

## VALID Science 10 Levels and Reporting Strands

The descriptions are indicative of the knowledge, understanding and skills that students would likely demonstrate at each level.

Level	Knowing and Understanding	Problem solving and communicating	Planning, designing and conducting
<b>6</b>	<p>Relate relevant concepts from Stage 5 science to create explanations and logical scientific argument, eg,</p> <ul style="list-style-type: none"> <li>relationships of forces to motion,</li> <li>the process of evolution by natural selection,</li> <li>role of coordination systems in human body,</li> <li>relationships and cycles in ecosystems,</li> <li>impact of humans on the environment</li> </ul>	<p>Critically analyse texts about science and solve complex problems, eg,</p> <ul style="list-style-type: none"> <li>identify scientific relationships,</li> <li>use scientific understanding to draw conclusions,</li> <li>show a relationship between scientific concepts linked by an unfamiliar context,</li> <li>assess the reliability and validity of information</li> </ul>	<p>Critically analyse scientific investigations, eg,</p> <ul style="list-style-type: none"> <li>evaluate the quality of the data collected,</li> <li>indicate sources of uncertainty in data,</li> <li>describe the relationship between validity and controlled variables</li> </ul>
<b>5</b>	<p>Apply multiple ideas from Stage 5 science, eg,</p> <ul style="list-style-type: none"> <li>biotic/abiotic features,</li> <li>properties of light,</li> <li>chemical reactions,</li> <li>Watson-Crick model of DNA,</li> <li>biotechnology,</li> <li>convection currents,</li> <li>word equations,</li> <li>nature of radioactivity,</li> <li>genetic mutations</li> </ul>	<p>Efficiently use a range of skills and strategies to communicate and solve problems in science, eg,</p> <ul style="list-style-type: none"> <li>use cause and effect in explanations,</li> <li>use numerical calculations,</li> <li>apply a concept to a different context,</li> <li>synthesise data to develop an argument</li> </ul>	<p>Efficiently use a range of skills and strategies when planning and conducting an investigation, eg,</p> <ul style="list-style-type: none"> <li>explain the use of experimental control,</li> <li>classify all relevant variables,</li> <li>formulate a hypothesis</li> </ul>
<b>4</b>	<p>Identify or apply a concept from Stage 5 science, eg,</p> <ul style="list-style-type: none"> <li>transmission of sound,</li> <li>elements in a compound,</li> <li>chemical symbols,</li> <li>chemical reaction types</li> </ul>	<p>Apply provided scientific information to communicate or solve problems in science, eg,</p> <ul style="list-style-type: none"> <li>draw conclusions using knowledge of scientific concepts,</li> <li>identify inconsistencies in data and information</li> </ul>	<p>Draw on an increasing range of skills and strategies when planning and conducting an investigation, eg,</p> <ul style="list-style-type: none"> <li>identify the independent, dependent or variables to be kept constant,</li> <li>suggest equipment to collect data accurately</li> </ul>
<b>3</b>	<p>Construct commonsense explanations in a scientific context, eg,</p> <ul style="list-style-type: none"> <li>simple electrical circuits,</li> <li>effect of forces,</li> <li>gravity and orbiting planets,</li> <li>scale of space,</li> <li>reflection,</li> <li>changes to scientific theory/models</li> </ul>	<p>Summarise a variety of texts about science and solve simple problems, eg,</p> <ul style="list-style-type: none"> <li>locate directly stated information in complex texts,</li> <li>describe a trend in a graph</li> </ul>	<p>Demonstrate developing skills and strategies when conducting an investigation, eg,</p> <ul style="list-style-type: none"> <li>identify data that needs to be collected,</li> <li>identify ethical issues,</li> <li>predict outcomes based on observations</li> </ul>
<b>2</b>	<p>Identify multiple generic ideas in science, eg,</p> <ul style="list-style-type: none"> <li>human body systems,</li> <li>energy transformations,</li> <li>electricity</li> </ul>	<p>Use basic communication techniques to find related pieces of information, eg,</p> <ul style="list-style-type: none"> <li>use appropriate units and symbols for physical quantities,</li> <li>identify a trend in a graph</li> </ul>	<p>Use generic strategies or ideas when conducting an investigation, eg,</p> <ul style="list-style-type: none"> <li>make and record a measurement,</li> <li>identify appropriate equipment and materials</li> </ul>
<b>1</b>	<p>Identify a generic idea in science eg,</p> <ul style="list-style-type: none"> <li>everyday use of common materials</li> </ul>	<p>Use simple communication and problem-solving techniques eg,</p> <ul style="list-style-type: none"> <li>select appropriate representations to communicate information,</li> <li>identify an appropriate text type for a particular purpose</li> </ul>	<p>Use a generic strategy or idea when conducting an investigation eg,</p> <ul style="list-style-type: none"> <li>identify a risk factor,</li> <li>select appropriate measuring equipment</li> </ul>