



EYFS Curriculum Pathway – Science

Our EYFS Curriculum Pathway to KS1 builds on pupils' past knowledge and prepares them well for the learning that is to come in KS1.

The most relevant early years outcomes for Science are taken from the following areas of learning:

- Physical Development
- Understanding the World
- Expressive Arts and Design
- Communication and Language

Our approach to the Science Curriculum in Early Years Foundation Stage

At Ryton Federation we believe that children are natural scientists and are born curious. In Nursery and Reception they experiment and discover in our science-rich learning environment using all of their senses. Practitioners provide and teach children through hands-on activities that promote children's investigations and discovery. Whether feeling shells, looking closely at sand or rolling balls down ramps, children actively build scientific knowledge and skills. They are encouraged to use reading, writing and measuring to record what they notice and discussion to reflect on their findings. Active sensory exploration is integrated into the provision for our youngest children. From the outset they are encouraged to investigate, make connections, become problem solvers and life-long scientific learners. We believe science is best learnt through long-time investigations and as a result 'enquiry' is a central focus of our curriculum - through this children also learn literacy, social, and mathematics skills. Enquiry requires learners to use specialised vocabulary, talk about experiences and record their observations and ideas. This echoes the value we place on children's speech and language development at the heart of our curriculum. In addition to enquiry another key curriculum driver is change. Change is observed, investigated and explored in many areas of the EYFS curriculum and by exploring this concept in a range of ways children begin to learn to make connections, predictions and reason. We believe that a secure understanding of concepts allows for authentic progression so these key themes are revisited throughout the year, for example, we don't just plant/garden in Spring or learn about making and mixing paint colours in one or two adult-led sessions. We build in opportunities to keep revisiting knowledge and skills, allowing children to master skills in different contexts and build on existing knowledge. We recognise that the resources we provide allow children to investigate these concepts and the continuous provision and enhancements we offer are carefully and skilfully introduced at the correct time to extend children's scientific learning. Children have access to and are introduced to non-fiction books, photos, video clips and other secondary sources to extend their knowledge and understanding of the world, E.g. photos of the children when they were babies to learn about change, age appropriate non-fiction books and TV programmes such as 'Do You Know?' to support learning in class and illustrate concepts.

Science

	A Unique Child	What this looks like at Ryton Federation
Scientific Knowledge and	To observe the effects of physical activity on their bodies.	During PE sessions and physical play adults model noticing changes to their body. They encourage children to think about why this might happen and

Conceptual Understanding	To talk about some of the things they have observed, such as plants, animals, natural and found objects. To talk about why things happen and how things work. To develop an understanding of growth, decay and changes over time. To show care and concern for living things and the environment. To begin to be interested in and describe the texture of things. To eat a healthy range of foodstuffs and understand a need for variety in food. To show some understanding that good practices with regard to exercise, eating, sleeping and hygiene can contribute to good health. To know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another.	explore the science in a way that is accessible to the children. All practitioners model talking about personal change, whether that being getting a hair-cut, wearing different clothes on a hot/cold day, feeling tired and we encourage the children to share their experiences and ideas to solve problems. Children are taught about healthy lifestyle choices through the daily routine, lunchtime, PE sessions and whole Federation projects. We help children to recognise, label and cope with emotions in small groups and at the time, in play. We invite range of professionals into school to talk about keeping safe such as police, road safety, dentist and doctors. Practitioners address hygiene messages through stories such as 'Don't Pick Your Nose, Pinocchio' and puppets. Children in Reception complete the daily outdoor safety check which helps them to look for risk in their environment. Through cooking, baking and finding out about/growing food children are exposed to new ingredients and are encouraged to try them. Discussions often take place about reversible and irreversible change. Through first hand practical experiences children explore growing their own/class plants – flowers and vegetables, they learn about taking care of the outdoor natural environment-gardening, looking after and finding out about wild life, they observe seasonal change, the changing weather, they learn about animals, having visits from animals, look after and learn about hens and tadpoles. Children and practitioners observe and find out together. Practitioners provide magnifying tools, clipboards, measuring tools-timers, tape measures, rulers, jugs with measurements, technology tools – ipads, photocopier and writing tools. They provide time, materials, displays/provocations to inspire children. Seasonal change is observed each half term and is a key driver in our curriculum. Children are taught how to and are encouraged to compare, observe and investigate similarities and differences, in humans, animals, places, materials, etc. They are taught how to sort, classify and justify/explain thinking using the correct vocabulary. In play children consider and explore forces such as air pressure, water pressure and gravity. They are naturally curious and enjoy testing out ideas in water play, on windy days, using blocks and balls.
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Scientific Skills	To comment and ask questions about aspects of their familiar world, such as the place where they live or the natural world. To look closely at similarities, differences, patterns and change. To know the importance for good health of physical exercise, and a healthy diet, and talk about ways to keep healthy and safe.	Scientific skills are embedded in our curriculum as we encourage and support problem solving, encourage and nurture children's curiosity, pose questions, model enquiry skills, use tools, make plans, predict outcomes, observe closely, talk about findings and gain evidence to support evolving ideas – guided by teachers open ended questions. Curiosity motivates children to learn and to try new things – a fundamental scientific attitude. We provide a safe environment for curious hands full of objects, materials, living things and experiences that are responsive to children's interests. We support children's explorations – even when they are messy, noisy or inconvenient. We provide experiences for children to observe phenomena over time- growth and change in living things and plants. We spend time identifying, classifying, comparing, grouping animals, food and materials.
Technical Terminology	To talk about why things happen and how things work.	Science conversations open doors for children to think differently about the world and use different ways of working. We want children to be able to use scientific vocabulary appropriately; enjoy scientific language; communicate their ideas and experiences in science; be articulate, eloquent, expressive and fluent when communicating their science. We introduce new scientific language that is directly related to immediate, concrete, every day, hands-on experiences; broadening their vocabulary and supporting them to use the same scientific language in a wider range of contexts. As well as develop new vocabulary children need to be supported to develop their describing and explaining skills. Staff model using this language and encourage the children to use it. Our staff team are central to this language development. We plan to help children to make connections between word and concept/event/object and ensure that this new vocabulary becomes part of the everyday language use of individual children. This means transferring the responsibility for using the language from the adult to the child. We challenge children to use the correct scientific terms by encouraging them to use scientific words, offering praise when they do so and making the acquisition of this language fun, for example, through using games, rhymes, riddles and songs.

	Children also need to master the language that enables them to describe their ideas or conceptual understanding in science: concepts relating to ideas such as forces, dissolve or gravity. Staff introduce these words when they feel the children's level of understanding would benefit from and be able to process these scientific labels. We appreciate that the concepts underpinning this language often take many years to develop and that children will hold many 'alternative ideas'. However, for the majority of children these 'alternative ideas' are a transitory phase through which they pass as they develop ideas that are scientifically acceptable. Exposing children to scientific language and continually helping them to challenge and refine their understanding of terms is an important role for the practitioners in our school. The language of science skills and processes (enquiry skills) is a type of language in science that children need to be exposed to: the language of 'doing' in science, which supports the development of skills and processes. This is frequently associated with the links between cause and effect, the relationships in science. For example: If we do this what will happen? If we change this then ... I think that will happen because . The more you ... the longer the will be. When planning science activities, the teacher identifies the scientific language which we intend to develop with the children as well as exploring language and concepts as they arise.
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