Lesson Plans

Year 9 Mathematics

Some general points about the following lesson plans:

- ★ The lesson plans outline only one way of sequencing the learning material in each chapter of the textbook.
- ★ The content and sequence will obviously vary from class to class (The following guide is ambitious in many instances).
- ★ All activities and investigations in each chapter have been deliberately designed to support the National Curriculum content whilst keeping in mind the development and reinforcement of skills required in the study of mathematics in Year 11/12.
- ★ The length of lessons vary from school to school and even within schools. The following guide is based on 35/40 min lessons because it was reasoned that adjustment to 60/75/90 mins lessons would be easier than reducing lesson guides.
- ★ Students may be challenged further by completing each chapter Task, Competition Questions, and by finding and entering any of the many competitions, challenges, projects etc that may be found on the Internet. Such students may benefit by doing an Internet search early in the year and planning entries before they some of them close.

Assessment

A task	7th week of Term
Mental computation	Last week of Term
End of Term Test	Last week of Term

Summary of Term 3 Lessons (10 weeks)

Chapter 11	Indices 2	Number & Algebra - Real Numbers	2 weeks
		Measurement & Geometry - Units of Measmnt	
Chapter 12	Trigonometry 1	Measurement & Geometry - Pythag & Trig	2 weeks
Chapter 13	Volume	Measurement & Geometry - Units of Measmnt	2 weeks
Chapter 14	Probability	Statistics & Probability - Chance	2 weeks
Chapter 15	Review	Review all of above	2 weeks

Note: The workprogram contains a detailed mapping of curriculum content.

Year 9 Level Description

The proficiency strands Understanding, Fluency, Problem Solving and Reasoning are an integral part of mathematics content across the three content strands: Number and Algebra, Measurement and Geometry, and Statistics and Probability. The proficiencies reinforce the significance of working mathematically within the content and describe how the content is explored or developed. They provide the language to build in the developmental aspects of the learning of mathematics.

At this year level:

- Understanding includes describing the relationship between graphs and equations, simplifying a range of algebraic expressions, explaining the function of relative frequencies and probabilities, calculating areas of shapes and surface areas of prisms and the constancy of the trigonometric ratios for right-angle triangles.
- **Fluency** includes applying the index laws to expressions with integer indices, expressing numbers in scientific notation, listing outcomes for experiments and developing familiarity with calculations involving the Cartesian plane.
- **Problem Solving** includes calculating surface areas and volumes of right prisms, applying ratio and scale factors to similar figures, solving problems involving right-angle trigonometry, and collecting data from secondary sources to investigate an issue.
- **Reasoning** includes following mathematical arguments, evaluating media reports and using statistical knowledge to draw conclusions, developing strategies in investigating similarity and sketching linear graphs.

Year 9 Content Description

Chapter 11 Indices 2

Number & Algebra - Real Numbers Measurement & Geometry - Units of Measmnt

2 weeks

- ★ Express numbers in scientific notation.
- ★ Understand that the use of index notation is an efficient way of representing numbers and symbols and has many applications, particularly in science.
- ★ Represent extremely large and small numbers in scientific notation, and numbers expressed in scientific notation as whole numbers or decimals.
- \star Apply index laws to numerical expressions with integer indices.
- ★ Apply knowledge of index laws to algebraic terms and simplify algebraic expressions, using both positive and negative integral indices.
- ★ Investigate very small and very large time scales and intervals.

★ Investigate the usefulness of scientific notation in representing very large and very small numbers.

Chapter 12 Trigonometry 1 Measurement & Geometry - Pythag & Trig

- ★ Use similarity to investigate the constancy of the sine, cosine and tangent ratios for a given angle in right-angled triangles.
- ★ Develop an understanding of the relationship between the corresponding sides of similar right-angled triangles.
- ★ Apply trigonometry to solve right-angled triangle problems.
- ★ Understand the terms 'adjacent' and 'opposite' sides in a right-angled triangle.

		* *	0	0	0		
Chapter 13	Volume	Measurement &	Geome	try - Ui	nits of Mea	asmnt	2 weeks

- ★ Calculate the volume of cylinders and solve related problems.
- ★ Solve problems involving the volume of right prisms.
- ★ Build on the understanding of volume to become fluent with calculation, and identify that volume relationships are used in the workplace and everyday life.

Probability Statistics & Probability - Chance

- ★ List all outcomes for two-step chance experiments, both with and without replacement using tree diagrams or arrays.
- \star Assign probabilities to outcomes and determine probabilities for events.
- ★ Calculate relative frequencies from given or collected data to estimate probabilities of events involving 'and' or 'or'.
- ★ Posing 'and', 'or', 'not' and 'given' probability questions about objects or people.
- \star Collect data to answer the questions using Venn diagrams or two-way tables.

Chapter 15 Review

★ Review all of above

Chapter 14

2 weeks

2 weeks

Chapter 1	1 Indices 2	Number & Algebra - Real Numbers	2 weeks
_		Measurement & Geometry - Units of Measmnt	
★ Expre	ess numbers in scientific not	tation.	

- ★ Understand that the use of index notation is an efficient way of representing numbers and symbols and has many applications, particularly in science.
- ★ Represent extremely large and small numbers in scientific notation, and numbers expressed in scientific notation as whole numbers or decimals.
- \star Apply index laws to numerical expressions with integer indices.
- ★ Apply knowledge of index laws to algebraic terms and simplify algebraic expressions, using both positive and negative integral indices.
- ★ Investigate very small and very large time scales and intervals.
- ★ Investigate the usefulness of scientific notation in representing very large and very small numbers.

