



Coonabarabran High School Assessment Notification

Subject: Year 10 Science

Date of Notification: 16.08.21

Assessment task 5: VALID

Weighting: 20%

Task Date:

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|---------------------------------|--------------------------------|
| • 10 Science 2: 30.08.21 | Teacher: Mrs Nash |
| • 10 Science 1: 31.08.21 | Teacher: Miss Christoff |
| • 10 Science 3: 01.09.21 | Teacher: Mr Blanch |
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- Topic:** All topics from the Years 9 & 10 Science syllabus (see attached study guide)
- Task structure:** Interactive, multimedia test made up of multiple choice and short and extended response questions completed on computer.
- Length of task:** Approximately 70 minutes

Outcomes :

Values and Attitudes	
A student	
SC5 – 1VA appreciates the importance of science in their lives and the role of scientific enquiry in increasing understanding of the world around them	
SC5 – 2VA shows a willingness to engage in finding solutions to science-related personal, social and global issues, including shaping sustainable futures	
SC5 – 3VA demonstrates confidence in making reasoned, evidence-based decisions about the current and future use and influence of science and technology, including ethical considerations	
Knowledge and Understanding	Skills
A student	A student:
SC5-10PW applies models, theories and laws to explain situations involving energy, force and motion	SC5-4WS develops questions by hypothesis to be investigated scientifically
SC5-11PW explains how scientific understanding about energy conservation, transfers and transformations is applied in systems	SC5-5WS produces a plan to investigate identified questions, hypotheses or problems, individually and collaboratively
SC5-12ES describes changing ideas about the structure of the Earth and the universe to illustrate how models, theories and laws are refined over time by the scientific community	SC5-6WS undertakes first-hand investigations to collect valid and reliable
SC5-13ES explains how scientific knowledge about global patterns of geological activity and interactions involving global systems can be used to inform decisions related to contemporary issues	SC5-7WS processes, analyses and evaluates data from first hand investigations and secondary sources to develop evidenced- based arguments and conclusions
SC5-14LW analyses interactions between	SC5-8WS applies scientific understanding and critical thinking skills to suggest possible solutions to identified problems
	SC5-9WS presents science ideas and evidence for a purpose and to a specific audience, using appropriate scientific language, conventions

<p>components and processes within biological systems</p> <p>SC5-15LW explains how biological understanding has advanced through scientific discoveries, technological developments and the needs of society</p> <p>SC5-16CW explains how models, theories and laws about matter have been refined as new scientific evidence becomes available</p> <p>SC5-17CW discusses the importance of chemical reactions in the production of a range of substances, and the influence of society on the development of new materials</p>	<p>and representations</p>
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Topics Covered:

Energy and the Atom

Nuclear Science

- Periodic Table (Elements, chemical symbols, atomic number, atomic mass)
- Isotopes and Radioisotopes
 - Ionising radiation (alpha, beta, gamma)
 - Measurement devices (Geiger counter, Scintillation counter)
 - Radioactive decay Half-life
- Applications of radioisotopes (medical/industry) relate application to radioisotope half-life and type of radiation)
- Atomic structure (structure of the atom)
- Development of the model of the atom (Dalton, Rutherford, Thompson (plumb pudding))
- Elements and compounds (symbols, formulas)
- Chemical reactions (reactants, products, evidence of a reaction)
- Endothermic (temp decrease) and Exothermic (temp increase) reactions (including combustion and cellular respiration) – Changes in energy

Ecology

- Biotic (living)/abiotic (non-living) factors of an ecosystem
- The flow of energy in an ecosystem (food chains and webs, trophic levels)
- Cycles in nature (water cycle, carbon cycle, nitrogen cycle)
- Factors affecting the balance of an ecosystem (natural, man-made)

Electricity

- Circuits/circuit diagrams (draw, analyse – flow of current)
- Parallel and series circuits (identify, compare globes/resistors connected in parallel and series)
- Relationships between Voltage (V), Current (I) and Resistance (R) – what happens to current if voltage is changed etc
- Reading electrical meters (voltmeter, ammeter)

Cosmology

- The Big bang Theory (what is the theory and what is the evidence supporting it)
- Life Cycle of a star (identify the different stages and the two possible outcomes)
- H-R diagrams – interpreting graphs, life cycle of a star
- Distances in space and when each is used (Astronomical Unit (AU), Light Year (Ly), Parsec)
- Objects in the Universe (galaxy, nebula, stars, solar system)

Waves

- Features of a wave (frequency, wavelength, amplitude, period)
- Properties of waves (reflection, refraction)
- Types of waves (Electromagnetic (E-M) waves, Mechanical waves) identify, examples, applications.
- Types of wave motion (Transverse, compressional (or longitudinal))

Working Scientifically Skills (FHI and SRP)

- Scientific Method (aim, hypothesis, method, risk assessment, discussion, analysis)
- Lab equipment (identify and draw)
- Independent, dependent and controlled variables
- Collecting and communicating data
- Evaluating results, method, sources (Validity/Reliability/Accuracy)
- Graphing (eg: graphs, tables, flowcharts – creating and interpreting)

Newton and Motion

- Describing motion
- Speed, time, acceleration, velocity (recognise and make calculations)
- Newton's Laws of Motion and their application to everyday situations

Plate Tectonics

- Earth structure and Earth movements
- Types of plate boundaries: Convergent, Divergent, Transform
- Causes and effects of Earth movements

Chemical Reactions

- Acids and Bases (examples of and properties of each)
- Indicators, pH scale (interpreting graphs)
- Chemical equations (reactants /products)
- Reactants and Proof of acids (Acid + Metal, Acid + Carbonate; Acid + Base)
- Types of reactions: acid, base, corrosion, combustion, precipitation, decomposition
- Increasing the rate of reaction

Evolution

- Adaptations: structural, behavioural and physiological
- Darwin/Wallace theory of evolution
- Evidence supporting Darwin/Wallace theory of evolution: Fossil record, Comparative anatomy, Comparative embryology, Biochemistry

Good Luck!