



## Beechfield Mathematics Assessment

### Nursery

#### Numbers

- Can you count to 10?
- Can you name some numbers?
- Do you know that numbers can identify the objects in a set?
- Can you represent numbers using your fingers, marks or pictures?
- Can you match numbers and quantities?
- Can you compare two groups of objects and say when they have the same number?
- Do you show interest in number problems?
- Can you separate groups of three and four objects in different ways?
- Do you know that anything can be counted?

#### Shape, Space and Measures

- Are you interested in shape and space?
- Are you aware of similarities in shapes?
- Can you use positional language? (Next, beside, on, in)
- Can you talk about shape?
- Are you interested in shape?

### Reception

#### Numbers

- Can you count to 20?
- Can you order numbers to 20?
- Can you say one more and one less than a number to 20?
- Can you add two single-digit numbers using objects?
- Can you subtract two single-digits numbers using objects?
- Can you solve problems using doubling?
- Can you solve problems using halving?
- Can you solve problems using sharing?

#### Shape, Space and Measures

- Can you talk about size?
- Can you talk about weight?
- Can you talk about capacity?
- Can you talk about direction?
- Can you talk about distance?
- Can you talk about time?
- Can you talk about money?
- Can you compare quantities?
- Can you compare objects?
- Can you recognise, create and describe patterns?
- Can you use mathematical language to describe objects and shapes?



## Beechfield Mathematics Assessment

### Year 1

#### Place Value

- Can you count forwards and backwards from any number to and beyond 100?
- Can you read and write numbers up to 100?
- Can you count in 2s, 5s and 10s to 100?
- Can you represent number in different ways?
- Can you talk about numbers using: equal to, more than, less (fewer) than, most, least
- Can you read and write the words from 1-20?

#### Addition and Subtraction

- Can you use the + - and = symbols?
- Can you represent and use number bonds and subtraction facts to 20?
- Can you add and subtract one and two-digit numbers up to 20?
- Can you solve 1-step problems? (using concrete and pictorial)
- Can you solve missing number problems? (using concrete and pictorial)

#### Multiplication and Division

- Can you solve one-step problems using 2s, 5s and 10s?

#### Fractions

- Can you recognise and find half and a quarter of an object, shape or quantity? (understand fractions as equal sharing)

#### Measurement

- Can you compare, describe and solve problems in:
  - Length and height? (*long/short, heavy/light, heavier than, lighter than*)
  - Mass and weight? (*heavy/light, heavier than, lighter than*)
  - Capacity and volume? (*full/empty, more than, less than, half, half full, quarter full*)
  - Time? (*quicker, slower, earlier, later*)
- Can you measure and record: length and height, mass and weight, capacity and volume, time (hours, minutes, seconds)?
- Can you tell me what this coin/note is?
- Can you sequence events in chronological order? (*before, after, next, today, yesterday, tomorrow, morning, afternoon, evening*)
- Can you talk about dates including days of the week, weeks, months and years?
- Can you tell them time to the hour and half past?
- Can you draw the hands on a clock face to show the hour and half past?

#### Geometry

- Can you recognise 2d shapes? Rectangles (including squares), circles and triangles
- Can you recognise 3d shapes? Cuboids, cubes pyramids and spheres
- Can you recognise these shapes in different orientations and that they don't always look the same?
- Can you describe position, direction and movement (whole, half, quarter and three-quarter turns, clockwise)



## Beechfield Mathematics Assessment

### Year 2

#### Number and Place Value

- Can you count in 2s, 3s and 5s from 0 forwards and backwards?
- Can you count in 10s from any number forwards and backwards?
- Can you tell me the value of each digit in a two-digit number?
- Can you identify and represent numbers in different ways?
- Can you compare and order numbers from 0 – 100?
- Can you use  $<$   $>$  and  $+$  to compare and order numbers from 0-100?
- Can you use what you know to solve problems?

