Bearnes Science Progression Document 2022/2023

Oaks (Early Years)

Science in the Foundation Stage is covered in the 'Understanding the World' area of the EYFS curriculum. It is introduced indirectly through activities that encourage every child to explore, problem solve, observe, predict, think, make decisions and talk about the world around them.

Below is a short overview of science in EYFS – please see the EYFS Curriculum area for more information

Examples - What might you see?	Early Learning Goal – Understanding the World
Water tray (floating, sinking, absorbency of materials) Sand tray/pit (consistency of materials, role play) Bug hunts (mats/logs to turn over and wild flower) Construction area (junk modelling, different types of materials) Growing area (seeds, plants, minibeasts) Mud kitchen (consistency of materials, scented herbs, stones, minibeasts) Sound (musical instruments and sound) Small world (different animals, props, dolls' house) Playdough area (birthday props/cake decorations to encourage talk about changing and growing)	From guidance from Development Matters, exemplification materials for ELG 14 'The World' and exceeding statements. 30-50 months: • Comments and asks questions about aspects of their familiar world such as the place where they live or the natural world. • Can talk about some of the things they have observed such as plants, animals, natural and found objects. • Talks about why things happen and how things work. • Developing an understanding of growth, decay and changes over time. • Shows care and concern for living things and the environment. 40-60 months: • Looks closely at similarities, differences, patterns and change. Early Learning Goal: Children 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. They make observations of animals and plants and explain why some things occur, and talk about changes.

CHESTNUTS (Yr1 & Yr2)

<table>
<tr><th></th><th>Autumn</th><th>Spring</th><th>Summer</th></tr>
<tr><td rowspan="2">Year A</td><td>Everyday materials (Y1)
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.
Uses of everyday materials (Y2)
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 the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching</td><td>Animals including humans (Y1)
identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals
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 (fish, amphibians, reptiles, birds and mammals, 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.</td><td>Living things and their habitats (Y2)
explore and compare the differences 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 different sources of food.</td></tr>
<tr><td colspan="3">Seasonal Changes (Y1)
observe changes across the four seasons – this includes looking at tress and plants
observe and describe weather associated with the seasons and how day length varies
Pupils should observe and talk about changes in the weather and the seasons. Pupils might work scientifically by: making tables and charts about the weather; and making displays of what happens in the world around them, including day length, as the seasons change</td></tr>
<tr><td rowspan="2">Year B</td><td>Animals including humans (Y2)
notice that animals, including humans, have offspring which grow into adults
find out about 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</td><td>Plants (Y1)
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</td><td>Plants (Y2)
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.</td></tr>
<tr><td colspan="3">Seasonal Changes (Y1)
observe changes across the four seasons – this includes looking at trees and plants
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Sycamores (Yr3 & Yr4)

	Autumn	Spring	Summer
Year A	**Animals, including humans (Y3)** • identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat • identify that humans and some other animals have skeletons and muscles for support, protection and movement **Animals, including humans (Y4)** • 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 • construct and interpret a variety of food chains, identifying producers, predators and prey	**Light (Y3)** • 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 an opaque object • find patterns in the way that the size of shadows change	**Sound (Y4)** • 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 **Electricity (Y4)** • 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
Year B	**Rocks (Y3)** • 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 **States of Matter (Y4)** • 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 or research 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	**Forces and Magnets (Y3)** • compare how things move on different surfaces • notice that some forces need contact between 2 objects, but magnetic forces can 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 2 poles • predict whether 2 magnets will attract or repel each other, depending on which poles are facing	**Plants (Y3)** • identify and describe the functions of different parts of flowering plants: roots, stem/trunk, 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 part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal **Living things and their habitats (Y4)** • 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

Redwoods (Yr5 & Yr6)

	Autumn	Spring	Summer
Year A	**Evolution and Inheritance (Y6)** • recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago • recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents • identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. **Animals including Humans (Y5)** • describe the changes as humans develop to old age (links with Jigsaw – Changing Me)	**Earth and space (Y5)** • describe the movement of the Earth, and other planets, relative to the Sun in the solar system • describe the movement of the Moon relative to the Earth • describe the Sun, Earth and Moon as approximately spherical bodies • use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.	**Forces (Y5)** • explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object • identify the effects of air resistance, water resistance and friction, that act between moving surfaces • recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. **Properties and changes of materials (Y5)** • compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets • know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution • use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating • give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic
Year B	**Light (Y6)** • recognise that light appears to travel in straight lines • use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye • explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes • use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. **Electricity (Y6)** • associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit • compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches • use recognised symbols when representing a simple circuit in a diagram.	**Animals including humans (Y6)** • identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood • recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function • describe the ways in which nutrients and water are transported within animals, including humans.	**Living things and their habitats (Y5)** • describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird • describe the life process of reproduction in some plants and animals **Living things and their habitats (Y6)** • describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals • give reasons for classifying plants and animals based on specific characteristics **Properties and changes of materials (Y5)** • demonstrate that dissolving, mixing and changes of state are reversible changes • explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.