



The questions increase in complexity throughout the paper and encourage the use of higher-order thinking skills.

INTRODUCTORY PAPER



NUMBER & ARITHMETIC

ALGEBRA & PATTERNS

MEASURES & UNITS

SPACE & GEOMETRY

CHANCE & DATA

Questions may require students to:

NUMBER

- count, order and compare whole numbers to 100
- skip by 2s, 5s, and 10s
- understand place value of whole numbers to 100 and place on number line
- recognise halves and wholes

PATTERNS

- continue simple linear patterns with numbers and shapes

MEASURES

- informally measure and compare mass, length, area, volume and capacity
- measure and compare time in hours, days, weeks, months and years

SPACE

- give and follow directions
- identify relative position on a picture or map

CHANCE

- give simple estimates of probability in terms of what will happen, might happen and won't happen

ARITHMETIC

- use the four operations with single digits using stimulus for multiplication and division
- add and subtract by counting on, partitioning and rearranging
- solve number problems involving whole numbers to 100

PRE-ALGEBRA

- solve simple number puzzles expressed in words or symbols

UNITS

- no formal units at this level

SHAPE

- recognise and classify basic shapes and solids using obvious features
- identify shapes that are the same, similar or different

DATA

- complete a basic table
- read a basic table with frequencies and tallies
- read a picture graph

ALGEBRA

not tested at this level.

MEASUREMENT

- read analog and digital clocks to the half hour

GEOMETRY

not tested at this level.

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PAPER A



NUMBER & ARITHMETIC

ALGEBRA & PATTERNS

MEASURES & UNITS

SPACE & GEOMETRY

CHANCE & DATA

Questions may require students to:

| | | | | |
|---|---|--|---|--|
| <p>NUMBER</p> <ul style="list-style-type: none"> count, order and compare whole numbers to 1000 place value of whole numbers to 1000 skip by 2s, 3s, 5s and 10s order and compare halves, quarters and eighths | <p>PATTERNS</p> <ul style="list-style-type: none"> continue simple linear patterns with numbers and shapes identify missing elements in a pattern | <p>MEASURES</p> <ul style="list-style-type: none"> informally measure and compare mass, length, area, volume and capacity order months and seasons read a calendar | <p>SPACE</p> <ul style="list-style-type: none"> give and follow directions identify relative position on a picture or map identify image after one-step flip, slide and half or quarter turns | <p>CHANCE</p> <ul style="list-style-type: none"> give simple estimates of probability in terms of likelihood |
| <p>ARITHMETIC</p> <ul style="list-style-type: none"> multiply and divide by single digits using repeated addition, arrays or groups solve simple addition and subtraction problems | <p>PRE-ALGEBRA</p> <ul style="list-style-type: none"> solve simple number puzzles expressed in words or symbols complete number sentences involving addition and subtraction | <p>UNITS</p> <ul style="list-style-type: none"> no formal units at this level | <p>SHAPE</p> <ul style="list-style-type: none"> describe 2-D and 3-D shapes identify shapes or solids that are the same or different | <p>DATA</p> <ul style="list-style-type: none"> classify data interpret lists, tables and picture graphs complete a basic table |
| | <p>ALGEBRA</p> <p>not tested at this level.</p> | <p>MEASUREMENT</p> <ul style="list-style-type: none"> read analog and digital clocks to the quarter hour | <p>GEOMETRY</p> <p>not tested at this level.</p> | |

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PAPER B



NUMBER & ARITHMETIC

ALGEBRA & PATTERNS

MEASURES & UNITS

SPACE & GEOMETRY

CHANCE & DATA

Questions may require students to:

| NUMBER | PATTERNS | MEASURES | SPACE | PROBABILITY |
|--|---|---|--|--|
| <ul style="list-style-type: none"> count, order and compare whole numbers to 10 000 understand place value of whole numbers to 10 000 recognise odd and even numbers | | <ul style="list-style-type: none"> estimate, order, measure and compare mass, length, and capacity | <ul style="list-style-type: none"> identify pathways and interpret grid maps for relative position identify axes of symmetry | <ul style="list-style-type: none"> count the number of arrangements of sets of objects and events |
| ARITHMETIC | PRE-ALGEBRA | UNITS | SHAPE | STATISTICS |
| <ul style="list-style-type: none"> solve problems involving unit fractions with denominators of 2, 3, 5 and 10 multiply and divide by 2, 3, 5 and 10 use informal factors and multiples of whole numbers to solve problems add and subtract to 100 | <ul style="list-style-type: none"> complete number sentences involving the four operations | <ul style="list-style-type: none"> use familiar metric units such as cm, m, km, g, kg, L and mL | <ul style="list-style-type: none"> identify nets and elevations of 3-D shapes | <ul style="list-style-type: none"> read and interpret bar charts, a range of common graphs and two-way tables |
| | ALGEBRA | MEASUREMENT | GEOMETRY | |
| | not tested at this level. | <ul style="list-style-type: none"> read analog and digital clocks calculate areas and perimeters using a grid | <ul style="list-style-type: none"> recognise angles as measures of turn order and compare angles | |

