Learning Journey: Science

The Early Years Foundation Stage is the bedrock of our curriculum, preparing children for the learning journey ahead. Within a nurturing and play-based EYFS environment, children will learn basic and transferable skills; absorb relevant knowledges and grow in maturity, as well as developing a thirst for learning.

Science **How does science in the EYFS prepare children for future learning?**
In planning and guiding what children learn, we reflect on the different rates at which children are developing and adjust their practice appropriately, referring to the Characteristics of Effective Teaching and Learning: **Playing and Exploring:** children investigate, observe and experience things, and 'have a go' **Active Learning:** children concentrate and keep on trying if they encounter difficulties and enjoy their achievements for their own sake – exploration of senses. **Creating and Thinking Critically:** children have and develop their own ideas, make links between ideas, and develop strategies for doing things – problem solving In addition, the **Prime Areas of Learning** (Personal, Social and Emotional Development, Communication and Language and Physical Development) underpin and are an integral part of children's learning in all areas, including science.
EYFS Understanding the World Programme (Statutory)
Understanding the world involves guiding children to make sense of their physical world and their community. The frequency and range of children's personal experiences increases their knowledge and sense of the world around them for example, playing outside and visiting parks, libraries and museums. In addition, listening to a broad selection of stories, non-fiction, rhymes and poems will foster their understanding of our culturally, socially, technologically and ecologically diverse world. As well as building important knowledge, this extends their familiarity with words that support understanding across domains. Enriching and widening children's vocabulary will support later reading comprehension.

Early learning Goals (statutory): The Natural World

Children at the expected level of development will:

- ✓ Explore the natural world around them, making observations and drawing pictures of animals and plants
- ✓ 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
- ✓ Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter

The EYFS Experience

Nursery - Science topics and Intents
Biology, Chemistry & Physics

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Marvellous Me Changing Seasons I – know there are different seasons I – observe the season of Autumn AIH. Growing and changing And our senses I – know that we grow and change over time I – know that we have different senses Sorting and classifying Materials - same/different, rough/smooth I – observe materials and use science words to describe them I – sort materials according to what we can see and feel	Come Outside Winter – changing seasons I – Know that winter is the cold season Light and dark – shadows I – Know it is dark in the morning and evening in winter I – investigate shadows Animals and habitats I – Know that animals have homes materials - Sorting – smooth and shiny I – investigate the look and feel of materials	Bears Materials & their properties – hard/soft I – investigate the look and feel of materials	Eggs Changing seasons – spring I – know that the weather and light changes in spring I – Know that animals are born in spring AIH – Lifecycles I – know that animals are born, grow and die I – investigate lifecycles including birds and tadpoles (eggs)	Down on the Farm Forces – pull/push, floating/sinking I – Investigate the forces of pushing and pulling I - Investigate the forces of sinking and floating LT&H – plant lifecycles – seeds and potatoes. Animals and their young I – Know that plants grow from seeds I – investigate and observe the lifecycle of a plant I – know that animals have babies	Journeys to Africa LT&H Habitats and adaptations I – know that different animals have different homes in different places I – know that animals have adapted to live in an environment AIH I – investigate fruit

Reception - Science topics and Intents
Biology, Chemistry & Physics

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Changing Seasons – Autumn I – Know the Season is Autumn I – Observe our immediate environment I - Observe plants in autumn (conkers, pumpkins, leaves) I - Consider how environments may vary AIH – Hygiene I – know how to keep clean (handwashing) Materials. I – know how to manipulate materials for planned effect	AIH – Spiders I – Know facts about spiders Materials. I – know how to manipulate materials for planned effect I – Know how to use simple tools to affect change to materials	LT&H – Polar animals I – Know and name animals living in cold climates I – Know the features and adaptations needed to allow animals to live in cold climates Forces I – Know boats need to float on water I – Investigate boats (strength and size) Materials. I – know how to manipulate materials for planned effect I - investigate colours and what happens when colours mix	Changing Seasons – Spring I - Know that Spring is a time of new life, growth and renewal I – Observe plants and notice changes& similarities/differences LT&H - Easter I – Know that some animals lay eggs I – Know that eggs can hatch into baby animals AIH - Supertato I – Know the importance of a healthy diet/eating healthily I – Know ways to keep healthy	Plants and Growth LT&H (inc - Jaspers beanstalk) I – Observe plants I – Know seeds grow into plants (cress) I – Know parts of a plant - sunflower I – Know the lifecycle of a bean Materials. I – Know some materials are good for a job – build a bridge	LT&H - Hermit Crabs I – Know facts about the hermit crab I – Observe small sea creatures, pebbles and shells I – know facts about butterfly's I – know the life cycle of a butterfly AIH I – know the importance of a good diet I – know the importance of good health I – know how to keep healthy and safe Forces I – Know boats will sink if too much weight is placed in them Materials. I – know how to manipulate materials for planned effect

Scientific skills include

- Explore their own bodies and their senses
- Learn about being healthy, including eating a range of foods and taking part in exercise.
- Learn to name the parts of the body and what we use them for.
- Learn about animals and their homes, including pets, farm animals and wild animals.
- Observe changes such as chicks hatching and caterpillars turning into butterflies, the seasons changing, plants and flowers growing. They are supported to notice and talk about what is happening and why.
- After close observation, draw pictures of the natural world, including animals and plants.
- Learn about a range of contrasting environments within both their local and national region.
- Encounter and learn the vocabulary needed to name specific natural features of the world.
- Opportunities to discuss how we care for the natural world around us.

