Learning in EYFS:

What Science Subject Leaders Need to Know

The EYFS framework is structured very differently to the national curriculum as it is organised across seven areas of learning rather than subject areas. The aim of this document is to help subject leaders to understand how the skills taught across EYFS feed into national curriculum subjects.

This document demonstrates which statements from the 2020 Development Matters are prerequisite skills for science within the national curriculum. The table below outlines the most relevant statements taken from the Early Learning Goals in the EYFS statutory framework and the Development Matters age ranges for Three and Four-Year-Olds and Reception to match the programme of study for science.

The most relevant statements for science are taken from the following areas of learning:

- Communication and Language
- Personal, Social and Emotional Development
- Understanding the World

In planning and guiding what children learn, practitioners must reflect on the different rates at which children are developing and adjust their practice appropriately, referring to the Characteristics of Effective Teaching and Learning

These are: **playing and exploring** – children investigate 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; **creating and thinking critically** – children have and develop their own ideas, make links between ideas, and develop strategies for doing things.

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.

Science		
Three and Four-Year-Olds (Not on track – working below ARE)	Communication and Language	• Understand 'why' questions, like: "Why do you think the caterpillar got so fat?"
	Personal, Social and Emotional Development	• Make healthy choices about food, drink, activity and toothbrushing.
	Understanding the World	• Use all their senses in hands-on exploration of natural materials. • Explore collections of materials with similar and/or different properties. • Talk about what they see, using a wide vocabulary. • Begin to make sense of their own life-story and family's history. • Explore how things work. • Plant seeds and care for growing plants. • Understand the key features of the life cycle of a plant and an animal. • Begin to understand the need to respect and care for the natural environment and all living things. • Explore and talk about different forces they can feel. • Talk about the differences between materials and changes they notice.
Reception	Communication and Language	• Learn new vocabulary. • Ask questions to find out more and to check what has been said to them. • Articulate their ideas and thoughts in well-formed sentences. • Describe events in some detail. • Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen. • Use new vocabulary in different contexts.

Reception	Personal, Social and Emotional Development		• Know and talk about the different factors that support their overall health and wellbeing: - regular physical activity - healthy eating - toothbrushing - sensible amounts of 'screen time' - having a good sleep routine - being a safe pedestrian
	Understanding the World		• Explore the natural world around them. • Describe what they see, hear and feel while they are outside. • Recognise some environments that are different to the one in which they live. • Understand the effect of changing seasons on the natural world around them.
ELG (On track – meeting ARE)	Communication and Language	Listening, Attention and Understanding	• Make comments about what they have heard and ask questions to clarify their understanding.
	Personal, Social and Emotional Development	Managing Self	• Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.
	Understanding the World	The Natural World	• 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.

Ribblesdale Federation EYFS End Points

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 – from visiting parks, libraries and museums to meeting important members of society such as police officers, nurses and firefighters. 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.

Autumn

Journey into your imagination

Communication and Language	Personal, Social and Emotional Development	Understanding the World
Children can follow one-step instructions and beginning to follow two-step instructions. Children understand and can respond appropriately to a variety e.g. Why…? Do you think…? What…? Children will ask questions to clarify instructions. Children will take part in discussions e.g. what they did at the weekend, what their likes and dislikes are, their thoughts and ideas about various topics.	Children can select tools and resources that they need to complete a task of their own choosing. Children know that they are unique and there is no one else like them. Children can talk about similarities and differences between themselves and their friends. Children can manage their toileting routines and know that the importance of hand washing.	Children can observe changes in the local environment throughout autumn and winter. Children know that there are four seasons. Children can name the seasons and discuss features of each. Children know and can describe different weathers. Children know that weather can be different in different countries. Children know how to keep their bodies healthy, e.g. eating healthy food, exercising, screen-time, etc. Children know the names of body parts. Children know that we have a skeleton. Children can explore their five senses. Children can observe their own features using a mirror. They can then make pictures/paintings using the correct colours.

