

Macmillan Primary Science PB6 Scope and Sequence

Lesson Title	Science Knowledge	Science Skills
UNIT 1 LIVING THINGS		
<i>Cells</i>		
Discovering cells	Cells are the basic units of life Unicellular and multi-cellular organisms	using a microscope; preparing specimens; making and recording observations
Comparing plant and animal cells	Cell components (organelles) and features The features of plant and animal cells	interpreting scientific diagrams; making comparisons
Building tissues	Cell division Different types of body cell The organisation of cells into tissues and organs	participating in group work; interpreting technical diagrams; investigating a process using a model system
<i>Human body</i>		
Organs and organ systems	The major organs of the body Body systems	interpreting technical diagrams
Skeleton	The functions of the skeleton Types of joint and their movements	interpreting diagrams; investigating; working with a partner; communicating ideas and observations
Muscle power	Muscle action and locomotion	making a model to investigate a mechanism; conducting an investigation; repeating measurements to obtain reliable results
Nervous system	The components and functions of the nervous system The reflex arc Reaction time	interpreting diagrams; making and repeating measurements; using charts and tables; participating in discussion
Circulation	The functions of the circulation The action of the heart	interpreting diagrams; measuring time; recording data in a table
Excretion	Excretion processes and organs	interpreting diagrams; making observations
<i>Health and disease</i>		
Communicable disease	How communicable diseases are spread Epidemics and pandemics	contributing to group work; using the Internet for research
Deficiency diseases	Common deficiency diseases: their causes and prevention	working as a member of a group; participating in discussion; understanding the scientific process
Life style diseases: causes and prevention	The causes and prevention of lifestyle diseases The importance of physical activity and maintaining a healthy weight	participating in discussion; substituting numbers into an equation to calculate a quantity; keeping records
Vaccination	The discovery and importance of vaccination	interpreting an account of a scientific discovery
Drugs	The applications and safe use of medicines	taking part in discussion; interpreting instructions
Dangerous drugs	Drug and substance abuse and addiction	interpreting information presented in a table; contributing to group work
Dealing with drug issues	Helping people with drug problems Drug abuse in sport	contributing to discussions; participating in role play to explore an issue
UNIT 2 MATTER AND MATERIALS		
<i>Compounds and reactions</i>		
Atoms and molecules	Definitions of atom, element, molecule and compound Common examples of elements and compounds and their symbols	interpreting information from tables; using the Internet for research; using scientific symbols
Chemical reactions	The nature of chemical reactions	experimenting; making and recording

	Some reactions between familiar substances	observations
Acids, bases and salts	The properties and reactions of common acids, bases and salts The pH scale Indicators	following a procedure; handling and investigating materials; communicating information
Metals and non-metals	The characteristics of metals and non-metals Common metallic elements and alloys and their uses	making and displaying a collection; following procedures; making observations and drawing conclusions
UNIT 3 OUR EARTH		
<i>Earth's history</i>		
The Earth through time	The formation and history of the Earth Geological time: eons, eras and periods	interpreting information; sequencing events; using the library and the Internet for research
The history of life	The fossil record The main stages in the development of life on Earth	using the library and the Internet for research; participating in group work
<i>Weather and climate</i>		
Weather conditions	The variables that describe the weather Weather maps and symbols	interpreting weather symbols and maps; making an observation
Weather measurements	Weather instruments and records	reading measuring instruments; recording and interpreting data; making apparatus
Climate	Climate as the normal weather pattern in a location Climates in the Middle East	interpreting charts and graphs; following a procedure; using the Internet for research
The hole in the ozone layer	The ozone layer and its importance The discovery of the hole in the ozone layer	understanding the scientific process; drawing a diagram to illustrate a process
UNIT 4 FORCES AND ENERGY		
<i>Energy sources</i> Sample marketing text © Macmillan Publishers LTD		
Using energy	How we use energy Energy sources	working as a member of a group; participating in discussions
Fossil fuels	How petroleum and natural gas were formed How petroleum and natural gas are extracted and used	sequencing events; interpreting technical diagrams
Global warming	The causes and consequences of global warming	experimenting; recording temperature; participating in discussion
Alternative energy sources	Renewable energy sources and devices	interpreting information; making and testing apparatus
<i>Sound and light</i>		
Sound waves	The passage of sounds through solids, liquids and gases	experimenting and investigating; checking observations to confirm conclusions
Musical instruments	Sound production by strings, wind and percussion Factors affecting the pitch of a sound	observing; participating in discussion; making and investigating instruments
Sound reflection and absorption	Reflection and absorption of sound by materials	planning and carrying out an investigation
Reflection of light	Reflection and mirror images The laws of reflection Applications of mirrors	experimenting and investigating; making observations; constructing apparatus
Curved mirrors	How images are formed in concave and convex mirrors Applications of curved mirrors	investigating; making and recording observations

Refraction of light	The refraction of light and its effects	observing; following a procedure
Investigating lenses	The effects of convex and concave lenses on beams of light Forming an image with a convex lens Eye defects and their correction	investigating; making observations; following a procedure
Optical instruments	Applications of mirrors and lenses The pinhole camera The telescope	experimenting; handling apparatus and materials; making observations; suggesting explanations (hypothesising)
Electricity and magnetism		
Series and parallel circuits	Connecting bulbs in series and in parallel How current flows in series and parallel circuits	investigating; making observations; suggesting explanations (hypothesising)
Electricity in the home	Mains powered appliances and their uses The applications of conductors and insulators in components and tools	interpreting information; using scientific knowledge to select materials
Paying for electricity	How the consumption of electricity is metered and charged for Different appliances use electricity at different rates Conserving electricity	handling data; making comparisons; participating in discussions
Using electricity safely	Dangers when using electricity Safety precautions	contributing to group work; communicating information
Investigating static electricity	The nature of static charge The forces between charges Charging by friction and induction The leaf electroscope	investigating; making and interpreting observations; making and using apparatus
Lightning and other hazards	How lightning is caused Precautions to take in a thunderstorm Explosion hazards created by static electricity Applications of static electricity	summarising and communicating information
Magnetic poles and fields	North and South seeking poles Laws of magnetism Fields and the properties of field lines	conducting an investigation; making and recording observations
Making magnets	Temporary and permanent magnets Methods for making magnets	carrying out procedures; planning and conducting a fair test
The Earth's magnetism	The Earth's magnetic field The magnetic compass	following a procedure; making and testing a device
Communications		
Telecommunications	The principles and importance of telecommunications The history and applications of telecommunication systems	making and using apparatus; investigating the construction of a device; interpreting technical diagrams
Computers and the Internet	How computers process information How the Internet operates as a global communications network	using the Internet for research; participating in discussion
UNIT 5 ASTRONOMY		
How big are the planets?	The planets of the solar system	designing and constructing a scale model
Stars and galaxies	The nature of stars and galaxies The life cycles of stars	using the Internet for research
Observing the Universe	The nature of stars, galaxies and the Universe	using binoculars to make observations; using the Internet as a data source; interpreting a map of the night sky
Space travel	Manned and unmanned spacecraft Landmarks in space exploration The difficulties and dangers of space	using the library and internet for research; participating in discussion; making models

travel



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