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| Subject | Science |
| Term | Cycle 3 |
| Duration (approx.) | 10 lessons |
| Module | Biology— Adaptations and inheritance |

Factual knowledge to be taught and assessed (including subject specific vocabulary)

Describe some resources that plant and animals compete for. **Describe** how organisms are adapted to their environments.

Describe how organisms adapt to environmental changes. **Describe** how competition can lead to adaptation.

Describe how variation in species occurs. **Describe** the difference between environmental and inherited variation.

Describe the difference between continuous and discontinuous variation. **Represent** variation within a species using graphs.

Describe how characteristics are inherited. **Describe** how scientists worked together to develop the DNA model.

Describe the process of natural selection.

Describe how organisms evolve over time.

Skills and concepts to be developed

Carry out investigations and interpret the results.

Formative Assessment one:

Use of key words in a synoptic paragraph linked to the module

Formative Assessment two:

Tally results of given data. Plot a bar chart and a histogram. Identify and explain which data is continuous and discontinuous.

Summative Assessment:

End of cycle test.

This test will cover questions from the topic and previous topics to check understanding.

Link to prior learning:

Literacy and Numeracy:

How will high standards be promoted in this module?

Literacy -

Formative test 1 – key words and descriptions

Formative test 2 – Descriptive conclusion of results

Numeracy – Graph work to plot distribution

Link Forward: Where next for learning?

KS4 GCSE Biology

| | |
|---------------------------|-------------------------------------|
| Subject | Science |
| Term | Cycle 3 |
| Duration (approx.) | 5 lessons |
| Module | Chemistry— Earth's Atmosphere |

Factual knowledge to be taught and assessed (including subject specific vocabulary)

The Earth and its atmosphere – **Compare** the layers of the Earth, **Describe** the composition of the atmosphere.

Rock formation and rock cycle – **State** the properties of sedimentary, igneous and metamorphic rocks, **Explain** how these rocks form, **Use** the rock cycle to explain how the material in rocks are recycled. Be able to **recall** key stages of the rock cycle.

The Carbon Cycle – **State** key stages of the carbon cycle, **Explain** why the concentration of carbon dioxide and other gases in the atmosphere have changed over time. **Use** the carbon cycle to identify stores of carbon.

Climate Change – **Draw** the greenhouse effect and understand its impact of climate change, **Explain** why global warming happens, **Explain** some impacts of global warming.

Skills and concepts to be developed

Carry out investigations and interpret the results.

Formative Assessment one:

Use of key words in a synoptic paragraph linked to the module

Formative Assessment two:

FT2 – Use data provided on fuel useage in the UK to draw a bar chart.

(Application of knowledge)

Summative Assessment:

End of cycle test.

This test will cover questions from the topic and previous topics to check understanding.

Link to prior learning:

KS2 – Recognise that environments can change and that this can sometimes pose dangers to living things.

Y7 Periodic Table – Elements and compounds

Literacy and Numeracy:

How will high standards be promoted in this module?

Literacy -

Formative test 1 – key words and descriptions

Formative test 2 – Descriptive conclusion of results

Numeracy – Graph work to plot distribution

Link Forward: Where next for learning?

KS4:

C13 The Earth's atmosphere

C14 The Earth's Resources

| | |
|---------------------------|--|
| Subject | Science |
| Term | Cycle 3 |
| Duration (approx.) | 5 lessons |
| Module | Chemistry— Metals and acids/ Earths atmosphere |

Factual knowledge to be taught and assessed (including subject specific vocabulary)

Acids & Metals – Compare the reactions of different metals with dilute acids, Explain the test for hydrogen gas. Naming salts.
 Metals & Oxygen – Compare the reactions of different metals with oxygen, Use state symbols in balanced formula equations. Metals & Water – Compare the reactions of metals with water, use the reactivity series to predict reactions.
 Metals & Displacement – Predict pairs of substances that react in displacement reactions, use the reactivity series to explain displacement reactions.
 Reactivity Series – Use the reactivity series to decide which metals can be extracted from their ores by heating with carbon, calculate the amounts of metals in ores.

Skills and concepts to be developed

Connections between atoms and organisation of the periodic table.

Formative Assessment one:

FT1a – Key word spellings/pronunciation + Glossary
 FT1b – Use of key words in sentences

Formative Assessment two:

FT2 – Use data provided on metal and acid reaction to plot a graph for the volume of hydrogen gas released over time.
 (Application of knowledge)

Summative Assessment:

End of cycle test
 This test will cover questions from this topic and current cycle topics to check understanding.

Link to prior learning:

KS2: Reactions occur with everyday materials and some materials will dissolve in liquids Some will be able to explain that some changes result in the formation of new materials that are usually not reversible.

Year 7. Atoms elements and compounds. Structure of the atom also revisited in the Electricity unit.

Literacy and Numeracy: How will high standards be promoted in this module?

Literacy -

FT1a – spellings, pronunciations and definitions of key terms
 FT1b – Use of key words in sentences

Numeracy –

FT2 – Use atomic number and mass number to Identify number of sub atomic particles, electron arrangement, group and period.
 Interpreting graphs, using percentages

Link Forward: Where next for learning?

KS4 GCSE Chemistry
 C2 – The Periodic Table – Understanding trends/reactivity
 C5 – Chemical reactions and energy changes

| | |
|---------------------------|---------------|
| Subject | Science |
| Term | Cycle 3 |
| Duration (approx.) | 10 lessons |
| Module | Physics—Sound |

Factual knowledge to be taught and assessed (including subject specific vocabulary)

Define longitudinal and transverse waves

State examples of each type of wave

Describe key features of a wave including amplitude, wavelength, peak, trough, frequency

Describe the link between frequency and pitch, amplitude and volume of a sound waves including recognising differences on an oscilloscope.

Reflection of sound wave is an echo.

Law of reflection.

Refraction including different densities.

the transmission of light through materials: absorption, diffuse scattering and specular reflection at a surface.

Colour absorption and reflection from different coloured surfaces and their appearance through different coloured filters or in different colours of light.

Skills and concepts to be developed

Use of ray boxes, mirrors, prisms to investigate reflection, dispersion and refraction.

Use filters to determine what colours are absorbed or transmitted

Formative Assessment one:

FT1a – Key word spellings/pronunciation + Glossary

FT1b – Use of key words in sentences

Formative Assessment two:

FT2 – Plot data a graph for the speed of wave through different materials.

(Application of knowledge)

Summative Assessment:

End of cycle test

This test will cover questions from this topic and current cycle topics to check understanding.

Link to prior learning:

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

Literacy and Numeracy: How will high standards be promoted in this module?

Literacy -

FT1a – spellings, pronunciations and definitions of key terms

FT1b – Use of key words in sentences

Numeracy –

FT2 – Plotting and analysing graph data graph

Link Forward: Where next for learning?

KS4 GCSE Physics

P12 wave properties

P13 Electromagnetic waves