# Pre-approved Learning and Assessment Plan

LAP 01 – Amusement Park

Stage 2 Scientific Studies

Pre-approved learning and assessment plans are for *school use only*.

* Teachers may make changes to the plan, retaining alignment with the subject outline.
* The principal or delegate endorses the use of the plan, and any changes made to it, including use of an addendum.
* The plan does not need to be submitted to the SACE Board for approval.

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| School |  | Teacher(s) |  |

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| SACE school code |  | Year |  | Enrolment code |  | Program variant code (A–W) |
| Stage | Subject code | No. of credits (10 or 20) |
|  |  |  | 2024 | **2** | **S** | **T** | **U** | **20** |  |

Addendum – changes made to the pre-approved learning and assessment plan

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| Describe any changes made to the pre-approved learning and assessment plan to support students to be successful in meeting the requirements of the subject. In your description, please explain:what changes have been made to the plan* the rationale for making the changes
* whether these changes have been made for all students, or for individuals within the student group.
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Endorsement

The use of the learning and assessment plan is approved for use in the school. Any changes made to the plan support student achievement of the performance standards and retain alignment with the subject outline.

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| Signature of principal or delegate |  | Date |  |

# Assessment overview

Stage 2 Scientific Studies – 20 credits

The table below provides details of the planned tasks and shows where students have the opportunity to provide evidence for each of the specific features of all of the assessment design criteria.

Assessment Type 1: Inquiry Folio – weighting 50%

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| Assessment details | Assessment design criteria | Assessment conditions (e.g. task type, word length, time allocated, supervision) |
| IAE | KA |
| **SIS Design Proposal for Individual Inquiry (prior to Assessment Type 3)**In preparation for their external assessment, students individually prepare a proposal for an investigation for which the outcome is unknown. Students investigate the creation of a child’s toy or ride (not a roller coaster) than involves motion and can be used by a disabled child. The design proposal includes: a question/hypothesis, problem/need, a deconstruction of the problem that includes an identification of variables and discussion of how these variables might impact on the problem or influence the design, an outline of an approach or method **or** engineering design of a model designed to obtain primary data, and a justification of the plan of action, including for conducting research. | 1 | 1, 4 | Individual proposal.Maximum 4 x A4 pages if written or equivalent in multimodal form. Minimum font size 10, no page reduction. |
| **SIS Task 1: Accuracy of Measurement Assignment**Students are provided with different pieces of equipment to determine if one is more accurate than another for their specified purpose. They conduct some experimentation, collect, analyse and evaluate the data. Students evaluate the data for sources of uncertainty.  | 2, 3, 4 |  | Individual.Maximum 3 x A4 pages if written or equivalent in multimedia form. Single-sided. Minimum font size 10. |
| **SIS Task 2: Analysis of Data Task** Students are provided a set of data, related to some of the parameters measured on different amusement park rides. They will be required to present data in different ways, appropriate to the type of data. Graphs will be presented, where students will interpret the information and link to the relevant scientific concepts. A scenario or problem will be included, which will require students to analyse the information and formulate a possible solution to the problem and provide a reason with justification.  | 3,4 | 1,2,4 | Individual.Maximum 3 x A4 pages if written or equivalent in multimedia form. Single-sided. Minimum font size 10. |
| **SIS Task 3: Design Investigation-Practical Task**Students will have the opportunity to formulate a hypothesis and design an investigation to determine the effect of different factors on an object moving with circular motion. They will determine relevant variables and design an appropriate method. They will write a practical report, where they will represent the data appropriately in tables and/or graphs, analyse the data, link to science concepts and evaluate the method and data. They formulate a justified conclusion and consider the limitations of the investigation. | 1,2,3,4 | 1 | Individual.Maximum 6 x A4 pages if written or equivalent in multimedia form. Single-sided. Minimum font size 10. |
| **SHE Task**Students choose a topic related to a new development, innovation, discovery in science. They investigate this with a focus on Science as a Human Endeavour. The scientific communication must emphasise at least one of the SHE Key concepts described in the subject outline. They access information from different sources, select relevant information, analyse their findings, and formulate a conclusion. |  | 1,3,4 | Individual. Maximum 1500 words or 10 minutes if oral, or equivalent in multimodal form. |

Assessment Type 2: Collaborative Inquiry – weighting 20%

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| Assessment details | Assessment design criteria | Assessment conditions (e.g. task type, word length, time allocated, supervision) |
| IAE | KA |
| **Collaborative Inquiry – group design:****Design**Students work in groups to use the engineering design process to design a rollercoaster that includes a set of specified requirements. Students individually record in a personal journal:* their initial thinking, ideas and individual deconstruction of the problem
* their own contribution to the project and progress along with evidence and supporting documentation on the group’s application of collaborative skills to reflect their learning and development of the model.
* a record of the primary data collected, their analysis and interpretation, and evaluate the procedures and the model, formulating a conclusion with justification and consideration of possible limitations.

**Evaluation (recorded presentation)**After completing the investigation, students individually complete a recorded presentation that evaluates the effectiveness of the collaboration within the group across all parts of the investigation. | 1,2,3,4,5 | 2 | **Collaborative Inquiry Design****Personal journal** – maximum 12 one-sided A4 pages, min 10 font size, no page reduction.**Collaborative Inquiry Evaluation (recorded presentation)**Recorded presentation (either recorded or multimedia) – maximum 5 minutes. |

Assessment Type 3: Individual Inquiry – weighting 30%

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| Assessment details | Assessment design criteria | Assessment conditions (e.g. task type, word length, time allocated, supervision) |
| IAE | KA |
| Students undertake one individual inquiry using the proposal developed and assessed in Assessment Type 1: Inquiry Folio and incorporating any feedback.Students use the design proposal to conduct an investigation for which the outcome is uncertain. They select either a scientific method or the engineering design process to conduct an investigation based on a question, problem, or a need for a solution identified by each student.Students present an individual report that includes: an introduction, summary of design including hypothesis/proposed solution, modifications, results of the practical, analysis of results, identification of trends and linking results to relevant discipline knowledge, evaluation of method/model used, identification of sources of uncertainty, conclusion with justification of the limitations of the investigation, citations and referencing. | 2, 3, 4 | 1, 4 | Individual report, maximum of 1500 words or equivalent in multimodal form. Only the following sections are included in the word count:* introduction
* analysis of results
* evaluation of procedures
* conclusion with justification
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*Seven assessments.**Please refer to the Stage 2 Scientific Studies subject outline.*