Lesson	Method	Resources
1	□ General (covering book, ruling pages, paste study guide etc.)	
	□ Purpose of chapter	
	□ Exercise 11.1, 11.2, 11.3, 11.4 p144	
	Index Law 1 Exercise 11.5 p145	
	HW: Read and practice the Sweet Trick on p155	
2	$\Box \text{Index Law 2 Exercise 11.6 p145}$	
	Lindex Law 3 Exercise 11.7 p146	
	Index Law 4 Exercise 11.8 p146 Some students demonstrate the Sweet Trials n155	
	 Some students demonstrate the Sweet Trick p155 HW: Complete Exercises and demonstrate Sweet Trick at home/lodgings 	
2	Discussion shout Sweet Trick how to improve presentation	
5	□ Index law 5. Exercise 11.9 n147 (Model solutions)	
	Scientific Notation Exercise 11.10 p148 (Model solutions)	
	 Bereinine Froution Exercise 11:10 p1 to (Woder solutions) HW: Complete Exercises 	
4	Exercise 11.11 p148 (Model solutions)	
	\Box Exercise 11.12 p149 (Model solutions)	
	Exercise 11.13 p149 (Model solutions)	
	□ HW: Complete exercises	
5	Exercise 11.14 p150 (Model solutions)	
	□ Exercise 11.15 p151 (Model solutions)	
	□ HW: Complete exercises	
6	Mental computation Exercise 11.16 p152	Calculators
	Group work working on a directed/choice/combination of:	Internet
	□ Investigation 11.1, 11.2, 11.3 p154	Computers
	A game p155 - (play the game a couple of times, determine a strategy)	
	□ Technology 11.1, 11.2, 11.3 p156	
	HW: A couple of puzzles p155	
7	□ Mental computation Exercise 11.17 p152	Calculators
	Group work working on a directed/choice/combination of:	Internet
	$\square \text{ Investigation 11.1, 11.2, 11.3 p154}$	Computers
	Technology 11 1 11 2 11 3 p156	
8	Mental computation Exercise 11 18 p152	
0	Competition Questions p153 (Model solutions)	
	 HW: Complete Competition Questions 	
9	\square Chapter Review 1 p157	
	□ HW: Complete Chapter Review	
10	□ Chapter Review 2 p158	
	HW: Complete Chapter Review	

