

Extension Maths Book 4 – Contents

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Number (Structure, Patterns & algebra)

Title	Indicator	Page
Skip count	Skip counts forwards and backwards by 10's, 50's and 100's.	10
Place value	Demonstrates knowledge of place value of numbers up to 5 digits.	11
Ordering numbers	Orders numbers in ascending and descending order.	12
Looking at numbers	Creates numbers and shows the relationship between numbers.	13
Doubling and halving	Doubles and halves whole and decimal numbers.	14
Factors, multiples, prime and composites	Identifies and lists factors, multiples, prime and composite numbers.	15
Rounding numbers	Rounds numbers to the nearest 10, 100 & 1000 to est. computations.	16
Automatic recall	Uses automatic recall to solve various number operations.	17
Solve the riddle	Skip counts and uses timetables to solve a number code riddle.	18
Addition	Uses mental and written strategies to solve addition problems.	19
Extended addition	Uses place value patterns to solve extended addition problems.	20
Adding with decimals	Uses written methods to add numbers or money with a decimal point.	21
Subtraction	Uses mental and written strategies to solve subtraction problems.	22
Extended subtraction	Uses place value patterns to solve extended subtraction problems.	23
Subtracting with decimals	Uses written methods to subtract numbers or money with a decimal point.	24
Multiplication methods	Uses written methods to solve 2 digit by 1 digit multiplication problems.	25
Extended multiplication	Uses knowledge of tables and patterns to solve extended multiplication problems.	26
Division methods	Uses knowledge of tables and patterns to solve division problems.	27
Extended division	Uses knowledge of tables and patterns to solve extended division problems.	28
Mixed story problems	Selects the appropriate operations to solve a variety of story problems.	29
Representing and ordering fractions	Represents, illustrates and orders fractions.	30
Working with fractions	Represents equivalence between fractions and fractions of numbers.	31
Adding and subtracting fractions	Uses pictures and symbols to add and subtract fractions.	32
Decimals and fractions	Represents and writes decimals as fractions and fractions as decimals.	33
Percentages	Represents and writes fractions and decimal numbers as percentages.	34
Money	Makes mental and written calculations involving money.	35
Money and change	Makes mental and written calculations involving money and change.	36
Number lines	Uses number lines to complete and represent number patterns.	37
Number patterns	Uses different number rules to describe and continue number patterns.	38
Equations	Constructs and completes equations involving different operations.	39
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Space

Title	Indicator	Page
Lines	Recognises, describes and represents different types of lines.	42
Describing angles	Identifies, describes and names angles in practical situations.	43
Drawing angles	Identifies, measures and draws common angles.	44
Four sided shapes	Identifies and draws various four sided shapes.	45
Describing 2D shapes	Identifies, names and describes 2D shapes.	46
3D shapes	Identifies, names and describes 3D shapes.	47
Prisms and pyramids	Identifies, names and describes different prisms and pyramids.	48
Similarities & differences?	Identifies and describes the difference between 3D shapes.	49
Shape models	Recognises what is seen and not seen of a 3D shape. Constructs 3D models.	50
Cross sections	Predicts and matches 3D shapes with their cross sections.	51
Shape nets	Recognises, names and draws nets of 3D shapes.	52
Shape patterns	Copies, continues and creates repetitive shape patterns.	53
Tessellating shapes	Uses a variety of tessellating shapes to continue and create patterns.	54
Symmetry	Identifies and demonstrates knowledge of symmetry.	55
Describing position	Uses location language to describe position of people and things.	56
Instructions	Reads and writes a set of instructions for moving from one place to another.	57
Looking at plans	Reads and constructs a simple map or plan of a familiar location.	58
Compass points	Uses compass points to describe locations on a simple map.	59
Using a key	Creates and identifies locations on a simple map using a key and compass points.	60
Grids	Uses grid reference points to locate features and draw paths on a map.	61
Assessment— What am !?		62
Assessment — Park map		63

