y
Making basic observations	Y	Y	Y	Y
Using simple tools to explore	Y	Y	Y	Y
Identifying and classifying (basic)	Y	Y	Y	Y
Performing simple/practical tests		Y	Y	Y
Using observations and ideas to suggest answers to questions		Y	Y	Y
Gathering and recording data		Y	Y	Y
Using a range of equipment		Y	Y	Y
Making predictions			Y	Y
Drawing conclusions			Y	Y
Reporting findings in various forms			Y	Y
Planning scientific enquiries				Y
Recognising and controlling variables				Y
Increasing accuracy and precision in measurements				Y
Recording complex data using diagrams, keys, and graphs				Y
Using test results to set up further tests				Y
Presenting findings, including conclusions, causal relationships, and degree of trust in results				Y
Identifying scientific evidence that supports or refutes ideas				Y

Note: The ticks represent when these skills are explicitly mentioned in the curriculum for each stage. As the complexity and depth of skills increase through the stages, it's expected that skills introduced in earlier stages are still applicable and being developed throughout the later stages. This table is a simplification.

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