# Pre-approved Learning and Assessment Plan

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) |
|  |  |  |  | **2** | **S** | **C** | **F** | **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. |

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:Investigations Folio – weighting 40%

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| Assessment details | Assessment design criteria | | | | Assessment conditions  (e.g. task type, word length, time allocated, supervision) |
| I | AE | A | KU |
| Practical Investigation - Vitamin C – Food technology  Students formulate a hypothesis, design and carry out an experiment to determine the vitamin C content in a variety of fruit juices using a titration process. They prepare a report providing evidence of: collected data; graphed results with an analysis; identified sources of errors; evaluation of the experiment; suggested improvements; and a formulated conclusion. | 3,4 | 2 | 2,3 | 1 | Students work collaboratively in the execution of the practical but prepare an individual written report for assessment. |
| Practical Investigation - What’s in my Food? – Food technology  Students formulate questions and a hypothesis, design and conduct a practical investigation into the properties (glucose, starch, protein, fat type) of a range of foods. They generate evidence from different sources on the selected factor(s), gather and analyse data, construct reasonable answers, evaluate the procedure and results. Students use scientific literacy skills to explain social or environmental links between scientific data, concepts, issues and safety considerations. | 1,3 | 2 | 1,3 | 2 | Students work collaboratively in the selection and design of the practical.  Students prepare individual reports in a chosen mode including an essay, oral or multimedia presentation or other negotiated format. |
| Practical Investigation - VO2 Max - Fitness  Students perform a non-exercise VO2 max (oxygen uptake) test and then select a minimum of two other VO2 max tests to complete. Students compare their individual results for each test and make an assessment on the validity of each test. Students are required to gather data and evaluate the procedure and results.  Students to prepare an individual oral presentation that presents their findings and conclusions. | 4 | 1,2 | 3 | 1 | Students work collaboratively in the selection and completion of the practical.  Individual presentation. |
| Issues Investigation - Health control issue  Students individually investigate an issue in the field of human disease and access information from a variety of sources. They identify and discuss at least two points of view. Students critically evaluate their findings, develop and explain their conclusions from their investigation. Students use scientific literacy skills to explain links between scientific data, concepts, and issues. They acknowledge sources. | 2 | 1 | 1 | 2,3 | Students may choose the format to present their product. This could be an essay, an oral or a multimedia presentation or another negotiated format.  Final product to be a maximum of 1500 words or a maximum of 10 minutes for an oral presentation, or the equivalent in multimedia form. |

Assessment Type 2: Skills and Applications Tasks – weighting 30%

| Assessment details | Assessment design criteria | | | | Assessment conditions  (e.g. task type, word length, time allocated, supervision) |
| --- | --- | --- | --- | --- | --- |
| I | AE | A | KU |
| Oral - Health testing demonstration  Students select and perform a scientific demonstration related to healthy people or healthy food, and explain the scientific concept behind it. Students use scientific terms, conventions and notations to explain links between scientific data, concepts, and issues. | 3 | 1 |  | 1,3 | Students work collaboratively to research and present information. |
| Test - The human body  Students demonstrate their knowledge and understanding of the role of different elements in the body, molecular bonding, and the structure and function of DNA, RNA, carbohydrates, lipids and proteins. Students analyse and interpret data and communicate their understanding of biochemical concepts. | 4 | 1 | 2 | 1,3 | Students work independently and under test conditions. |
| Animation - Protein synthesis – Diet and health  Students research and demonstrate their understanding of the processes of transcription and translation through the collaborative preparation and presentation of an animation of up to five minutes duration. Students provide individual notes as evidence of their conceptual knowledge, understanding and contribution to the animation project. |  |  | 2,3 | 1,3 | Up to five minutes of an animation plus individual notes. |
| Report - Diet and health  Students keep an individual food diary for 1 week. Students then analyse their dietary intake in relation to Recommended Daily Intakes and make suggestions / recommendations for improvements to their diet based on the Australian Guide to Healthy Eating. Students use scientific terms, conventions and notations to explain scientific data and issues. | 4 | 1 | 1 | 2 | Students work individually to record and analyse their food intake. Students prepare an individual report of approximately 800 words or equivalent. |

Assessment Type 3: Practical Investigation – weighting 30%

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| Assessment details | Assessment conditions  (e.g. task type, word length, time allocated, supervision) |
| External Assessment | *Students carry out an individual practical investigation and present an individual written report. The practical investigation has two parts: the practical investigation design proposal, and a report of the investigation. The practical design proposal includes a statement of an investigable question or hypothesis, the identification of variables, and an outline of the proposed research approach and method. This proposal is assessed before the student begins the practical investigation. The investigation report includes the hypothesis investigated, the method used, the results, a discussion of the results, the conclusion, and an evaluation of the practical investigation.*  *Individual practical investigation followed by an individual written report of a maximum 2000 words.* |

***Eight to ten assessments.*** *Please refer to the Stage 2 Scientific Studies subject outline.*