



**Truganina**  
College  
Inspiring Excellence in  
Learning to Believe, Achieve  
and Succeed.

## Year 7 – Year 9 Science Curriculum Overviews

Our school community is one with high expectations.  
We are collaborative and inclusive of all.  
We deliver a 21<sup>st</sup> century guaranteed and viable curriculum that results in outstanding student achievement.

The Science Curriculum Overviews links directly to:

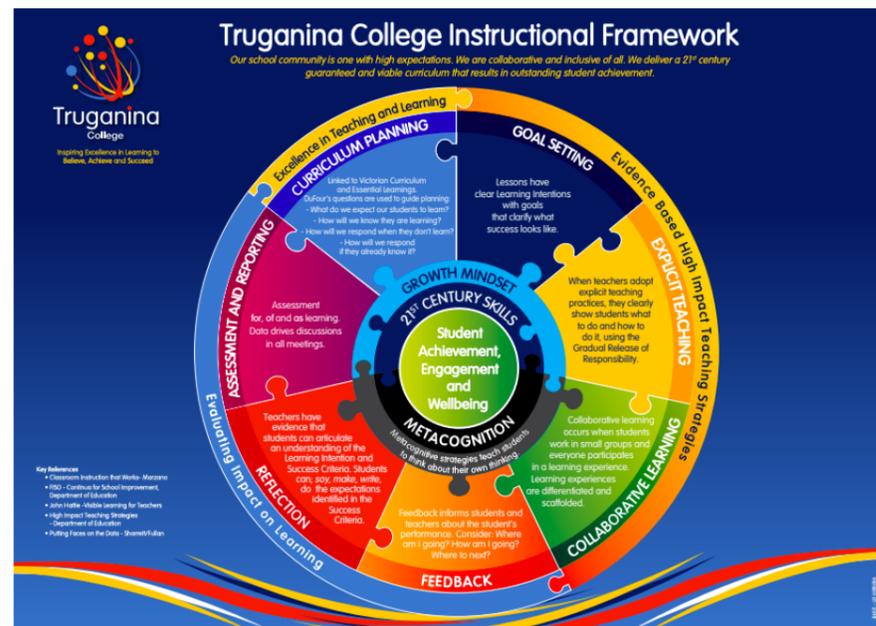
HIGH IMPACT TEACHING STRATEGIES (HITS)



The planning, teaching and learning of the Science Curriculum links directly to the College’s Strategic Plan goals:

- Goal 1: To grow each student’s learning outcomes across all curriculum areas, with a focus on Literacy and Numeracy.
- Goal 2: To strengthen a positive culture for learning that empowers both students and staff.
- Goal 3: To increase community connectedness in supporting outstanding student achievement.

