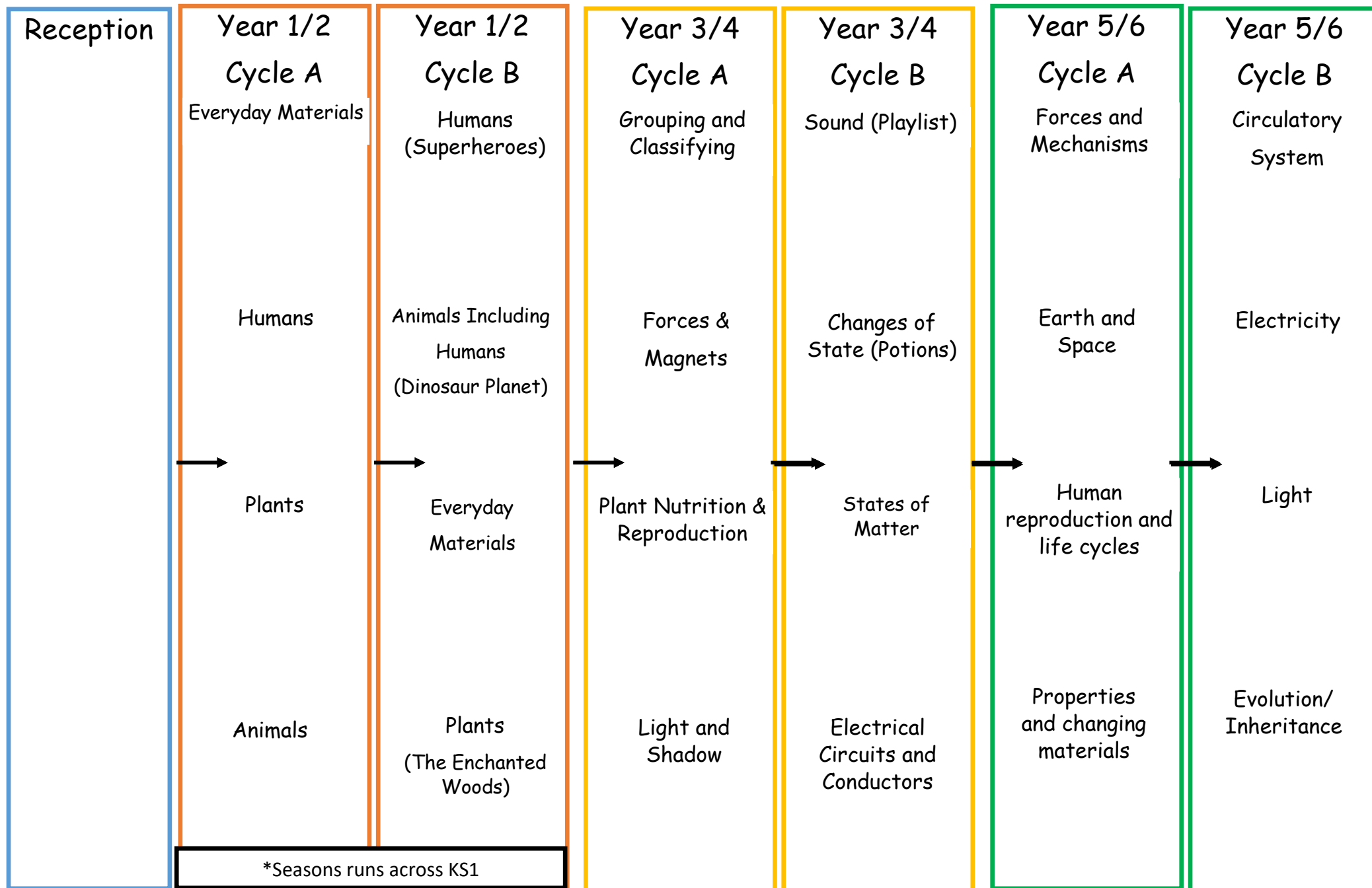


West Tyne Church Schools Federation

Science Long Term Plan





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Science Long Term Plan



AT1 across Year 1 and 2

- Gather and record data to help in answering questions.
- Ask simple questions and recognise that they can be answered in different ways.
- Perform simple tests
- Identify and classify
- Use their observations and ideas to suggest answers to questions.
- Are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.
- Develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics.

AT1 across Year 3 and 4

- Gather, record, classify and present data in a variety of ways to help in answering questions.
- Ask relevant questions and using different types of scientific enquiries to answer them.
- Identify differences, similarities or changes related to simple scientific ideas and processes.
- Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.
- Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.
- Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.
- Set up simple practical enquiries, comparative and fair tests.

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

AT1 across Year 5 and 6



Circulatory System

- 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

Electricity

- 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

Light

- 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.
- Recognise that light appears to travel in straight lines.

Evolution and Inheritance

- Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.
- Develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them.
- Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents



Forces and Mechanisms

- Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object
- Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.

Earth and Space

- 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.
- Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.

Human Reproduction and Life Cycles

- Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.

Properties and changes of Materials

- 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.
- Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.
- Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.



Grouping and Classifying

- Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.

Forces and Magnets

- 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.
- Compare how things move on different surfaces.
- Describe magnets as having two poles.
- Notice that some forces need contact between two objects, but magnetic forces can act at a distance.

Plant Nutrition and Reproduction

- Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.
- Investigate the way in which water is transported within plants.
- Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.

Light and Shadow

- Notice that light is reflected from surfaces.
- Find patterns in the way that the size of shadows change.
- Recognise that shadows are formed when the light from a light source is blocked by a solid object.



Sound

- 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.
- Identify how sounds are made, associating some of them with something vibrating.

Changes of state (potions)

- 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 Celsius ($^{\circ}\text{C}$).

States of Matter

- Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.
- Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees ($^{\circ}\text{C}$).
- Recognise that environments can change and that this can sometimes pose dangers to living things.

Electrical Circuits and Conductors

- Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.
- Identify common appliances that run on electricity.
- 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.



Everyday Materials (Moon Zoom)

- Compare and group together a variety of everyday materials on the basis of their simple physical properties.
- Describe the simple physical properties of a variety of everyday materials.
- Distinguish between an object and the material from which it is made.

Humans

-

Plants

-

Animals Including Humans (Paws, Claws and Whiskers)

- Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets).
- Identify and classify.
- Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.

Seasonal Changes (Splendid Skies) - taught throughout the year

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



Humans (Superheroes)

- 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 (Dinosaur Planet)

- Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets).
- Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.

Everyday Materials

- Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.
- Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees (°C).
- Recognise that environments can change and that this can sometimes pose dangers to living things.

Plants (The Enchanted Woodland)

- Identify and describe the basic structure of a variety of common flowering plants, including trees.
- Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.

Seasonal Changes (Splendid Skies) - taught throughout the year

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