Year 11 Specialist Mathematics

Work rate calendar (WRC) 2024 — Term 1

All students are expected to participate in all online lessons and complete all assessment as outlined in this **Work rate calendar**.
Teachers may adjust topics, class work, assessment and submission dates. Adjustments will be communicated via QLearn or during lessons.

Assessment	
Supervised assessment	Summative exams are to be supervised by the student's official exam supervisor.
Non-supervised assessment	Students must sign declaration of academic integrity.

Week	Dates	Unit	Topic	Class work / Assessment to be submitted
1	22 Jan – 26 Jan	Unit 1	Monday 22 January — Welcome calls for students: Prep – Year 12 Wednesday 24 January — Learning for success: Prep – Year 12 Friday 26 January — Australia Day Holiday **Topic 1 Combinatorics** Lesson 1 Multiplication and addition principles	
2	29 Jan – 2 Feb		Lesson 1 Factorial and permutations definitions Lessons 2 & 3 Applications of permutations and combinations	
3	5 Feb – 9 Feb		Friday 9 February — Senior orientation day: Years 10–12 Lesson 1 Further applications involving restrictions Lesson 2 Catch up lesson **Topic 2 Introduction to vectors** Lesson 3 Introduction to vectors	
4	12 Feb – 16 Feb		Lesson 1 Position vectors Lessons 2 &3 Cartesian form, unit vectors and polar form of vectors	
5	19 Feb – 23 Feb		Lessons 1 & 2 Scalar products and the projection of vectors Lesson 3 Application of vectors – displacement, velocity & acceleration.	
6	26 Feb – 1 Mar		Lessons 1, 2 & 3 Application of vectors - relative velocity, forces and equilibrium.	**FA1 Released** Wednesday 28 February
7	4 Mar – 8 Mar		**FA1 PSMT** Lessons 1 – 3 Assignment work	**Checkpoint 1** To be submitted to QLearn by 5 pm Monday 4 March
8	11 Mar – 15 Mar		**Introduction to proof** Lesson 1 Number systems – rational numbers Lesson 2 Propositions Lesson 3 Proof by counter example	**Checkpoint 2** To be submitted to QLearn by 5 pm Tuesday 12 March
9	18 Mar – 22 Mar		**Exams: Year 11** Monday 18 March – Friday 22 March Lesson 1 Proof by contraposition	**Checkpoint 3** To be submitted to QLearn by 5 pm Wednesday 20 March
10	25 Mar – 29 Mar		Thursday 28 March — Cross country / Fun run: Prep – Year 12 Friday 29 March — Good Friday Lesson 1 Proof by contradiction Lesson 2 Review of similarity and congruency Lesson 3 Catch up lesson if available	**Checkpoint 4** To be submitted to QLearn by 5 pm Wednesday 27 March

LEGEND: Class work — send-in | Summative assessment | Exam block | School events | Public holidays | Student free day

Year 11 Specialist Mathematics

Work rate calendar (WRC) 2024 — Term 2

All students are expected to participate in all online lessons and complete all assessment as outlined in this **Work rate calendar**.
Teachers may adjust topics, class work, assessment and submission dates. Adjustments will be communicated via QLearn or during lessons.

Assessment	
Supervised assessment	Summative exams are to be supervised by the student's official exam supervisor.
Non-supervised assessment	Students must sign declaration of academic integrity.

Week	Dates	Unit	Topic	Class work / Assessment to be submitted
1	15 Apr – 19 Apr	Unit 1	**Introduction to proof (continued)** Lessons 1, 2 & 3 Circle theorems 1, 2, 3, 6, 7, 8, 11, 12, 14	
2	22 Apr – 26 Apr		Thursday 25 April — Anzac Day Lesson 1 Vector geometry proofs involving midpoints Lesson 2 Vector geometry proofs involving quadrilaterals	
3	29 Apr – 3 May		**Revision** Lessons 1 – 3 Revision	
4	6 May – 10 May		Monday 6 May — Labour Day **Revision and exam** The FA2 exam consists of a single paper based on Unit 1 material. Students are allowed to use technology, including approved graphics calculators.	**FA2 Exam** To be received at BrisbaneSDE by 5 pm Friday 10 May
5	13 May – 17 May	Unit 2	**Topic 1: Complex numbers** Lesson 1 Introduction to complex numbers Lesson 2 Addition and multiplication of complex numbers Lesson 3 Multiplication and division of complex numbers	
6	20 May – 24 May		Lesson 1: Complex (Argand) plane Lesson 2: Polar form of a complex number Lesson 3: Conversion between polar and Cartesian form	
7	27 May – 31 May		Lesson 1: Multiplication and division in polar form Lesson 2: Finding complex roots to quadratic equations Lesson 3: Determining linear factors	
8	3 Jun – 7 Jun		**Topic 2: Matrices** Lesson 1: Introduction to matrices (basic operations and definitions) Lesson 2: Multiplication of matrices Lesson 3: Multiplicative inverse and simple determinants	
9	10 Jun – 14 Jun		Monday 10 June – Thursday 13 June — School camp: Year 11 Lesson 1: Determinants of higher order matrices Lessons 2 & 3 Matrix transformations – translations, reflections, rotations, and dilations	
10	17 Jun – 21 Jun		Thursday 20 June — Senior formal: Year 12 Friday 21 June — Athletics carnival / Sports day: Prep – Year 12 Lessons 1 & 2 Combined & inverse transformations and area Lesson 3 Transformations and matrix multiplications	

LEGEND: Class work — send-in | Summative assessment | Exam block | School events | Public holidays | Student free day

Year 11 Specialist Mathematics

Work rate calendar (WRC) 2024 — Term 3

All students are expected to participate in all online lessons and complete all assessment as outlined in this **Work rate calendar**.
Teachers may adjust topics, class work, assessment and submission dates. Adjustments will be communicated via QLearn or during lessons.