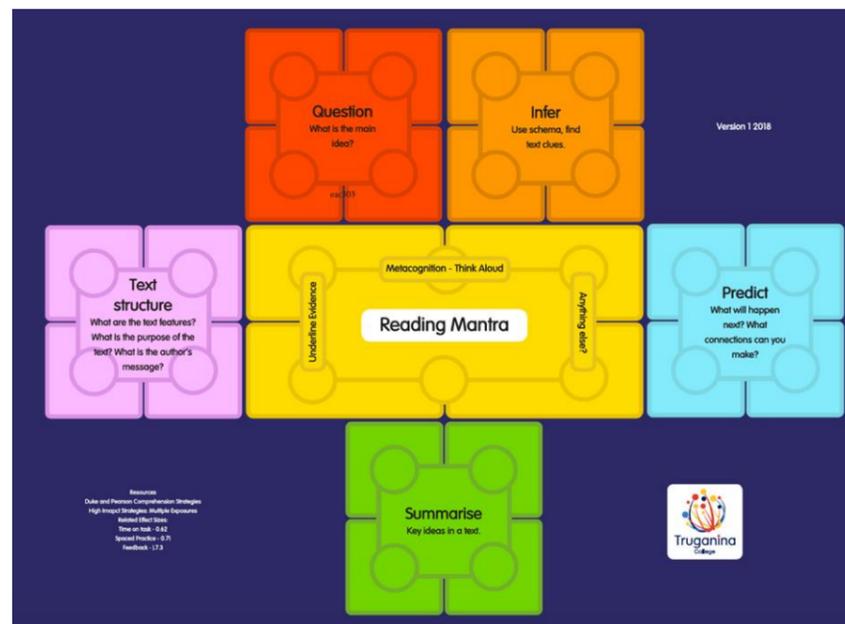
Instructional Framework



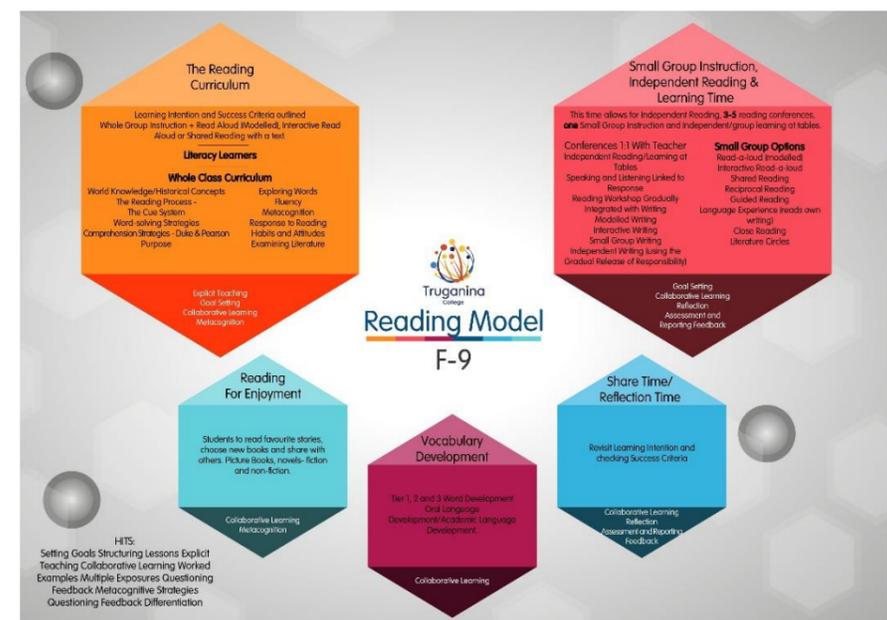
Curriculum Planning- Refer to DuFour’s Questions