Science Skills

Biology	Chemistry	Physics
Children know how to keep their bodies healthy, e.g. eating healthy food, exercising, screen-time, etc. Children know the names of body parts. Children know that we have a skeleton. Children can explore their five senses. Children can observe changes in the local environment throughout autumn and winter. Children know that there are four seasons. Children can name the seasons and discuss features of each. Children can observe their own features using a mirror. They can then make pictures/paintings using the correct colours. Children can manage their toileting routines and know that the importance of hand washing.		Children know and can describe different weathers. Children know that weather can be different in different countries.

<u>Spring</u>
Farm to fork

Communication and Language	Personal, Social and Emotional Development	Understanding the World
THESE WILL BE COVERED ACROSS ALL SCIENCE SKILLS Children can follow 2-step instructions. Children can ask why questions Children can use complete sentences in their everyday talk.	Children know that everyone is different and everyone is special. They know that different people are good at different things. Children can brush their teeth for 2 minutes with minimal support. Children have confidence in their own abilities. Children understand why they need a healthy,	Children know that plants grow from a seed. Children know that plants need water, soil and sun to grow. Children can name different parts of a plant. Children can explore and describe some different materials.

Children are beginning to connect one idea or action to another using connectives: and, because, then, but. Children can describe events in detail and use sequencing words: before, next, after, then. The events will be heavily based on experiences in their own lives. Children can use talk to help them work out problems and possible solutions	balanced diet. Children know why they need to exercise. Children are confident to try new activities and they can ask for help if they need it.	Children can use their senses to describe different materials. Children will use their knowledge of different materials to design their own castle. Children will explain why they have chosen the materials they have. Children will explore mirrors, magnifying glasses and magnets. Children will be able to discuss mirrors, magnifying glasses and magnets. They will be able to say what they are used for. Children know that some things can change, e.g. water into ice, chocolate can be melted, etc. Ice melting experiment. Children know that shadows are an absence of light.
Science Skills		
Biology	**Chemistry**	**Physics**
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<u>Summer</u> Sun, Sea and Sand		
Communication and Language	**Personal, Social and Emotional Development**	**Understanding the World**
THESE WILL BE COVERED ACROSS ALL SCIENCE SKILLS Children can retell a range of stories in more detail in small world and role play. Children will ask relevant questions to clarify the meaning of what they see and hear. Children will articulate their thoughts and ideas in well-formed sentences. Children use full sentences to talk about their feelings, experiences and ideas. They usually use the correct tense. Children participate well in a whole class, smaller group and one to one situations.	Children can brush their teeth for 2 minutes. THESE WILL BE COVERED ACROSS ALL SCIENCE SKILLS Children show perseverance and determination to do well in their learning and activities. Children can regulate their own behaviour in a variety of different situations. Children can follow instructions with multiple steps.	Children will make observations of different animals and be able to use specific vocabulary to describe them. Children know how to take care of a pet. Children know how plants grow and can explain this to an adult. Children will grow their own plant from a seed. Children know that some things can change, e.g. water into ice, chocolate can be melted, etc. Children will be able to explain and describe these changes. Children will explore a variety of materials/objects that float and sink. Children will explore light travelling through different objects. They will be able to describe what is happening.
Science Skills		

Biology	Chemistry	Physics
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Scientific Enquiry (also linked to CofETL)

- Provide children with have 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.
- Encourage focused observation of the natural world.
- Listen to children describing and commenting on things they have seen whilst outside, including plants and animals.
- Encourage 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.

Assessment

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

Vocabulary

Plants: tree, petals, trunk, fruit, branch, roots, leaves, bulb, flowers, seed, stem

Animals including humans: human, face, hair, leg, elbow, arm, head, toes, ear, hands, eye, fingers, ankle, wrist, hips, back, knee, mouth, nose, animal, fish, birds

Seasons: Summer, Spring, Autumn, Winter, day, dark, light, night, season, moon, sun

Forces, Earth and space: Earth, moon, planet, space, sun, star

Sound, light and electricity: loud, quiet, volume, sound

Continuous Provision – available throughout the day for both focussed and self-chosen learning