#### Addition and Subtraction

- Can you solve a problem using addition and subtraction using numbers quantities and measures?
- Can you use concrete and pictorial representations to solve these problems?
- Can you tell me all of the addition and subtraction facts to 20?
- Can you use your number facts to 20 to solve calculations to 100?
- Can you add and subtract numbers (with concrete objects and pictorial representations) including; 2 digit and ones, 2 digit and tens, two 2 digit numbers, adding three 1 digit numbers?
- Can you show that you can add two numbers in any order to get the same answer? Do you understand why this does not work for subtraction?
- Can you use the inverse operation to check your answers to addition and subtraction calculations?
- Can you use the inverse operation to solve missing number problems?

#### Multiplication and Division

- Can you recall your multiplication and division facts or the 2, 5 and 10 times tables?
- Can you recognise odd and even numbers?
- Can you use  $\times$   $\div$  and  $=$  to write multiplication and division calculations?

#### Fraction

- Can you recognise, find, name and write fractions  $\frac{1}{3}$   $\frac{1}{4}$ ,  $\frac{3}{4}$   $\frac{2}{4}$  of a length, shape, set of objects or quantity?
- Can you write simple fractions eg  $\frac{1}{2}$  of  $6 = 3$ ?
- Can you recognise the equivalence of  $\frac{2}{4}$  and  $\frac{1}{2}$ ?

#### Measurement

- Can you choose the best unit of measurement to estimate and measure length, mass, temperature and capacity?
- Can you use a range of measuring equipment eg rulers, scales, thermometers and measuring containers accurately?
- Can you compare and order lengths, mass, volume, capacity using  $<$   $>$  and  $=$ ?
- Can you use  $\pounds$  and  $p$  to record amounts of money?
- Can you make totals of money using different combinations of coins?
- Can you use addition and subtraction skills to solve money problems including giving change?
- Can you compare and sequence time intervals?
- Can you tell and write the time to 5 minutes including quarter past/ quarter to?
- Do you know the number of minutes in an hour and number of hours in a day?

#### Geometry

- Can you identify and describe properties of 2D shapes, including the number of sides and the line of symmetry in a vertical line? (include quadrilaterals and polygons)
- Can you identify and describe properties of 3D shapes, including the number of edges, vertices and faces? (include prisms, cones and cuboids)
- Can you identify the 2D shapes on the surface of 3D shapes? Eg a circle on a cylinder or a triangle on a pyramid?
- Can you say what is the same and different between 2D and 3D shapes?
- Can you order and arrange mathematical objects in to patterns and sequences including shapes in different orientations?



## Beechfield Mathematics Assessment

Can you describe position, direction and movement? (include in a straight line forwards and backwards, rotation in angles eg quarter, half and three quarters)

### **Statistics**

Can you create and answer questions about pictograms, tally charts, block diagrams and simple tables?

Can you ask and answer questions by counting the number of objects in each category?

Can you find the total using a chart or table and compare sets of data?



## Beechfield Mathematics Assessment

### Year 3

#### Place Value

- Can you count from 0 in multiples of 4, 8, 50 and 100?
- Can you find 10 or 100 more or less than a given number?
- In a 3 digit number, what is the value of each digit?
- Can you compare and order numbers up to 1000?
- Can you identify, represent and estimate numbers using different representations?
- Can you read and write numbers up to 1000 in numerals and in words?
- Can you solve number problems and practical problems involving these ideas?
- Can you discuss the order and place value of numbers up to 1000?
- Can you round numbers up to the nearest 10?

#### Addition and Subtraction

- Can you mentally add and subtract:
  - a three-digit number and ones
  - a three-digit number and tens
  - a three-digit number and hundreds?
- Can you use partitioning and place value knowledge to calculate?
- Can you use the column method to add and subtract with numbers up to 3 digits?
- Can you estimate the answer to a calculation?
- Can you use the inverse to check an answer?
- Can you solve addition and subtraction problems using number facts and place value?

#### Multiplication and Division

- Can you recite all times tables up to 12?
- Can you connect times tables through doubling? (e.g. *the 8s are double the 4s*)
- Can you use your multiplication and division facts to solve larger calculations? (e.g.  $6 \times 3 = 18$  therefore  $60 \times 3 = 180$ )
- Can you solve up to  $2 \times 1$  digit multiplication using mental methods?
- Can you write multiplication statements (*using your times tables knowledge*)?
- Can you write division statements (*using your times tables knowledge*)?
- Can you solve missing number problems?
- Can you solve scaling problems? (*positive integer scaling*)
- Can you solve correspondence problems?