Assessment & Reporting – Data drives discussion in all meetings

Reading Mantra



Reading Model



	Term 1 – Biological Science	Term 2 – Chemical Science	Term 3 – Physical Science	Term 4 – Earth and Space Science
<b>IGNITE [Inquiry of Goals, New Ideas &amp; Truganina's Expectations] CURRICULUM</b>				
Year 7	<p><b>VCSSU091</b>) - There are differences within and between groups of organisms; classification helps organise this diversity</p> <ul style="list-style-type: none"> <li>• Classification of organisms</li> <li>• Diversity of living organisms</li> </ul> <p><b>VCSSU093</b>) - Interactions between organisms can be described in terms of food chains and food webs and can be affected by human activity</p> <ul style="list-style-type: none"> <li>• Interactions between organisms</li> <li>• Food chains and food webs</li> <li>• Human impacts including the indigenous perspective</li> </ul> <p><b>Meta- Cognition</b> Examine a range of learning strategies and how to select strategies that best meet the requirements of a task <b>VCCCTM041</b>)</p> <p>Setting A Purpose Text Structure</p>	<p><b>VCSSU096</b>) -The properties of the different states of matter can be explained in terms of the motion and arrangement of particles</p> <ul style="list-style-type: none"> <li>• States of matter</li> </ul> <p><b>VCSSU097</b>) - Differences between elements, compounds and mixtures can be described by using a particle model</p> <ul style="list-style-type: none"> <li>• model arrangement of particles in elements and compounds</li> <li>• recognising that elements and simple compounds can be represented by symbols and formulas</li> </ul> <p><b>VCSSU095</b>) - Mixtures, including solutions, contain a combination of pure substances that can be separated using a range of techniques</p> <ul style="list-style-type: none"> <li>• Separation techniques</li> </ul> <p><b>Meta- Cognition</b> Consider how problems can be segmented into discrete stages, new knowledge synthesised during problem-solving and criteria used to assess emerging ideas and proposals <b>VCCCTM042</b>)</p> <p>Metacognition Inferring</p>	<p><b>VCSSU103</b>) - Change to an object's motion is caused by unbalanced forces acting on the object; Earth's gravity pulls objects towards the centre of Earth</p> <ul style="list-style-type: none"> <li>• gravity</li> <li>• forces on objects</li> </ul> <p><b>VCSSU104</b>) - Energy appears in different forms including movement (kinetic energy), heat, light, chemical energy and potential energy; devices can change energy from one form to another</p> <ul style="list-style-type: none"> <li>• Different forms of energy</li> <li>• Change forms</li> </ul> <p><b>Meta- Cognition</b> Consider how problems can be segmented into discrete stages, new knowledge synthesised during problem-solving and criteria used to assess emerging ideas and proposals <b>VCCCTM042</b>)</p> <p>Predicting Monitoring Comprehension</p>	<p><b>VCSSU099</b>) - Predictable phenomena on Earth, including seasons and eclipses, are caused by the relative positions of the Sun, Earth and the Moon</p> <ul style="list-style-type: none"> <li>• Seasons on earth</li> <li>• Eclipses caused by Sun Earth and Moon</li> <li>• Advances in telescopes and space technology</li> </ul> <p><b>Questions and Possibilities</b> Consider how to approach and use questions that have different elements, including factual, temporal and conceptual elements <b>VCCCTQ032</b>)</p> <p><b>Reasoning</b> Examine common reasoning errors including circular arguments and cause and effect fallacies <b>VCCCTR035</b>)</p> <p>Visualising Questioning</p>
Year 8	<p><b>VCSSU092</b>) - Cells are the basic units of living things and have specialised structures and functions</p> <ul style="list-style-type: none"> <li>• Cells structure and function</li> <li>• distinguishing plant cells from animal and fungal cells</li> </ul> <p><b>VCSSU094</b>) - Multicellular organisms contain systems of organs that carry out specialised functions that enable them to survive and reproduce</p> <ul style="list-style-type: none"> <li>• Organ cell specificity</li> <li>• Ethical issues arising from organ transplants</li> </ul>	<p><b>VCSSU098</b>) - Chemical change involves substances reacting to form new substances</p> <ul style="list-style-type: none"> <li>• chemical and physical change</li> <li>• evidence of chemical reaction</li> <li>• combine elements to make a compound</li> </ul> <p><b>Meta-cognition</b> Consider how problems can be segmented into discrete stages, new knowledge synthesised during problem-solving and criteria used to assess emerging ideas and proposals <b>VCCCTM042</b>)</p>	<p><b>VCSSU105</b>) - Light can form images using the reflective feature of curved mirrors and the refractive feature of lenses, and can disperse to produce a spectrum which is part of a larger spectrum of radiation</p> <ul style="list-style-type: none"> <li>• Different forms of energy</li> <li>• Light energy (reflection and refraction) including the light spectrum</li> </ul> <p><b>VCSSU106</b>) - The properties of sound can be explained by a wave model</p> <ul style="list-style-type: none"> <li>• Sound energy</li> <li>• Wave model</li> </ul>	<p><b>VCSSU100</b>) - Some of Earth's resources are renewable, but others are non-renewable</p> <ul style="list-style-type: none"> <li>• Renewable and non-renewable resources</li> </ul> <p><b>VCSSU101</b>) - Water is an important resource that cycles through the environment</p> <ul style="list-style-type: none"> <li>• Water cycle</li> </ul> <p><b>VCSSU102</b>) - Sedimentary, igneous and metamorphic rocks contain minerals and are formed by processes that occur within Earth over a variety of timescales</p> <ul style="list-style-type: none"> <li>• Minerals, formation of rocks</li> </ul>

