



# Curriculum Council

## MATHEMATICS

Foundations of Mathematics – D501

Geometry and Trigonometry – D503

Introductory Calculus – D505

Discrete Mathematics – E502

Applicable Mathematics – E504

Calculus – E506

*Grade-related Descriptors*





# Curriculum Council

## GRADE-RELATED DESCRIPTORS

### THE GRADING PROCESS

The current model for assigning grades at the conclusion of a subject is “standards-referenced”. In such a system each student’s performance in a subject is considered with reference to a set of predetermined standards at each grade level. The “predetermined standards” are defined through the use of grade-related descriptors.

Grade-related descriptors aim to capture and describe (as explicitly as possible and in relatively broad terms) those behaviours expected to be typically displayed by students at each grade level for each subject. For teachers they are a *point of reference* against which they must match their professional judgment in determining students’ final grades.

### FEATURES OF GRADE-RELATED DESCRIPTORS

As a general principle, grade-related descriptors should:

- summarise the *general characteristics* of student performance at each level of achievement
- express, in *positive terms*, what a student knows, understands and is able to do
- *clearly define* on a continuum of performance the level of proficiency for *all grades* (A, B, C, D and E)
- be readily *usable* by teachers in making judgments about final grades to be assigned
- provide a ‘*target*’ for students in their efforts to obtain various grades
- be developed with reference to student work samples as *source material* at each grade level
- relate directly to the content of the course

### USING GRADE-RELATED DESCRIPTORS

In planning the assessment program and developing each component task teachers will need to ensure that:

- the nature of each task takes account of the ways that students typically develop over the period of studying the subject
- the rubric for numerical assessment (marking key) for each task is designed with reference to the grade-related descriptors.
- each task that counts towards the awarding of a grade provides students with the opportunity to demonstrate achievement across the full range of performance described in the relevant section/objective of the grade-related descriptors.

The *critical use* of grade-related descriptors is to assist teachers in making comparable judgments about the grades to be awarded at the conclusion of a subject. They do not stand alone. They are *one of a number* of mechanisms available to teachers in deciding summative assessments to be reported to Curriculum Council. They are best used as a point of reference in determining cut-offs after the evaluation of the assessment data collected.

When applying grade-related descriptors, it is also necessary to note that an A student, for example, need not achieve an ‘A’ on all objectives. Teachers will develop a *profile* of achievement of their students across different aspects of the subject and must themselves, with reference to exemplars and moderation procedures, make the *final judgment* of the grade achieved.

## GRADE RELATED DESCRIPTORS MATHEMATICS

OBJECTIVES	A	B	C	D	E
1. FACTS	Can recall nearly all of the facts and terminology	Can recall most of the facts and terminology	Can recall more than the fundamental facts and terminology	Can recall the fundamental facts and terminology	Cannot recall the fundamental facts and terminology
2. CONCEPTS	Can demonstrate the acquisition of nearly all of the concepts	Can demonstrate the acquisition of most of the concepts	Can demonstrate the acquisition of more than the fundamental concepts	Can demonstrate the acquisition of the fundamental concepts	Cannot demonstrate the acquisition of the fundamental concepts
3. RELATIONSHIPS	Can demonstrate understanding of nearly all of the relationships	Can demonstrate understanding of most of the relationships	Can demonstrate understanding of more than the fundamental relationships	Can demonstrate understanding of the fundamental relationships	Cannot demonstrate understanding of the fundamental relationships
4. SKILLS	Can demonstrate nearly all of the manipulative and computational skills	Can demonstrate most of the manipulative and computational skills	Can demonstrate more than the fundamental manipulative and computational skills	Can demonstrate the fundamental manipulative and computational skills	Cannot demonstrate the fundamental manipulative and computational skills
5. USE	Can use nearly all of the facts, skills, terminology and concepts in routine ways	Can use most of the facts, skills, terminology and concepts in routine ways	Can use more than the fundamental facts, skills, terminology and concepts in routine ways	Can use the fundamental facts, skills, terminology and concepts in routine ways	Cannot use the fundamental facts, skills, terminology and concepts in routine ways.
6. COMPREHENSION	Can understand given information	Can understand given information	Can usually understand given information	Has difficulty in understanding some given information	Has difficulty in understanding given information
7. REPRESENTATION	Can decide upon and use an appropriate form of representing mathematical data and relationships	Can decide upon and use an appropriate form of representing mathematical data and relationships	Can generally decide upon and use an appropriate form of representing mathematical data and relationships	Has difficulty in deciding upon and using an appropriate form of representing mathematical data and relationships	Has difficulty in deciding upon and using an appropriate form of representing mathematical data and relationships
8. CONJECTURE	Makes reasonable conjectures and attempts justification	Makes some reasonable conjectures and sometimes attempts justification	Makes some reasonable conjectures but rarely attempts justification	Rarely makes reasonable conjectures	Does not make reasonable conjectures
9. DEDUCTION	Understands the nature and role of deductive reasoning and proof and reasons deductively	Understands the nature and role of deductive reasoning and proof and usually reasons deductively	Understands the nature and role of deductive reasoning and proof and sometimes reasons deductively	Has some understanding of the nature of deductive reasoning in mathematical argument	Does not understand the nature and role of the deductive reasoning and proof
10. APPLICATION	Can generally apply mathematical processes to	Can apply mathematical processes to routine and to	Can apply mathematical processes to simple routine	Can usually apply some mathematical processes to	Cannot apply mathematical processes to simple routine

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## GRADE RELATED DESCRIPTORS MATHEMATICS

OBJECTIVES	A	B	C	D	E
	routine and non-routine situations	some simple non-routine situations	situations	simple routine situations	situations
11. COMMUNICATION	Can communicate mathematical ideas and results	Can communicate mathematical ideas and results	Can communicate simple mathematical ideas and results	Can usually communicate simple mathematical ideas	Rarely communicates mathematical ideas and results
12. VERIFICATION	Can compare outcomes with expectations to verify the suitability and reasonableness of a result	Can compare outcomes with expectations to verify the suitability and reasonableness of a result	Can usually compare outcomes with expectations to verify the suitability and reasonableness of a result	On occasions can compare outcomes with expectations to verify the suitability and reasonableness of a result	Rarely compares outcomes with expectations to verify the suitability and reasonableness of a result