★ Use similarity to investigate the constancy of the sine, cosine and tangent ratios for a given angle in right-angled triangles. ★ Develop an understanding of the relationship between the corresponding sides of similar right-angled triangles. ★ Apply trigonometry to solve right-angled triangle problems. Resources I □ Purpose of chapter Resources Exercise 12.1, p160 Exercise 12.3 p162 Exercise 12.3 p163 □ Exercise 12.3 p163 Some students demonstrate the Sweet Trick on p170 Environmetry of the system of the system trick p170 ■ HW: Complete Exercises and demonstrate Sweet Trick at home/lodgings ■ 3 □ Discussion about Sweet Trick - how to improve presentation ■ □ HW: Complete Exercises and demonstrate Sweet Trick at home/lodgings ■ 4 □ Exercise 12.5 p164 (Model solutions) ■ □ HW: Complete exercise ■ ■ 5 □ Exercise 12.7 p166 (Model solutions) ■ □ HW: Complete exercise ■ ■ 6 □ Discussion of why employers are admant that employees have adequate menental computation sRites also very us	Chapter	12 Trigonometry 1 Measurement & Geometry - Pythag & Trig	2 weeks					
triangles. Develop an understanding of the relationship between the corresponding sides of similar right-angled triangles. * Apply trigonometry to solve right-angled triangle problems. * * Understand the terms 'adjacent' and 'opposite' sides in a right-angled triangle. Resources 1 Purpose of chapter Resources Exercise 12.1, p160 Exercise 12.2 p161 1 HW: Read and practice the Sweet Trick on p170 Exercise 12.3 p162 2 Exercise 12.3 p163 Some students demonstrate the Sweet Trick p170 3 Discussion about Sweet Trick - how to improve presentation The tan ratio. Exercise 12.5 p164 (Model solutions) 2 Exercise 12.6 p165 (Model solutions) Exercise 12.6 p165 (Model solutions) 3 Discussion about Sweet Trick - how to improve presentation HW: Complete exercise 4 Exercise 12.6 p165 (Model solutions) HW: Complete exercise 5 Exercise 12.7 p166 (Model solutions) Complete sercise 6 Discussion of why employers are admant that employees have adequate mental computation skills - also very useful revision technique Mental computation starcise 12.9 p168 1 Investigations 12.1, 12.2, 12.3 p171 A game p170 Trechnology 12.1 p172 7 Mental computation Exercise	★ Use :	similarity to investigate the constancy of the sine, cosine and tangent ratios for a given ang	le in right-angled					
 Apply rigonometry to solve right-angled triangle problems. Understand the terms 'adjacent' and 'opposite' sides in a right-angled triangle. Lesson Purpose of chapter Exercise 12.1, p160 Exercise 12.2 p161 HW: Read and practice the Sweet Trick on p170 Exercise 12.4 p163 Some students demonstrate the Sweet Trick p170 HW: Complete Exercises and demonstrate Sweet Trick at home/lodgings Discussion about Sweet Trick - how to improve presentation The tan ratio. Exercise 12.5 p164 (Model solutions) Exercise 12.7 p166 (Model solutions) HW: Complete exercises Exercise 12.7 p166 (Model solutions) HW: Complete exercise Exercise 12.7 p166 (Model solutions) HW: Complete exercise Discussion of why employers are adamant that employees have adequate mental computation skills - also very useful revision technique Mental computation Exercise 12.9 p168 Investigations 12.1, 12.2, 12.3 p171 A game p170 Technology 12.1 p172 HW: Acouple of puzzles p170 Mental computation Exercise 12.10 p168 Investigations 12.1, 12.2, 12.3 p171 A game p170 Technology 12.1 p172 HW: Acouple of puzzles p170 Mental computation Exercise 12.11 p168 Completic Competition Questions (Addel Solutions) HW: Complete Competition Questions HW: Complete Chapter Review Chapter Review 1 p173 HW: Complete Chapter Review HW: Complete Chapter Review 	trian ★ Deve	triangles.						
* Understand the terms 'adjacent' and 'opposite' sides in a right-angled triangle. Lesson Method Resources 1 Purpose of chapter Exercise 12.1, p160 Exercise 12.2 p161 1 HW: Read and practice the Sweet Trick on p170 Image: Sweet Steer St	★ Appl	y trigonometry to solve right-angled triangle problems.						
Lesson Method Resources 1 Purpose of chapter Exercise 12.1, p160 Exercise 12.2 p161 Exercise 12.2 p161 HW: Read and practice the Sweet Trick on p170 Image: Complete Chapter 2.2 p161 2 Exercise 12.3 p162 Exercise 12.4 p163 3 Discussion about Sweet Trick how to improve presentation Image: Complete Exercises and demonstrate Sweet Trick at home/lodgings 3 Discussion about Sweet Trick - how to improve presentation Image: Complete Exercises 12.5 p164 (Model solutions) Exercise 12.6 p165 (Model solutions) Exercise 12.6 p165 (Model solutions) Image: Complete Chapter 2.2 p164 (Model solutions) 4 Exercise 12.7 p166 (Model solutions) Image: Complete 2.2 p164 (Model solutions) Image: Complete 2.2 p164 (Model solutions) 5 Exercise 12.7 p166 (Model solutions) Image: Complete 2.2 p164 (Model solutions) Image: Complete 2.2 p164 (Model solutions) 1 HW: Complete exercise Image: Complet 2.2 p164 (Model solutions) Image: Complet 2.2 p164 (Model solutions) 4 Exercise 12.7 p166 (Model solutions) Image: Complet 2.2 p168 (Model solutions) Image: Complet 2.2 p168 (Model solution solutison solutison solutison solution solution solution solution solutis	★ Und	erstand the terms 'adjacent' and 'opposite' sides in a right-angled triangle.						
1 Purpose of chapter 2 Exercise 12.2 p161 4 Exercise 12.3 p162 5 Some students demonstrate the Sweet Trick p170 6 Discussion about Sweet Trick - how to improve presentation 7 Pexercise 12.7 p166 (Model solutions) 8 Mental computation Exercise 12.6 p168 (model solutions) 9 Chapter Review 12.1 p173 9 Chapter Review 12.1 p173 10 HW: Complete Competition Questions	Lesson	Method	Resources					
Exercise 12.1, p160 Exercise 12.2, p161 HW: Read and practice the Sweet Trick on p170 Exercise 12.3, p162 Exercise 12.4, p163 Some students demonstrate the Sweet Trick p170 HW: Complete Exercises and demonstrate Sweet Trick at home/lodgings 3 Discussion about Sweet Trick - how to improve presentation The tan ratio. Exercise 12.5, p164 (Model solutions) Exercise 12.6, p165 (Model solutions) HW: Complete exercise 4 Exercise 12.7, p166 (Model solutions) HW: Complete exercise 5 Exercise 12.8, p167 (Model solutions) HW: Complete exercise 6 Discussion of why employers are adamant that employees have adequate mental computation skills - also very useful revision technique Mental computation Exercise 12.9 p168 Investigations 12.1, 12.2, 12.3 p171 A game p170 Technology 12.1 p172 7 Mental computation Exercise 12.10 p168 Group work working on a directed/choice/combination of: Investigations 12.1, 12.2, 12.3 p171 A game p170 Technology 12.1 p172 HW: A couple of puzzles p170 8 Mental computation Exercise 12.11 p168 <tr< th=""><th>1</th><th>Purpose of chapter</th><th></th></tr<>	1	Purpose of chapter						