	<ul style="list-style-type: none"> <li>comparing similar systems in different organisms</li> </ul> <p><b>Meta- Cognition</b></p> <p>Examine a range of learning strategies and how to select strategies that best meet the requirements of a task <b>(VCCTM041)</b></p> <p>Setting A Purpose Text Structure</p>	<p>Metacognition Inferring</p>	<p><b>Meta-cognition</b></p> <p>Consider a range of strategies to represent ideas and explain and justify thinking processes to others <b>(VCCCTM040)</b></p> <p>Predicting Monitoring Comprehension</p>	<ul style="list-style-type: none"> <li>Mining</li> </ul> <p><b>Meta- cognition</b></p> <p>Consider how problems can be segmented into discrete stages, new knowledge synthesised during problem-solving and criteria used to assess emerging ideas and proposals <b>(VCCCTM042)</b></p> <p>Visualizing Questioning</p>
<p>Year 9</p>	<p><b>(VCSSU117)</b> - Multicellular organisms rely on coordinated and interdependent internal systems to respond to changes to their environment</p> <ul style="list-style-type: none"> <li>Homeostasis</li> <li>Circulatory, Respiratory, Digestive, Excretory, Endocrine and Immune systems</li> <li>Disease and Pathogens</li> </ul> <p><b>(VCSSU118)</b> - An animal's response to a stimulus is coordinated by its central nervous system (brain and spinal cord); neurons transmit electrical impulses and are connected by synapses</p> <ul style="list-style-type: none"> <li>Brain and Nervous system</li> <li>Reflex Actions</li> </ul> <p><b>Meta- Cognition</b></p> <p>Suspend judgements to allow new possibilities to emerge and investigate how this can broaden ideas and solutions <b>(VCCCTQ044)</b></p> <p>Setting A Purpose Text Structure</p>	<p><b>(VCSSU122)</b> - All matter is made of atoms which are composed of protons, neutrons and electrons; natural radioactivity arises from the decay of nuclei in atoms</p> <ul style="list-style-type: none"> <li>Atomic Theory</li> <li>Radioactivity</li> </ul> <p><b>(VCSSU123)</b> - The atomic structure and properties of elements are used to organise them in the periodic table</p> <ul style="list-style-type: none"> <li>Atomic and Periodic Table</li> </ul> <p><b>(VCSSU124)</b> - Chemical reactions involve rearranging atoms to form new substances; during a chemical reaction mass is not created or destroyed</p> <ul style="list-style-type: none"> <li>Law of Conservation of Mass</li> </ul> <p><b>Meta- cognition</b></p> <p>Critically examine their own and others' thinking processes and discuss the factors that influence thinking, including cognitive biases <b>(VCCCTM051)</b></p> <p>Metacognition Inferring</p>	<p><b>(VCSSU132)</b> - Energy flow in Earth's atmosphere can be explained by the processes of heat transfer</p> <ul style="list-style-type: none"> <li>Law of Conservation of Energy</li> <li>Thermal Energy Transfer and Transformation</li> </ul> <p><b>(VCSSU130)</b> - Electric circuits can be designed for diverse purposes using different components; the operation of circuits can be explained by the concepts of voltage and current</p> <ul style="list-style-type: none"> <li>Electric circuits</li> <li>Voltage and current</li> </ul> <p><b>Meta-cognition</b></p> <p>Investigate the kind of criteria that can be used to rationally evaluate the quality of ideas and proposals, including the qualities of viability and workability <b>(VCCCTM053)</b></p> <p>Predicting Monitoring Comprehension</p>	<p><b>(VCSSU127)</b> -The theory of plate tectonics explains global patterns of geological activity and continental movement</p> <ul style="list-style-type: none"> <li>Dynamic Earth</li> <li>Tectonic plates</li> <li>Folds and Faults</li> <li>Earthquakes and volcanoes</li> </ul> <p><b>(VCCS121)</b> - Ecosystems consist of communities of interdependent organisms and abiotic components of the environment; matter and energy flow through these systems</p> <ul style="list-style-type: none"> <li>Interactions</li> <li>Change in ecosystems</li> </ul> <p><b>Meta – cognition</b></p> <p>Investigate the kind of criteria that can be used to rationally evaluate the quality of ideas and proposals, including the qualities of viability and workability <b>(VCCCTM053)</b></p> <p>Visualising Questioning</p>

The Science Curriculum links directly to:

- **High Impact Teaching Strategies**

The Department of Education and Training's 2017 guide contains descriptions, examples, references and effect sizes for each of the 10 High Impact Teaching Strategies (HITS) being Setting Goals, Structuring Lessons, Explicit Teaching, Worked Examples, Collaborative Learning, Multiple Exposures, Questioning, Feedback, Metacognitive Strategies, and Differentiated Teaching: <https://www.education.vic.gov.au/school/teachers/teachingresources/practice/improve/Pages/hits.aspx>

- Duke & Pearson Comprehension Strategies For a succinct review of Duke & Pearson's 9 reading strategies (Inferring, Predicting, Questioning, Think-aloud (Metacognition), Text Structure, Visualising, Setting a Purpose, Monitoring Comprehension, Retelling and Summarising to improve students' comprehension of texts, see Link: <https://docs.google.com/document/d/1EX3DR3V7MHUzfcCF5YZ8aaHeJAc98wjQC59raZXjGrg/edit>

- **21st century Learning**

Ways of Thinking: Creativity & Innovation, Critical Thinking, Problem Solving & Decision Making, Learning to Learn

Ways of Working: Communication & Collaboration

Ways of Living in the World: Local & Global Citizenship, Personal & Social Responsibility, Life & Career

Tools for Working: Information Literacy, Information & Communication Technology (ICT) Literacy

- **Critical & Creative Thinking Curriculum**

For the structure, scope and sequence and resources see Link:

<https://victoriancurriculum.vcaa.vic.edu.au/critical-and-creative-thinking/introduction/scope-and-sequence>