

Catalyst

Transforming lives through
learning

Curriculum

7-10 Mathematics








Welcome to the Mathematics 7-10 High Quality Curriculum Resource Pack, a suite of teacher and student resources and activities that will help you and your teachers deliver engaging and impactful mathematics lessons.

These resources have been identified as high-quality by a working group of CECG teachers and leaders across our Archdiocese.















We will work with you to identify student and teacher learning needs and integrate the most relevant high-quality curriculum resources into teaching and learning programs.



Comprehensive high-quality curriculum resources

Name	Description	Strands	Proficiencies / Aspects of Working Mathematically	Purpose	Cost	Contact
<p>Cambridge textbooks – CambridgeMATHS NSW Years 7-10 and Essential Mathematics for the Australian Curriculum</p>	<p>Supports effective mathematics teaching and learning across the curriculum. Tried and tested in CECG classrooms, students are familiar with the resource and trust its rigor and fidelity to the curriculum. The resource includes regular formative and summative assessments, a variety of questions for each topic, and a mind map for each topic. The textbooks may not precisely align with school teaching and learning programs and teachers need to use their discretion to refer to relevant parts of the textbook. The supporting teacher resources (free with text purchase) are also particularly useful to build teacher understanding of curriculum concepts.</p>	<ul style="list-style-type: none"> • Number and Algebra • Measurement and Geometry • Statistics and Probability 	<ul style="list-style-type: none">  Fluency  Understanding  Problem solving  Reasoning  Communicating 	<ul style="list-style-type: none"> • Introduction • Consolidation • Real-world application • Self-guided remote learning 	\$	<p>Mark Burke Anna Keppel Beth Bright</p>









Complementary high-quality curriculum resources

Name	Description	Strands	Proficiencies / Aspects of Working Mathematically	Purpose	Cost	Contact
Brilliant	Provides an engaging platform for students (and teachers) to work through algebraic thinking, numerical and logical reasoning, algorithms, and geometric problem solving. It has lots of great problems that students can work through to fill gaps in their understanding or to extend their understanding in target learning areas. It also has potential as a tool to build the capability of new or out-of-field teachers, particularly with respect to number theory, algebra and logic without rote memorisation, visual representation, and algorithmic thinking. Note: this resource does not provide extensive teacher instructional supports	<ul style="list-style-type: none"> • Number and Algebra • Measurement and Geometry • Statistics and Probability 	<ul style="list-style-type: none">  Fluency  Understanding  Problem solving  Reasoning  Communicating 	<ul style="list-style-type: none"> • Self-guided remote learning • Extension • Enrichment • Teacher companion 	\$	Karen Bahmann
Cambridge Go	A digital resource designed for use in conjunction with the Cambridge textbooks. It can be used to develop both students' and teachers' mathematical understanding.	<ul style="list-style-type: none"> • Number and Algebra • Measurement and Geometry • Statistics and Probability 	<ul style="list-style-type: none">  Fluency  Understanding  Problem solving  Reasoning  Communicating 	<ul style="list-style-type: none"> • Introduction • Consolidation • Real-world application • Self-guided remote learning 	\$	Mark Burke Anna Keppel Beth Bright
Desmos	This free online resource includes a range of student activities and tools, including a range of online calculators. Worked examples and advice to teachers helps to support effective pedagogy, including by supporting teachers to facilitate meaningful mathematical discourse, pose purposeful questions and elicit and use evidence of student thinking. The resource is not aligned to the Australian Curriculum or NSW Syllabuses but covers many of the same topics. Teachers should use their discretion to select activities that fit with the school-based scope and sequence.	<ul style="list-style-type: none"> • Number and Algebra • Measurement and Geometry • Statistics and Probability 	<ul style="list-style-type: none">  Understanding  Problem solving  Reasoning  Communicating 	<ul style="list-style-type: none"> • Introduction • Consolidation • Real-world application • Self-guided remote learning 	Free	Chris Higgins Jamie Kemp

