# 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) |
|  |  |  | **2018** | **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)  The content covers key questions and key concepts within subtopics 1.1 and 1.2. Students apply their knowledge and skills to a range of routine and complex questions.  Clear and logical communication of solutions and correct use of notation and terminology are required. Use of appropriate equipment for constructing and taking measurements from scaled representations is required. | 1,2 | 1,2,3,4 | Supervised written assessment.  No notes or calculator access.  Total time: 60 minutes |
| Business Applications (non-examined topic)  Students demonstrate mathematical knowledge and skills of key questions and key concepts from Business Applications subtopics 3.1 and 3.2. Students apply their knowledge and skills to a range of routine and complex questions in a variety of contexts. The complex questions require students to apply the key concepts to solve problems and interpret results in a variety of contexts. 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. | 1,2,4 | 1,3,4 | Supervised written assessment (within double lesson).  Calculator allowed and one side of 1 page A4 page notes.  Total time: 60 minutes |
| Measurement (examined topic)  Students demonstrate their knowledge and skills of key questions and key concepts of routine and complex nature from within subtopics 2.1, 2.2 and 2.3.  Questions in Part A are solved without electronic technology and no notes.  Questions in Part B are to be solved with the aid of electronic technology and a supplied formula sheet.  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 written assessment.  Part A without calculator or notes (20 min).  Part B with calculator and no notes - formula sheet supplied (40 min).  Total time: 60 minutes |
| 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 one side of 1 page A4 page notes.  Total time: 60 minutes |
| Investments and Loans (examined topic)  Students demonstrate their knowledge and skills of key questions and key concepts of routine and complex nature from within subtopics 5.1 & 5.2. 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 one side of 1 page A4 page notes.  Total time: 60 minutes |

Assessment Type 2: Folio – weighting 40%

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| Assessment details | Assessment design criteria | | Assessment conditions  (e.g. task type, word length, time allocated, supervision) |
| CT | RC |
| Topic 3: Business Applications (subtopic 3.3)  Students investigate the taxation payable for a profitable business which is initially set-up under a Sole trader structure. All students need to be given or select different initial profits at the start of the task. Making the assumption that over a number of years the profitability of the business increases, an investigation of the impact of a Partnership structure on the total taxation paid for a greater profit is undertaken. Students predict what income split will have the outcome of the lowest tax being paid in total by the partners of the business. Several different income splits are investigated, include the predicted split for the lowest overall income tax being paid, and allow for discussion of the implications of the partnership on the money received after tax by the original owner. Students prepare a mathematical report, and make a recommendation about which model they think the original owner should consider for the partnership split. | 1,2,3 | 1,2,3,4,5 | 3 weeks to complete.  Some class time is allowed to support verification.  Maximum of 12 single-sided A4 pages, font size 10 point minimum.  Appropriate format as described in the Stage 2 Essential Mathematics subject outline. |
| Topic 4: Statistics (subtopics 4.1 and 4.2)  Students investigate two or more sets of data examining a single variable. For example, students could consider the individual weight of free range eggs in a particular weight carton of eggs vs. the individual weight of cage eggs from the same sized carton. Eggs from chickens in private back yards could form a third set of data for consideration. The class collects a population of data for each type of egg from which the individual students select their samples. Different sampling methods should be considered and discussion of any errors or bias in the methods or process should be discussed. The data from the different types of eggs is then compared using appropriate statistical measures and representations are constructed allowing the distributions to be compared are created. Students analyse their results and draw conclusions from their investigations. | 1,2,3,4 | 1,2,3,4,5 | 3 weeks to complete.  Some class time is allowed to support verification.  Maximum of 12 single-sided A4 pages, font size 10 point minimum.  Appropriate format as described in the Stage 2 Essential Mathematics subject outline. |

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.*