



PRIMARY SCHOOL

What does Science look like in EYFS?

There are seven areas of learning and development that must shape educational programmes in early years settings. All areas of learning and development are important and inter-connected. These are stipulated in the 'Statutory framework for the early years foundation stage'.

Three areas are particularly important for building a foundation for igniting children's curiosity and enthusiasm for learning, forming relationships and thriving.

The prime areas are:

- communication and language
- physical development
- personal, social and emotional development

Providers must also support children in four specific areas, through which the three prime areas are strengthened and applied.

The specific areas are:

- literacy
- mathematics
- understanding the world
- expressive arts and design

Educational programmes

Educational programmes must involve activities and experiences for children, as set out under each of the areas of learning.

Communication and Language

The development of children's spoken language underpins all seven areas of learning and development. Children's back-and-forth interactions from an early age form the foundations for language and cognitive development. The number and quality of the conversations they have with adults and peers throughout the day in a

language-rich environment is crucial. By commenting on what children are interested in or doing, and echoing back what they say with new vocabulary added, practitioners will build children's language effectively. Reading frequently to children, and engaging them actively in stories, non-fiction, rhymes and poems, and then providing them with extensive opportunities to use and embed new words in a range of contexts, will give children the opportunity to thrive. Through conversation, story-telling and role play, where children share their ideas with support and modelling from their teacher, and sensitive questioning that invites them to elaborate, children become comfortable using a rich range of vocabulary and language structures.

Personal, Social and Emotional Development

Children's personal, social and emotional development (PSED) is crucial for children to lead healthy and happy lives, and is fundamental to their cognitive development. Underpinning their personal development are the important attachments that shape their social world. Strong, warm and supportive relationships with adults enable children to learn how to understand their own feelings and those of others. Children should be supported to manage emotions, develop a positive sense of self, set themselves simple goals, have confidence in their own abilities, to persist and wait for what they want and direct attention as necessary. Through adult modelling and guidance, they will learn how to look after their bodies, including healthy eating, and manage personal needs independently. Through supported interaction with other children, they learn how to make good friendships, co-operate and resolve conflicts peaceably. These attributes will provide a secure platform from which children can achieve at school and in later life.

Physical Development

Physical activity is vital in children's all-round development, enabling them to pursue happy, healthy and active lives⁷. Gross and fine motor experiences develop incrementally throughout early childhood, starting with sensory explorations and the development of a child's strength, co-ordination and positional awareness through tummy time, crawling and play movement with both objects and adults. By creating games and providing opportunities for play both indoors and outdoors, adults can support children to develop their core strength, stability, balance, spatial awareness, co-ordination and agility. Gross motor skills provide the foundation for developing healthy bodies and social and emotional well-being. Fine motor control and precision helps with hand-eye co-ordination, which is later linked to early literacy. Repeated and varied opportunities to explore and play with small world activities, puzzles, arts and crafts and the practice of using small tools, with feedback and support from adults, allow children to develop proficiency, control and confidence.

Literacy

It is crucial for children to develop a life-long love of reading. Reading consists of two dimensions: language comprehension and word reading. Language comprehension (necessary for both reading and writing) starts from birth. It only develops when adults talk with children about the world around them and the books (stories and non-fiction) they read with them, and enjoy rhymes, poems and songs together. Skilled word reading, taught later, involves both the speedy working out of the pronunciation of unfamiliar printed words (decoding) and the speedy recognition of familiar printed words. Writing involves transcription (spelling and handwriting) and composition (articulating ideas and structuring them in speech, before writing).

Mathematics

Developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically. Children should be able to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers. By providing frequent and varied opportunities to build and apply this understanding - such as using manipulatives, including small pebbles and tens frames for organising counting - children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built. In addition, it is important that the curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures. It is important that children develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections, 'have a go', talk to adults and peers about what they notice and not be afraid to make mistakes.

Understanding the World

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.

Expressive Arts and Design

The development of children's artistic and cultural awareness supports their imagination and creativity. It is important that children have regular opportunities to engage with the arts, enabling them to explore and play with a wide range of media and materials. The quality and variety of what children see, hear and participate in is crucial for developing their understanding, self-expression, vocabulary and ability to communicate through the arts. The frequency, repetition and depth of their experiences are fundamental to their progress in interpreting and appreciating what they hear, respond to and observe.

Early Learning Goals

The level of development children should be expected to have attained by the end of the EYFS is defined by the early learning goals (ELGs). These are not used as a curriculum or in any way to limit the wide variety of rich experiences that are crucial to child development, from being read to frequently to playing with friends.

Instead, the ELGs support teachers to make a holistic, best-fit judgement about a child's development, and their readiness for year 1.

