# Pre-approved Learning and Assessment Plan

Stage 2 Essential Mathematics

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 minutes (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 minutes (within double lesson).  Calculator allowed and one 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 minutes (within double lesson).  Part A without calculator (20 min).  Part B with calculator (40min)   * formula sheet provided   One side of a single A4 page of notes. |
| Investments and Loans (examined topic)  Mathematical knowledge and skills based upon the key questions and key concepts from subtopics 5.1 and 5.2. Students require access to technology to solve a range of financial calculations on investments and loans, including simple and compound interest problems, and annuity calculations. Problems will be set in context and opportunities for interpretation of the mathematical results will be provided throughout the test. Correct use of notation and terminology are required. | 1,2,4 | 1,3 | Supervised test of 60 minutes  (within double lesson).  One single-sided A4 page of handwritten 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 minutes (within double lesson).  Calculator allowed and 1 side of a single-sided 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) |
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| CT | RC |
| Topic 2: Measurement  Students use skills developed in subtopic 2.2 to investigate ways of calculating the area of a selected irregularly-shaped island that they can access a birds-eye image from Google Earth or another source. Students will need to source some initial measurements (including the actual area of the island) before calculations proceed. Prior to beginning mathematical investigations, they make an initial prediction about the method that they believe will allow them to find the most accurate calculation of the area of the island. Possible ways of determining the area includes using polygons to approximate the area of the island and Simpson’s rule. Students can also investigate and trial other methods (e.g. using grids, triangulation or Napper’s method). Students discuss limitations of methods used, and the reasonableness of the answers found, and consider the validity of the initial prediction. | 1,3,4 | 1,2,3,4,5 | 3 weeks to complete.  Folio format: multimodal or written.  Page limit of a maximum of 12 single-sided A4 pages - font size minimum of 10 point. |
| Topic 5: Investments and Loans  Students investigate setting up a savings account to provide for medical expenses rather than taking out private health insurance. They investigate how much the yearly costs for singles health insurance would accrue if the payments were invested into a savings account instead. Students could investigate: different interest rates, different account types, making additional payments or increasing payments, and making more regular payments. Students should consider the impact of taxation on their savings and possible impacts on the amount saved such as an unexpected surgery (e.g. wisdom teeth removal). | 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 12 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  **Examination** | 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.*