VCE Mathematics

Advice on implementing Units 1 and 2 from the current study design in 2022 as preparation for
Units 3 and 4 of the revised study design in 2023

Following the accreditation of the revised study design 2023–2027 by the VRQA, the following advice is offered to help with planning and preparation for Units 1 and 2 Mathematics courses in 2022.

Foundation Mathematics

Foundation Mathematics Units 3 and 4 is a new study for implementation from 2023.

Implementation in 2022 of the current Foundation Mathematics Units 1 and 2 with some simple examples of financial and consumer mathematics as part of the Patterns and number area of study will provide a suitable preparation for Foundation Mathematics Units 3 and 4 in 2023.

Implementation in 2022 of the current General Mathematics Units 1 and 2, including the following topics: *Linear relations and equations*, *Computation and practical arithmetic*, *Financial arithmetic*, *Shape and measurement* and *Investigation and comparing data distributions* will also provide a suitable preparation for Foundation Mathematics Units 3 and 4 in 2023.

General Mathematics

Implementation in 2022 of the following selection of topics from the current General Mathematics Units 1 and 2 will provide a suitable preparation for General Mathematics Units 3 and 4 in 2023. The unit and order of coverage can be varied as suits the teaching and learning context.

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| Unit 1  | Unit 2 |
| *Computation and practical arithmetic*  | *Linear relations and equations* |
| *Investigating and comparing data distributions* | *Investigation relationships between two numerical variables* |
| *Graphs and networks* | *Matrices* |
| *Linear graphs and models* | *Number patterns and recursion (omit the Fibonacci sequence)* |

Mathematical Methods

Implementation in 2022 of the current Mathematical Methods Units 1 and 2 will provide a suitable preparation for Mathematical Methods Units 3 and 4 in 2023, with the following minor adjustments:

Content that can be omitted from Unit 1:

* vertical line test to determine whether a relation is a function
* non-function relations
* use of matrices for transformations.

Content can be omitted from Unit 2:

* first principles differentiation of polynomial functions
* differentiation and anti-differentiation by rule of functions other than polynomial functions.

Numerical approximation to the derivative $f'$ of a function $f $should consider both the left secant gradient, $\frac{f\left(x\right)-f(x-h)}{h} and the right secant gradient \frac{f\left(x+h\right)-f(x)}{h} , $and their mean value, the central difference $\frac{f\left(x+h\right)-f(x-h)}{2h}$.

Specialist Mathematics

Implementation in 2022 of the following selection of topics from the current Specialist Mathematics Units 1 and 2 in 2022 will provide a suitable preparation for Specialist Mathematics Units 3 and 4 in 2023. The unit and order of coverage can be varied as suits the teaching and learning context.

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| Unit 1  | Unit 2 |
| *Number systems and recursion* | *Simulation, sampling and sampling distributions* |
| *Graphs of non-linear relations* | *Graph theory* |
| *Logic and algebra* | *Vectors* |
| *Geometry in the plane and proof* | *Transformations, trigonometry and matrices* |

The content:

* polar form and graphs of other relations in the plane such as limacons, cardioids, roses, lemniscates and spirals
* parametric form and graphs of other relations in the plane such as spirals, cycloids, lissajous figures and epicycles

can be omitted from the topic *Graphs of non-linear relations* and replaced with the content:

* graphs of the restricted circular functions of sine, cosine and tangent over principal domains and their respective inverse functions sin–1, cos-1 and tan–1 (students should be familiar with alternative notations, arcsin, arccos and arctan) and simple transformations of these graphs.