Measurement

Measuring in centimetres	Estimates, measures and compares the length of objects in centimetres.	64
Measuring in metres	Estimates & measures the length of objects in metres and compares this to centimetres.	64
Measuring in millimetres	Estimates and measures the length of objects in millimetres and compares this to centimetres.	65
Perimeter	Identifies and measures the perimeter of 2D shapes and areas.	66
Area	Measures and records the area of objects in square centimetres and square metres.	67
Perimeter and area	Measures, calculates and compares the perimeter and area of a shape.	68
Volume (cm ³)	Measures, constructs and works out the volume of 3D shapes in cm ³ .	69
Comparing capacity	Estimates, compares and orders the capacity of familiar containers.	70
Litres and millilitres	Measures, compares and orders the capacity of containers using formal units.	71
Comparing mass	Estimates, measures and compares the items according to their weight.	72
Kilograms and grams	Estimates, measures and compares the weight of items using formal units.	73
Temperature	Measures and compares temperature using a thermometer.	74

Measurement (cont.)

Title	Indicator	Page
Comparing objects	Orders and groups items according to their various attributes.	75
Estimating & ordering time	Estimates, compares and orders periods of time.	76
Analog time	Reads and represents analog time in hours and minutes.	77
Digital time	Reads, writes and orders digital time and relates it to analog time.	78
Analog and digital time	Reads, writes and relates analog time to digital time.	79
Time facts and problems	Calculates and solves problems relating to time.	80
Timetables	Reads, interprets and writes simple schedules and timetables.	81
Calendars	Interprets, locates and works out dates on a calendar.	82
Assessment—Measuring and comparing		83
Assessment—Dance times		84

Chance & data

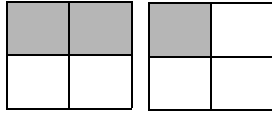
Title	Indicator	Page
Certain/uncertain	Describes events as being certain or uncertain.	85
Comparing events	Compares, orders and describes the likelihood of everyday events.	86
Class raffle	Predicts and compares outcomes from a simple chance experiment.	87
Games of chance	Predicts and compares outcomes from simple games of chance.	88
Grouping and classifying	Groups and classifies information under different categories.	89
Posing questions	Poses a question and designs a survey in order to collect data.	90
Conducting a survey	Determines and plans appropriate procedures to collect data.	91
Using tables	Organises and presents data using a table.	92
Two-way tables	Interprets and organises gathered data in a two-way table.	93
Picture graphs	Interprets and presents gathered information in a picture graph.	94
Bar/column graphs	Interprets and presents gathered information in a bar/column graph.	95
Line graphs	Interprets and presents gathered information in a line graph.	96
Spreadsheets	Interprets and completes tables of collected information (spreadsheets).	97
Venn diagrams	Interprets and uses Venn diagrams to summarise and present data.	98
Interpreting graphs and diagrams	Identifies and interprets information from different types of graphs and diagrams.	99
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Adding and subtracting fractions

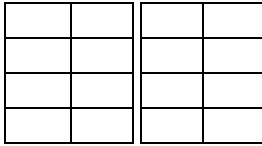
1 Shade the fraction pictures to help you complete the addition sums.

For example:



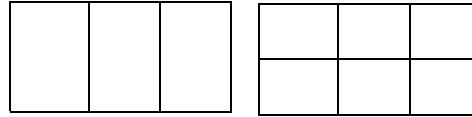
$$\frac{1}{2} + \frac{1}{4} = \frac{3}{4}$$

a



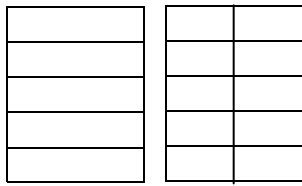
$$\frac{3}{8} + \frac{2}{8} = \frac{\quad}{8}$$

b



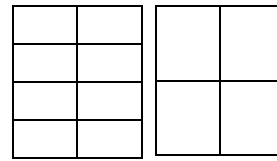
$$\frac{1}{3} + \frac{2}{6} = \frac{\quad}{6}$$

c



$$\frac{3}{5} + \frac{2}{10} = \frac{\quad}{10}$$

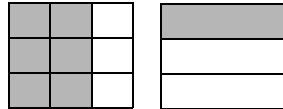
d



$$\frac{6}{8} + \frac{1}{4} = \frac{\quad}{8} \text{ or } \frac{\quad}{4}$$

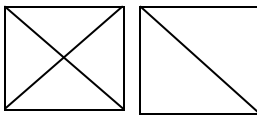
2 Shade the fraction pictures to help you complete the subtraction sums.

