Lammack Primary School

Science Curriculum Overview

KS1 Year A

Living things and their habitats
Pupils should be taught to:
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 microhabitats
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

Animals, including humans
Pupils should be taught to:
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

Animals, including humans
Pupils should be taught to:
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

Seasonal changes
Pupils should be taught to:
observe changes across the 4 seasons
observe and describe weather associated with the seasons and how day length varies

Working Scientifically
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

Year 3 Year A

Light
- 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
- 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

Forces and magnets
- 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

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

Working Scientifically
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.

Year 4 Year A

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

Light
- 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
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- 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

Forces and magnets
- 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

Year 5

Properties and changes of materials
Pupils should be taught to:
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
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. Recap the water cycle

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Living things and their habitats
Pupils should be taught to:
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

Animals, including humans
Pupils should be taught to:
describe the changes as humans develop to old age

Working Scientifically
planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
using test results to make predictions to set up further comparative and fair tests
reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations
identifying scientific evidence that has been used to support or refute ideas or arguments

Year 6

Living things and their habitats
Pupils should be taught to:
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

Evolution and inheritance
Pupils should be taught to:
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

Light
Pupils should be taught to:
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
Pupils should be taught to:
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
Pupils should be taught to:
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

Lammack Primary School

Science Curriculum Overview

KS1 Year B

Everyday materials
Pupils should be taught to:
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
Pupils should be taught to:
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.

Plants
Pupils should be taught to:
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
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

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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
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Lower KS2 Year B

Plants
- 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

Animals, including humans
- 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

States of matter
- 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

Rocks
Pupils should be taught to:
- 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

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

Animals, including humans
- 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

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