INTRODUCTORY PAPER					
SKILL AREA	**OBSERVING & MEASURING**	**INTERPRETING**	**PREDICTING & CONCLUDING**	**INVESTIGATING**	**REASONING & PROBLEM SOLVING**
KNOWLEDGE AREA	**QUESTIONS MAY REQUIRE STUDENTS, FOR EXAMPLE, TO:**				
EARTH & BEYOND	• observe and identify an aspect of a particular season	• identify the message conveyed by a simple sign	• predict the shadow of an object based on the position of the light source	• investigate the hardness of different types of rock	• identify the moon shape missing from a series of photos
NATURAL & PROCESSED MATERIALS	• compare the levels of liquids in different containers	• interpret a simple graph related to resources	• select a material from a list based on data in a table	• investigate the results of mixing different solids with water	• match the properties of a material with its intended purpose
LIFE & LIVING	• identify a change that takes place in a living thing over time	• identify a stage in the life-cycle diagram of an animal	• draw a conclusion based on a simple graph of growth of a child	• investigate the growth of seedlings of different types of plant	• use a simple key to identify some animals
ENERGY & CHANGE	• observe changes caused by heating or cooling	• rank values in a table of temperature data	• predict the movement of objects in simple situations	• investigate the formation of shadows	• determine the direction of movement of wheels or gears

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PAPER A					
SKILL AREA	**OBSERVING & MEASURING**	**INTERPRETING**	**PREDICTING & CONCLUDING**	**INVESTIGATING**	**REASONING & PROBLEM SOLVING**
KNOWLEDGE AREA	**QUESTIONS MAY REQUIRE STUDENTS, FOR EXAMPLE, TO:**				
EARTH & BEYOND	• determine similarities and differences between rocks	• interpret tables with data relating to planetary data	• make a prediction about seasonal changes	• investigate seasons and the Sun's movement across the sky	• determine how weather affects different regions on Earth
NATURAL & PROCESSED MATERIALS	• observe the absorption of liquids by paper towels	• interpret tables containing information about household products	• draw conclusions about the differences between natural and synthetic materials	• understand the need to test and investigate new designs	• examine the processes involved in recycling materials
LIFE & LIVING	• measure the length of living things	• identify habitats for certain living things	• draw conclusions about the functions of body parts	• examine differences between living and non-living things	• determine characteristics of living things from available data
ENERGY & CHANGE	• read a thermometer	• interpret results of a test for floating and sinking	• predict the effect of a magnet on certain objects	• investigate the uses of sound	• select the most efficient machinery to achieve an outcome

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PAPER B					
SKILL AREA	**OBSERVING & MEASURING**	**INTERPRETING**	**PREDICTING & CONCLUDING**	**INVESTIGATING**	**REASONING & PROBLEM SOLVING**
KNOWLEDGE AREA	**QUESTIONS MAY REQUIRE STUDENTS, FOR EXAMPLE, TO:**				
EARTH & BEYOND	• observe geographical features including mountains and rivers	• identify equipment needed for humans to go into space	• understand how sedimentary rocks form	• investigate the effect of wind on objects	• deduce aspects of Earth's motion from diagrams
NATURAL & PROCESSED MATERIALS	• observe differences between natural and synthetic materials	• understand graphs relating to recycling materials	• draw conclusions about physical properties of materials	• investigate making and using paper	• evaluate the advantages and disadvantages of designs
LIFE & LIVING	• make particular observations about human senses	• use keys to distinguish between animals	• predict the effect of change on food webs	• investigate how plants attract bees	• deduce how humans have affected living and non-living cycles
ENERGY & CHANGE	• observe changes that occur when ingredients are heated	• interpret simple changes in energy	• predict the effect of different forces applied to objects	• investigate how sounds are made and used	• deduce the direction and speed of cogs from diagrams

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PAPER C					
SKILL AREA	**OBSERVING & MEASURING**	**INTERPRETING**	**PREDICTING & CONCLUDING**	**INVESTIGATING**	**REASONING & PROBLEM SOLVING**
KNOWLEDGE AREA	**QUESTIONS MAY REQUIRE STUDENTS, FOR EXAMPLE, TO:**				
EARTH & BEYOND	• observe different cloud patterns	• interpret information given on a geological timescale	• predict the position of stars at different times of the night	• investigate weather patterns	• deduce the position of shadows during the day
NATURAL & PROCESSED MATERIALS	• identify crystal structures of simple salts	• identify issues related to pollution from graphical data	• examine differences between solids, liquids and gases	• analyse simple experiments performed with household materials	• examine heat expansion in metals
LIFE & LIVING	• measure living things using printed scales	• use dichotomous keys to classify living things	• identify trends in simple food webs	• understand the function of controls in biological experiments	• examine differences in teeth in animals
ENERGY & CHANGE	• examine simple electrical circuits	• interpret diagrams relating to the flow of electricity	• draw a conclusion about energy sources	• investigate the properties of wind, water and air	• use simple electric circuit diagrams

