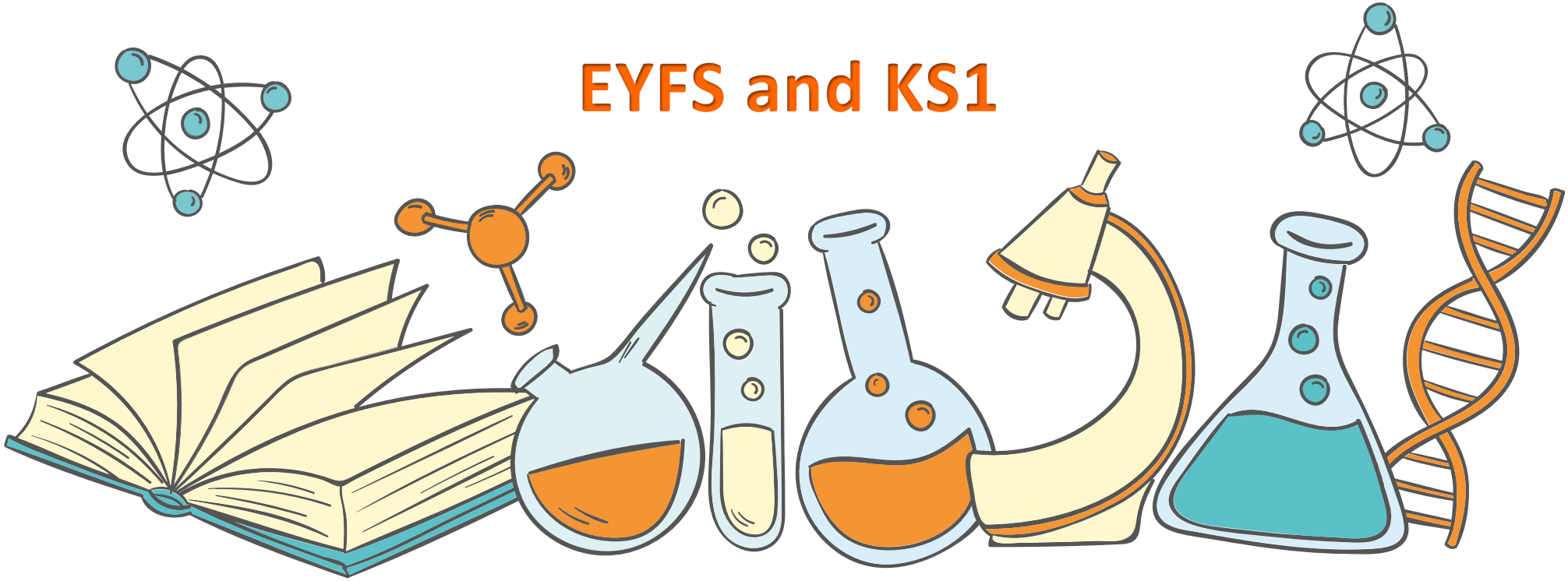
St Finbar's
Catholic Primary School

# Science

# Curriculum

## EYFS and KS1



# EYFS

The Early Years Foundation Stage (EYFS) at St. Finbar's Primary School plays a pivotal role in laying the groundwork for a child's scientific understanding, fostering a natural curiosity about the world and the scientific processes that govern it. Through a play-based and exploratory approach, EYFS introduces young learners to foundational scientific concepts, setting the stage for continued exploration in primary education. Activities in EYFS involve hands-on experiments, observations of the natural environment, and inquiries into cause and effect. These early experiences help children develop essential skills such as observation, questioning, and problem-solving, forming the basis for more structured scientific investigations in primary school.

As children progress from St. Finder's EYFS to KS1 and KS2, the foundational knowledge gained during the early years at the school serves as a platform for deeper scientific inquiry. Concepts like the properties of materials, living organisms, and the basic principles of forces and motion, initially introduced in EYFS, become building blocks for more advanced scientific learning. The emphasis on curiosity and experimentation in St. Finbar's EYFS cultivates a positive attitude toward scientific exploration, encouraging children to ask questions, make predictions, and seek answers — skills that are integral to their ongoing scientific education.

