# YEAR 10 SCIENCE - Australian Curriculum and C2C Mapping

## Science as a Human Endeavour

### Nature and development of science
- Scientific understanding, including models and theories, are contestable and are refined over time through a process of review by the scientific community (ACSHE191)
- Advances in scientific understanding often rely on developments in technology and technological advances are often linked to scientific discoveries (ACSHE192)

### Use and influence of science
- People can use scientific knowledge to evaluate whether they should accept claims, explanations or predictions (ACSHE194)
- Advances in science and emerging sciences and technologies can significantly affect people’s lives, including generating new career opportunities (ACSHE195)
- The values and needs of contemporary society can influence the focus of scientific research (ACSHE230)

## Science Inquiry Skills

### Questioning and predicting
- Formulate questions or hypotheses that can be investigated scientifically (ACSIS198)

### Planning and conducting
- Plan, select and use appropriate investigation methods, including field work and laboratory experimentation, to collect reliable data; assess risk and address ethical issues associated with these methods (ACSIS199)
- Select and use appropriate equipment, including digital technologies, to systematically and accurately collect and record data (ACSIS200)

### Processing and analysing data and information
- Analyse patterns and trends in data, including describing relationships between variables and identifying inconsistencies (ACSIS203)
- Use knowledge of scientific concepts to draw conclusions that are consistent with evidence (ACSIS204)
- Evaluate conclusions, including identifying sources of uncertainty and possible alternative explanations, and describe specific ways to improve the quality of the data (ACSIS205)
- Critically analyse the validity of information in secondary sources and evaluate the approaches used to solve problems (ACSIS206)

### Communicating
- Communicate scientific ideas and information for a particular purpose, including constructing evidence based arguments and using appropriate scientific language, conventions and representations (ACSIS208)

## Science Understandings

### Chemical Sciences
- The atomic structure and properties of elements are used to organise them in the Periodic Table (ACSSU186)
- Different types of chemical reactions are used to produce a range of products and can occur at different rates (ACSSU187)

### Physical Sciences
- Energy conservation in a system can be explained by describing energy transfers and transformations (ACSSU190)
- The motion of objects can be described and predicted using the laws of physics (ACSSU229)

### Earth and Space Sciences
- The universe contains features including galaxies, stars and solar systems and the Big Bang theory can be used to explain the origin of the universe (ACSSU188)
- Global systems, including the carbon cycle, rely on interactions involving the biosphere, lithosphere, hydrosphere and atmosphere (ACSSU189)

### Biological Sciences
- The transmission of heritable characteristics from one generation to the next involves DNA and genes (ACSSU184)
- The theory of evolution by natural selection explains the diversity of living things and is supported by a range of scientific evidence (ACSSU185)

## C2C

### Unit 3 – Atomic Structure and Theory
### Unit 4 – Covalent Bonding
### Unit 5 – Forces and Motion
### Unit 6 – Energy and Motion
### Unit 7 – Carbon and Nutrient Cycles
### Unit 8 – Astronomy
### Unit 1 – Genetics Concepts and Exploring Heredity

## NVeec Activities
- Geology of the Springbrook Plateau Catchment study
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<th>Curriculum Priorities</th>
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<td><strong>Student ICT Expectations</strong></td>
<td>Students will use a digital camera to capture images, compasses and GPS for navigation, magnifying glasses to observe plants, soil, animals and rocks. The use of the following equipment to perform water quality test: digital thermometer, dissolved oxygen meter, turbidity meter, pH pockets sensor, salinity (TDS) pockets sensor, magnifying lenses and nets. The study of forests types uses: soil pH test kit, relative humidity meter, anemometer, tape measure and light meter.</td>
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| **General Capabilities** | **Literacy**  
Students will:  
- understand and use new and subject specific vocabulary used in science contexts  
- procedural vocabulary (e.g. discuss, list, label, link, explain, examine, predict, reflect)  
- use visual representations (e.g. diagrams, tables, satellite imagery, maps)  

**Numeracy**  
Students will:  
- analyse data  
- use appropriate measurements and graph numerical data  
- identify trends and patterns from numerical data and graphs  

**Critical and creative thinking**  
Students will:  
- generate and evaluate knowledge and ideas  
- make predictions  
- analyse and evaluate and summarise information  

**Personal and social competence**  
Students will:  
- make responsible decisions  
- work effectively in teams, follow procedures and work safely  
- make informed choices about issues that impact on the environment around them  

**Ethical Behaviour**  
Students will consider how decisions made about global contemporary issues affect life and the extent of humans’ ethical responsibility for the welfare of the planet. |
| **Cross-curriculum priorities** | **Aboriginal and Torres Strait Islander histories and cultures**  
Students will develop an understanding that Aboriginal people have particular ways of knowing about the world. Aboriginal people have developed knowledge about the world through observation, using all the senses; through prediction and hypothesis; through testing (trial and error); and through making generalisations within specific contexts. Students will discuss Aboriginal and Torres Strait Islander peoples’ knowledge about climate change, global systems and climate change.  

**Asia and Australia’s engagement with Asia**  
Students will consider the development of renewable energy sources and technologies in the Asia-Pacific and African regions.  

**Sustainability**  
Students will:  
- consider how humans interact with and influence the environment in which they live.  
- propose a balanced approach to the way humans interact with each other and the environment  
- focus on protecting environments through action that recognise the interdependence of environmental, societal, cultural and economic considerations. |