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

Science		
Two Year Olds	Communication and Language	<ul style="list-style-type: none"> • Identify familiar objects and properties for practitioners when they are described, for example: 'Katie's coat', 'blue car', 'shiny apple'. • Understand simple questions about 'who', 'what' and 'where' (but generally not 'why')
	Understanding the World	<ul style="list-style-type: none"> • Repeat actions that have an effect • Explore materials with different properties • Explore natural materials, indoors and outdoors • Explore and respond to different natural phenomena in their setting and on trips
Nursery	Communication and Language	<ul style="list-style-type: none"> • Understand 'why' questions, like: "Why do you think the caterpillar got so fat?"
	Personal, Social and Emotional Development	<ul style="list-style-type: none"> • Make healthy choices about food, drink, activity and toothbrushing.

	Understanding the World	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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 Continued	Personal, Social and Emotional Development		<ul style="list-style-type: none"> • Know and talk about the different factors that support their overall health and wellbeing: <ul style="list-style-type: none"> - regular physical activity - healthy eating - toothbrushing - sensible amounts of 'screen time' - having a good sleep routine - being a safe pedestrian
	Understanding the World		<ul style="list-style-type: none"> • 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	Communication and Language	Listening, Attention and Understanding	<ul style="list-style-type: none"> • Make comments about what they have heard and ask questions to clarify their understanding.
	Personal, Social and Emotional Development	Managing Self	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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.

Learning and Development Considerations

Practitioners must consider the individual needs, interests, and development of each child in their care, and must use this information to plan a challenging and enjoyable experience for each child in all areas of learning and development. Practitioners working with the youngest children are expected to ensure a strong foundation for children's development in the three prime areas. The specific areas of learning provide children with a broad curriculum and with opportunities to strengthen and apply the prime areas of learning. This is particularly important in developing language and extending vocabulary.

In planning and guiding what children learn, practitioners must reflect on the different rates at which children are developing and adjust their practice appropriately. Three characteristics of effective teaching and learning 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 achievements
- creating and thinking critically - children have and develop their own ideas, make links between ideas, and develop strategies for doing things

Vocabulary

Our subject lead documents show the progression of vocabulary from 2s – Nursery – Reception and through to Y6. When you look at these please bear in mind that not all of our children in Nursery will have attended our 2s setting and not all of our Reception children will have attended our (or maybe any) Nursery. Our EYFS planning takes this into account.

Books in Science

The fiction and non-fiction books that we use in EYFS are chosen to link in with the progression between the year groups. These are used as an integral part of our learning and may change each year according to children's interests.

When you come and visit us:

What effective teaching looks like

The 3 characteristics of effective teaching and learning in the EYFS are:

- **Playing and exploring:** children investigate and experience things, and 'have a go'
- **Active learning:** children concentrate and keep on trying if they find things difficult, and enjoy achievements
- **Creating and thinking critically:** children have and develop their own ideas, make links between ideas, and develop strategies for doing things

These are laid out in paragraph 1.15 of the EYFS statutory framework.

When observing teaching in the EYFS, you should expect to see:

- Teacher-pupil interactions that help to identify learning

- A range of activities that engage children's interests. Children should choose and be guided towards activities that help them learn across the different areas of development
- Ongoing assessment by adults through observation, questioning and looking at individual outcomes
- Visual and verbal mental aids
- Time and space for imaginative play - indoors and outside
- A well-organised learning environment
- Activities that encourage:
 - Children's exploration of the world around them
 - Discussion of what children will make before and while making something
 - Sustained discussion going beyond what staff and children have noticed

These are based on:

- Suggestions from Tracey Rees, an associate education expert
- Pages 14 to 19 of the non-statutory Development Matters guidance

You shouldn't expect to see learning taking place within specific subject areas.

Instead, children should be engaged in a range of activities and opportunities covering all the areas for learning and development.

When observe bear in mind the 4 overarching principles of the EYFS set out on page 6 of the EYFS statutory framework:

Unique child

- Are all children being respected and acknowledged as individuals?

Positive relationships

- Are children being helped to build on prior learning by provision of activities, such as a play or a story, at a level that is demanding but still within the children's reach?
- Is the learning that is happening that day/week communicated to parents and carers?

Enabling environments

- Is the environment appropriate for the age group being taught?
- Is the environment stimulating and does it reflect the learning that is taking place?
- Are there resources available to children to self-select the learning through play?
- Is there a rich environment of continuous provision that the children can self-select and use to move learning forward? Is there differentiation to use at own level?

- Has the teacher ascertained what the children already know? Has the teacher built on this?
- Does the planning reflect the children's interests in order to keep them interested and motivated?

Learning and development

- Are all areas, including the outdoor area, being used? For example, does the outdoor environment have activities/resources to stimulate numeracy?
- Does the practitioner use different learning styles so that the children can interact with the staff and each other? (For example, visual aids, touch, sounds and movements)
- Are staff modelling key vocabulary to the children? Is it displayed so that adults, children and parents can see it in the room?

Extracts from the 'Statutory framework for the early years foundation stage' – DfE

Extracts from the 'Development Matters' – DfE – non-statutory

Article by Tracey Rees from 'The Key' website

Twinkl: Learning in EYFS documents – adapted to include 2s

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