In summary, St. Finbar's EYFS plays a crucial role in sparking an early interest in science, laying the foundation for future scientific learning in primary education. The hands-on experiences and inquisitive approach fostered during the early years at St. Finder's create a seamless transition, enabling children to build on their knowledge and skills as they progress through their scientific education journey.

# Year 1

## Plants – Year 1
## National Curriculum Objectives

- 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.

## Sticky Knowledge

- Plants grow from seeds/bulbs.
- Plants need light and water to grow and survive.
- We can eat lots of plants.
- Garden plants are plants people choose to grow in their gardens.
- Weeds are wild plants that grow in places people don't want them.
- A wild plant grows where the seed lands. It doesn't need to be planted or cared for.

## Key Scientists

Beatrix Potter
(Botanist & Natural Scientist)

John Ray
(Naturalist)

## Vocabulary

blossom, branch, bud, bulb, deciduous, evergreen, flower, flowering, fruit, garden, leaf, leaves, petals, roots, seed, stem, trunk, vegetables, wild

## Prior Learning

**In EYFS Children should:**

- Make observations of plants.
- Know some names of plants, trees and flowers and begin to describe them.
- Show some care for the world around them.

## Future Learning

**In Year 2 Children will:**

- Observe and describe how seeds and bulbs grow into mature plants.
- Find out and describe how plants need water, light and warmth to grow and stay healthy.

## Key Questions

How do plants gow?

- What do plants need to grow?
- Do all plants need water?
- Are all plants green?
- Why do seeds look different?
- Can plants grow as big in the shade?
- What is the biggest/smallest/smelliest tree/flower/plant on the planet?

Which type of compost grows the tallest sunflower?
Which variety of potato grows best in our outdoor area?

How can we sort the leaves that we collected on our walk?
How many plants can we identify in our school grounds?

How does a daffodil bulb change over the year?
How does my sunflower change each week?

Do trees with bigger leaves lose their leaves first in autumn?
Is there a pattern in where we find moss growing in the school grounds?

What are the most common British plants and where can we find them?
How did Beatrix Potter help our understanding of mushrooms and toadstools?

**BIG Question (assessment opportunity)**

How many types of plants are there?

| Animals Including Humans – Year 1<br>National Curriculum Objectives | Sticky Knowledge | Key Scientists |
|---|---|---|
| • Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.<br>• Identify and name a variety of common animals that are carnivores, herbivores and omnivores.<br>• Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)<br>• Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense | • There are many different animals with different characteristics.<br>• Animals have senses to help individuals survive; when animals sense things they are able to respond.<br>• Animals need food to survive but different animals have different diets.<br>Animals need a variety of food to help them grow, repair their bodies, be active and stay healthy.<br><br>**Vocabulary**<br><br>arm, ears, elbow, eyes, face, fingers, foot, hair, hand, head, hearing, human body, knee, leg, mouth, neck, nose, sense, shoulder, sight, smell, sound, taste, teeth, texture, thumb, toes, touch, amphibians, animals, birds, carnivores, fish, habitat, herbivore, mammals, omnivore, pets, reptiles | Jane Goodall<br>(Primatologist)<br><br>Joan Beauchamp Procter<br>(Zoologist) |

| Prior Learning | Future Learning | Key Questions |
|---|---|---|
| **In Early Years children should:**<br>• Be able to identify different parts of their body.<br>• Have some understanding of healthy food and the need for variety in their diets.<br>• Be able to show care and concern for living things.<br>• Know the effects exercise has on their bodies.<br>• Have some understanding of growth and change.<br>Can talk about things they have observed including animals. | **In Year 2 children will:**<br>• Know that animals, including humans, have offspring which grow into adults.<br>• Know the basic stages in a life cycle for animals, including humans.<br>• Find out and describe the basic needs of animals, including humans, for survival (water, food and air).<br>Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene | • What do animals eat?<br>• Do all animals eat the same food?<br>• Which of our senses is the most accurate at identifying food?<br>• Do all animals hunt?<br>• Why are animals different colours and patterns? |