Exercise 12.2 p161 HW: Read and practice the Sweet Trick on p170 Exercise 12.3 p162 Exercise 12.4 p163 Some students demonstrate the Sweet Trick p170 HW: Complete Exercises and demonstrate Sweet Trick at home/lodgings 3 Discussion about Sweet Trick - how to improve presentation The tan ratio. Exercise 12.5 p164 (Model solutions) Exercise 12.6 p165 (Model solutions) HW: Complete exercises 4 Exercise 12.7 p166 (Model solutions) HW: Complete exercise 5 Exercise 12.8 p167 (Model solutions) HW: Complete exercise 6 Discussion of why employers are adamant that employees have adequate mental computation Exercise 12.9 p168 Investigations 12.1, 12.2, 12.3 p171 A game p170 Technology 12.1 p172 Protechnology 12.1 p172 7 Mental computation Exercise 12.10 p168 Internet computers Group work working on a directed/choice/combination of: computers Investigations 12.1, 12.2, 12.3 p171 protractor straws 4 Mental computation Exercise 12.11 p168 computers Group work working on a directed/choice/combination of: computers Investigations 12.1, p172 HW: A couple of p		\Box Exercise 12.1, p160						
HW: Read and practice the Sweet Trick on p170 Exercise 12.3 p162 Exercise 12.4 p163 Some students demonstrate the Sweet Trick p170 HW: Complete Exercises and demonstrate Sweet Trick at home/lodgings Image: Discussion about Sweet Trick - how to improve presentation The tan ratio. Exercise 12.5 p164 (Model solutions) Exercise 12.6 p165 (Model solutions) HW: Complete exercises HW: Complete exercise HW: Complete exercise Exercise 12.8 p167 (Model solutions) HW: Complete exercise Imve: Complete exercise Imve: Complete exercise Investigations 12.1, 12.2, 12.3 p171 A game p170 Technology 12.1 p172 Mental computation Exercise 12.10 p168 Investigations 12.1, 12.2, 12.3 p171 A game p170 Technology 12.1 p172 HW: A couple of puzzles p170 Imvestigations 12.1, 12.2, 12.3 p171 Protactor A game p170 Technology 12.1 p172 HW: A couple of puzzles p170 Imvestigations 12.1, 12.2, 12.3 p171 Protactor Straws Technology 12.1 p172 HW: A c		\Box Exercise 12.2 p161						
2 Exercise 12.3 p162 2 Exercise 12.4 p163 3 Some students demonstrate the Sweet Trick p170 4 HW: Complete Exercises and demonstrate Sweet Trick at home/lodgings 3 Discussion about Sweet Trick - how to improve presentation 7 The tan ratio. Exercise 12.5 p164 (Model solutions) 8 Exercise 12.6 p165 (Model solutions) 9 Chapter Review 1 p173 9 Chapter Review 2 p174 10 Chapter Review 2 p174		HW: Read and practice the Sweet Trick on p170						
Exercise 12.4 p163 Some students demonstrate the Sweet Trick p170 HW: Complete Exercises and demonstrate Sweet Trick at home/lodgings Image: Discussion about Sweet Trick - how to improve presentation The tan ratio. Exercise 12.5 p164 (Model solutions) Exercise 12.6 p165 (Model solutions) HW: Complete exercises HW: Complete exercise HW: Complete exercise Exercise 12.7 p166 (Model solutions) HW: Complete exercise Discussion of why employers are adamant that employees have adequate mental computation skills - also very useful revision technique Mental computation Exercise 12.9 p168 Investigations 12.1, 12.2, 12.3 p171 A game p170 Technology 12.1 p172 Mental computation Exercise 12.10 p168 Group work working on a directed/choice/combination of: Investigations 12.1, 12.2, 12.3 p171 A game p170 Technology 12.1 p172 HW: A couple of puzzles p170 Mental computation Exercise 12.10 p168 Competition Questions p169 (Model solutions) HW: A couple of puzzles p170 Straws Technology 12.1 p172 HW: Complete Competition Questions HW: Complete Competition Questions <th>2</th> <th>\Box Exercise 12.3 p162</th> <th></th>	2	\Box Exercise 12.3 p162						
Some students demonstrate the Sweet Trick p170 HW: Complete Exercises and demonstrate Sweet Trick at home/lodgings Discussion about Sweet Trick - how to improve presentation The tan ratio. Exercise 12.5 p164 (Model solutions) Exercise 12.6 p165 (Model solutions) HW: Complete exercises HW: Complete exercise Exercise 12.7 p166 (Model solutions) HW: Complete exercise Exercise 12.8 p167 (Model solutions) HW: Complete exercise Discussion of why employers are adamant that employees have adequate mental computation skills - also very useful revision technique Mental computation Exercise 12.9 p168 Investigations 12.1, 12.2, 12.3 p171 A game p170 Technology 12.1 p172 Mental computation Exercise 12.10 p168 Group work working on a directed/choice/combination of: Investigations 12.1, 12.2, 12.3 p171 A game p170 Technology 12.1 p172 HW: A couple of puzzles p170 Straws Technology 12.1 p172 HW: Complete Competition Questions		$\Box \text{Exercise 12.4 p163}$						
3 Discussion about Sweet Trick - how to improve presentation The tan ratio. Exercise 12.5 p164 (Model solutions) Exercise 12.6 p165 (Model solutions) HW: Complete exercises 4 Exercise 12.7 p166 (Model solutions) HW: Complete exercise 5 Exercise 12.8 p167 (Model solutions) HW: Complete exercise 6 Discussion of why employers are adamant that employees have adequate mental computation Exercise 12.9 p168 Investigations 12.1, 12.2, 12.3 p171 A game p170 Technology 12.1 p172 7 Mental computation Exercise 12.10 p168 Group work working on a directed/choice/combination of: Investigations 12.1, 12.2, 12.3 p171 A game p170 Technology 12.1 p172 7 Mental computation Exercise 12.10 p168 Group work working on a directed/choice/combination of: Investigations 12.1, 12.2, p171 A game p170 Staws Technology 12.1 p172 HW: A couple of puzzles p170 8 Mental computation Exercise 12.11 p168 Competition Questions p169 (Model solutions) HW: Complete Chapter Review 9 Chapter Review 1 p173 </th <th></th> <th> Some students demonstrate the Sweet Trick p1/0 HW: Complete Exercises and demonstrate Sweet Trick at home/lodgings </th> <th></th>		 Some students demonstrate the Sweet Trick p1/0 HW: Complete Exercises and demonstrate Sweet Trick at home/lodgings 						