- Opportunities to sing songs and join in with rhymes and poems about the natural world.
- Share non-fiction texts that offer an insight into contrasting environments.
- Communicate their understanding of their own environment and contrasting environments through conversation and in play.
- Develop a sense of curiosity and exploration through a range of resources relating to our topics, eg magnets, magnifying glasses, colour paddles, things to smell and taste etc, and through the continuous provision areas such as sand, water, small world, construction etc.

Scientific Enquiry

- Frequent opportunities for outdoor play and exploration. Encourage interactions with the outdoors to foster curiosity and give children freedom to touch, smell and hear the natural world around them during hands-on experiences.
- Focused observation of the natural world.
- Describe and comment on things they have seen whilst outside, including plants and animals.
- Positive interaction with the outside world, offering children a chance to take supported risks, appropriate to themselves and the environment within which they are in.

Development Matters (non-statutory guidance)
Great ideas for school and home

- ✓ Explore the natural world around them.
- ✓ Describe what they see, hear and feel whilst outside.
- ✓ Recognise some environments that are different from the one in which they live.
- ✓ Understand the effect of changing seasons on the natural world around them.
- ✓ Visit galleries and museums (physically or virtually) to generate inspiration and conversation about the scientific world
- ✓ Cooking, baking, mixing, experimenting with healthy food
- ✓ Painting plants and animals
- ✓ Sandpits, waterplay and bubbles
- ✓ Hygiene and teeth – songs, books, bath time etc

Assessment: are we ready for the next step in our learning journey?

- ✓ Can children talk about and draw what they see?
- ✓ Can children describe their environment and comment on contrasting environments from books?
- ✓ Can children describe what changes in each season?

Vocabulary

Science, investigation, test, features, observe, similarities, differences, group, why?

Biology	Physics	Chemistry
Animals including humans, body, senses, (see, hear, touch, smell, taste) plants, seeds, bulbs, trees, structure, leaf, stem, root flower,	Sun, light source, light, dark, shadow, reflection, seasons, autumn, winter, spring,	Everyday materials, sorting, classifying, purpose, properties, wood, glass, plastic, metal, rocks,

conditions for growth (light, heat, water), natural, change, grow, decay, rot, environment, lifecycles, adaptations, hygiene, polar, diet, health	summer, forces, sink, float, push, pull, space, planets, solar system	hard, soft, shiny, rough, smooth, colours, changing state

Readiness for Year 1 learning and beyond – In Year 1, I will learn:

Biology	Physics	Chemistry
✓ Plants – identify and name a variety of common wild and garden plants, including deciduous and evergreen trees ✓ Identify and describe the basic structure of a variety of common flowering plants including trees ✓ 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. ✓ AIH – identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense	✓ Seasonal changes – observe changes across the four seasons ✓ Observe and describe weather associated with the seasons and how day length varies ✓ Light – know that the sun is the main light source ✓ Know that it is dangerous to look directly at the sun ✓ Know some different sources of light to the sun ✓ Investigate reflections	✓ Everyday materials – distinguish between an object and the material from which it is made ✓ Identify and name a variety of everyday materials including wood, plastic, glass, metal, water and rock ✓ Describe the simple physical properties of a variety of everyday materials ✓ Compare and group together a variety of everyday materials on the basis of their simple physical properties.

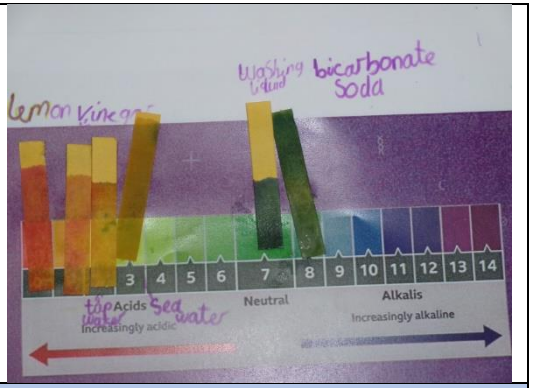
Gallery

Nursery

Reception

Year 1

Year 2

			
Year 3	**Year 4**	**Year 5**	**Year 6**