

Contents

Contents	iii
1 Learning to Measure	1
1.1 Measurement Problems	2
1.2 Measuring Length	6
1.3 Measuring Weight and Capacity	11
1.4 Measuring Angles	18
2 Geometric Figures	27
2.1 Fundamental Geometric Ideas	27
2.2 Triangles	35
2.3 Symmetry and Triangles	41
2.4 Parallelograms, Rhombuses and Trapezoids	45
2.5 Geometric Constructions	50
3 Deductive Geometry	55
3.1 Unknown Angle Proofs	57
3.2 Congruent Triangles	65
3.3 Applying Congruences	73
3.4 Congruences in Quadrilaterals	79
3.5 Transformations and Tessellations	84
4 Area	91
4.1 Area Units	91
4.2 Rectangles and Area Properties	98
4.3 Area of Triangles, Parallelograms and Trapezoids	105
5 Pythagorean Theorem with Applications	113
5.1 Pythagorean Theorem	113
5.2 Square Roots and Pythagorean Triples	118
5.3 Special Triangles and Further Applications	124

6	Similarity	131
6.1	Introducing Similarity and Similar Right Triangles	131
6.2	Similar Triangles	139
6.3	Coordinate Systems and Slope	145
6.4	Similar Right Triangles and Trigonometry	153
7	Area Concepts and Circles	157
7.1	Converting Area Units and Scaling	157
7.2	Circles and Pi	163
7.3	Area of Circles and Sectors	167
7.4	Approximation and Accuracy	173
8	Volume and Surface Area	179
8.1	Introducing Volume	179
8.2	Metric Volume	183
8.3	Prisms and Cylinders	189
8.4	Pyramids and Cones	195
8.5	Spheres	201
9	Data Displays, Probability and Statistics	209
9.1	Data Displays	209
9.2	Center and Dispersion of Data Sets	215
9.3	Probability	221
9.4	Inferential Statistics	228
9.5	Appendix: Other Ways to Display Data	234
	Bibliography	235
	Index	237