



Young Scientist Awards



JUDGING RUBRIC: STANSW Scientific Investigation, Years 10–12

Level	Description
5	<p>The student has provided clear and convincing evidence that he/she:</p> <ul style="list-style-type: none"> • completed a valid scientific investigation over a period of time • had well-defined aims and clearly expressed the subject of the investigation • included a concise and comprehensive summary of relevant prior research in the field and its reliability assessed • formulated a testable hypothesis based on prior research or previous observations • exhibited a deep understanding of related science concepts • accurately identified and took steps to minimise potential investigative risks • addressed an issue of social or scientific significance • had been innovative or creative in their approach, content, methodology or communication to the audience • identified and assessed a range of procedures and provided convincing arguments for the procedure and technology selected • made relevant observations using replicated trials • recorded data in an organised, sequential and logical manner using correct units • identified independent and dependent variables and took deliberate steps to regulate and keep controlled variables constant • used analytical tools to evaluate trends, patterns and relationships in collected data • used critical thinking to synthesise information and argue the merits of conclusions • suggested creative and worthwhile directions for future research in a succinct way • included a comprehensive log book, detailing the investigative process, from brainstorming, through data collection, to the final conclusion • formally acknowledged those who contributed to the project • used clear, concise, consistent and meaningful language, visuals and sequencing to effectively communicate to the intended audience
4	<p>The student has provided substantial evidence that he/she:</p> <ul style="list-style-type: none"> • completed a well-planned scientific investigation over a period of time • had realistic aims and well-described the subject of the scientific investigation • included a summary of current relevant information and checked its reliability • proposed a hypothesis based on prior research or previous observations • had a detailed understanding of the science concepts used in the investigation • conducted a carefully considered risk assessment prior to experimentation • had been innovative or creative in content or methodology • gathered experimental data over a number of trials using appropriate technologies • recorded data in a systematic manner using correct units • identified independent and dependent variables and worked to control them • analysed and explained trends, patterns and relationships in the data collected • used critical thinking to derive conclusions, suggesting ideas for future research • included a log book detailing the different stages of the investigative process • acknowledged and provided details of any assistance given • communicated the report with effective use of language, visuals and sequencing

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3	<p>The student has provided evidence that he/she:</p> <ul style="list-style-type: none"> • completed a scientific investigation that shows evidence of careful planning • had some measurable aims and the subject of the investigation was clearly described • collected background research with some relevance to the subject of investigation • proposed a relevant hypothesis • had a good understanding of the science concepts used in the investigation • had some innovative or creative ideas but did not develop them • conducted a risk assessment prior to experimentation • gathered first-hand data with replication • used thorough scientific methodology including the control of variables • identified obvious trends, patterns and relationships in the data • formulated conclusions that were supported by experimental data • provided supporting documentation in the accompanying log book • put forward some good and practical ideas for future improvements • acknowledged any assistance given • communicated the report with good use of language, visuals and sequencing appropriate to the intended audience
2	<p>The student has provided evidence that he/she:</p> <ul style="list-style-type: none"> • completed a scientific investigation with moderate planning • had some tentative aims and the subject of the investigation was adequately described • performed limited or general background research • had minimal understanding of the science concepts used in the investigation • lacked innovative or creative ideas • considered experimental risks but did not conduct a formal risk assessment • gathered some first-hand data without replication • controlled some variables • identified limited trends, patterns and relationships in the data • formulated conclusions that were not fully supported by experimental data • provided limited or disorganised documentation in the accompanying log book • put forward some ideas for future improvements • received some assistance but did not provide details of the assistance given • communicated the report with adequate use of language, visuals and sequencing
1	<p>The student has provided evidence that he/she:</p> <ul style="list-style-type: none"> • submitted a project with limited planning • had no clear aim and the subject of the investigation was vaguely described • performed nominal or irrelevant background research • had an inadequate understanding of the science concepts used in the investigation • failed to recognise or control variables • failed to identify trends, patterns and relationships in the data • manufactured conclusions lacking supporting information and scientific accuracy • neglected to include a log book • neglected to acknowledge assistance given • communicated the report with poor expression and inadequate use of visuals