3 Discussion about Sweet Filter Filter Filter Filter for the formation 1 The tan ratio. Exercise 12.5 p164 (Model solutions) 1 Exercise 12.6 p165 (Model solutions) 1 HW: Complete exercises 4 Exercise 12.7 p166 (Model solutions) 1 HW: Complete exercise 5 Exercise 12.8 p167 (Model solutions) 1 HW: Complete exercise 6 Discussion of why employers are adamant that employees have adequate mental computation skills - also very useful revision technique 1 Mental computation Exercise 12.9 p168 1 Investigations 12.1, 12.2, 12.3 p171 1 A game p170 1 Technology 12.1 p172 7 Mental computation Exercise 12.10 p168 Group work working on a directed/choice/combination of: computers 1 Investigations 12.1, 12.2, 12.3 p171 1 A game p170 1 Technology 12.1 p172 1 Revestigations 12.1, 12.2, 12.3 p171 1 Newstigations 12.1, 12.2, 12.3 p171 1 Revestigations 12.1, 12.2, 12.3 p171 1 Revestigations 12.1, 12.2, 12.3 p171 1 Revestigations 1	3	Discussion about Sweet Trick how to improve presentation						
Image: Second State Second State Second State State State State Second State State Second State Stat	5	\square The tan ratio Exercise 12.5 p164 (Model solutions)						
HW: Complete exercises HW: Complete exercise HW: Complete exercise HW: Complete exercise Discussion of why employers are adamant that employees have adequate mental computation skills - also very useful revision technique Mental computation skills - also very useful revision technique Mental computation Exercise 12.9 p168 Investigations 12.1, 12.2, 12.3 p171 Investigations 12.1, 12.2, 12.3 p171 A game p170 Technology 12.1 p172 Internet Group work working on a directed/choice/combination of: Internet Investigations 12.1, 12.2, 12.3 p171 protractor A game p170 Technology 12.1 p172 HW: A couple of puzzles p170 straws Mental computation Exercise 12.11 p168 Competition Questions p169 (Model solutions) HW: Complete Competition Questions HW: Complete Chapter Review 9 Chapter Review 1 p173 HW: Complete Chapter Review 10 Chapter Review 2 p174 HW: Complete Chapter Review		Exercise 12.6 p165 (Model solutions)						
4 Exercise 12.7 p166 (Model solutions) HW: Complete exercise HW: Complete exercise 5 Exercise 12.8 p167 (Model solutions) HW: Complete exercise HW: Complete exercise 6 Discussion of why employers are adamant that employees have adequate mental computation skills - also very useful revision technique Mental computation Exercise 12.9 p168 Investigations 12.1, 12.2, 12.3 p171 A game p170 Technology 12.1 p172 7 Mental computation Exercise 12.10 p168 Group work working on a directed/choice/combination of: computers Investigations 12.1, 12.2, 12.3 p171 A game p170 straws Technology 12.1 p172 protractor S Investigations 12.1, 12.2, 12.3 p171 Protechnology 12.1 p172 protractor B Mental computation Exercise 12.10 p168 Group work working on a directed/choice/combination of: computers Investigations 12.1, 12.2, 12.3 p171 protractor A game p170 straws Technology 12.1 p172 HW: A couple of puzzles p170 8 Mental computation Exercise 12.11 p168 Competition Questions p169 (Model solutions) HW: Complete Chapter Review		HW: Complete exercises						
HW: Complete exercise HW: Complete exercise Exercise 12.8 p167 (Model solutions) HW: Complete exercise HW: Complete exercise HW: Complete exercise Image: HW: Complete exercise Image: HW: Complete exercise Mental computation Exercise 12.9 p168 Investigations 12.1, 12.2, 12.3 p171 A game p170 Technology 12.1 p172 Mental computation Exercise 12.10 p168 Internet Group work working on a directed/choice/combination of: computers Investigations 12.1, 12.2, 12.3 p171 protractor A game p170 straws Investigations 12.1, 12.2, 12.3 p171 protractor A game p170 straws Investigations 12.1, 12.2, 12.3 p171 protractor A game p170 straws Investigations 12.1, p172 protractor HW: A couple of puzzles p170 straws Somplete Competition Questions p169 (Model solutions) HW: Complete Competition Questions HW: Complete Competition Questions HW: Complete Chapter Review	4	Exercise 12.7 p166 (Model solutions)						
5 Exercise 12.8 p167 (Model solutions) HW: Complete exercise 6 Discussion of why employers are adamant that employees have adequate mental computation skills - also very useful revision technique Mental computation Exercise 12.9 p168 Investigations 12.1, 12.2, 12.3 p171 A game p170 Technology 12.1 p172 7 Mental computation Exercise 12.10 p168 Group work working on a directed/choice/combination of: Investigations 12.1, 12.2, 12.3 p171 A game p170 Investigations 12.1, 12.2, 12.3 p171 protractor of agame p170 Straws Technology 12.1 p172 9 Mental computation Exercise 12.10 p168 Group work working on a directed/choice/combination of: computers protractor straws Technology 12.1 p172 HW: A couple of puzzles p170 8 Mental computation Exercise 12.11 p168 Competition Questions p169 (Model solutions) HW: Complete Competition Questions HW: Complete Competition Questions HW: Complete Chapter Review 9 Chapter Review		□ HW: Complete exercise						
HW: Complete exercise HW: Complete exercise Image: Barbon Structure Discussion of why employers are adamant that employees have adequate mental computation skills - also very useful revision technique Mental computation Exercise 12.9 p168 Investigations 12.1, 12.2, 12.3 p171 A game p170 Technology 12.1 p172 Mental computation Exercise 12.10 p168 Internet Group work working on a directed/choice/combination of: Internet Investigations 12.1, 12.2, 12.3 p171 protractor A game p170 straws Investigations 12.1, 12.2, 12.3 p171 protractor A game p170 straws Investigations 12.1, 12.2, 12.3 p171 protractor A game p170 straws Investigations 12.1, 12.2, 12.3 p171 protractor A game p170 straws Investigations 12.1, 12.2, 12.3 p171 protractor A game p170 straws Technology 12.1 p172 HW: A couple of puzzles p170 8 Mental computation Exercise 12.11 p168 Competition Questions p169 (Model solutions) HW: Complete Competition Questions HW: Complete Chapter Review HW: Complete Chapter Review 9 Chapter Review 1 p173 <	5	□ Exercise 12.8 p167 (Model solutions)						