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PAPER D					
SKILL AREA	**OBSERVING & MEASURING**	**INTERPRETING**	**PREDICTING & CONCLUDING**	**INVESTIGATING**	**REASONING & PROBLEM SOLVING**
KNOWLEDGE AREA	**QUESTIONS MAY REQUIRE STUDENTS, FOR EXAMPLE, TO:**				
EARTH & BEYOND	• observe the effects of weathering and erosion	• read weather maps	• draw conclusions about natural phenomena	• investigate variations in air and water temperatures	• deduce the youngest rock layer from fossil dating
NATURAL & PROCESSED MATERIALS	• observe differences between fresh and processed foods	• examine tables relating to foodstuffs	• draw conclusions about the chemical composition of coins	• distinguish between physical and chemical changes	• deduce rates of expansion when metal bars are heated
LIFE & LIVING	• observe differences between human body parts	• use habitat maps to identify local plants and animals	• use food webs to work out the relationships between living things	• investigate resources needed for survival of living things	• determine how habitats are polluted by human activities
ENERGY & CHANGE	• examine light globes of different voltages	• interpret graphs of sounds of different loudness	• predict current flow in an electrical circuit	• investigate hotspots in a microwave oven	• examine the ranges of radio frequencies

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PAPER E					
SKILL AREA	**OBSERVING & MEASURING**	**INTERPRETING**	**PREDICTING & CONCLUDING**	**INVESTIGATING**	**REASONING & PROBLEM SOLVING**
KNOWLEDGE AREA	**QUESTIONS MAY REQUIRE STUDENTS, FOR EXAMPLE, TO:**				
EARTH & BEYOND	• measure the size of celestial bodies using ratio scales	• interpret graphs about sedimentary rock data	• identify landforms from contour maps	• investigate rocket propulsion	• predict movements of tectonic plates
NATURAL & PROCESSED MATERIALS	• identify building structures using diagrams and drawings	• interpret tables relating to organic and inorganic substances	• examine the chemical processes involved in food production	• identify laboratory equipment to use in experiments	• identify sources of chemical pollution in aquatic and terrestrial environments
LIFE & LIVING	• measure animals using relative sizes	• use keys to differentiate between living things	• make inferences from animal dental formulas	• examine relationships between variables in biological experiments	• determine the trophic position of living things in food chains
ENERGY & CHANGE	• measure electrical current and voltage	• examine differences in energy emissions	• draw conclusions from data relating to sound	• make predictions about reflected and refracted rays of light	• calculate speed and acceleration from given formulas

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PAPER F					
SKILL AREA	**OBSERVING & MEASURING**	**INTERPRETING**	**PREDICTING & CONCLUDING**	**INVESTIGATING**	**REASONING & PROBLEM SOLVING**
KNOWLEDGE AREA	**QUESTIONS MAY REQUIRE STUDENTS, FOR EXAMPLE, TO:**				
EARTH & BEYOND	• observe differences between sedimentary, metamorphic and igneous rocks	• interpret diagrams relating to the hydrosphere, lithosphere and atmosphere	• compare models of the solar system and Universe	• investigate advantages and disadvantages of renewable and non-renewable energy	• understand the structure of Earth
NATURAL & PROCESSED MATERIALS	• observe the particle model of matter	• examine graphs relating to changes of state (solid, liquid and gas)	• draw conclusions about the properties of metals and non-metals	• examine variables associated with the production of common gases	• determine the molecular structure of compounds and elements using models
LIFE & LIVING	• identify different parts of the cell	• classify living and non-living things based on structure and form	• draw conclusions about the function of human body systems	• investigate the role of organisms in ecosystems	• understand interactions of marine organisms
ENERGY & CHANGE	• observe transformation of energy	• identify energy emission differences	• conclude how objects may be moved indirectly	• draw conclusions about the speed of sound in different mediums	• deduce the velocity of moving objects