- Experience, observe and talk about different plants and their features
- Interesting objects that the children can observe and find out how they work
- Explore objects using their senses to find out about how things feel, look, sound, taste and smell
- After physical experiences, observe adults and then use vocabulary to describe:
  taste – bitter, sweet, salty, sour, tangy
  sound – loud, quiet, shout, whisper, hum, ring, bang, rustle
  texture – soft, hard, spiky, smooth, sharp, sticky, rough, gooey
  smell – perfume, fresh linen, manure, sweet, flowery
- Junk materials to build and construct models
- Ways of joining – tape, glue, staples, string, split pins, clips, paperclips, pipe cleaners
- Range of tools – scissors, food preparation tools, peeler, grater, rolling pin, safety scissors, safety knives, clay tools, playdoh tools, hole punch
- Construct with purpose in mind – create something which links to the learning/topic
- Paper and pencils/pens/crayons for making designs before constructing
- Paper and pencils/pens/crayons for drawing a simple picture of their model. Sticky notes for labels
- Discussions with the children about how they made their model, what they used and how they would improve it next time
- Make a large scale model collaboratively

Areas of Continuous Provision
Indoors
Construction Area – Building using different materials
Creative – range of opportunities to explore, observe and talk about materials and their properties – man made or natural. Materials: soft, hard, rough, smooth, fluffy, bumpy, slimy, sticky, wet, dry, stiff, bendy, crunchy. Possible activities: feely boxes, collections in pots/boxes, sorting by criteria, treasure baskets,
Role Play – senses in Home Corner. Different smelling flowers, fruit and vegetables to try at the kitchen table, different musical instruments for lullabies
Malleable/Playdoh – make own malleable materials and encourage to change how they appear (e.g. add glitter to homemade playdoh)
Snack –
Small World – interact with objects that move by pulling, pushing, wheeled vehicles, toys with moving parts. Discuss how they move and why they move
Mark Making/Writing – recording observations and findings – 'being a scientist'
Reading – Use books, photographs and technology to find out about the world in which they live
Sand – explore the texture of wet and dry sand. What is the best for making patterns in? What is best for a toy truck to lift? Explore real sand compared to

mouldable sand, water resistant sand, etc. Explore the movement of sand using different equipment. Explore separating sand mixed with different objects e.g. sequins, rice, buttons or pebbles
Water/Mud Kitchen – Explore different ways in which water moves. Explore how water changes when different things are added e.g. oil, Geli Baff, food colouring etc. Test a variety of objects made from different materials to see if they sink or float. Can children predict and then experiment which they think will sink or float.

Outdoors
Large Construction – explore and talk about the way our bodies move using vocabulary such as faster, slower, fast, slowly. Compare and contrast movement when building using construction materials. Talk about movements over/under construction materials
Role Play – science lab
Water – drainpipes, tubes, plastic bottles, pipettes, funnels, coloured water, glitter, separating mixtures
Outdoor/Woodland – natural materials to be provided: leaves, sticks, logs, pebbles, stones

Outdoor Learning

- Access to the woodlands (forest school/ bushtucker days)
- Welly walks
- Park trip
- Parent helpers for litter picking
- Snow walk
- Melting snow/ice outdoors
- Building a snowman
- Keeping hot chocolate warm outside
- Bird watching
- Create bird nest/ bird feeder

Key Questions – provide opportunities to develop curiosity, where adults can model questions and children can ask questions.

Describe	Why?	I Wonder
What is it like? How does ____ look, taste, feel, sound, smell? Can you show me…? Can you tell me about…? Can you tell me which…? Can you describe…? *What's happening?* What's happening here? What happens when you…? Can you tell me what…? How does that work? What did you notice when you…? *Compare and contrast:* What is the same about…? What is different…? Which ones…?	*Why it happened?* Why did…? Why do you think…? Why do you think… is happening/happened? Can you tell me why…? Tell me why…?	*What could we do next?* I wonder if…? What if…? What will happen if we…? How can you make…? How can you show…? How could we find out if…? Can you find another way that will…? Can you think of another way…? How could we improve…? Can you create/invent/design…?