# Pre-approved Learning and Assessment Plan

Stage 2 Essential Mathematics (aligns with Program 1)

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** | **M** | **E** | **M** | **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 Essential Mathematics – 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: Skills and Applications Tasks – weighting 30%

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| --- | --- | --- | --- |
| Assessment details | Assessment design criteria | | Assessment conditions  (e.g. task type, word length, time allocated, supervision) |
| CT | RC |
| Scales, Plans and Models (non-examined topic): Students demonstrate knowledge of key questions and key concepts from subtopics 1.1 and 1.2. Questions require knowledge of two and three dimensional shapes and their properties, constructing scaled representations and gaining information from scaled representations. Use of appropriate equipment for construction of scaled representations is required. Clear and logical communication of solutions and correct use of notation and terminology are required. | 1,2 | 1,2,3,4 | Supervised test of 60 min (within double lesson).  No calculator permitted.  No handwritten notes. |
| Business Applications (non-examined topic): Students demonstrate their knowledge and skills in responding to questions of both of routine and complex nature from the key questions and key concepts within subtopics 3.1 to 3.3. Some questions are more efficiently solved with the aid of electronic technology. Clear and logical communication of solutions and correct use of notation and terminology are required in these assessments. | 1,2,4 | 1,3,4 | Supervised test of 60 min (within double lesson).  Calculator allowed and 1 side of a single A4 page of notes. |
| Measurement (examined topic): Students demonstrate their knowledge and skills of key questions and key concepts from within subtopics 2.1 to 2.3.  Questions in Part A include converting metric units of length and area. Perimeter and area calculations (including for composite figures) and solving for the length of a missing side in right-angled triangle problems using Pythagoras’ theorem are also included with consideration given to the numerical values involved given no access to calculators.  Questions in Part B include solving problems with right-angled and non-right-angled triangles requiring calculator access, calculations with more complicated numerical figures covering area (including composite shapes), and conversions and calculations with mass, volume, and capacity. Clear and logical communication of solutions and correct use of notation and terminology are required. Construction of diagrams may be required to support problem-solving strategies. | 1,2,4 | 1,3,4 | Supervised test of 60 min (within double lesson).  Part A without calculator or notes (20 min).  Part B with calculator (40min) formula sheet provided no notes permitted. |
| Statistics (examined topic): Students demonstrate their knowledge and skills in responding to questions covering key questions and key concepts from within subtopics 4.1 and 4.2. Some questions are better solved with the aid of electronic technology. Clear and logical communication of solutions and correct use of notation and terminology are required in these assessments. | 1,2,4 | 1,2,3,4 | Supervised test of 60 min (within double lesson).  Calculator allowed and 1 side of a single A4 page of notes. |

Assessment Type 2: Folio – weighting 40%

| Assessment details | Assessment design criteria | | Assessment conditions  (e.g. task type, word length, time allocated, supervision) |
| --- | --- | --- | --- |
| CT | RC |
| Topic 2: Business Applications  Students use skills from subtopic 3.2 to investigate the costs involved in making a product for sale at a country market or similar venue, carry out a break-even analysis and investigate the number of the product that needs to be made and sold to reach varying levels of profit. They make predictions about how many would need to be sold to reach varying levels of profit, and then check using graphical or marginal income methods to see how appropriate their predictions were. They then investigate scenarios of their own choice to see what impact is made on the profit through a series of changes to the original scenario (e.g. varying the selling price and finding a cheaper way of purchasing materials to make the product). | 1,3,4 | 1,2,3,4,5 | 3 weeks to complete.  Folio format: multimodal or written.  Page limit of a maximum of 8 single-sided A4 pages - font size minimum of 10 point. |
| Topic 4: Statistics  Students use skills from subtopic 4.3: Linear Correlation to determine if evidence of a causal link exists between two variables of their choice (e.g. age vs reaction time). Students seek approval of their choice of data to investigate before proceeding. Students make a prediction about the strength of the causal link before they collect or source data to investigate. They collect primary data to analyse then compare with a sample from another source such as another student or an online data base (e.g. Census at School: www.abs.gov.au/censusatschool). Students discuss the strength of the relationship and hence the validity of using the least squares regression line for making predictions, and where valid, use it to interpolate and extrapolate values. Consideration should be given to outliers, their impact on the results and appropriateness of removing them. | 1,2,3,4 | 1,2,3,4,5 | 3 weeks to complete.  Folio format: multimodal or written.  Page limit of a maximum of 8 single-sided A4 pages - font size minimum of 10 point. |
| Topic 5: Investments and Loans  Students compare the overall expenditure when taking out a loan to purchase a car with saving to purchase a car. They examine the cost of a loan, and using calculations investigate several methods that can be used to minimise the interest paid on the loan. They discuss the reasonableness of the methods investigated and any limitations to the results. Students extend this to include an investigation of making regular payments to save the money required to purchase the car. A comparison of the total cost of the car using all methods investigated should be made. Discussion of the reasonableness of the methods investigated and any limitations to the results found should be included. | 1,2,3,4 | 1,2,3,4 | 3 weeks to complete.  Appropriate Folio format is required.  Multimodal or written response.  Page limit of a maximum of 8 single-sided A4 pages - font size minimum of 10 point. |

External Assessment: Examination – weighting 30%

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| Assessment details | Assessment conditions  (e.g. task type, word length, time allocated, supervision) |
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| External Assessment | 2-hour external examination.  Access to electronic technology required.  Students may refer to one unfolded A4 sheet (two sides) of hand-written notes.  Students answer questions on the following three topics:   * Topic 2: Measurement * Topic 4: Statistics * Topic 5: Investment and Loans   The examination consists of a range of problems, some focusing on knowledge, routine skills, and applications, and others focusing on analysis and interpretation. Students provide explanations and arguments, and use correct mathematical notation, terminology, and representation throughout the examination. |

*Eight assessments.**Please refer to the Stage 2 Essential Mathematics subject outline.*