

Macmillan Primary Science PB4 Scope and Sequence

Lesson Title	Science Knowledge	Science Skills
Unit 1 LIVING THINGS		
<i>Life processes</i>		
Living and non-living things	Classifying living, once living and nonliving things	classifying; identifying characteristics; using charts and tables
The characteristics of life	The seven characteristics of life How plants and animals exhibit life's characteristics	interpreting information; using a table to organise ideas
Nutrition	The nature and significance of nutrition How plants and animals obtain nutrition Food chains	classifying; using a flow chart to summarise a process
Respiration - how do plants and animals breathe?	The purpose of respiration in living things How plants and animals obtain oxygen for respiration	experimenting; measuring; making and recording observations
Movement and growth	How and why animals move The nature of growth Changes that take place during growth	observing and classifying; participating in discussion
Sensing and responding	How and why living things sense, and respond to changes in their environment	interpreting information; experimenting, following a procedure; making and recording observations; drawing conclusions
<i>Plants</i>		
Plant parts and characteristics	The parts of a plant The root system and the shoot system	drawing scientific diagrams; using a table to organise and present information
The variety plants	The characteristics of some common plants of the Middle East and North Africa Variation in the shape and size of plant parts	making observations and comparisons; forming hypotheses to explain observations
Investigating leaves	The structure and function of leaves	observing; following a procedure; using a control in an investigation
Investigating roots	The functions of the roots system Types of root system	observing; comparing; classifying; investigating
Flowers, fruits and seeds	The structure and function of flowers Reproduction of a flowering plant	observing; recording by sketching; making and displaying a collection
How non-flowering plants reproduce	The life-cycles of conifers, ferns, mosses and other non-flowering plants	interpreting information; following a procedure; handling natural materials
Useful plants	Plant products and their uses	observing; presenting information
<i>Animals</i>		
Animal life	The characteristics of animal life Vertebrates and invertebrates	identifying characteristics; classifying
Vertebrates	Animals with backbones are vertebrates The characteristics of mammals, birds, reptiles, fish and amphibians	classifying; using a table to organise information
Invertebrates	Invertebrate groups Common invertebrates	using an animal key for identification; observing; using field guides to identify

		species
Animal behaviour	Animal behaviours that help survival Learned and instinctive behaviours	handling materials; investigating; observing; forming conclusions
Useful and harmful animals	Domestic animals and their uses How different animals harm human beings	interpreting information
The environment		
Deserts, rivers and reefs	Habitats of the Middle East and North Africa How animals are adapted to their habitats	interpreting information; using the Internet for research
People and the environment	The features on natural and artificial environments How people can damage the environment	working as a team member; interpreting illustrations; communicating information
UNIT 2 MATTER AND MATERIALS		
Matter		
Different materials	The properties of common materials	classifying; handling materials
Choosing materials	Matching the properties of materials to their uses	collaborating with others; interpreting and using information
Marvellous metals	The characteristics of metals Metals conduct electricity; non-metals do not conduct electricity	following procedure; making observations to answer questions
Matter and heat		
Heat and its effects	Heat sources How heat affects materials	following a procedure; making and recording observations
Temperature and thermometers	the meaning of temperature thermometer types and scales	reading a scale; following a procedure; making and recording measurements
How heat travels	Heat as energy flowing from hot to cold Heat transfer by conduction, convection and radiation	investigating; making and recording observations; drawing conclusions; following a procedure
Heat conductors and insulators	Heat conductors and insulators, and their applications	planning and conducting a fair scientific test
Solids, liquids and gases	Matter exists in different states The properties of solids, liquids and gases	recording observations in a table; investigating
Changing state	The names and characteristics of changes of state	following procedures; making and recording observations
UNIT 3 OUR EARTH		
Rocks and minerals		
The Earth	The Earth's composition and structure	interpreting technical diagrams; drawing and labelling diagrams; making models
Investigating rocks	Definition of rocks and minerals Classification of rocks	using a lens to make observations; classifying
Types of rock	Igneous, sedimentary and metamorphic rocks: properties and formation	making observations; classifying
Minerals and their properties	The definition and properties of minerals	observing and classifying; recording and communicating observations
Using minerals	Mineral resources and their uses	interpreting information
Weathering and erosion	The forces that weather and erode rocks	investigating; making observations; suggesting explanations
Oceans		

Ocean, seas and rivers	The characteristics of oceans, seas, rivers and lakes The significance of oceans for life, and as sources of food and minerals	using the library and the Internet for research; using a table to present data
Under the surface	The features of the ocean bottom Physical changes with depth in the ocean Adaptations of ocean life	interpreting information; communicating ideas
Waves and tides	The characteristics and formation of waves The nature and cause of tides The effects of waves and tides on people and wildlife	investigating; making and recording observations
Pollution at sea	Sources of marine pollution	investigating the environment; making and recording observations

UNIT 4 FORCES AND ENERGY

Energy

Energy forms and changes	Energy forms and transformations	using tables and charts to present information
Using energy	How we use energy Energy sources	working as a member of a group; participating in discussions
Solar energy	The Sun is an energy source Using solar energy Renewable and non renewable energy sources	making and investigating the performance of devices; participating in discussion

Sound

Sound	How sounds are produced and travel	making and interpreting observations
Hearing sounds	The ear: its structure and function Instruments that help us to hear sounds	interpreting technical diagrams; making and interpreting observations; constructing apparatus
Sound - good and bad	Musical instruments; pitch and loudness Sound pollution	experimenting; participating in discussion; planning and conducting an investigation

UNIT 5 ASTRONOMY

The Solar System	The differences between a star and a planet the Sun and planets in our solar system orbits	investigating; making and interpreting observations
Looking at the planets	The characteristics of the planets	making a model to illustrate a scientific idea
Asteroids, comets and meteors	The characteristics of asteroids, meteors and comets	using the Internet for research