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PAPER C



| NUMBER & ARITHMETIC | ALGEBRA & PATTERNS | MEASURES & UNITS | SPACE & GEOMETRY | CHANCE & DATA |
|---|--|---|---|---|
| Questions may require students to: | | | | |
| NUMBER <ul style="list-style-type: none"> count, order and compare numbers from 0.01 to 100 000 understand place value of numbers from 0.01 to 100 000 count by halves, thirds, quarters, tenths and hundredths | PATTERNS <ul style="list-style-type: none"> sequence numbers in multiples of 2 to 10 | MEASURES <ul style="list-style-type: none"> use scaled instruments to measure and compare quantities, temperatures and lengths | SPACE <ul style="list-style-type: none"> use scale, legends and directions to interpret maps complete symmetrical patterns | PROBABILITY <ul style="list-style-type: none"> order likelihood of events recognise complementary and independent events |
| ARITHMETIC <ul style="list-style-type: none"> solve problems involving equivalent fractions convert decimals to fractions use all number facts to 100 | PRE-ALGEBRA <ul style="list-style-type: none"> solve complex number puzzles expressed in words | UNITS <ul style="list-style-type: none"> select appropriate metric units choose appropriate order of magnitude convert time | SHAPE <ul style="list-style-type: none"> informally compare areas of composite or irregular shapes | STATISTICS <ul style="list-style-type: none"> select and interpret data appropriate display interpret line graphs |
| | ALGEBRA not tested at this level. | MEASUREMENT <ul style="list-style-type: none"> compare areas and perimeters using a grid solve time problems involving am and pm | GEOMETRY compare angles less than 180° | |

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PAPER D



NUMBER & ARITHMETIC

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CHANCE & DATA

Questions may require students to:

NUMBER

- round numbers
- compare and order fractions and decimals and locate them on the number line

PATTERNS

- continue and describe patterns involving fractions, decimals and whole numbers

MEASURES

- convert metric units of length

SPACE

- connect 3-D objects with 2-D views and nets
- use grid reference and directional language
- identify line and rotational symmetry

PROBABILITY

- list sample space
- represent probabilities as fractions
- recognise probabilities lie between 0 and 1

ARITHMETIC

- use factors and multiples to solve problems
- solve problems involving long multiplication and division with remainders
- solve problems involving fractions, mixed numerals and whole numbers
- estimate products

PRE-ALGEBRA

- complete equivalent number sentences involving all four operations

UNITS

- choose and use appropriate metric units

SHAPE

STATISTICS

- interpret and compare column graphs, dot plots and tables

ALGEBRA

not tested at this level.

MEASUREMENT

- calculate areas and perimeters of rectangles
- convert 24-hour time

GEOMETRY

- measure and compare angles
- solve problems involving parallel and perpendicular lines

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| PAPER E | | | | |
|--|--|--|--|--|
| NUMBER & ARITHMETIC | ALGEBRA & PATTERNS | MEASURES & UNITS | SPACE & GEOMETRY | CHANCE & DATA |
| <p>Questions may require students to:</p> | | | | |
| <p>NUMBER</p> <ul style="list-style-type: none"> identify and apply properties of prime, composite, square and triangular numbers convert between fractions, decimals and percentages | <p>PATTERNS</p> <ul style="list-style-type: none"> continue a pattern of related fractions | <p>MEASURES</p> <ul style="list-style-type: none"> convert metric units of area and volume | <p>SPACE</p> <ul style="list-style-type: none"> apply combinations of transformations to an image use the cartesian plane to represent points | <p>PROBABILITY</p> <ul style="list-style-type: none"> represent probabilities as decimals and percentages compare experimental and expected frequencies |
| <p>ARITHMETIC</p> <ul style="list-style-type: none"> order integers solve problems involving order of operations including decimals and fractions add and subtract related fractions find fractions of whole numbers solve percentage problems such as discounts | <p>PRE-ALGEBRA</p> <ul style="list-style-type: none"> complete equivalent number sentences involving order of operations | <p>MEASUREMENT</p> <ul style="list-style-type: none"> calculate areas and perimeters of composite shapes including triangles interpret timetables | <p>GEOMETRY</p> <ul style="list-style-type: none"> apply angle properties including complementary, supplementary, vertically opposite angles and angles at a point solve problems involving the angle sum of a triangle | <p>STATISTICS</p> <ul style="list-style-type: none"> interpret and compare double column graphs interpret sector graphs |
| | <p>ALGEBRA</p> <p>not tested at this level.</p> | | | |



