

## **Stoke Prior First School Curriculum Offer for Science**

Children develop their scientific understanding by exploring and investigating the world around them. Here at Stoke Prior, through a range of first hand practical experiences they are supported to make observations, comparisons, test and record ideas, make predictions and consider evidence. They are encouraged to be curious, ask questions and develop an enquiring mind. The children will develop scientific vocabulary which will enable them to communicate their findings.

The teaching of science comprises of class, group and individual activities taught through topic based work and the children have access to a wide range of resources including forest school, Science week, visits and visitors. The school spends a whole day outside ('outdoor day') each term, to focus on seasonal aspects and the outdoor environment.

## **Curriculum – Knowledge, Skills and Understanding**

### **Foundation Stage**

Practitioners use the development statements within Development Matters and children's interests to identify possible areas in which to challenge and extend the child's current learning and development.

#### **Understanding the World**

##### **ELG: 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.**

Children in Reception undertake science activities throughout the year. Lifecycles of humans, seasonal changes in the environment and nocturnal animals are all learned about within topics. There are numerous opportunities for the children to observe and discuss changes within investigations. For example, a pumpkin is left to decay over a number of weeks and the children revisit often.

- asking simple questions and recognising that they can be answered in different ways
- observing closely, using simple equipment
- performing simple tests
- identifying and classifying
- using their observations and ideas to suggest answers to questions
- gathering and recording data to help in answering questions.

## **Knowledge**

### Biology

**To understand plants-Using the plants around the school grounds for observation and investigation, growing plants in class 'outside areas' from seed and seedling and tending to these plants daily in the form of watering or picking fruit. Y1 plant nasturtiums and Y2 plant a variety of seeds. We have a many plants growing in containers around the playground, including a selection of herbs and additionally we have a vegetable patch.**

- Identify and name a variety of common plants, including garden plants, wild plants and trees and those classified as deciduous and evergreen.
- Identify and describe the basic structure of a variety of common flowering plants, including roots, stem/trunk, leaves and flowers.
- 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.

**To understand animals and humans- Year 1 visit the West Midlands Safari park to see a variety of animals from all the different animal groups**

**Class 1 take part in a mini- beast hunt in the school grounds. Forest school also gives opportunities for all children to observe local wildlife in school. Our school environment is full of different plants, both wild and cultivated.**

**We welcome the animal man/woman into school to bring a selection of animals that we can handle and observe close up.**

- Identify and name a variety of common animals that are birds, fish, amphibians, reptiles, mammals and invertebrates.
- Identify and name a variety of common animals that are carnivores, herbivores and omnivores.
- Describe and compare the structure of a variety of common animals (birds, fish, amphibians, reptiles, mammals and invertebrates, including pets).
- Identify name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.

- Notice that animals, including humans, have offspring which grow into adults.
- Investigate and describe the basic needs of animals, including humans, for survival (water, food and air).
- describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.

**To investigate living things and their habitats-using the school grounds the children are able to observe different types of habitats from bird's nests to butterflies around the Buddleia bush. During forest school the children have the opportunity to observe and make homes for mini-beasts. We have some bird boxes around school. We have bats living in the ceiling space within school, they are protected by law and we endeavour to let them live peacefully in our school community.**

- Explore and compare the differences between things that are living, that are dead and 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 different sources of food

### **Chemistry**

**To investigate materials-Identification of materials on Stoke prior school site.**

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

### **Physics**

**Seasonal Changes-The variety of plant life around school is observed throughout the year to watch as it changes as the seasons pass.**

- Observe changes across the four seasons.
- Observe and describe weather associated with the seasons and how day length varies.

## **Key Stage 2**

### **Skills**

- asking relevant questions and using different types of scientific enquiries to answer them
- setting up simple practical enquiries, comparative and fair tests
- making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- identifying differences, similarities or changes related to simple scientific ideas and processes
- using straightforward scientific evidence to answer questions or to support their findings.

### **Knowledge**

#### Biology

#### **To understand plants-Looking at the varied trees and plants within the grounds of the school.**

Identify and describe the functions of different parts of flowering plants: roots, stem, leaves and flowers.

Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant.

Investigate the way in which water is transported within plants.

Explore the role of flowers in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.

**To understand animals and humans- The 'Animal Man' visits school bringing examples of different species for the children to observe and find out about first hand (particularly the smell!)**

Identify that animals, including humans, need the right types and amounts of nutrition, that they cannot make their own food and they get nutrition from what they eat.

Construct and interpret a variety of food chains, identifying producers, predators and prey.

Identify that humans and some animals have skeletons and muscles for support, protection and movement.

Describe the simple functions of the basic parts of the digestive system in humans.

Identify the different types of teeth in humans and their simple functions

### **To investigate living things and their habitats**

- 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 dangers to living things

### **Chemistry**

**To investigate Materials, Rocks and Soils-Stoke-Prior has a large collection of rocks and fossils for the children to investigate.**

- Compare and group together different kinds of rocks on the basis of their simple, physical properties.
- Relate the simple physical properties of some rocks to their formation (igneous or sedimentary).
- Describe in simple terms how fossils are formed when things that have lived are trapped within sedimentary rock.
- Recognise that soils are made from rocks and organic matter.

**States of Matter- principle of a substance changing state. The children experiment with butter and chocolate to compare the melting point of both materials.**

- Compare and group materials together, according to whether they are solids, liquids or gases.
- Observe that some materials change state when they are heated or cooled, and measure the temperature at which this happens in degrees Celsius (°C),
- Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature

## **Physics**

**To understand movement, forces and magnets**

- Compare how things move on different surfaces.
- Notice that some forces need contact between two objects and some forces act at a distance.
- Observe how magnets attract or repel each other and attract some materials and not others.
- Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet and identify some magnetic materials.
- Describe magnets as having two poles.
- Predict whether two magnets will attract or repel each other, depending on which poles are facing.

**To understand light and seeing**

- recognise that they need light in order to see things and that dark is the absence of light
- notice that light is reflected from surfaces
- recognise that light from the sun can be dangerous and that there are ways to protect their eyes

- recognise that shadows are formed when the light from a light source is blocked by a solid object
- find patterns in the way that the size of shadows change

### ***Electricity***

- identify common appliances that run on electricity
- construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers
- identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery
- recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit
- recognise some common conductors and insulators, and associate metals with being good conductors.

### ***Sound***

- identify how sounds are made, associating some of them with something vibrating
- recognise that vibrations from sounds travel through a medium to the ear
- find patterns between the pitch of a sound and features of the object that produced it
- find patterns between the volume of a sound and the strength of the vibrations that produced it
- recognise that sounds get fainter as the distance from the sound source increases

Science at Stoke Prior First School teaches children an understanding of natural phenomena. It stimulates a children's curiosity in to finding out why things happen in the way that they do. It teaches methods of enquiry and investigation to stimulate creative thought. Children learn to ask scientific questions and begin to appreciate the way in which science will affect the future on a personal, national and global level. We are proud of our science curriculum and our children leave the school with excellent scientific skills and are ready for the next stage of their education.