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| Is our sense of smell better when we can't see?  | How can we organise all the zoo animals?<br>What are the names for all the parts of our bodies?  | How does my height change over the year?  | Do you get better at smelling as you get older?  | Do all animals have the same senses as humans?<br>How do we look after animals?  | **BIG Question**<br>(assessment opportunity)<br><br>What are animals like? |

| Everyday Materials – Year 1<br>National Curriculum Objectives | Sticky Knowledge | Key Scientists |
|---|---|---|
| • Distinguish between an object and the material from which it is made.<br>• Identify and name a variety of everyday materials, including wood, metal, plastic, glass, water and rock.<br>• Describe the simple physical properties of a variety of everyday materials.<br>• Compare and group together a variety of everyday materials on the basis of their simple properties. | • There are many different materials that have different describable and measurable properties.<br>• Materials that have similar properties are grouped into metals, rocks, fabrics, wood, plastic, ceramics and glass.<br>The properties of a material determine whether they are suitable for a purpose.<br><br>**Vocabulary**<br><br>absorbent, bendy, dull, glass, hard, material, metal, object, opaque, plastic, properties, rock, rough, shiny, smooth, soft, stiff, stretchy, transparent, water, waterproof, wood | Charles Mackintosh<br>(Chemist & Inventor)<br><br>Ole Kirk Christiansen<br>(Inventor) |

| Prior Learning | Future Learning | Key Questions |
|---|---|---|
| **In Early Years children should:**<br>• Be able to ask questions about the place they live.<br>• Talk about why things happen and how things work.<br>• Discuss the things they have observed such as natural and found objects.<br>• Manipulate materials to achieve a planned effect. | **In Year 2 Children will:**<br>• Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.<br>• Find out how shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. | • When is a wooden spoon more suitable than a plastic spoon?<br>• Are all metals the same?<br>• Is glass only used for windows?<br>• Is all glass transparent?<br>• Which materials can be recycled? |

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| Which materials are the most flexible?<br><br>Which materials are the most absorbent? | We need to choose a material to make an umbrella. Which materials are waterproof? | What happens to materials over time if we bury them in the ground?<br><br>What happens to ice over time? | Is there a pattern in the types of materials that are used to make objects in a school? | How is glass made?<br><br>What happens to our recycling? | **BIG Question**<br>(assessment opportunity)<br><br>What are the things I have used in my model made from? Why are they the best choice for the job? |

| Seasonal Change– Year 1<br>National Curriculum Objectives | Sticky Knowledge | Key Scientists |
|---|---|---|
| • Observe changes across the four seasons.<br>• Observe and describe weather associated with the seasons and how day length varies. | • Weather can change.<br>• The weather includes the temperature outside, wind direction and strength, as well as rain, cloud, snow and sun.<br>• Daylight is when it is light outside. The amount of daylight changes with the seasons.<br>• There are four seasons: spring, summer, autumn, winter | George James Symons (Meteorologist)<br><br>Anders Celsius (Astronomer, Physicist & Mathematician) |
| | **Vocabulary** | |
| | autumn, changes, day length, overcast, rain, seasons, snow, spring, summer, Sun, sunny, temperature, weather, wind, winter | |

| Prior Learning | Future Learning | Key Questions |
|---|---|---|
| **In Early Years children should:**<br>• Developing an understanding of change.<br>• Observe and explain why certain things may occur (e.g leaves falling off trees, weather changes).<br>• Look closely at similarities, differences, patterns and change.<br>• Make comments and questions about the place they live or the wider natural world. | **In Year 3 Children will:**<br>• Recognise that they need light in order to see things and that dark is the absence of light.<br>• Notice that light is reflected from surfaces.<br>• Recognise that light from the sun can be dangerous and that there are ways to protect their eyes.<br>• Recognise that shadows are formed when the light from a light source is blocked by a solid object.<br>• Find patterns in the way that the sizes of shadows change. | • How long does it take for the ground to dry after it has been raining?<br>• Do countries with higher temperatures have less rain?<br>• How does rainfall and temperature change over time in our school grounds?<br>• What do you notice about different leaves?<br>• Why do you think leaves turn brown in autumn?<br>What colours can we find outside? Does this change across the seasons?<br>• What effect does rain have on the environment?<br>• What would happen if there was too much or not enough rain? |

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| In which month does it rain the most? | How would you identify and record the weather over a week or month? | How does a tree change over a year? | Does the wind always blow the same way? | Which countries in the world have different types of weather to us? | **BIG Question**<br>(assessment opportunity)<br><br>What is it like in spring, summer, autumn and winter? |

# Year 2

## Living Things and Their Habitats – Year 2 National Curriculum Objectives

- Explore and compare the difference between things that are living, dead and things that have never been alive.
- Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other.
- Identify and name a variety of plants and animals in their habitats, including micro-habitats.
- Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name the different sources of food.