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PAPER F



NUMBER & ARITHMETIC

ALGEBRA & PATTERNS

MEASURES & UNITS

SPACE & GEOMETRY

CHANCE & DATA

Questions may require students to:

NUMBER

- use index notation
- represent numbers as product of primes
- find squares and square roots
- compare and order integers and unrelated fractions
- round decimals

PATTERNS

- continue patterns involving powers, integers and unrelated fractions

MEASURES

SPACE

- use simple bearings
- plot and identify co-ordinates in all four quadrants

PROBABILITY

ARITHMETIC

- use order of operations with integers and unrelated fractions
- solve ratio problems
- express one quantity as a percentage or fraction of another

PRE-ALGEBRA

MEASUREMENT

- use formulae to calculate areas of triangles and parallelograms
- calculate volumes of rectangular prisms

SHAPE

- classify and use properties of triangles and quadrilaterals

STATISTICS

- interpret and compare stem and leaf plots, and dot plots
- calculate mean, median, mode and range

ALGEBRA

- create and evaluate algebraic equations using substitution
- interpret authentic graphs and solve linear equations
- simplify expressions

GEOMETRY

- calculate angles between transversals and parallel lines
- use angle sum of quadrilaterals to solve problems

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PAPER G & H



NUMBER & ARITHMETIC

ALGEBRA & PATTERNS

MEASURES & UNITS

SPACE & GEOMETRY

CHANCE & DATA

Questions may require students to:

NUMBER

- apply index laws involving positive and zero indices
- convert terminating and recurring decimals to fractions

PATTERNS

- continue patterns involving recurring decimals

MEASURES

SPACE

PROBABILITY

- find probabilities of events involving 'and', 'or' and 'at least'

ARITHMETIC

- use order of operations with integers and rational numbers
- solve ratio and rates problems

ALGEBRA

- expand and simplify expressions
- factorise linear expressions
- solve linear equations graphically and algebraically
- change the subject of an equation

MEASUREMENT

- calculate areas and perimeters of a kite, rhombus and trapezium
- calculate circumference and areas of circles
- calculate volumes and surface areas of right prisms
- apply Pythagoras' Theorem to solve right-triangle problems

SHAPE

- use angle properties of shapes

STATISTICS

- interpret two-way tables and Venn diagrams
- recognise effect of outliers on measures of location and spread

GEOMETRY

- apply congruence conditions for triangles to solve problems
- use ratio and scale factor of similar figures
- apply angle sum of polygons to solve problems

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PAPER I & J



NUMBER & ARITHMETIC

ALGEBRA & PATTERNS

MEASURES & UNITS

SPACE & GEOMETRY

CHANCE & DATA

Questions may require students to:

| NUMBER | ALGEBRA | MEASURES | SPACE | PROBABILITY |
|---|---|--|---|--|
| <ul style="list-style-type: none"> apply index laws involving integer and fractional indices convert numbers to scientific notation | <ul style="list-style-type: none"> apply index laws to simplify expressions expand and simplify binomials substitute and rearrange to solve equation factorise quadratics calculate midpoints, distance and gradient solve linear inequalities and graph solution on number line solve linear simultaneous equations solve problems involving parallel and perpendicular lines graph transformations of parabolas, hyperbolae, polynomials and circles | <ul style="list-style-type: none"> solve problems with very small time scales and intervals | <ul style="list-style-type: none"> solve problems involving bearings, depression, elevation and area | <ul style="list-style-type: none"> use two-step probability with and without replacement calculate relative frequencies calculate probabilities involving 'and' and 'or' solve problems involving conditional probability |
| ARITHMETIC | | MEASUREMENT | GEOMETRY | STATISTICS |
| <ul style="list-style-type: none"> solve problems involving simple and compound interest operate on surds | | <ul style="list-style-type: none"> calculate areas of composite shapes calculate surface area and volume of cylinders, cones, spheres and right pyramids | <ul style="list-style-type: none"> use trigonometry to solve 3-D problems find unknown sides and angles using sine and cosine rules | <ul style="list-style-type: none"> interpret and compare back-to-back stem and leaf plots, and histograms compare displays using measures of location and spread interpret box plots and scatterplots identify quartiles describe distributions |

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