

YEAR 6 SCIENCE

Working Scientifically

Pupils will be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- taking measurement 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 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

LIVING THINGS AND THEIR HABITATS

Working Scientifically Assessment Task - Yeast

Key Vocabulary

amphibians, bacteria, birds, classify, characteristics, fish, flowering, insects, invertebrates, key, mammals, microscope, micro-organism, non-flowering, reptiles, snails, species, spiders, taxonomist, vertebrates, worms

Key Skills

Knowledge

Planning:

National Curriculum:

➤ plan different types of scientific enquiry to answer questions ➤ recognise and control variables Considering and evaluating evidence: ➤ use test results to make predictions and set up further comparative fair tests	➤ describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals ➤ give reasons for classifying plants and animals based on specific characteristics Lesson Breakdown Classification ➤ give reasons for classifying plants and animals based on specific characteristics in the context of sorting and grouping animals for a zoo Linnaean System ➤ find out about the Linnaean System of classification Curious Creatures ➤ identify the characteristics of mammals, birds, insects, reptiles, amphibians, fish, arachnids, annelids, crustaceans, echinoderms and molluscs ➤ give reasons for classifying plants and animals based on specific characteristics by exploring unusual creatures and designing their own curious creature Microorganisms ➤ explore helpful and harmful microorganisms More About Microorganisms ➤ identify the characteristics of different microorganisms Field Guide
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	➤ group organisms found in local habitat ➤ create a field guide to organisms found in the local habitat
ANIMALS (including humans) Working Scientifically Assessment Task – Investigating Pulse Rate	
Key Vocabulary alcohol, blood, blood vessels, carbon dioxide, circulatory system, cycle, deoxygenated blood, diet, drugs, exercise, heart, lifestyle, lungs, muscles, nutrients, oxygen, oxygenated blood, pumps, pulse, rate, transported, water	
Key Skills	Knowledge
Planning: ➤ plan different types of scientific enquiry to answer questions ➤ recognise and control variables Obtaining and presenting evidence: ➤ take measurements ➤ take repeat readings ➤ record and present findings using scientific diagrams and labels, classification	National Curriculum ➤ 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 Lesson Breakdown The Heart ➤ identify and name the main parts of the human circulatory system, and describe the function of the heart, blood vessels and blood Blood

keys, tables, scatter graphs, bar and line graphs ➤ report on findings from enquiries Considering and evaluating evidence: ➤ identify conclusions, causal relationships and explanation of results (including the degree of trust) ➤ use test results to make predictions and set up further comparative fair tests	➤ describe the ways in which nutrients and water are transported within animals, including humans Investigating Heart Rate ➤ recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function The Benefits of Exercise ➤ recognise that regular exercise is important for a healthy body Diet and Exercise ➤ explain how diet and exercise affect the body Drugs and Alcohol ➤ recognise the impact of drugs and alcohol on the way bodies function
EVOLUTION AND INHERITANCE Working Scientifically Assessment Task – Birds and Beaks	
Key Vocabulary adapted / adaptation, characteristics, environment, evolution, fossils, habitat, inheritance / inherited, natural selection, offspring, sexual reproduction, species, suited, vary / variation	
Key Skills	Knowledge
Considering and evaluating evidence:	National Curriculum

➤ draws valid conclusions, explains and interprets the results (including the degree of trust) using scientific knowledge and understanding (e.g. recognises limitations of data) ➤ identifies scientific evidence that has been used to support or refute ideas or arguments ➤ use test results to make predictions and set up further comparative and fair tests	➤ 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 Lesson Breakdown Inheritance ➤ explain the scientific concept of inheritance Adaptation ➤ identify how animals and plants are adapted to suit their environment in different ways in the context of environmental variation Theory of Evolution ➤ identify how adaptation may lead to evolution by examining the theories of evolution constructed by Darwin and Wallace Evidence for Evolution ➤ recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago in the context of the evolution of plants and animals Evidence for Evolution: Humans
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	➤ recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago in the context of the evolution of human beings Adaptation, Evolution and Human Intervention ➤ identify how adaptation may lead to evolution by examining the advantages and disadvantages of specific adaptations and the role of human intervention in the process of evolution
LIGHT Working Scientifically Assessment Task - Investigating How Light Travels	
Key Vocabulary <i>As for Year 3: light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, reflection, reflective, mirror, sunlight, ray, dangerous, pupil, retina, opaque, translucent, transparent</i> <i>Plus: incident ray, law of reflection, prism, reflected ray, refraction, straight lines, visible spectrum</i>	
Key Skills	Knowledge
Planning: ➤ plan different types of scientific enquiry to answer questions ➤ recognise and control variables	National Curriculum ➤ 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

Obtaining and presenting evidence: ➤ take measurements ➤ record data and results of increasing complexity ➤ record and present findings using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs ➤ report on findings from enquiries Considering and evaluating evidence: ➤ identify conclusions, causal relationships and explanations of results (including the degree of trust) ➤ use test results to make predictions and set up further comparative fair tests	➤ use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them Lesson Breakdown How We See ➤ 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 Reflecting Light ➤ recognise that light appears to travel in straight lines by investigating the angles of incidence and reflection ➤ 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 by creating a periscope and explaining how it works Refraction ➤ recognise that light appears to travel in straight lines by investigating refraction Seeing Colours ➤ recognise that light appears to travel in straight lines by exploring prisms and creating colour wheels
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	➤ 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 by investigating how we see colours Shadows ➤ use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them
ELECTRICITY Working Scientifically Assessment Task - Changing Components	
Key Vocabulary amps, cell, circuit, complete circuit, circuit diagram, circuit symbol, current, battery, bulb, buzzer, electrons, motor, resistance, switch, voltage	
Key Skills	Knowledge
Planning: ➤ plan different types of scientific enquiry to answer questions ➤ recognise and control variables Obtaining and presenting evidence: ➤ take measurements	National Curriculum ➤ 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

➤ record data and results of increasing complexity ➤ record and present findings using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs Considering and evaluating evidence: ➤ identify conclusions, causal relationships and explanation of results (including the degree of trust) ➤ use test results to make predictions and set up further comparative fair tests	Lesson Breakdown It's Electrifying! ➤ identify scientific evidence that has been used to support or refute ideas or arguments in the context of the major discoveries made by scientists in the field of electricity Circuit Symbols ➤ use recognised symbols when representing a simple circuit in a diagram by observing and explaining the effect of different volts in a circuit Volts ➤ associate the brightness of a bulb or the volume of a buzzer with the number and voltage of cells used in the circuit by observing and explaining the effect of different volts in a circuit Electricity Investigation (Part 1) ➤ investigate the relationship between wire length and the brightness of bulbs or the loudness of buzzers Electricity Investigation (Part 2) ➤ present and report findings on the effect of wire length on the brightness of bulbs or the loudness of buzzers
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