## Sticky Knowledge

- Some things are living, some were once living but now dead and some things never lived.
- All living things move, breathe, sense, grow, make babies, get rid of waste and get their energy from food.
- Different animals and plants live in different places. Living things are adapted to survive in different habitats.
- Environmental change can affect plants and animals that live there.
- Arrows in a food chain show the flow of energy.

### Vocabulary

alive, animals, basic needs, characteristics, conditions, dead, depend on, environment, food, food chain, habitat, healthy, living, micro-habitat, plants, provide, shelter, sources, suited

## Key Scientists

Sylvia Earle
(Marine Biologist & Explorer)

Ernest Shackleton
(Arctic Explorer)

## Prior Learning

**In EYFS children should:**

- Make comments and questions about the place they live and the wider natural world.
- Notice features of objects in their environment.
- Talk about things they have observed such as plants and animals.
- Show care and concern for living things and the environment.

## Future Learning

**In Year 4 children will:**

- Recognise that living things can be grouped in a variety of ways.
- Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.
- Recognise that environments can change and that this can sometimes pose danger to living things .

## Key Questions

Do all animals eat the same thing?

- Which animals hunt, and which animals are hunted?
- What animals live in our school environment?
- How are animals and plants 'adapted' to live in their habitats?
- Why do animals and plants like to live in different places?
- How do seasons affect our animals and plants?
- Which animals hibernate and why?

Which pets are the easiest to look after? Is there the same level of light in the evergreen wood compared with the deciduous wood?

How would you group these plants and animals based on what habitat you would find them in?

How does the school pond change over the period of a year?

What conditions do woodlice prefer to live in? Which habitat do worms prefer – where can we find the most worms?

How are the animals in India different to the ones that we find in Britain?

**BIG Question**
(assessment opportunity)

Why do different animals live in different places?

| Plants – Year 2<br>National Curriculum Objectives | Sticky Knowledge | Key Scientists |
|---|---|---|
| • Observe and describe how seeds and bulbs grow into mature plants.<br>• Find out and describe how plants need water, light and warmth to grow and stay healthy. | • Plants grow from seeds/bulbs.<br>• Plants need light, water and warmth to grow and survive.<br>• Flowers make seeds to make more plants (reproduce).<br>• Plants are important.<br>• We need plants to survive (to clean air, to eat).<br>• We can eat different parts of the plants (leaves, stems, roots, seeds, fruit).<br><br>**Vocabulary**<br><br>bulbs, environment, germination, grow, healthy, light, mature plants, reproduction, seeds, store of food, survival, temperature, water | Jane Colden<br>(Botanist)<br><br>Agnes Arber<br>(Botanist) |

| Prior Learning | Future Learning | Key Questions |
|---|---|---|
| **In Year 1 Children should:**<br>• Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.<br>Identify and describe the basic structure of a variety of common flowering plants. | **In Year 3 Children will:**<br>• Identify and describe the functions of different parts of the flowering plant: roots, stem/trunk/leaves and flowers.<br>• Explore the part flowers play in a flowering plants life cycle, including: pollination, seed formation and seed dispersal.<br>• Explain the requirements of plants for life and growth (air, light, water, nutrients from soil, room to grow) and how they vary between plants.<br>• Investigate the way in which water is transported between plants. | • Do cress produce seeds, how could we find out?<br>Do all plants produce flowers and seeds?<br>• What is different between freshly cut and planted flowers?<br>• Do plants flower all year round?<br>• What are flowers for?<br>• What happens to a plant after it has produced seeds?<br>• How does light affect plant growth?<br>• How does warmth affect plant growth? |