#### Fractions

- What is a tenth; what does it look like?
- Can you count up and down in tenths?
- Can you recognise, write and find fractions of objects? (Denominators up to 12)
- What is a fraction? (*recognised as parts of a whole, numbers, measurements, a shape, and unit fractions as a division of a quantity*)
- Can you recognise and draw equivalent fractions? (Denominators up to 12)
- Can you add and subtract fractions with the same denominator?
- Can you solve problems that require you to add and subtract fractions with the same denominator?
- Can you compare and order unit and non-unit fractions?
- Can you solve problems involving fractions? (Using all of the above)

#### Measurement

- Can you measure and compare lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)?
- Can you add and subtract measures involving lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)?
- Can you measure the perimeter of 2d shapes?
- Can you add and subtracts amounts of money using £ and p? (practical contexts)
- Can you tell the time on an analogue and a digital clock using 12 and 24 hours?
- Can you read Roman numerals from I – XIII when reading and telling the time?
- Can you estimate and read times to the nearest minute?
- Can you record and compare times using seconds, minutes and hours?
- Can you describe times of the day using: o'clock, a.m./p.m., morning, afternoon, noon and midnight?
- How many seconds are in a minute?



## Beechfield Mathematics Assessment

How many days are there in each month, year and leap year?

Can you compare the duration of different events?

### **Geometry**

Can you draw 2d shapes (symmetrical and non-symmetrical)?

Can you make 3d shapes using modelling materials?

Can you describe 2d and 3d shapes using correct vocabulary?

Can you recognise 3d shapes in different orientations and describe them?

What is an angle? (property of shape or description of a turn)?

What is a right angle?

How many right angles are in: half a turn, three quarters of a turn and a full turn?

What are acute and obtuse angles?

Can you identify horizontal and vertical lines?

Can you identify parallel and perpendicular lines?

### **Statistics**

Can you interpret and present data in tables, bar charts and pictograms?

Can you solve one and two step problems using this data?



## Beechfield Mathematics Assessment

### Year 4

#### Number and Place Value

- Can you count in multiples of 6, 7, 9, 25 and 1000?
- Can you find 1000 more or less of a given number?
- Can you count backwards through 0 with negative numbers?
- Can you recognise the place value of numbers with 4 digits?
- Can you order and compare numbers up to 9,999?
- Can you round numbers to the nearest 100 and 1000?
- Can you problem solve using number and place value? (*from above*)
- Can you identify Roman numerals up to 100?

#### Addition and Subtraction

- Can you add and subtract numbers with up to 4 digits mentally?
- Can you add and subtract numbers with up to 4 digits using the column method when it is necessary?
- Can you estimate answers to a calculation?
- Can you use the inverse to check your calculations?
- Can you solve addition and subtraction problems?
- Can you explain what method you have chosen to solve a problem and why?

#### Multiplication and Division

- Can you recall multiplication and division facts up to  $12 \times 12$  with speed?
- Can you use place value, known and derived facts to multiply and divide mentally? (*using up to 3 digit numbers, e.g.  $600 \div 3 = 200$  can be derived from  $2 \times 3 = 6$* )
- Can you multiply by 0 and 1?
- Can you divide by 1?
- Can you multiply together three numbers?
- Can you recognise and use factor pairs?
- Can you use commutativity in mental calculations?
- Can you multiply 2 and 3 digit numbers by a 1 digit number using the column method?
- Can you divide 3 digits numbers by 1 digit?
- Can you solve problems where you need to multiply and add?
- Can you multiply two digit numbers by one digit numbers? (*using distributive law*)
- Can you solve complex correspondence problems? (integer scaling)
- How is n connected to m? (correspondence)