Complementary high-quality curriculum resources

Name	Description	Strands	Proficiencies / Aspects of Working Mathematically	Purpose	Cost	Contact
Education Perfect	This resource is aligned to the middle years and secondary curriculum and can be used to help fill gaps in student understanding. It provides clear feedback to the teacher about student progress. It may be especially useful to inform assessments and homework tasks.	<ul style="list-style-type: none"> • Number and Algebra • Measurement and Geometry • Statistics and Probability 	<ul style="list-style-type: none"> Fluency Understanding Problem solving Reasoning Communicating 	<ul style="list-style-type: none"> • Introduction • Consolidation • Real-world application • Self-guided remote learning • Teacher companion 	\$	Chris Higgins Jamie Kemp
Enrichment Maths for Secondary School Students	This resource can be used to extend students and “enrich” a topic. The questioning is creative and by design encourages discussions and further questioning. The resource is easy to follow and the worked answers to questions provide helpful detail for both teachers and students. It is engaging and easy to use.	<ul style="list-style-type: none"> • Number and Algebra • Measurement and Geometry • Statistics and Probability 	<ul style="list-style-type: none"> Fluency Understanding Problem solving Reasoning Communicating 	<ul style="list-style-type: none"> • Introduction • Consolidation • Real-world application • Self-guided remote learning 	\$	Chris Higgins Jamie Kemp
Estimation 180 and Which One Doesn't Belong	Both resources contain problems that may be used as lesson starters or “brain breaks” within lessons. They include low floor/high ceiling problems that are accessible to a range of students.	<ul style="list-style-type: none"> • Number and Algebra • Measurement and Geometry • Statistics and Probability 	<ul style="list-style-type: none"> Fluency Understanding Problem solving Reasoning Communicating 	<ul style="list-style-type: none"> • Introduction • Consolidation 	Free	Karen Bahmann
Excel Maths	This resource usefully supports revision and can help inform assessment items.	<ul style="list-style-type: none"> • Number and Algebra • Measurement and Geometry • Statistics and Probability 	<ul style="list-style-type: none"> Fluency Understanding Problem solving Reasoning Communicating 	<ul style="list-style-type: none"> • Introduction • Consolidation • Real-world application • Self-guided remote learning 	\$	Mark Burke Anna Keppel
Freefall Mathematics	This online resource can be used to support fluency.	<ul style="list-style-type: none"> • Number and Algebra • Measurement and Geometry • Statistics and Probability 	<ul style="list-style-type: none"> Fluency 	<ul style="list-style-type: none"> • Consolidation 	\$	Chris Higgins Jamie Kemp













Complementary high-quality curriculum resources

Name	Description	Strands	Proficiencies / Aspects of Working Mathematically	Purpose	Cost	Contact
Geogebra	This free resource is especially useful to support the teaching and learning of graphing.	<ul style="list-style-type: none"> • Number and Algebra • Measurement and Geometry • Statistics and Probability 	<ul style="list-style-type: none">  Fluency  Understanding  Problem solving  Reasoning  Communicating 	<ul style="list-style-type: none"> • Introduction • Consolidation • Real-world application • Self-guided remote learning 	Free	Mark Burke Anna Keppel Beth Bright
HOTmaths	Student resource with links to the Cambridge textbook. It is useful for student revision and additional practice and includes interactive widgets, a task manager, and quiz making functionality.	<ul style="list-style-type: none"> • Number and Algebra • Measurement and Geometry • Statistics and Probability 		<ul style="list-style-type: none"> • Introduction • Consolidation • Real-world application • Self-guided remote learning 	\$	Chris Higgins Jamie Kemp
Khan Academy	This free resource is not aligned with the Australian Curriculum or NSW Syllabuses but covers the same topics—it is up to the teacher to select relevant sequences and situation them within the school-based scope and sequence. The resource includes a combination of explanatory videos as well as quizzes that check for understanding. It may be particularly useful to help catch-up students with extended absences or those who have missed a topic.	<ul style="list-style-type: none"> • Number and Algebra • Measurement and Geometry • Statistics and Probability 	<ul style="list-style-type: none">  Fluency  Understanding 	<ul style="list-style-type: none"> • Introduction • Consolidation 	Free	
Math O Magic	This resource provides worksheets on a range of topics that can be used to support fluency and help consolidate understanding.	<ul style="list-style-type: none"> • Number and Algebra • Measurement and Geometry • Statistics and Probability 	<ul style="list-style-type: none">  Fluency 	<ul style="list-style-type: none"> • Consolidation 	\$	Chris Higgins Jamie Kemp

