Content Area 1

NUMBERS, OPERATIONS AND RELATIONSHIPS

Development of number sense that includes:

- the meaning of different kinds of numbers
- the relationship between different kinds of numbers
- the relative size of different numbers
- representation of numbers in various ways
- the effect of operating with numbers
- the ability to estimate and check solutions.

Content Area 2

PATTERNS, FUNCTIONS AND ALGEBRA

Algebra is the language for investigating and communicating most of Mathematics and can be extended to the study of functions and other relationships between variables. A central part of this Content Area is for the learner to achieve efficient manipulative skills in the use of algebra. It also focuses on the:

- description of patterns and relationships through the use of symbolic expressions, graphs and tables; and
- identification and analysis of regularities and change in patterns, and relationships that enable learners to make predictions and solve problems.

Content Area 3

SPACE AND SHAPE (GEOMETRY)

The study of Space and Shape improves understanding and appreciation of the pattern, precision, achievement and beauty in natural and cultural forms. It focuses on the properties, relationships, orientations, positions and transformations of two-dimensional shapes and three-dimensional objects.

Content Area 4

MEASUREMENT

Measurement focuses on the selection and use of appropriate units, instruments and formulae to quantify characteristics of events, shapes, objects and the environment. It relates directly to the learner's scientific, technological and economic worlds, enabling the learner to

- make sensible estimates; and
- be alert to the reasonableness of measurements and results.

Content Area 5

DATA HANDLING

Data Handling involves asking questions and finding answers in order to describe events and the social, technological and economic environment.

Through the study of data handling, the learner develops the skills to collect, organise, represent, interpret, analyse and report data.

The study of probability enables the learner to develop skills and techniques for making informed predictions, and describing randomness and uncertainty.

CONTENTS

			Content Area	
1. WHOLE NUMBERS		**1**		
Diagnostic Test: Whole Numbers		*2*		
SKILL 1	Number systems	4	***1.***	*1.3 Integers*
SKILL 2	Number place values	6	***1.***	*1.3 Integers*
SKILL 3	Rounding off	8	***1.***	*1.3 Integers*
SKILL 4	Adding whole numbers	8	***1.***	*1.3 Integers*
SKILL 5	Subtracting whole numbers	9	***1.***	*1.3 Integers*
SKILL 6	The Multiplication Table	11	***1.***	*1.3 Integers*
SKILL 7	Multiplying whole numbers	11	***1.***	*1.3 Integers*
SKILL 8	Dividing whole numbers (short division)	13	***1.***	*1.3 Integers*
SKILL 9	Divisibility	13	***1.***	*1.3 Integers*
SKILL 10	Order of operations	14	***1.***	*1.3 Integers*
Whole Numbers Practice		*15*		
Whole Numbers Extensions		*17*		
2. NUMBER THEORY		**20**		
Diagnostic Test: Number Theory		*21*		
SKILL 1	Factors	22	***1.***	*1.1 Whole numbers*
SKILL 2	Prime numbers	23	***1.***	*1.1 Whole numbers*
SKILL 3	Composite numbers	24		
SKILL 4	Prime factors	24	***1.***	*1.1 Whole numbers*
SKILL 5	Multiples	24	***1.***	*1.1 Whole numbers*
SKILL 6	Square numbers	25	***1.***	*1.2 Exponents*
SKILL 7	Square roots	25	***1.***	*1.2 Exponents*
SKILL 8	Number patterns	26	***2.***	*2.1 Numeric and geometric patterns*
SKILL 9	Substitution	26		
Number Theory Practice		*28*		
Number Theory Extensions		*30*		
3. FRACTIONS		**33**		
Diagnostic Test: Fractions		*34*		
SKILL 1	Equivalent fractions and cancelling	36	***1.***	*1.4 Common fractions*
SKILL 2	Mixed numbers and improper fractions	37	***1.***	*1.4 Common fractions*

