

YEAR 12 MODELLING WITH MATHEMATICS PROGRAM 2006

Teachers: Glen Prideaux, Michael Williams

Textbooks T Modelling with Mathematics CAF MAWA

The five subject outcomes for Modelling with Mathematics are:

1. Clarifies a problem
2. Chooses a model to solve a problem
3. Uses a model to solve a problem
4. Interprets and checks the solution to a problem
5. Communicates an obtained result

During the year the students will be covering three topics. For each topic, two projects will be set. For each project, students must address the five outcomes for Modelling with Mathematics. In addition to each project there will be one test set per topic. These tests will assess outcomes 1 to 4.

Assessment Summary

Term 1 2 Projects and one topic test

Term 2 2 Projects and one topic test

Term 3 2 Projects and one topic test

Projects assess outcomes 1 to 5 and tests assess outcomes 1 to 4

Rating and Performance Criteria

These are outlined on pages 74 and 75 of the Curriculum Council Outline of this course. For each task, the student should refer to the table on page 74 to ensure that each of the outcomes are adequately addressed

Rating Procedure for each outcome:

Outcomes 1-4

V A **V** on 5 or more tasks and at least half the remaining tasks are at **H**.

H An **H** on 5 or more tasks and at least half the remaining tasks are at **S**.

S An **S** on 5 or more tasks.

N If 5 or more tasks are **N**.

Outcome 5

V A **V** on 3 or more tasks and at least half the remaining tasks are at **H**.

H An **H** on 3 or more tasks and at least half the remaining tasks are at **S**.

S An **S** on 3 or more tasks.

N If 4 or more tasks are **N**.

Also students must demonstrate at least one **S** rating for each outcome in each of the three topics.

The ratings for each outcome are then used to determine a student's grade.

Performance Criteria

- U grade** All of the assessment tasks must be submitted. If a student fails to submit one or more tasks then they may be deemed not to have completed the program of assessment and will get an unfinished (**U**) for the course.
- E grade** will be awarded if a student gets a **Not demonstrated** in 3 or more of the outcomes.
- D grade** Satisfactory or better in 3 of the outcomes.
- C grade** Satisfactory or better in **ALL** outcomes
- B grade** **High** in 3 of the outcomes, and **Satisfactory** or better in the remainder.
- A grade** Very high in 3 of the outcomes, **High** or better in at least one other outcome and **no Not demonstrated** outcomes.

Policy on late submission of work

The relevant section at the rear of the Student Work Record states:

A task in a Wholly School Assessed/Common Assessment Framework subject received up to three school days after due date will achieve a maximum of an “S” (Satisfactory) Performance Rating. After three days the task will not be assessed and the student will receive an “ND” (Not Demonstrated) Performance Rating. The weekend will count as one day.

Sometimes students believe that they can submit projects at any time up to the end of the year. This it is not the case in Modelling with Mathematics. Each project has a due date students’ work must be submitted by this date. In exceptional circumstances an extension may be granted, but this must be negotiated with the teacher prior to the due date.

Students who fail to submit *all* the assessment tasks risk receiving a “U” grade for the course. This can have implications for secondary graduation.

Modelling With Mathematics – Course Outline – 2006
Term 1

Week	Curriculum Council Objectives	Exercises and Assessment	Notes
1 6 – 10 Feb	Distribution of Program. Orientation to the course working in small groups to solve textbook problem and problems on the worksheets provided.	T Orientation tasks (pages 1-4) WS Orientation problems 1 to 5	– Evacuation & Lock Down this week. – Sec. Awards Assembly on Monday – School photos Tuesday – TAFE begins on Wednesday
2 13 – 17 Feb	Commence topic 1: Chance and Data: Making Decisions Measures of Location and Presentation of Data	T <i>Lessons 1-3</i> <i>Graphics Calculators</i>	– Year 12 Visual Art Camp to Rottnest Friday
3 20 – 24 Feb	Histograms & Measures of Spread	T Lessons 4 - 6 Project 1 issued: What magazine is this?	– Secondary house swimming carnival Monday
4 27 Feb – 3 Mar	Standard Deviation	T Lesson 7 Project work	– Swimming camp Thursday and Friday
5 6 – 10 Mar	Bivariate Data, Relationships & Correlation Excel Use	Project 1 Due T Lessons 9 –11 Microsoft Excel	– Monday: Labour Day holiday – Tuesday: Monday A timetable
6 13 – 17 Mar	Sampling methods Surveys	T Lessons 12 - 13	– ACC Secondary Interschool Swimming Carnival Friday – School Ball Friday
7 20 – 24 Mar	Questionnaire design	T Lessons 14 –15 Project 2 Issued: Statistics Research Task	
8 27 – 31 Mar	Analysis of Results	T Lesson 16 Test 1	– Year 12 parent interviews Wednesday