#### Fractions

- Can you recognise and show (with diagrams) families of common fractions?
- Can you count up and down in hundredths?
- Can you count forwards and backwards using simple fractions?
- What do you have to divide an object by to find a hundredth?
- What do we divide tenths by to find one a hundredth?
- Can you solve problems involving calculating quantities and using fractions to divide quantities? (*include unit and non-unit fractions where the answer is a whole number*)
- Can you add and subtract fractions with the same denominator?
- Can you write decimal equivalents to any tenths or hundredths?
- Can you write decimals equivalent to  $1/4$ ,  $1/2$  and  $3/4$ ?
- What happens when you divide a one or two digit number by 10 and then 100? Can you identify the value of the digits in the answer? (*ones, tenths and hundredths*)
- Can you connect fractions, numbers and measures using a number line?
- Do you understand that fractions and decimals are different ways of showing numbers proportions?
- Can you round decimals to the nearest whole number (*only decimals with 1 decimal place*)
- Can you compare decimal numbers? (*numbers with the same decimal place up to 2 decimal places*)
- Can you solve measure and money problems with fractions and decimals? (*up to 2 decimal places*)

#### Measurement





## **Beechfield Mathematics Assessment**

Can you convert between different units of measure? (for example, kilometre to metre; hour to minute)

Can you measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres?

Can you find the area of rectilinear shapes by counting squares?

Can you link arrays to the area of a shape?

Can you estimate, compare and calculate different measures, including money in pounds and pence?

Can you read, write and convert time between analogue and digital 12- and 24-hour clocks?

Can you solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days?

Can you relate money to decimals?

### **Geometry - shape**

Can you name and classify geometric shapes, including quadrilaterals (parallelogram, rhombus, trapezium) and triangles (isosceles, equilateral, scalene), based on their properties and size?

Can you identify acute and obtuse angles?

Can you compare and order right angles (*up to two right angles*) by their size?

Can you identify lines of symmetry in 2d shapes (in different orientations)?

Can you draw the other side of a shape or figure from its line of symmetry?

Can you determine if a polygon is regular or irregular?

### **Geometry – position and direction**

Can you describe positions on a 2d grid as coordinates? (*in the first quadrant*)

Can you draw a pair of axes in the first quadrant with equal scales and integer labels?

Can you describe the translation of an object using 'up/down and left/right'?

Can you plot coordinates using ICT tools?

### **Statistics**

Can you understand and present data (continuous and discrete) in bar charts and line graphs?

Can you solve comparison, sum and difference problems using information presented in a range of graphs, charts and tables?





## Beechfield Mathematics Assessment

### Year 5

#### Number and Place Value

- Can you read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit?
- Can you count forwards or backwards in steps of powers of 10 for any given number up to 100,000?
- Where are negative numbers used in real life?
- Can you count forwards and backwards using negative numbers (including going through zero)?
- Can you round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000?
- Can you solve number and place value problems? (*using all of the above*)
- Can you read Roman numerals to 1000?
- Can you read years written in Roman numerals?

#### Addition and Subtraction

- Can you add and subtract numbers with more than 4 digits using the column method, including with exchanging/regrouping?
- Can you add and subtract numbers mentally (involving up to 5 digit numbers)?
- Can you use rounding to estimate and check an answer?
- Can you solve multi-step problems?
- Can you choose the appropriate method to solve a multi-step problem?

#### Multiplication and Division

- Can you identify multiples and factors?
- Can you find all factor pairs of a given number?
- Can you find common factors of two numbers?
- What is a prime/composite number?
- Can you identify prime factors?
- Do you know the prime numbers up to 19?
- Can you work out if a number is a prime number? (*up to 100*)
- Can you multiply up to 4 digit by 1 or 2 digit numbers using a formal method?
- Can you use long multiplication to multiply a number by a 2 digit number?
- Can you multiply and divide numbers mentally using known facts?
- Can you divide up to a 4 digit number by a 1 digit number using a formal method? (including with remainders)
- Can you multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000?
- Can you recognise and use square and cube number using the <sup>2</sup> and <sup>3</sup> symbols?
- Can you write equivalence statements using squares and cubes? (e.g.  $4 \times 35 = 2 \times 2 \times 35$ ;  $3 \times 270 = 3 \times 3 \times 9 \times 10 = 9^3 \times 10$ )
- Can you solve problems with multiplication and division using your knowledge of factors and multiples?
- Can you solve problems with multiplication and division using your knowledge of squares and cubes?
- Can you solve multiplication and division problems that include addition and subtraction? (different combinations of these)
- Can you solve multiplication and division problems that include scaling by simple fractions?
- Can you solve multiplication and division problems that include simple rates?
- Can you use the inverse to convert between units, e.g. km to m?

