



# Young Scientist Awards



## JUDGING RUBRIC: IIATE Innovations and Engineering Design, Years 11–12

Level	Description
5	<p>The student has provided clear, consistent and convincing evidence that he/she:</p> <ul style="list-style-type: none"><li>• <b>actively</b> designed and built a prototype of an innovative device over a <b>period of time</b></li><li>• <b>identified</b> an <b>explored</b> need or problem and developed a solution that <b>successfully meets</b> the need and is a <b>significant improvement</b> over previous alternatives or applications</li><li>• addressed an issue of <b>social</b> or <b>technological significance</b></li><li>• displayed a <b>deep understanding</b> of technological concepts used in the prototype</li><li>• included a <b>concise</b> and <b>comprehensive</b> summary of <b>relevant</b> market research, exploring the <b>existence</b> of similar devices and appraising their <b>aesthetic</b> and <b>functional</b> qualities</li><li>• incorporated a <b>comprehensive</b> management plan that included action, time and finance and continually <b>evaluated</b> this plan</li><li>• had been <b>creative</b> and <b>critical</b> in the prototype’s design, <b>innovative</b> in the development of an <b>original</b> solution and <b>enterprising</b> in commercial awareness and decision making</li><li>• implemented <b>safe</b> work practices in the prototype’s design and production</li><li>• demonstrated <b>quality</b> design and production skills</li><li>• had <b>convincing</b> arguments for the choice of materials and technologies selected</li><li>• produced a <b>neat</b> and <b>reliable</b> prototype that’s <b>easy to use</b> and <b>performs</b> as intended</li><li>• included a <b>comprehensive</b> portfolio or log book, detailing the stages of the design process from brainstorming, through prototyping, to final product and evaluation</li><li>• used <b>critical thinking</b> in the <b>evaluation</b> and <b>testing</b> of the prototype, discussing alternatives and modifications and evaluating the <b>impact</b> of the prototype on society and the environment</li><li>• suggested <b>worthwhile</b> directions for future development in a succinct manner</li><li>• <b>formally acknowledged</b> those who contributed to the project</li><li>• used <b>clear, concise</b> and <b>meaningful</b> language and <b>visuals</b> to communicate the operational details and applications of the prototype to the intended audience</li></ul>



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4	<p>The student has provided substantial evidence that he/she:</p> <ul style="list-style-type: none"><li>• designed and built a prototype of an innovative device with <b>considerable planning</b></li><li>• developed an innovative device which <b>meets</b> a need or problem, <b>different</b> from previous alternatives or applications</li><li>• designed the innovative device for the <b>benefit of society</b></li><li>• displayed a <b>thorough understanding</b> of technological concepts used in the device</li><li>• included a <b>summary</b> of current and <b>relevant</b> market research</li><li>• incorporated a <b>thorough</b> management plan that included action, time and finance</li><li>•</li><li>• designed an <b>innovative</b> prototype, developed an <b>original</b> solution and demonstrated <b>enterprise</b> skills</li><li>• had shown <b>skill</b> in the design and production of the prototype and <b>implemented safe</b> work practices in the prototype's production</li><li>• included some <b>justification</b> for the selection of materials and use of resources</li><li>• had constructed a prototype that is <b>easy to use</b> and <b>performs</b> as intended</li><li>• included a portfolio or log book <b>detailing</b> the different stages of the design process</li><li>• exhibited <b>rational thinking</b> in the testing and evaluation of the prototype</li><li>• put forward directions for <b>future development</b></li><li>• <b>acknowledged</b> and provided details of any assistance given</li><li>• <b>effectively</b> communicated the prototype's operational details and the language and visuals <b>take account</b> of the audience</li></ul>
3	<p>The student has provided evidence that he/she:</p> <ul style="list-style-type: none"><li>• designed and built a prototype of an innovative device over a <b>period of time</b></li><li>• developed an innovative device which is a <b>solution</b> to a need or problem</li><li>• had an innovative device which has some <b>innovative</b> or <b>creative</b> features</li><li>• demonstrated an <b>understanding</b> of technological concepts used in the device</li><li>• collected background market research with <b>some relevance</b> to the need or problem</li><li>• considered a variety of designs with the selected design being chosen with <b>little justification</b></li><li>• incorporated a <b>management plan</b> that considered action, time and finance</li><li>• displayed <b>good</b> workmanship in the design and construction of the prototype</li><li>• used materials in the prototype model's construction with <b>little justification</b></li><li>• had constructed a prototype that <b>works</b></li><li>• had performed <b>preliminary testing</b> of the prototype</li><li>• provided <b>supporting</b> documentation in the accompanying portfolio or log book</li><li>• put forward some <b>good</b> and <b>practical</b> ideas for future improvements</li><li>• <b>acknowledged</b> any assistance given</li><li>• communicated the prototype's operational details with <b>good</b> use of language, visuals and sequencing, appropriate to the intended audience</li></ul>



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2	<p>The student has provided evidence that he/she:</p> <ul style="list-style-type: none"><li>• built a prototype of an innovative device with <b>little</b> planning or design</li><li>• had an innovative device <b>lacking</b> any innovative or creative features</li><li>• demonstrated <b>some understanding</b> of technological concepts used in the prototype</li><li>• performed <b>limited</b> or <b>general</b> background research</li><li>• considered <b>only one</b> or <b>two</b> designs before commencing constructing</li><li>• incorporated a <b>basic</b> management plan that included some of the aspects of action, time or finance</li><li>• displayed <b>simple</b> workmanship in the design and construction of the prototype</li><li>• used some materials in the prototype's construction that were <b>not suitable</b></li><li>• had tested the prototype with <b>irregular performances</b></li><li>• provided <b>limited</b> documentation in the accompanying portfolio or log book</li><li>• put forward <b>some</b> ideas for future improvements</li><li>• received some assistance but <b>did not provide details</b> of the assistance given</li><li>• included an <b>adequate</b> set of operational instructions to <b>assist</b> the audience</li></ul>
1	<p>The student has provided evidence that he/she:</p> <ul style="list-style-type: none"><li>• entered a prototype of an innovative device that <b>does not fully work</b></li><li>• demonstrated <b>little understanding</b> of technological concepts used in the device</li><li>• performed <b>nominal</b> or <b>irrelevant</b> background research</li><li>• provided designs and sketches that were <b>haphazard</b></li><li>• made a prototype with <b>poor</b> workmanship</li><li>• <b>poorly selected</b> materials and technologies</li><li>• had not <b>sufficiently</b> tested the prototype and ideas for future improvements are <b>vague</b> and <b>impractical</b></li><li>• provided <b>limited</b> or <b>disorganised</b> documentation</li><li>• <b>neglected</b> to acknowledge assistance given</li><li>• provided <b>poorly expressed</b> operational instructions for the innovative device</li></ul>