 Year 11 and 12 Mathematics Extension 1 only – sample scope and sequence

All outcomes referred to in this unit come from the [Mathematics Extension](https://www.educationstandards.nsw.edu.au/wps/portal/nesa/11-12/stage-6-learning-areas/stage-6-mathematics/mathematics-extension-1-2017) 1 Syllabus

© NSW Education Standards Authority (NESA) for and on behalf of the Crown in right of the State of New South Wales, 2017

|  |  |  |  |
| --- | --- | --- | --- |
| **Term 1** | **Weeks 1-2** | **Weeks 3-7** | **Weeks 8-10** |
| ****Unit**** | ME-F1.2 Inequalities | ME-F2 Polynomials | ME-F1.1 Graphical relationships |
| ****Outcomes**** | ME11-1, ME11-2, ME11-6, ME11-7  | ME11-1, ME11-2, ME11-6, ME11-7 | ME11-1, ME11-2, ME11-6, ME11-7 |
| ****Assessment**** |  |  | Topic test |

|  |  |  |  |
| --- | --- | --- | --- |
| **Term 2** | **Weeks 1-6** | **Weeks 7-9** | **Week 10** |
| ****Unit**** | ME-A1 Combinatorics | ME-C1.1 Rates of change with respect to time | ME-F1.4 Parametric form |
| ****Outcomes**** | ME11-5, ME11-6, ME11-7 | ME11-1, ME11-4, ME11-6, ME11-7 | ME11-1, ME11-2, ME11-6, ME11-7 |
| ****Assessment**** |  | Assignment – can speed be measured perfectly? |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Term 3** | **Weeks 1-2** | **Weeks 3-5** | **Weeks 6-7** | **Week 8** | **Weeks 9-10** |
| ****Unit**** | ME-F1.3 Inverse functions | ME-T1 Inverse trigonometric functions | ME-T2 Further trigonometric identities | ME-C1.2 Exponential growth and decay | Examination period |
| ****Outcomes**** | ME11-1, ME11-2, ME11-6, ME11-7 | ME11-1, ME11-3, ME11-6, ME11-7 | ME11-1, ME11-3, ME11-6, ME11-7 | ME11-1, ME11-4, ME11-6, ME11-7 |  |
| ****Assessment**** |  |  |  |  | Yearly examination |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Term 4** | **Week 1-3** | **Week 4** | **Weeks 5-8** | **Weeks 9-10** |
| ****Unit**** | ME-C1.2 Exponential growth and decay | ME-C1.3 Related rates of change | ME-P1 Proof by mathematical induction  | ME-V1.1 Introduction to vectors  |
| ****Outcomes**** | ME11-1, ME11-4, ME11-6, ME11-7 | ME11-1, ME11-4, ME11-6, ME11-7 | ME12-1, ME12-6, ME12-7  | ME12-2, ME12-6, ME12-7  |
| ****Assessment**** |  |  |  | Topic test  |

|  |  |  |  |
| --- | --- | --- | --- |
| ****Term 1**** | **Weeks 1-4** | **Weeks 5-7** | **Weeks 8-10** |
| ****Unit**** | ME-V1.2 Further operations with vectors  | ME-C2 Further calculus skills  | ME-C3.1 Further area and volumes of solids of revolution  |
| ****Outcomes**** | ME12-2, ME12-6, ME12-7  | ME12-1, ME12-4, ME12-6, ME12-7  | ME12-1, ME12-4, ME12-6, ME12-7  |
| ****Assessment**** |  |  | Topic test |

|  |  |  |  |
| --- | --- | --- | --- |
| **Term 2** | **Weeks 1-3** | **Weeks 4-6** | **Weeks 7-10** |
| Unit | ME-C3.2 Differential equations | ME-V1.3 Projectile motion  | ME-T3 Trigonometric equations  |
| Outcomes | ME12-1, ME12-4, ME12-6, ME12-7 | ME12-2, ME12-6, ME12-7  | ME12-3, ME12-6, ME12-7  |
| Assessment |  | Investigation style task:If you could jump on another planet, how far would you leap? |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Term 3** | **Weeks 1-3** | **Weeks 4-5** | **Week 6-7** | **Weeks 8-10** |
| Unit | ME-S1.1 Bernoulli and binomial distributions | Trial examination period | ME-S1.2 Normal approximation for the sample proportion  |  |
| Outcomes | ME12-5, ME12-6, ME12-7 |  | ME12-5, ME12-6, ME12-7  |  |
| Assessment |  | Trial examination |  |  |

# **Note to staff**

* This sample scope and sequence is designed to be used with the sample scope and sequence for Mathematics Advanced. You can find this scope and sequence on the [Mathematics Advanced](https://education.nsw.gov.au/teaching-and-learning/curriculum/key-learning-areas/mathematics/stage-6/mathematics-advanced) page of the department website.
* This sample scope and sequence is designed to incorporate the department sample assessment tasks, “Can speed be measured perfectly?” and “If you could jump on another planet, how far would you leap?”. You can find these assessment tasks on the [Mathematics Extension 1](https://education.nsw.gov.au/teaching-and-learning/curriculum/key-learning-areas/mathematics/stage-6/mathematics-extension-1) page of the department website.
* The assessments included in this scope and sequence are suggestions only. You can find other sample assessment tasks on the [Mathematics Extension 1](https://education.nsw.gov.au/teaching-and-learning/curriculum/key-learning-areas/mathematics/stage-6/mathematics-extension-1) page of the department website or the NESA website for [Mathematics Extension 1 (NEW).](https://educationstandards.nsw.edu.au/wps/portal/nesa/11-12/stage-6-learning-areas/stage-6-mathematics/mathematics-extension-1-2017)
* The duration of each unit is approximate and will need to be adapted to suit the needs of the students within your school context. The lessons developed within each unit of work have been designed to explore a key concept or main idea. The length of each lesson and number of lessons assigned to each concept will vary between school contexts and should be adapted to suit your school scope and sequence and program.