			Content Area	
SKILL 3	Multiplying fractions	38	***1.***	*1.4 Common fractions*
SKILL 4	Dividing fractions	39	***1.***	*1.4 Common fractions*
SKILL 5	Adding fractions with equal denominators	40	***1.***	*1.4 Common fractions*
SKILL 6	Subtracting fractions with equal denominators	41	***1.***	*1.4 Common fractions*
SKILL 7	Adding fractions with unequal denominators	42	***1.***	*1.4 Common fractions*
SKILL 8	Subtracting fractions with unequal denominators	43	***1.***	*1.4 Common fractions*
SKILL 9	Working with mixed numbers	44	***1.***	*1.4 Common fractions*
SKILL 10	Comparing the sizes of fractions	45	***1.***	*1.4 Common fractions*
SKILL 11	Finding fractions of quantities	46	***1.***	*1.4 Common fractions*
SKILL 12	Expressing quantities as a fraction of each other	46	***1.***	*1.4 Common fractions*
Fractions Practice		*47*		
Fractions Extensions		*49*		
4. DECIMALS		**53**		
Diagnostic Test: Decimals		*54*		
SKILL 1	The Decimal System	56	***1.***	*1.5 Decimal fractions*
SKILL 2	Place value	57	***1.***	*1.5 Decimal fractions*
SKILL 3	Comparing the size of decimals	58	***1.***	*1.5 Decimal fractions*
SKILL 4	Adding decimals	59	***1.***	*1.5 Decimal fractions*
SKILL 5	Subtracting decimals	59	***1.***	*1.5 Decimal fractions*
SKILL 6	Multiplying decimals	60	***1.***	*1.5 Decimal fractions*
SKILL 7	Multiplying by groups of ten	60		
SKILL 8	Dividing decimals	61	***1.***	*1.5 Decimal fractions*
SKILL 9	Dividing by powers of ten	62		
SKILL 10	Converting decimals into fractions	62	***1.***	*1.5 Decimal fractions*
SKILL 11	Converting fractions into decimals	63		
SKILL 12	Decimal currency	64		
Decimals Practice		*66*		
Decimals Extensions		*69*		

			Content Area	
5. PERCENTAGES		**73**		
Diagnostic Test: Percentages		*75*		
SKILL 1	Making percentages into fractions	76	***1.***	*1.4 Common fractions: percentages*
SKILL 2	Making fractions into percentages	76	***1.***	*1.4 Common fractions: percentages*
SKILL 3	Making percentages into decimals	76	***1.***	*1.4 Common fractions: percentages*
SKILL 4	Making decimals into percentages	77	***1.***	*1.4 Common fractions: percentages*
SKILL 5	Expressing fractions of quantities as percentages	77	***1.***	*1.4 Common fractions: percentages*
SKILL 6	Finding percentages of quantities	78	***1.***	*1.4 Common fractions: percentages*
SKILL 7	Finding the size of a quantity when given a part of it	78	***1.***	*1.4 Common fractions: percentages*
Percentages Practice		*79*		
Percentages Extensions		*80*		
6. MEASUREMENTS		**83**		
Diagnostic Test: Measurements		*85*		
SKILL 1	Length units	88	***4.***	*4.2 Surface and volume of 3D objects*
SKILL 2	Comparing lengths	89	***4.***	*4.2 Surface and volume of 3D objects*
SKILL 3	Perimeter of shapes with straight sides	89	***4.***	*4.1 Area and perimeter of 2D shapes*
SKILL 4	Area of shapes with straight sides	90	***4.***	*4.2 Surface and volume of 3D objects*
SKILL 5	Composite areas	91		
SKILL 6	Volume of solids	92	***4.***	*4.2 Surface and volume of 3D objects*
SKILL 7	Capacity	93	***4.***	*4.2 Surface and volume of 3D objects*
SKILL 8	Mass	94		
SKILL 9	Time	94		
SKILL 10	Temperature	94		
Measurement Practice		*97*		
Measurement Extensions		*100*		