Assessment	
Supervised assessment	Summative exams are to be supervised by the student's official exam supervisor.
Non-supervised assessment	Students must sign declaration of academic integrity.

Week	Dates	Unit	Topic	Class work / Assessment to be submitted
1	8 Jul – 12 Jul	Unit 2	**Topic 3 Trigonometry and functions** Lesson 1 Review of trigonometry and unit circle/CAST rule Lesson 2 Sketching basic trig functions for sin, cos and tan Lesson 3 Solving trig equations within a specified domain	
2	15 Jul – 19 Jul		Lesson 1 Reciprocal functions and their graph Lessons 2 & 3 Modelling periodic functions	
3	22 Jul – 26 Jul		Lesson 1 Pythagorean identities Lesson 2 Sum and difference identities Lesson 3 Double-angle identities	
4	29 Jul – 2 Aug		Lesson 1 multi-angle trig identities Lesson 2 Product to sum identities Lesson 3 Simplifying compound trig sums	
5	5 Aug – 9 Aug		Lessons 1-3 Graphing absolute value functions, reciprocal functions, and proper and improper rational functions (May include some time for FA3 revision).	
6	12 Aug – 16 Aug		Wednesday 14 August — Royal Queensland (Ekka) Show Holiday **Revision** Lessons 1 – 3 Catch up and revision	
7	19 Aug – 23 Aug		**Revision and exam** The FA3 exam is based predominately on Unit 2 material, with some unit 1 material assessed. It consists of two papers - Tech free and tech active (approved graphics calculators).	**FA3 Exam** To be received at BrisbaneSDE 5 pm Friday 23 August
8	26 Aug – 30 Aug	Unit 3	Friday 30 August — Student free day **Topic 2: Vectors and matrices A** Lesson 1 Solving systems of equations using matrix algebra Lesson 2 Gaussian elimination Lesson 3 Examining three cases for solution of equations and their geometric interpretation (generally in 2D, or with two variables)	
9	2 Sept – 6 Sept		Lessons 1-3 Application of matrices - Dominance and Leslie matrices	
10	9 Sept – 13 Sept		**Exams: Year 11** Monday 9 September – Thursday 12 September Friday 13 September — Connect excursion: Years 10–12 Lessons 1 – 3 Catch up	

LEGEND: Class work — send-in | Summative assessment | Exam block | School events | Public holidays | Student free day

Year 11 Specialist Mathematics

Work rate calendar (WRC) 2024 — Term 4

All students are expected to participate in all online lessons and complete all assessment as outlined in this **Work rate calendar**.
Teachers may adjust topics, class work, assessment and submission dates. Adjustments will be communicated via QLearn or during lessons.

Assessment	
Supervised assessment	Summative exams are to be supervised by the student's official exam supervisor.
Non-supervised assessment	Students must sign declaration of academic integrity.

Week	Dates	Unit	Topic	Class work / Assessment to be submitted
1	30 Sept – 4 Oct	Unit 3	**Topic 1 Proof by mathematical induction** Lesson 1 Introduction to mathematical induction Lesson 2 Summation proofs Lesson 3 Divisibility proofs	
2	7 Oct – 11 Oct		Monday 7 October — King's Birthday Holiday **Topic 2 Vectors and matrices B** Lesson 1 Revision of key vectors concepts from unit 1 Lesson 2 3D vectors, k unit vector and altitudes Lesson 3 Geometric proofs involving 3D vectors	**IA1 Released** Thursday 10 October
3	14 Oct – 18 Oct		Lesson 1 Equations of spheres and parametric equations of vectors in 3D Lesson 2 Vector equations of straight line/segment (in 3D) Lesson 3 Vector products and normal vectors	**IA1 Checkpoint 1** To be submitted to QLearn by 5 pm Thursday 17 October
4	21 Oct – 25 Oct		**Topic 2 Vectors and matrices B** Lesson 1 Applications of vector products (intersection of planes and lines) Lesson 2 Vector position as a function of time and vector collisions Lesson 3 Vector equations and of ellipses and hyperbolas	**IA1 Checkpoint 2: Draft** To be submitted to QLearn by 5 pm Friday 25 October
5	28 Oct – 1 Nov		**PSMT – IA1** Students provided with 3 lessons to work on the IA1 across weeks 2,3,4 and 5 (timeframe determined by teacher).	**IA1 Checkpoint 3** To be submitted to QLearn by 5:pm Friday 1 November
6	4 Nov – 8 Nov		Lesson 1 Catch up Lesson 2 The calculus of vector functions with respect to time Lesson 3 Equations of motions of particles with constant and variable acceleration	**IA1 Checkpoint 4: Final** To be submitted to QLearn by 5 pm Thursday 7 November
7	11 Nov – 15 Nov		Lessons 1 & 2 Projectile motion Lesson 3 Circular motion	
8	18 Nov – 22 Nov		**Exams: Year 11** Monday 18 November – Friday 22 November Friday 22 November — Aquatic carnival: Prep – Year 11 Friday 22 November — Final day: Years 10–11	
9	25 Nov – 29 Nov			
10	2 Dec – 6 Dec			
11	9 Dec – 13 Dec			

LEGEND: Class work — send-in | Summative assessment | Exam block | School events | Public holidays | Student free day