Complementary high-quality curriculum resources

Name	Description	Strands	Proficiencies / Aspects of Working Mathematically	Purpose	Cost	Contact
Maths 300	Supports the development of productive student dispositions to Mathematics. Use of this resource relies on the teacher having access to basic manipulatives such as blocks and counters – required manipulatives are listed clearly in the task. The resource gives teachers creative ideas about how to teach the curriculum.	<ul style="list-style-type: none"> • Number and Algebra • Measurement and Geometry • Statistics and Probability 	<ul style="list-style-type: none"> Fluency Understanding Problem solving Reasoning Communicating 	<ul style="list-style-type: none"> • Introduction • Consolidation • Real-world application • Assessment ideas 	\$	Katrina McGregor
Maths Online	A student resource for flipped classroom environments and may also usefully support student revision and additional practice. It has quiz making functionality and includes informative videos.	<ul style="list-style-type: none"> • Number and Algebra • Measurement and Geometry • Statistics and Probability 	<ul style="list-style-type: none"> Fluency Understanding Reasoning Communicating 	<ul style="list-style-type: none"> • Introduction • Consolidation • Self-guided remote learning 	\$	Beth Bright
Maths Space	Provides a platform for revision and consolidation and may be particularly useful to inform homework tasks. It is aligned to the curriculum from Year 3 and can support teachers to fill gaps in the understanding of a diverse range of learners. It collates and presents exceptionally detailed student data to help guide teacher planning. Associated teacher professional development is available.	<ul style="list-style-type: none"> • Number and Algebra • Measurement and Geometry • Statistics and Probability 	<ul style="list-style-type: none"> Fluency Understanding Reasoning Communicating 	<ul style="list-style-type: none"> • Consolidation • Real-world application • Self-guided remote learning 	\$	Kathleen Garvie
Mr Bodgers	Demonstrates how an experienced maths teacher explains concepts and communicates maths – it may be a particularly useful resource for an out-of-field or beginning teacher. It is a useful auxiliary resource that can be linked/embedded in the LMS and/or left for relief teachers. Time efficient way to move through fluency work/ flipped classroom model so that lesson time with the classroom teacher can be devoted to achieving deeper understanding and consolidation. Excellent resource for students revising, working ahead, or catching up on missed work.	<ul style="list-style-type: none"> • Number and Algebra • Measurement and Geometry • Statistics and Probability 	<ul style="list-style-type: none"> Fluency Understanding Problem solving Reasoning Communicating 	<ul style="list-style-type: none"> • Introduction • Consolidation • Self-guided remote learning 	\$	Chris Higgins Jamie Kemp

Complementary high-quality curriculum resources

Name	Description	Strands	Proficiencies / Aspects of Working Mathematically	Purpose	Cost	Contact
New Zealand Maths	Aligned with the New Zealand Curriculum but covers many of the same topics as the Australian Curriculum. It provides a range of clear, rich lessons and tasks to build students' conceptual understanding. The resources link to external assessment tools. It also includes resources to build teacher capability and to help parents support their children's learning.	<ul style="list-style-type: none"> • Number and Algebra • Measurement and Geometry • Statistics and Probability 	<ul style="list-style-type: none">  Fluency  Understanding  Problem solving  Reasoning  Communicating 	<ul style="list-style-type: none"> • Introduction • Consolidation • Real-world application • Assessment ideas 	Free	Katrina McGregor
Nrich	Linked to the English curriculum, Nrich provides a selection of engaging problems and investigations organised by year level. Problems are organised by concept and are easily searchable, allowing teachers to align it to the Australian Curriculum / NSW Syllabuses and their school-based teaching program. Teachers may need to scaffold and unpack tasks for students. The tasks encourage students with varying levels of understanding to explore the same concept, supporting an inclusive classroom.	<ul style="list-style-type: none"> • Number and Algebra • Measurement and Geometry • Statistics and Probability 	<ul style="list-style-type: none">  Problem solving  Reasoning  Communicating 	<ul style="list-style-type: none"> • Consolidation • Real-world application 	Free	Beth Bright Karen Bahmann
Open Middle	Provides a range of stand-alone questions and opportunities for students to demonstrate their reasoning. Designed with a "closed beginning" and "closed ending" so all students begin at the same point and achieve the same outcome, all questions are designed with an "open middle" so there are multiple ways to approach the problem. Some teacher work would be required to align the resource with the Australian Curriculum / NSW Syllabuses and to situate the questions within your school-based scope and sequence.	<ul style="list-style-type: none"> • Number and Algebra • Measurement and Geometry • Statistics and Probability 	<ul style="list-style-type: none">  Understanding  Problem solving  Reasoning  Communicating 	<ul style="list-style-type: none"> • Consolidation • Real-world application 	Free	Beth Bright Karen Bahmann