#### Fractions

- Can you compare and order fractions? (*denominators being multiples of the same number*)
- Can you identify, name and write equivalent fractions of a given fraction, represented visually? (*including tenths and hundredths*)
- Can you convert mixed numbers and mixed fractions? e.g.  $2/5 + 4/5 = 6/5 = 1 \frac{1}{5}$
- Can you add and subtract fractions with the same denominator?
- Can you add and subtract fractions with denominators that are multiples of the same number?



## Beechfield Mathematics Assessment

Can you multiply proper fractions and mixed numbers by whole numbers (using manipulatives and diagrams)?

Can you read and write decimal numbers as fractions? (e.g.  $0.71 = 71/100$ )

Can you use thousandths? (relating them to tenths and hundredths)

Can you mentally add and subtract tenths, and one-digit whole numbers and tenths?

Can you round decimals with 2 decimal places to the nearest whole number

What is meant by a percentage? Do you understand that fractions and decimals are different ways of expressing proportions?

Can you convert a percentage to a fraction? (with the denominator as 100)

Can you convert a percentage to a decimal?

Can you read, write and order numbers with up to 3 decimal places?

Can you solve problems using your knowledge of percentage and decimal equivalents? ( $1/2$ ,  $1/4$ ,  $1/5$ ,  $2/5$ ,  $4/5$  and those fractions with a denominator of a multiple of 10 or 25?)

Can you count in fractions or decimals on a number line, bridging through zero?

Can you add and subtract decimal numbers? (including complements of 1 e.g.  $0.83 + 0.17 = 1$ )

### Measurement

Can you convert between different measures? (*km and m, cm and m, cm and mm, g and kg, l and ml*)

Can you use approximate equivalences between metric units and common imperial units such as inches, pounds and pints?

Can you measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres?

Can you calculate and compare the area of rectangles (including squares)? (*use standard units,  $cm^2$  and  $m^2$* )

Can you estimate the area of irregular shapes?

Can you use  $1cm^3$  blocks to estimate volume?

Can estimate capacity?

Can you solve problems involving converting between units of time?

Can you use all four operations to solve problems involving measure? [*for example, length, mass, volume, money*] (*using decimal notation, including scaling*)

Can you answer missing measure problems using algebra? (e.g.  $4 + 2b = 20$  for a rectangle of sides 2 cm and b cm and perimeter of 20cm)

### Geometry - shape

Can you identify 3d shapes including cubes and other cuboids from 2d representations?

Can you estimate and compare acute, obtuse and reflex angles?

Can you draw a given angle? Can you draw a line to the nearest mm?

Can you measure a given angle with a protractor?

Can you identify angles at a point and one whole turn ( $360^\circ$ )?

Can you identify angles at a point on a straight line and  $1/2$  a turn (total  $180^\circ$ )?

Can you identify angles with other multiples of  $90^\circ$ ?

Can you use the properties of rectangles to find missing lengths and angles?

Can you distinguish between regular and irregular polygons using reasoning about equal sides and angles?

Can you find missing angles and solve problems involving this?

### Geometry – position and direction

Can you identify, describe and represent the position of a shape following a reflection? (*should be in lines that are parallel to the axes*)

Can you identify, describe and represent the position of a shape following a translation?

### Statistics

Can you solve comparison, sum and difference problems using information presented in a line graph?

Can you complete, read and interpret information in tables, including timetables?



## Beechfield Mathematics Assessment

### Year 6

#### Number and Place Value

Can you read, write, order and compare numbers up to 10 000 000? Can you determine the value of each digit?

Can you round any whole number to a required degree of accuracy?

Can you use negative numbers in real life problems? Can you calculate them across zero?

Can you solve problems using all of the above?

#### Addition, Subtraction, Division and Multiplication

Can you multiply 4 digit numbers by 2 digit numbers using the column method?

Can you divide 4 digit numbers by 2 digit numbers?

Can you interpret remainders as whole number remainders, decimals and fractions?

Can you divide 4 digit numbers by 2 digit numbers using short division and interpret remainders?