For example:



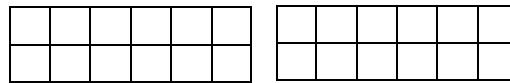
$$\frac{6}{9} - \frac{1}{3} = \frac{1}{3}$$

a



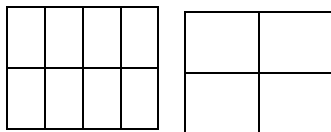
$$\frac{3}{4} - \frac{1}{2} = \frac{\quad}{4}$$

b



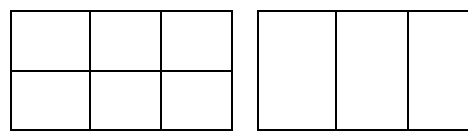
$$\frac{9}{12} - \frac{3}{12} = \frac{\quad}{12} \text{ or } \frac{\quad}{2}$$

c



$$\frac{7}{8} - \frac{1}{4} = \frac{\quad}{8}$$

d



$$\frac{5}{6} - \frac{1}{3} = \frac{\quad}{6} \text{ or } \frac{\quad}{2}$$

3 Add or subtract these fractions. Look carefully at the signs!

a $\frac{3}{4} - \frac{1}{4} = \frac{\quad}{4}$ or $\frac{\quad}{2}$

d $1 - \frac{1}{4} = \frac{\quad}{4}$

b $\frac{2}{8} + \frac{6}{8} = \frac{\quad}{8}$ or $\frac{\quad}{2}$

e $\frac{2}{3} - \frac{2}{6} = \frac{\quad}{3}$

c $\frac{3}{6} + \frac{2}{6} = \frac{\quad}{6}$

f $\frac{1}{2} + \frac{4}{8} = \frac{\quad}{8}$ or $\frac{\quad}{2}$ or $\frac{\quad}{\quad}$

4 Extension problem: If there are 4 whole cakes, how many of the following could you make?

a 8ths = $\frac{\quad}{8}$

b 4ths = $\frac{\quad}{4}$

c 3rds = $\frac{\quad}{3}$

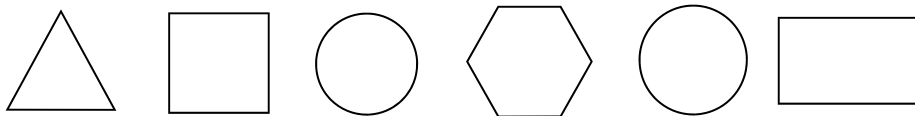
d 6ths = $\frac{\quad}{6}$

Cross-sections

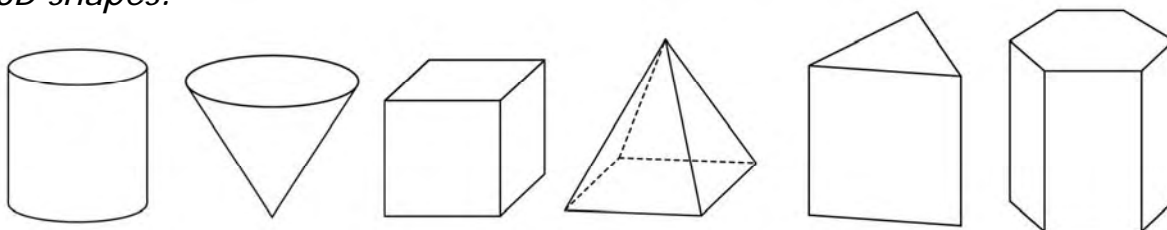
A cross-section is the shape you would see if a 3D shape was cut into slices.

- 1 Match the cross-sections with their 3D shape by colouring them in the same colour. You will need 6 different colours.

Cross sections:

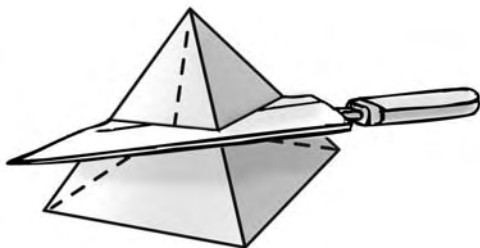


3D shapes:



- 2 Draw the cross-sections you would see if you cut these shapes as shown.

