PRE-APPROVED LEARNING AND ASSESSMENT PLAN

Stage 1 Mathematics

*This pre-approved learning and assessment plan is aligned with Stage 1 Pre-Mathematical Methods Program 3 – Semester 2.*

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) |
|  |  |  |  | **1** | **M** | **A** | **M** | **10** |  |

**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 Type and Weighting | Name and details of assessment | Assessment Design Criteria | | Assessment conditions (e.g. task type, word length, time allocated, supervision) |
| --- | --- | --- | --- | --- |
| C&T | R&C |
| Skills and Applications Tasks  Weighting 75% | **SAT 1: Trigonometry.** Students demonstrate mathematical knowledge and skills from Topic 3: Trigonometry, subtopics 3.2 and 3.3.  Routine questions will focus on the unit circle in relation to circular and radian measures.  More complex questions will examine features of trigonometric functions, graphing, solving equations and relationships. The complex questions require students to apply the key concepts to solve problems in a variety of contexts and some require interpretation of the results. Appropriate and effective use of electronic technology is expected. Clear and logical communication of solutions and correct use of notation and terminology are required. | 1,2,3,4 | 1,2,3,4 | Supervised written assessment.  Total time: 60 minutes  Calculator permitted  1 A4 page of handwritten notes |
| **SAT 2.** Students demonstrate mathematical knowledge and skills from Topic 4: Counting and Statistics, Topic 12: Real and Complex Numbers, and Topic 2: Polynomials.  The content covers key questions and key concepts within subtopics 4.1, 12.3, 2.2.  Both routine and complex questions will be addressed and range from simple problems involving tree diagrams and tables to ones where permutations are required. Technology will be incorporated into more complex questions.  Questions involving complex numbers will incorporate cubic and quartic work, through processes such as the sum and product. Polynomial modelling will involve more complex questions where the use of technology will be required.  The complex questions require students to apply the key concepts to solve problems in a variety of contexts and some require interpretation of the results. Appropriate and effective use of electronic technology is expected. Clear and logical communication of solutions and correct use of notation and terminology are required. | 1,2,3,4 | 1,2,3,4 | Supervised written assessment.  Total time: 60 minutes  Calculator permitted  1 A4 page of handwritten notes |
| **SAT 3.** Key questions and key concepts from Topic 5: Growth and Decay and Topic 1: Functions and Graphs.  The content covers key questions and key concepts within subtopics 1.2, 5.1, 5.2 and 5.3.  Conjecture work will be developed and tested.  Routine questions will focus on the use of logarithm and indices rules and surd to index form and visa-versa. Complex questions will involve inverse relationships, exponential functions, their features and characteristics. It will also consider the application of logarithms in base 10 and the interpretation of real-life scenarios.  The complex questions require students to apply the key concepts to solve problems in a variety of contexts and some require interpretation of the results. Appropriate and effective use of electronic technology is expected. Clear and logical communication of solutions and correct use of notation and terminology are required. | 1, 2,3,4 | 1,2,3,4,5 | Supervised written assessment.  Total time: 60 minutes  Calculator permitted  1 A4 page of handwritten notes |
| Mathematical Investigation  Weighting 25% | **Investigating the Features of Polynomials.** This investigation is predominately based on Topic 2. Students use graphing techniques to form conjectures based on the number of turning points and points of inflection for polynomials of varying degrees.  Polynomials of two forms of degree four introduce the investigation. The task then progresses allowing the opportunity for students to explore polynomials with factors and degrees of their choice. For each polynomial form, students form a conjecture about the number of turning points and points of inflection, and then support this through further investigation. The final section of the task provides scope for students to determine which further polynomial forms they will investigate. | 1,2,3,4 | 1,2,3,4,5 | 1 week to complete. Some class time is allowed to support verification.  Maximum of 8 A4 pages.  Appropriate investigation report format as described in the Mathematics subject outline. |

**Stage 1 Mathematics**

**Assessment Overview**

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 both assessment

design criteria.

***Four assessments.*** *Please refer to Stage 1 Mathematics subject outline.*