6 Discussion of why employers are adamant that employees have adequate mental computation skills - also very useful revision technique Mental computation Exercise 12.9 p168 Investigations 12.1, 12.2, 12.3 p171 A game p170 Technology 12.1 p172 7 Mental computation Exercise 12.10 p168 Group work working on a directed/choice/combination of: Investigations 12.1, 12.2, 12.3 p171 protractor Agame p170 Entended Technology 12.1 p172 Mental computation Exercise 12.10 p168 Group work working on a directed/choice/combination of: computers Investigations 12.1, 12.2, 12.3 p171 Agame p170 Straws Technology 12.1 p172 HW: A couple of puzzles p170 8 Mental computation Exercise 12.11 p168 Competition Questions p169 (Model solutions) HW: Complete Competition Questions 9 Chapter Review 1 p173 HW: Complete Chapter Review HW: Complete Chapter Review 10 Chapter Review 2 p174 HW: Complete Chapter Review HW: Complete Chapter Review		□ HW: Complete exercise						
mental computation skills - also very useful revision technique Mental computation Exercise 12.9 p168 Investigations 12.1, 12.2, 12.3 p171 A game p170 Technology 12.1 p172 Internet Group work working on a directed/choice/combination of: computers Investigations 12.1, 12.2, 12.3 p171 protractor A game p170 straws Investigations 12.1, 12.2, 12.3 p171 protractor A game p170 straws Investigations 12.1, 12.2, 12.3 p171 protractor A game p170 straws Computer of puzzles p170 straws Beam end for the end of puzzles p170 straws Beam end for the end of puzzles p170 straws Internet competition Questions p169 (Model solutions) HW: Complete Competition Questions straws Internet straws<	6	Discussion of why employers are adamant that employees have adequate						
Implication in the computation Exercise 12.9 pros Investigations 12.1, 12.2, 12.3 p171 A game p170 Technology 12.1 p172 Mental computation Exercise 12.10 p168 Investigations 12.1, 12.2, 12.3 p171 rechnology 12.1 p172 Investigations 12.1, 12.2, 12.3 p171 protractor A game p170 Investigations 12.1, 12.2, 12.3 p171 protractor straws Technology 12.1 p172 HW: A couple of puzzles p170 Straws Competition Questions p169 (Model solutions) HW: Complete Competition Questions HW: Complete Chapter Review HW: Complete Chapter Review HW: Complete Chapter Review HW: Complete Chapter Review		mental computation skills - also very useful revision technique						
A game p170 Internet Technology 12.1 p172 Internet Group work working on a directed/choice/combination of: Internet Investigations 12.1, 12.2, 12.3 p171 protractor A game p170 straws Investigations 12.1, 12.2, 12.3 p171 protractor A game p170 straws Technology 12.1 p172 straws HW: A couple of puzzles p170 straws Sompetition Questions p169 (Model solutions) HW: Complete Competition Questions HW: Complete Chapter Review HW: Complete Chapter Review HW: Complete Chapter Review HW: Complete Chapter Review HW: Complete Chapter Review HW: Complete Chapter Review		□ Investigations 12.1 12.2 12.3 p108						
 Technology 12.1 p172 Technology 12.1 p172 Mental computation Exercise 12.10 p168 Group work working on a directed/choice/combination of: Investigations 12.1, 12.2, 12.3 p171 protractor A game p170 Technology 12.1 p172 HW: A couple of puzzles p170 Mental computation Exercise 12.11 p168 Competition Questions p169 (Model solutions) HW: Complete Competition Questions Chapter Review 1 p173 HW: Complete Chapter Review Chapter Review 2 p174 HW: Complete Chapter Review 		\square A game n170						
7 Mental computation Exercise 12.10 p168 Internet Group work working on a directed/choice/combination of: computers Investigations 12.1, 12.2, 12.3 p171 protractor A game p170 straws Technology 12.1 p172 HW: A couple of puzzles p170 8 Mental computation Exercise 12.11 p168 Competition Questions p169 (Model solutions) HW: Complete Competition Questions 9 Chapter Review 1 p173 HW: Complete Chapter Review HW: Complete Chapter Review 10 Chapter Review 2 p174 HW: Complete Chapter Review HW: Complete Chapter Review		\Box Technology 12.1 p172						
Group work working on a directed/choice/combination of: computers Investigations 12.1, 12.2, 12.3 p171 protractor A game p170 straws Technology 12.1 p172 HW: A couple of puzzles p170 Mental computation Exercise 12.11 p168 competition Questions p169 (Model solutions) HW: Complete Competition Questions HW: Complete Competition Questions HW: Complete Chapter Review HW: Complete Chapter Review HW: Complete Chapter Review HW: Complete Chapter Review	7	Mental computation Exercise 12.10 p168	Internet					
Investigations 12.1, 12.2, 12.3 p171 protractor A game p170 straws Technology 12.1 p172 HW: A couple of puzzles p170 Mental computation Exercise 12.11 p168 Competition Questions p169 (Model solutions) HW: Complete Competition Questions HW: Complete Competition Questions HW: Complete Competition Questions HW: Complete Chapter Review HW: Complete Chapter Review HW: Complete Chapter Review HW: Complete Chapter Review HW: Complete Chapter Review		Group work working on a directed/choice/combination of:	computers					
 A game p170 Technology 12.1 p172 HW: A couple of puzzles p170 8 Mental computation Exercise 12.11 p168 Competition Questions p169 (Model solutions) HW: Complete Competition Questions 9 Chapter Review 1 p173 HW: Complete Chapter Review 10 Chapter Review 2 p174 HW: Complete Chapter Review 		□ Investigations 12.1, 12.2, 12.3 p171	protractor					
 Fechnology 12.1 p1/2 HW: A couple of puzzles p170 Mental computation Exercise 12.11 p168 Competition Questions p169 (Model solutions) HW: Complete Competition Questions 9 Chapter Review 1 p173 HW: Complete Chapter Review 10 Chapter Review 2 p174 HW: Complete Chapter Review 		$\Box A \text{ game p170}$	straws					
8 Mental computation Exercise 12.11 p168 Competition Questions p169 (Model solutions) HW: Complete Competition Questions 9 Chapter Review 1 p173 HW: Complete Chapter Review 10 Chapter Review 2 p174 HW: Complete Chapter Review		$\Box = \text{HW: } A \text{ couple of } p_1 z_1 = p_1 z_2$						
0 Internal computation Exercise 12.11 pros 0 Competition Questions p169 (Model solutions) 1 HW: Complete Competition Questions 9 Chapter Review 1 p173 10 Chapter Review 2 p174 10 Chapter Review 2 p174 10 HW: Complete Chapter Review	<u> </u>	Mental computation Exercise 12 11 p168						
Image: Second provement of the condition of	o	Competition Questions p169 (Model solutions)						
9 Chapter Review 1 p173 10 Chapter Review 2 p174 10 HW: Complete Chapter Review		 HW: Complete Competition Questions 						
Image: HW: Complete Chapter Review 10 Image: Chapter Review 2 p174 Image: HW: Complete Chapter Review	9	Chapter Review 1 p173	1					
10 Chapter Review 2 p174 HW: Complete Chapter Review		HW: Complete Chapter Review						
□ HW: Complete Chapter Review	10	Chapter Review 2 p174						
		HW: Complete Chapter Review						

