

Upper Key Stage 2 Cycle A – Autumn 1



Inheritance and Evolution

Knowledge

What is evolution? (Theory that explains how living things changes over a long time, and how they have come to be the way they are)

Do all living things produce offspring's that look identical to themselves? What type of characteristics can a living thing pass to its offspring? (Inheritance)

How have animals and plants adapted over time to suit their environment in different ways?

How has human intervention affected evolution?

Why are fossils important to help us understand evolution?

Skills

I can raise my own relevant questions about the world around me in response to a range of scientific experiences.

I can begin to understand that there may be more than one way to sort a group of objects and begin to independently decide which method will be most efficient.

I can use and identify scientific evidence to support my findings, make further predictions and use evidence to support or refute ideas.

I can research using a range of sources including books, journals and the internet.

I can use and develop keys and other information records with support to identify living things

Science Enquiry Approaches: Identifying, Grouping and Classifying, Research, Pattern Seeking

Vocabulary: living things, change, offspring, vary, non-identical, characteristics, variation, evolution, inheritance, adapt, environment, extreme, conditions, advantageous, disadvantageous

Famous Scientist: Mary Anning, Charles Darwin, Alfred Wallace

Upper Key Stage 2 Cycle A – Autumn 2



Properties and Changes of Materials (Reversible and Irreversible Changes)

Knowledge

How can we group or compare materials based on their properties? How do these properties determine how they are used?

How do some materials change when placed in a liquid? Are these changes permanent (irreversible) or reversible?

Can our knowledge of solids, liquids and gases help us to decide how mixtures and solutions might be separated?

Can changes to materials form new materials? Can these changes be reversed?

How can heating or cooling change a material? Are these changes reversible or irreversible?

What materials are needed for something to burn? What new materials are formed by burning?

Skills

I can explore and talk about my ideas, raising different kinds of scientific questions.

I can decide what measurements to take and how to record my data in a variety of ways.

I can choose the most appropriate equipment to make measurements with increasing precision and explain how to use it accurately.

I can identify and recognise scientific evidence and begin to reflect on whether it can be used to provide answers.

I can use some relevant scientific language and illustrations to discuss and communicate their scientific ideas.

Science Enquiry Approaches: Comparative and Fair Testing and Observation Over Time

Vocabulary: properties, hardness, solubility, transparency, conductor, dissolve, solution, separate, solid, liquid, gas, evaporate, reversible, filter, sieve, irreversible, insulation, conductivity, chemical

Famous Scientist: Spencer Silver, Ruth Benerito

Upper Key Stage 2 Cycle A – Spring 1

Earth and Space (1)



Knowledge

What is the sun? (A star in the centre of the solar system that has 8 planets) What is a moon? (A celestial body that orbits a planet)

What shape are the sun, Earth and the moon? Have people always believed the Earth was spherical?

What causes an eclipse?

How is the sun, Earth and moon related to one another? (orbit)

How does the rotation of Earth create day and night? (time zones)

How does the Earth's tilt create seasons? (Northern/Southern Hemispheres)

Skills

I can ask my own questions about scientific phenomena.

I can explain what to observe and explain why I have chosen to observe it.

I can work in a group to discuss how to record data and results of increasing complexity including scientific labels and diagrams, tables and bar graphs.

I can use a range of scientific evidence to provide basic explanations for differences in measurements or observations and begin to draw on conclusions.

Science Enquiry Approaches: Research, Observation Over Time (movement of sun during the day)

Vocabulary: celestial, spherical, orbit, movement, rotation, time zone, tilt, axis, Northern and Southern Hemisphere, solar system, sundial

Famous Scientist: Alhazen

Upper Key Stage 2 Cycle A – Spring 2



Earth and Space (2)

Knowledge

Why does the moon's appearance appear to change when viewed from the Earth? (Lunar cycle)

What is the solar system and how was it made?

Are all of the planets in the solar system the same? (Similarities and differences)

How is Earth different to the other planets in the solar system?

How and why have theories about our solar system changed over time?

Skills

I can recognise where secondary sources will be most useful to research ideas and begin to separate opinion from fact.

I can explore and talk about my ideas, raising different kinds of scientific questions.

I can use relevant scientific language and illustrations to discuss, communicate and justify my scientific ideas.

I can learn more about different types of classification and other information records to identify, classify and describe how objects have been sorted.

Science Enquiry Approaches: Identifying, Grouping and Classifying, Pattern Seeking

Vocabulary: lunar, solar system, phases of the moon, geocentric model, heliocentric model, gravity, spherical, terrestrial planet, ice giant, gas giant, dwarf planet, names of planets and dwarf planets

Famous Scientist: Ptolemy, Copernicus

Upper Key Stage 2 Cycle A – Summer 1

Animals including Humans (1)



Knowledge

What is the function of blood and blood vessels in our bodies?

What happens to our hearts when we exercise? (Human circulatory system)

Why do our bodies need muscles? (Help to move the skeleton and support blood flow)

How is water and nutrients transported around our bodies?

How does diet and exercise affect our bodies?

What effects does tobacco, alcohol and other drugs have on our bodies?

Skills

I can choose the most appropriate equipment to make measurements with increasing precision and explain how to use it accurately.

I can record data and results of increasing complexity using classification keys, scatter graphs and line graphs.

I can identify evidence that refutes or supports my ideas.

I can begin to learn more about different types of classification and other information records to identify, classify, sort and describe how my objects have been sorted.

Science Enquiry Approaches: Comparative and Fair Testing and Problem Solving

Vocabulary: blood cell, platelets, plasma, component, circulatory system, systematic circulation, pulmonary circulation, deoxygenated, oxygenated, organ, atrium, ventricle, lungs, heart rate, energy, diet

Famous Scientist: Dr Daniel Hale Williams, Christiaan Barnard

Upper Key Stage 2 Cycle A – Summer 2



Animals including Humans (2)

Knowledge

What are the main stages of a human life cycle?

What factors may affect growth in a human life cycle?

What is meant by a gestation period and how is a human's gestation period different to other mammals?

How and why do our bodies change during childhood?

How do our bodies change during puberty?

How and why do our bodies change during adulthood and into old age? (Timeline)

Skills

I can independently make my own decisions about the most appropriate scientific enquiry I might use to answer questions.

I can choose which equipment is best suited to observe and measure and explain why it has been chosen.

I can decide how to record data from a choice of familiar approaches.

I can use my results to start making predictions and identify when further observations, comparative and fair tests may be needed.

Science Enquiry Approaches: Let the children decide which enquiry approach to use linked to skills.

Vocabulary: human, growth, gestation, reproduction, life cycle, fertilisation, pregnancy, infancy, toddler, childhood, teenager, adulthood, hormones, puberty, adolescence, puberty, menstruation, adulthood, old age,

Famous Scientist: Sir Ian Wilmut