			Content Area	
7. GEOMETRY		**104**		
Diagnostic Test: Geometry		*106*		
SKILL 1	Using a compass to make circles	110	***3.***	*3.5 Construction of geometric figures*
SKILL 2	Measuring and drawing angles with a protractor	110	***3.***	*3.5 Construction of geometric figures*
SKILL 3	Angle facts	112	***3.***	*3.5 Construction of geometric figures*
SKILL 4	Triangles	113	***3.***	*3.2 Geometry of 3D objects*
SKILL 5	Quadrilaterals	114	***3.***	*3.1 Geometry of 2D shapes*
SKILL 6	Angles that describe direction	116		
SKILL 7	Describing solids	117	***3.***	*3.2 Geometry of 3D objects*
SKILL 8	Moving shapes	118		
SKILL 9	Symmetry	120		
Geometry Practice		*121*		
Geometry Extensions		*127*		
8. CHANCE AND DATA		**131**		
Diagnostic Test: Chance and Data		*133*		
SKILL 1	Finding average and range	135	***5.***	*5.1 Collect, organise and summarise data*
SKILL 2	Constructing tally tables	136	***5.***	*5.1 Collect, organise and summarise data*
SKILL 3	Constructing pictographs	137	***5.***	*5.2 Represent data*
SKILL 4	Constructing bar graphs	138	***5.***	*5.2 Represent data*
SKILL 5	Constructing pie graphs	139	***5.***	*5.2 Represent data*
SKILL 6	Reading values from line graphs	140	***5.***	*5.3 Interpret, analyse and report data*
SKILL 7	Simple probability	141	***5.***	*5.4 Probability*
Chance and Data Practice		*143*		
Chance and Data Extensions		*147*		
9. CALCULATORS		**150**		
Diagnostic Test: Calculators		*151*		
SKILL 1	Estimation	152	***1.***	*1.1 Whole numbers: calculation techniques*
SKILL 2	Simple calculations	153	***1.***	*1.1 Whole numbers: calculation techniques*
SKILL 3	Using the memory function	154	***1.***	*1.1 Whole numbers: calculation techniques*
SKILL 4	Rounding off	155	***1.***	*1.1 Whole numbers: calculation techniques*
SKILL 5	Squaring numbers	156	***1.***	*1.1 Whole numbers: calculation techniques*
SKILL 6	Finding square roots	157	***1.***	*1.1 Whole numbers: calculation techniques*

			Content Area	
SKILL 7	Percentages	157	***1.***	*1.1 Whole numbers: calculation techniques*
SKILL 8	Turning fractions into decimals	158	***1.***	*1.1 Whole numbers: calculation techniques*
Calculators Practice		*159*		
Calculators Extensions		*161*		
10. PROBLEM SOLVING		**165**		
Diagnostic Test: Problem Solving		*166*		
SKILL 1	Making lists	170	***5.***	*5.1 Collect, organise and summarise data*
SKILL 2	Guess and check method	170		
SKILL 3	Using diagrams	172	***5.***	*5.2 Represent data*
SKILL 4	Working backwards	175		
SKILL 5	Eliminating possibilities	176		
SKILL 6	Starting with a simpler problem	177		
SKILL 7	Comparing values of quantities	178		
SKILL 8	Finding a pattern	179	***2.***	*2.1 Numeric and geometric patterns*
SKILL 9	Making models	180		
SKILL 10	Using information from worded questions, tables and graphs	181		
Problem Solving Practice		*184*		
Problem Solving Extensions		*189*		
ASSESSMENT TASKS		**193**		
SOLUTIONS		**216**		
1	Whole numbers	216		
2	Number theory	219		
3	Fractions	221		
4	Decimals	224		
5	Percentages	227		
6	Measurement	228		
7	Geometry	231		
8	Chance and data	236		
9	Calculators	240		
10	Problem solving	243		
Assessment tasks solutions		246		