Can you perform mental calculations with mixed operations?

Can you identify common factors and common multiples?

Can you identify prime numbers?

Can you use brackets within calculations?

Can you use BODMAS to carry out calculations?

Can you solve addition and subtraction multi-step problems? Can you decide which is the best method to use and explain why?

Can you solve problems involving all 4 operations?

Can you use estimation to check answers to calculations?

#### Fractions

Can you use common factors to simplify fractions?

Can you use common multiples to express fractions in the same denomination?

Can you compare and order fractions with different denominators? (including fractions greater than 1)

Can you add and subtract fractions with different denominators and mixed fractions by finding equivalent fractions?

Can you multiply simple pairs of proper fractions? Can you write the answer in it's simplest form?

Can you show what multiplying fractions looks like visually?

Can you divide fractions by whole numbers?

Can make the link between fractions and decimals? Can you show equivalences between them?

Can you identify the value of each digit in decimal numbers with 3 decimal places?

Can you multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places?

Can you multiply one-digit numbers with up to two decimal places by whole numbers?

Can you use written division methods in cases where the answer has up to two decimal places?

Can you solve problems which require answers to be rounded?

Can you convert between decimals, percentages and fractions?

What happens to recurring decimals? (*round to 2DCP*)

#### Ratio and proportion

What is ratio? How can we represent it? (*bar model*)

How can we increase or decrease quantities to stay in the same ratio? (use contexts such

Can you use multiplication and division facts to solve missing values with ratio?

Can you use the notion a:b?

Can you solve problems involving calculating percentages?

Can you use percentages to compare values?

Can you solve problems involving scale factor?

Can you solve problems involving *unequal sharing and grouping*? (*using knowledge of fractions and multiples – e.g. 'for every egg you need three spoonfuls of flour', '3/5 of the class are boys'*)

Can you link knowledge of percentages and 360° to calculate angles in pie charts?



## Beechfield Mathematics Assessment

### Algebra

What is an equation? What is an unknown?

Can you use letters to represent unknowns? (*missing numbers, lengths, coordinates, angles*)

Can you use simple formulae?

What is the nth term?

Can you express a missing number problem using algebra?

Can you find pairs of numbers for an equation with 2 unknowns?

Can you find different possibilities for equations with 2 unknowns?

### Measurement

Can you solve problems involving the calculation and conversion of units of measure? (*using decimal notation up to three decimal places where appropriate*)

Can you use, read, write and convert between standard units?

Can you convert measurements of length, mass, volume and time from smaller to larger and vice versa? (*decimals up to 3dcp where necessary*)

Can you convert between miles and kilometres? Can you give approximate conversions?

Can shapes with the same area have different perimeters? (*and vice versa*)

Can you use formulae for area and volume of shapes?

Can you calculate the area of parallelograms and triangles?

Can you calculate, estimate and compare volume of cubes and cuboids? *using standard units, including cubic centimetres (cm<sup>3</sup>) and cubic metres (m<sup>3</sup>), and extending to other units [for example, mm<sup>3</sup> and km<sup>3</sup>]*

Can you add and subtract positive and negative numbers (using a number line)? (*for measures such as temperatures*)

### Geometry – Shape

Can you draw 2d shapes from given measurements and angles?

Can you describe 3d shapes?

Can you make nets for 3d shapes?

Can you classify geometric shapes based on their properties?

Can you find unknown angles in triangles, quadrilaterals and regular polygons?

Can you find unknown lengths and angles of shapes?

Can you identify the radius, diameter and circumference in circles?

Can you find missing angles? (*at a point, on a straight line or vertically opposite*)

Can you use algebra to show missing values?

### Geometry – Position and Direction

Can you describe positions on a full coordinate grid? (4 quadrants)

Can you draw and translate simple shapes in quadrants and reflect them in the axes?

Can you draw and label rectangles (including squares), parallelograms and rhombuses, specified by coordinates in the four quadrants?

Can you predict missing coordinates using the properties of shapes? (*could be expressed using algebra*)

### Statistics

Can you interpret and construct a pie chart?

Can you solve problems with pie charts?

Can you calculate the mean?

Can you solve problems using a range of tables and graphs?