Chapter	13 Volume	Measurement & Geometry - Units of Measmnt	2 weeks
 ★ Calc ★ Solve ★ Build are u 	ulate the volume of cylinders a problems involving the volu d on the understanding of volu sed in the workplace and even	and solve related problems. me of right prisms. ume to become fluent with calculation, and identify that vol ryday life.	ume relationships
Lesson		Method	Resources
1	 Purpose of chapter Exercise 13.1 p176 HW: Read and practice 	ce the Sweet Trick on p185	
2	 Exercise 13.2 p177 Some students demor HW: Complete Exercise 	nstrate the Sweet Trick p185 ise and demonstrate Sweet Trick at home/lodgings	
3	 Discussion about Swe Exercise 13.3 p178 Exercise 13.4 p179 HW: complete exercise 	eet Trick - how to improve presentation	
4	 Exercise 13.5 p180 (N HW: Complete exercise 	Model solutions) ise	
5	 Mental computation I Exercise 13.6 p181 (N HW: Complete exercise 	Exercise 13.7 p182 Model solutions) ise	
6	 Mental computation I Group work working on a Investigation 13.1, 13 Technology 13.1, 13.1 A game p185 HW: A couple of puzz 	Exercise 13.8 p182 a directed/choice/combination of: 5.2, 13.3, 13.4 p184 2, 13.3 P186 zles p185	centicubes Internet
7	 Mental computation I Group work working on a Investigation 13.1, 13 Technology 13.1, 13.2 A game p185 	Exercise 13.9 p182 a directed/choice/combination of: 5.2, 13.3, 13.4 p184 2, 13.3 P186	
8	Competition QuestionHW: Complete Comp	ns p183 (Model solutions) betition Questions	
9	 Chapter Review 1 p1 HW: Complete Chapt 	87 eer Review	
10	 Chapter Review 2 p13 HW: Complete Chapt 	88 er Review	