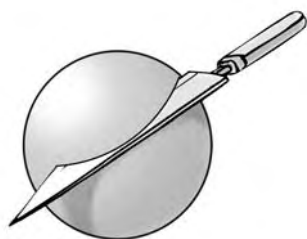
a



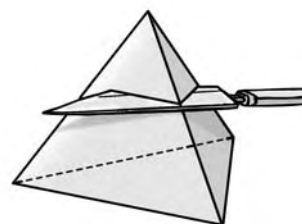
b



c



d



- 3 Extension task: What 3D shapes would have these cross-sections?

a square _____

b rectangle _____

c triangle _____

d circle _____

Name _____

Date _____

Materials: pencil,
items pictured
below, lunch box,
kitchen scales

Kilograms and grams

- 1 Use kitchen scales to weigh each item pictured below. Write the weight on each item.



- 2 Order the items above from the lightest to the heaviest (1 to 8).

1 _____ 2 _____ 3 _____
 4 _____ 5 _____ 6 _____
 7 _____ 8 _____

- 3 Estimate and measure 3 items in your lunch box using kitchen scales.

Item 1 _____ Estimate: _____ Weight: _____

Item 2 _____ Estimate: _____ Weight: _____

Item 3 _____ Estimate: _____ Weight: _____

Calculate the total weight of your lunch: _____

- 4 Change these kilogram amounts to grams and gram amounts to kilograms.

a $3 \text{ kg} = \text{_____ g}$

e $4000 \text{ g} = \text{_____ kg}$

b $5.5 \text{ kg} = \text{_____ g}$

f $6500 \text{ g} = \text{_____ kg}$

c $8.2 \text{ kg} = \text{_____ g}$

g $2300 \text{ g} = \text{_____ kg}$

d $9.7 \text{ kg} = \text{_____ g}$

h $1550 \text{ g} = \text{_____ kg}$







- 5 Extension problem:

a If apples weighed 125 g each, how many would you get if you bought 1 kilogram?

b If these apples cost \$4.40 per kg, how much would 5 apples cost?

Games of chance

- 1 Roll a dice 20 times. Use ticks to record the results.

- a Which number was rolled the most? _____
- b Which number was rolled the least? _____
- c How likely is it that the results would be the same if you repeated the experiment?

- 2 100 people were each given 1 raffle ticket to win these prizes.

1 x \$50 voucher

2 x \$20 vouchers

5 x \$10 vouchers

10 x \$5 vouchers

What chance or fraction out of 100 would a person have of winning

- a the \$50 voucher? _____ b a \$20 voucher? _____
- c a \$10 voucher? _____ c a \$5 voucher? _____
- 3 In horse racing, the bigger the odds (e.g. 50 to 1) the less chance people think the horse has of winning. Smaller odds (e.g. 2 to 1) mean that people think the horse is more likely to win. Look at the horses and their odds, then answer the questions.

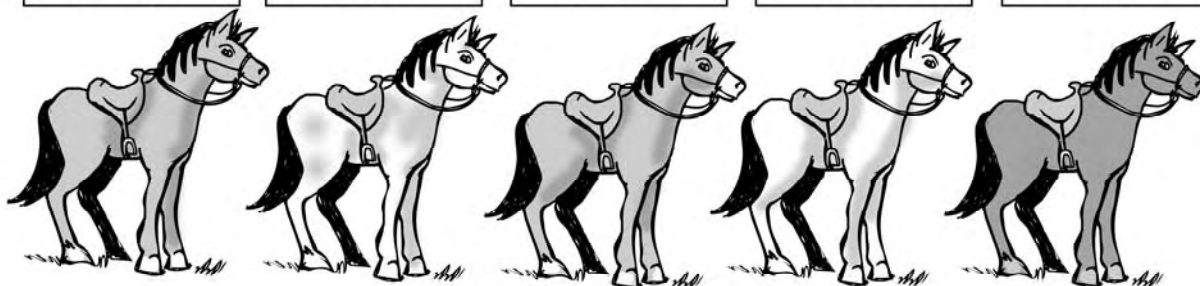
Zoom
10 to 1

Out to Grass
2 to 1

Flash Past
20 to 1

Steady Ed
5 to 1

Hay Burner
3 to 1



Which horse do people think has:

- a the best chance of winning? _____
- b the next best chance of winning? _____
- c the least chance of winning? _____
- Which horse would you pick? _____

- 4 **Extension task:** On the back of this sheet, make a list of other games, sports or events that involve chance.