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PAPER G					
SKILL AREA	**OBSERVING & MEASURING**	**INTERPRETING**	**PREDICTING & CONCLUDING**	**INVESTIGATING**	**REASONING & PROBLEM SOLVING**
KNOWLEDGE AREA	**QUESTIONS MAY REQUIRE STUDENTS, FOR EXAMPLE, TO:**				
EARTH & BEYOND	• measure the size of atmospheric phenomena such as cyclones	• determine the characteristics of the Sun from graphical and tabulated data	• determine the effects of UV light on living and non-living things	• generate hypotheses and predictions in relation to the weather	• analyse data related to luminosity of planets and stars
NATURAL & PROCESSED MATERIALS	• determine the purpose of dials on measuring equipment	• interpret data about the properties of metals	• interpret representations of simple molecules	• establish the sequence in writing up scientific experiments	• determine the type of products formed during chemical reactions
LIFE & LIVING	• identify and classify living things based on written descriptions	• use data to identify pests in Australia	• understand and use biological terminology	• apply methods of random sampling of living things in ecosystems	• examine exponential growth in living systems
ENERGY & CHANGE	• measure power using special instruments	• determine the paths of projectiles from a series of photographs or diagrams	• draw conclusions about forces in specific situations	• investigate conversions between potential and kinetic energy	• deduce relative movement in rotating systems

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PAPER H					
SKILL AREA	**OBSERVING & MEASURING**	**INTERPRETING**	**PREDICTING & CONCLUDING**	**INVESTIGATING**	**REASONING & PROBLEM SOLVING**
KNOWLEDGE AREA	**QUESTIONS MAY REQUIRE STUDENTS, FOR EXAMPLE, TO:**				
EARTH & BEYOND	• measure geological structures using relative size of objects	• interpret relative differences in spectral emission lines	• classify stars based on brightness and magnitude	• recognise problems associated with extraterrestrial investigations	• explain atmospheric phenomena both on Earth and on other planets
NATURAL & PROCESSED MATERIALS	• observe differences in solvents	• understand the properties of acids and bases	• identify the effects of alcohol on human functioning	• understand the use of substances including catalysts in experiments	• establish rules relating to isotopes
LIFE & LIVING	• observe organ parts of living things	• examine transverse sections of living and non-living things	• extrapolate graphical information about growth rates of living things	• test the function of specific organs and tissues in living things	• classify species using non-traditional methods
ENERGY & CHANGE	• record temperature using scales other than Celsius	• identify the effects of electric currents on humans	• predict the movement of a series of gears	• assess the safety issues associated with experiments involving electricity	• compare the different forces acting on a body in the air and in water

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PAPER I (ICAS ONLY)					
SKILL AREA	**OBSERVING/MEASURING**	**INTERPRETING**	**PREDICTING/CONCLUDING**	**INVESTIGATING**	**REASONING/PROBLEM SOLVING**
KNOWLEDGE AREA	**QUESTIONS MAY REQUIRE STUDENTS, FOR EXAMPLE, TO:**				
EARTH & BEYOND	• measure distances using planetary scales	• understand the effect of wind chill on the human body	• examine evidence relating to the formation of the Universe	• differentiate between accuracy and precision in experiments	• examine effects of magnetic fields on Earth and on other planets
NATURAL & PROCESSED MATERIALS	• observe differences using planetary scales	• use graphs related to melting points, boiling points, temperature and pressure	• determine the implications of the properties of ionic liquids	• examine activation energy and the use of catalysts	• use the law of constant proportion and the law of conservation
LIFE & LIVING	• observe differences between living things at the sub-species level	• identify animals based on dental information	• estimate populations of living and non-living things in specific environments	• critique experiments involving living things	• identify the role of genetics and mutation in living things
ENERGY & CHANGE	• observe records showing the movement of Earth's magnetic poles	• understand differences between renewable and non-renewable energy	• differentiate between AC and DC circuits	• understand the relationship between magnetic and electric fields	• determine the amount of energy released from different reactions

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PAPER J (ICAS ONLY)					
SKILL AREA	**OBSERVING/MEASURING**	**INTERPRETING**	**PREDICTING/CONCLUDING**	**INVESTIGATING**	**REASONING/PROBLEM SOLVING**
KNOWLEDGE AREA	**QUESTIONS MAY REQUIRE STUDENTS, FOR EXAMPLE, TO:**				
EARTH & BEYOND	• determine the age of geological structures from rock stratigraphy	• examine cloud formation and El Nino effect	• make conclusions about the evolution of the Sun and other stars	• hypothesise about the composition of celestial bodies	• predict structures from geological maps
NATURAL & PROCESSED MATERIALS	• measure microscopic objects	• determine the relative abundance of atoms and elements in the universe	• relate total dissolved solids to conductivity	• understand the effects of various gases on human physiology	• determine proportions of atoms in compounds
LIFE & LIVING	• measure microscopic organisms using nanometre scales	• interpret complex life history cycles of parasites and viruses	• classify animals to sub-species level	• examine the ethics of the use of living subjects in experiments	• examine effects of mutations in DNA and RNA
ENERGY & CHANGE	• measure macroscopic energy changes such as earthquakes and explosions	• identify gravitational effects of the moon on tides	• follow the movement of Earth's magnetic poles	• identify changes in energy at the sub-atomic level	• calculate refraction angles and velocity of waves

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