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| Do cress seeds grow quicker inside or outside? | Can we identify and group different seeds and bulbs? | What happens to my bean after I have planted it? | Do bigger seeds grow into bigger plants? | How does a cactus survive in a desert with no water? | **BIG Question**<br>(assessment opportunity)<br><br>What should I do to grow a healthy plant? |

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| **Animal including Humans – Year 2 National Curriculum Objectives** | | **Sticky Knowledge** | | | **Key Scientists** |
| • Notice that animals, including humans, have offspring which grow into adults.<br>• Find out about and describe the basic needs of animals, including humans, for survival (water, food and air).<br>• Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. | | • Different animals move in different ways to help them survive.<br>• Exercise and a good diet keeps animals' bodies in good condition and increases survival chances.<br>• Animals reproduce new animals when they reach maturity. Some animals give birth to live young and some animals lay eggs.<br>• Animals grow until maturity and then don't grow any larger. All animals eventually die.<br>• To stop illness and infection we need to maintain a healthy lifestyle and keep ourselves clean. | | | Maria Sibylla Merian (S cientific Illustrator & Entomologist)<br><br>Louis Pasteur (Biologist & Chemist) |
| | | **Vocabulary** | | | |
| | | adult, air, animals, baby, basic needs, child, exercise, food, growth, humans, hygiene, maturity, nutrition, offspring, reproduction, survival, teenager, toddler, water, egg/chick/chicken, spawn/tadpole/frog, egg/caterpillar/pupa/butterfly, lamb/sheep | | | |
| **Prior Learning** | | **Future Learning** | | **Key Questions** | |
| **In Year 1 Children should:**<br>• Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.<br>• Identify and name a variety of common animals that are carnivores, herbivores and omnivores. | | **In Year 3 Children will:**<br>• Identify that animals, including humans, need the right types and amount of nutrition, and they cannot make their own food; they get their nutrition from what they eat.<br>• Know how nutrients, water and oxygen are transported within animals and humans.<br>• Know about the importance of a nutritious, balanced diet.<br>• Identify that humans and some other animals have skeletons and muscles for support, protection and movement. | | • Do all animals grow and live the same way?<br>• Do bigger animals live longer?<br>• Why are we all different heights?<br>• How and why do we grow and change?<br>• What do we 'want' and what do we 'need'?<br>• Why do we need to eat different types of food?<br>• Do all babies look like their parents? | |
| Do bananas make us run faster? | Which offspring belongs to which animal? | How does a tadpole/butterfly change over time? | Which age group of children wash their hands the most in a day? | What food do you need in a healthy diet and why? | **BIG Question** (assessment opportunity)<br><br>Do living things change or stay the same? |

## Uses of Everyday Materials - Year 2
## National Curriculum Objectives

- Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.
- Find out how shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.

## Sticky Knowledge

- Materials can be changed by physical force (twisting, bending, squashing and stretching).
- Materials can be used for more than one thing e.g. metal: coins, cans, cars, table legs.
- Different materials can be used for the same thing e.g. a spoon made from wood, metal, plastic.
- Suitability means having the right properties for a particular purpose.

### Vocabulary

bending, brick, cardboard, changed, glass, materials, metal, paper, plastic, properties, purpose, rock, shapes, squashing, stretching, suitability, suitable, twisting, unsuitable, uses, wood

## Key Scientists

John Dunlop
(Inventor)

Robert Gair
(Inventor)

## Prior Learning

**In Y1 children should:**

- Distinguish between an object and the material from which it is made.
- Identify and name a variety of everyday materials, including wood, metal, plastic, glass, 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 properties.

## Future Learning

**In Year 3 children will:**

- Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.
- Describe in simple terms how fossils are formed when things that have lived are trapped within rock.
- Recognise that soils are made from rocks and organic matter.

## Key Questions

Which rocks are the least crumbly?
Which materials absorb the most water?
Which material would be the strongest to use as to make a roof on a model?
How long do plastics last for?
What types of bricks can you see in our village?
Which material makes the bounciest ball?
What are aeroplane wheels made from and why?

Are all objects made out of metal rigid?

Can you group different types of paper and cardboard?

How do different types of paper/card change over time when they are buried in the ground?

How does water affect the strength of different types of paper or cardboard?

How is corrugated cardboard made?

**BIG Question**
(assessment opportunity)

What is the best material for each part of my model?