Week	Curriculum Council Objectives	Exercises and Assessment	Notes
9 3 – 7 Apr	Project Work	Project Work Project 2 Due	– Wet trades block placement – Secondary Anzac Day service Friday
10 10 – 14 Apr	Commence Topic 2: Space: In Three Dimensions Drawing 3D objects	T Lesson 1 p101 to 104	– House cross country Monday – Easter service Tuesday – Good Friday

Modelling With Mathematics – Course Outline – 2006
Term 2

Week	Curriculum Council Objectives	Exercises and Assessment	Notes
1 1 – 5 May			– Monday is pupil free – Year 12 retreat commencing Wednesday.
2 8 – 12 May	Geometry in Three Dimensions Three Dimensional Objects	T Lesson 2 p105 to 110 T Lesson 3 p112 to 116	
3 15 – 19 May	Nets and cross sections Revisiting Units of Measure 3D calculations – Prisms, Pyramids and Spheres	T Lesson 4 p117 to 121 T Lesson 5 p122 to 125 T Lesson 6 p126 to 130 Project 3 issued: Designing a Milk Carton	
4 22 – 26 May	Composites and Problems Capacity	T Lesson 7 p131 to 134 T Lesson 8 p135 to 140 Project work Project 3 due Project 4 issued: Keep it Secure	– Secondary State Schools Cross Country
5 29 May – 2 Jun			– SWL block placement
6 5 – 9 Jun	Project Work	Project Work	– Exam Period
7 12 – 16 Jun	Project Work	Project Work	– Exam Period

Week	Curriculum Council Objectives	Exercises and Assessment	Notes
8 19 – 23 Jun	Trigonometry in 3D Building Applications Tessellating Shapes	T Lesson 10 p145 –149 T Lesson 11 p150 - 154 T Lesson 14 p170 – 177	
9 26 – 30 Jun	Plans and Elevations Building Plans Contours	T Lesson 12 p155 –159 T Lesson 13 p160 - 169 T Lesson 15 p178 – 182	
10 3 – 7 Jul	Project Work	Test 2 Project 4 Due	– No TAFE on Wednesday

Modelling With Mathematics – Course Outline – 2006
Term 3

Week	Curriculum Council Objectives	Exercises and Assessment	Notes
1 24 – 28 Jul	Commence topic 3: Number: Finance Introduction to the Share Market	T Lessons 2 – 3 WS Finance Sheets 1-3	– Monday is pupil free – Evacuation & Lock Down Exercises This Week
2 31 Jul – 4 Aug	Trading Shares	T Lessons 4-5 WS Finance Sheets 4-5	– House Athletics Carnival on Friday
3 7 – 11 Aug	Trading Shares - Continued	Project 5 Issued: Share Trading T Lessons 6- 7 WS Finance Sheets 6-8	
4 14 – 18 Aug	Spreadsheet Basics	T Lesson 8 WS <i>Excel Finance</i> http://www.studyfinance.com/lessons/excel (Or printable from Maths folder)	
5 21 – 25 Aug	Savings	T Lesson 9 Project Work	– Monday is pupil free – Wet trades block placement
6 28 Aug – 1 Sep	Simple Interest	T Lessons 10 - 12	
7 4 – 8 Sep	Compound Interest	T Lessons 13 - 15 Project 5 Due	– Athletics excursion Thursday – State Volleyball cup Friday
8 11 – 15 Sep		Project 6 Issued: Spreading Wealth Project work	

Week	Curriculum Council Objectives	Exercises and Assessment	Notes
9 18 – 22 Sep	Reducible Interest	T Lessons 19 - 20 Project 6 Due	– Interschool athletics Friday
10 25 – 29 Sept		Test 3	– Tuesday: Mon A timetable – Wednesday: Mon B timetable