Complementary high-quality curriculum resources

Name	Description	Strands	Proficiencies / Aspects of Working Mathematically	Purpose	Cost	Contact
Peter Blake Maths	Provides videos and auxiliary material that could be used as a student resource and to support a flipped classroom environment.	<ul style="list-style-type: none"> • Number and Algebra • Measurement and Geometry • Statistics and Probability 	<ul style="list-style-type: none"> Fluency Understanding Problem solving Reasoning Communicating 	<ul style="list-style-type: none"> • Introduction • Consolidation • Real-world application • Self-guided remote learning 	Free	Chris Higgins Jamie Kemp
Problemo	This resource is designed to support the development of problem-solving skills using real-work application. It includes a range of specific strategies that apply to a range of problems. It provides guidance to support teachers' questioning of students, which may be particularly useful for out-of-field or early career teachers. The resources also links to competitions including the Australian Mathematics Competition and the Maths Challenge.	<ul style="list-style-type: none"> • Number and Algebra • Measurement and Geometry • Statistics and Probability 	<ul style="list-style-type: none"> Problem solving Reasoning Communicating 	<ul style="list-style-type: none"> • Introduction • Consolidation • Real-world application 	Limited free access, then \$	Karen Bahmann
reSolve	This resource contains a range of well-planned and explicit investigations along with supporting materials for teachers, such as pre-prepared PowerPoints.	<ul style="list-style-type: none"> • Number and Algebra • Measurement and Geometry • Statistics and Probability 	<ul style="list-style-type: none"> Understanding Problem solving Reasoning Communicating 	<ul style="list-style-type: none"> • Introduction • Real-world application 	Free	Kathleen Garvie
Statistics Education Web (STEW)	Set of peer reviewed lesson plans based on Statistics and Probability. Resource provides guidance to teachers on the tasks, areas for extension and suggestions on how to support discussion. Also includes suggestions on how to implement technology to support statistical analysis.	<ul style="list-style-type: none"> • Statistics and Probability 	<ul style="list-style-type: none"> Fluency Understanding Problem solving Reasoning Communicating 	<ul style="list-style-type: none"> • Real-world application 	Free	Karen Bahmann

Complementary high-quality curriculum resources

Name	Description	Strands	Proficiencies / Aspects of Working Mathematically	Purpose	Cost	Contact
New Elementary Mathematics Syllabus D	This is a good teacher reference resource and provides a range of quality questions that would be particularly useful for extension purposes.	<ul style="list-style-type: none"> Number and Algebra Measurement and Geometry Statistics and Probability 	<ul style="list-style-type: none"> Fluency Understanding Problem solving 	<ul style="list-style-type: none"> Consolidation 	\$	Kathleen Garvie
Pearson Diagnostic (formerly known as SMART tests)	This is a useful diagnostic tool for teachers. It provides evidence of students' prior learning and details of common misconceptions and how to address them. The tests cover topics across the curriculum, and tests are continually added.	<ul style="list-style-type: none"> Number and Algebra Measurement and Geometry Statistics and Probability 	<ul style="list-style-type: none"> Fluency Understanding 	<ul style="list-style-type: none"> Formative or summative testing Pre and post tests Student diagnostics 	\$	Karen Bahmann
YouCubed	This resource provides rich tasks with multiple entry points to build student conceptual understanding. There are a range of resources available to teachers and students, including explicit lesson plans and online courses. This is a US resource that is not aligned to the Australian Curriculum or the NSW Syllabuses, but it covers many of the same topics. Teachers should situate tasks within your school-based scope and sequence.	<ul style="list-style-type: none"> Number and Algebra Measurement and Geometry Statistics and Probability 	<ul style="list-style-type: none"> Problem solving Reasoning Communicating 	<ul style="list-style-type: none"> Introduction Consolidation Real-world application 	Free with \$ add ons	Beth Bright Kathleen Garvie
Video, including -Maths @ Merici ; Eddie Woo's Wootube	These videos align with the Australian Curriculum / NSW Syllabuses and can be used to support teacher content knowledge. They are also particularly useful to support students who may have experienced extended absences.	<ul style="list-style-type: none"> Number and Algebra Measurement and Geometry Statistics and Probability 	<ul style="list-style-type: none"> Understanding Communicating 	<ul style="list-style-type: none"> Self-guided remote learning Teacher support 	Free	Kathleen Garvie