Statistics & Probability - Chance

- ★ List all outcomes for two-step chance experiments, both with and without replacement using tree diagrams or arrays.
- ★ Assign probabilities to outcomes and determine probabilities for events.
- ★ Calculate relative frequencies from given or collected data to estimate probabilities of events involving 'and' or 'or'.
- ★ Posing 'and', 'or', 'not' and 'given' probability questions about objects or people.
- ★ Collect data to answer the questions using Venn diagrams or two-way tables.

Lesson	Method	Resources
1	Purpose of chapter	
	Exercise 14.1 p190	
	\Box Exercise 14.2 p191	
	HW: Read and practice the Sweet Trick on p202	
2	□ Some mental practice of the Sweet Trick	dice
	$\Box \text{Exercise 14.3 p192}$	
	 Some students demonstrate the Sweet Trick p202 HW: Complete Evergise and demonstrate Sweet Trick at home/lodgings 	
2	Discussion shout Sweet Trick how to improve presentation	diaa
3	\square Discussion about Sweet Trick - now to improve presentation \square Every set 14.4 n 193	uice
	HW: Complete exercise	
4	Exercise 14.5 p194 (Model solutions)	
	\Box Exercise 14.6 p195 (Model solutions)	
	HW: Complete exercises	
5	Exercise 14.7 p196	
	Exercise 14.8 p197	
	HW: Complete exercises	
6	Mental computation Exercise 14.9 p198	Internet
	Group work working on a directed/choice/combination of:	spreadsheet
	$\Box \text{Investigation 14.1, 14.2, 14.3, 14.4 p200} \\ \Box \text{Technology 14.1, 14.2, 14.3, p201}$	coins
	$\Box \text{A game n}^{202}$	uice
	\square HW: A couple of puzzles p202	
7	□ Mental computation Exercise 14.10 p198	1
	Group work working on a directed/choice/combination of:	
	□ Investigation 14.1, 14.2, 14.3, 14.4 p200	
	□ Technology 14.1, 14.2, 14.3 p201	
	A game p202	
8	□ Mental computation Exercise 14.11 p198	
	Competition Questions p199 (Model solutions)	
	HW: Complete Competition Questions	
9	Chapter Review 1 p203	
10		
10	Chapter Review 2 p204 UW: Complete Chapter Deview	
	П mw. Complete Chapter Kevlew	

A Task

Work on one of the four tasks at the beginning of each chapter. (Page 143, page 159, page 175, page 189)

Lesson	Method	Resources
1-5	□ Setup	Textbook
	Decide whether tasks completed individually, groups of two, three, or four	Assesssment
	Decide which tasks are assigned to individuals/groups	instruments
	Decide how tasks are to be presented: Oral presentation, poster presentation	
	(on classroom wall), power point presentation etc.	
	□ If the presentation will take class time then decide when.	
	Each lesson may be started with a mental computation or a summary of	
	what is expected from the work on the tasks.	

Chapter 15 Review

Chapter 11 Indices 2 Number & Algebra - Real Numbers Measurement & Geometry - Units of Measmnt	2 weeks
★ Express numbers in scientific notation.	
* Understand that the use of index notation is an efficient way of representing numbers and symbol	ols and has many
applications, particularly in science.	
* Represent extremely large and small numbers in scientific notation, and numbers expressed in sc	cientific notation
as whole numbers or decimals.	
\star Apply index laws to numerical expressions with integer indices.	
★ Apply knowledge of index laws to algebraic terms and simplify algebraic expressions, using bot negative integral indices.	th positive and
★ Investigate very small and very large time scales and intervals.	
★ Investigate the usefulness of scientific notation in representing very large and very small number	s.
Chapter 12 Trigonometry 1 Measurement & Geometry - Pythag & Trig	2 weeks
★ Use similarity to investigate the constancy of the sine, cosine and tangent ratios for a given angle	in right-angled
triangles.	
★ Develop an understanding of the relationship between the corresponding sides of similar right-a	ngled triangles.
★ Apply trigonometry to solve right-angled triangle problems.	
★ Understand the terms 'adjacent' and 'opposite' sides in a right-angled triangle.	
Chapter 13 Volume Measurement & Geometry - Units of Measmnt	2 weeks
★ Calculate the volume of cylinders and solve related problems.	
★ Solve problems involving the volume of right prisms.	
★ Build on the understanding of volume to become fluent with calculation, and identify that volum are used in the workplace and everyday life	ne relationships
Chapter 14 Probability Statistics & Probability - Chance	2 weeks
★ List all outcomes for two-step chance experiments, both with and without replacement using tree	e diagrams or
arrays.	U
★ Assign probabilities to outcomes and determine probabilities for events.	
★ Calculate relative frequencies from given or collected data to estimate probabilities of events invo	olving 'and' or 'or'.
★ Posing 'and', 'or', 'not' and 'given' probability questions about objects or people.	
★ Collect data to answer the questions using Venn diagrams or two-way tables.	
· · · · · · · · · · · · · · · · · · ·	

	esson	Method	Resources
1	l-10	Purpose of Review	Textbook
		Review 1 p206	Assesssment
		Review 2 p209	instruments
		Repetition of above until mastery?	
		Sample end of term papers (www.drdwyer.com.au)	
		Assessment	