# Year 4

# Mathematics

# Non-Negotiables

- Count backwards through zero to include negative numbers.
- Compare and order numbers beyond 1000.
- Compare and order numbers with 2 decimal places.
- Read Roman numerals to 100.
- Find 1000 more/less than a given number.
- Count in multiples of 6, 7, 8, 9, 25 & 1000.
- Recall and use multiplication and division facts all tables to 12x12.
- Recognise place value of any 4-digit number.
- Round any number to the nearest 10, 100 or 1000.
- Round decimals with 1decimal place (dp) to nearest whole number.

**Add and subtract:**
- Numbers with up to 4-digits using efficient written method (column).
- Numbers with up to 1dp.

**Multiply:**
- 2-digit by 1-digit
- 3-digit by 1-digit

**Divide:**
- 3-digit by 1-digit

- Count up/down in hundredths.
- Write equivalent fractions
- Add and subtract fractions with same denominator.
- Read, write and convert time between analogue and digital 12 and
- 24 hour clocks.

The following 3 pages suggest a planning outline for delivering the non-negotiables in classrooms..
There should be some element of teaching of these each day.

| Year 4<br>Arithmetic<br>Non-Negotiables | |
|---|---|
| **Autumn Term** | |
| **1st Half Term** | **2nd Half Term** |
| • Count on/back in steps of 2s, 3s, 4s 5s, 8s, 10s, 6s and 9s ( through zero to include negative numbers)<br>• Recall the 2, 3, 4, 5, 8 and 10 times tables and the derived division facts<br>• Count on/back in multiples of 6 and 9 from 0<br>• Count on/back in 25s, 50s, 100s from 0 to 5000 and in 1000s from 0 to 10,000 and beyond<br>• Find 10/100/1000 more or less than a given number beyond 1000<br>• Read and write all numbers to at least 10,000 in both numerals and words<br>• Partition 4 digit numbers (thousands, hundreds, tens and ones)<br>• Partition in different ways<br>• Order a set of numbers (4 and/or 5 ) to 10,000 and beyond in increasing and decreasing value<br>• Compare numbers up to 10,000 and beyond using =, <, > symbols<br>• Round numbers up to 10,000 to the nearest 10, 100 or 1000<br>• Count in tenths, read and write numbers with 1 decimal place and compare numbers with one decimal place<br>• Add/subtract: 3-digit and 1-digit numbers, a 3-digit number and tens and a 3-digit number and hundreds, combinations of 2 and 3 digit numbers<br>• Find complements to 100 and to 1000 and recall addition and subtraction facts for 100 and 1000 (e.g. 37 + 63 = 100, 63 + 37 = 100, 100 – 37 = 63, 100 – 63 = 37, 530 + 470 = 1000)<br>• Double any number up to 100; double any multiple of 50 up to 500 and halve any number up to 200 | • Count on/back in steps of 2s, 3s, 4s 5s, 8s, 10s<br>• Count on/back in multiples of 6 and 9 from 0<br>• Recall the 2, 3, 4, 5, 6, 8 and 10 times tables and the derived division facts<br>• Count on/back in 25s, 50s, 100s from 0 to 5000 and in 1000s from 0 to 10,000 and beyond<br>• Find 10/100/1000 more or less than a given number beyond 1000<br>• Read and write all numbers to at least 10,000 in both numerals and words<br>• Order a set of numbers (4 and/or 5 ) to 10,000 and beyond in increasing and decreasing value<br>• Compare numbers up to 10,000 and beyond using =, <, > symbols<br>• Round numbers up to 10,000 to the nearest 10, 100 or 1000<br>• Count in tenths, hundredths, read and write numbers with up to 2 decimal places and compare numbers with the same number of decimal places up to 2 decimal places<br>• Add/subtract: 3-digit and 1-digit numbers, a 3-digit number and tens and a 3-digit number and hundreds, combinations of 2 and 3 digit numbers<br>• Count on/back in $\frac{1}{2}$s , $\frac{1}{4}$s , 1/3s , 1/10s and other unit fractions including on a number line<br>• Find complements to 100 and to 1000 and recall addition and subtraction facts for 100 and 1000 (e.g. 37 + 63 = 100, 63 + 37 = 100, 100 – 37 = 63, 100 – 63 = 37, 530 + 470 = 1000) |

# Year 4
# Arithmetic
# Non-Negotiables

## Spring Term

| 1st Half Term | 2nd Half Term |
|---|---|
| • Count on/back in steps of 2s, 3s, 4s 5s, 8s, 10s, 6s, 9s<br>• Recall the 2, 3, 4, 5, 6, 8, 9 and 10 times tables and the derived division facts<br>• Count on/back in multiples of 7 from 0<br>• Count on/back in 25s, 50s, 100s from 0 to 10,000 and in 1000s from 0 to 10,000 and beyond<br>• Find 10/100/1000 more or less than a given number beyond 5000<br>• Read and write all numbers to at least 10,000 in both numerals and words<br>• Partition 4 digit numbers (thousands, hundreds, tens and ones) Partition in different ways<br>• Order a set of numbers (4 and/or 5) to 50,000 and beyond in increasing and decreasing value<br>• Compare numbers up to 50,000 and beyond using =, <, > symbols<br>• Round numbers up to and beyond 10,000 to the nearest 10, 100 or 1000<br>• Count in tenths, hundredths, read and write numbers with up to 2 decimal places and compare numbers with the same number of decimal places up to 2 decimal places<br>• Add/subtract: 3-digit and 1-digit numbers, a 3-digit number and tens and a 3-digit number and hundreds, combinations of 2 and 3 digit numbers<br>• Find complements to 100 and to 1000 and recall addition and subtraction facts for 100 and 1000 (e.g. 37 + 63 = 100, 63 + 37 = 100, 100 – 37 = 63, 100 – 63 = 37, 530 + 470 = 1000) | • Count on/back in steps of 2s, 3s, 4s 5s, 8s, 10s, 6s, 9s<br>• Recall the 2, 3, 4, 5, 6, 8, 9 and 10 times tables and the derived division facts<br>• Count on/back in multiples of 7 from 0<br>• Count on/back in 25s, 50s, and 100s from 0 to 10,000 and in 1000s from 0 to 10,000 and beyond<br>• Count in tenths, hundredths, read and write numbers with up to 2 decimal places and compare numbers with the same number of decimal places up to 2 decimal places<br>• Find 10/100/1000 more or less than a given number beyond 5000<br>• Read and write all numbers to at least 10,000 in both numerals and words<br>• Order a set of numbers (4 and/or 5) to 50,000 and beyond in increasing and decreasing value<br>• Compare numbers up to 50,000 and beyond using =, <, > symbols<br>• Round numbers up to and beyond 10,000 to the nearest 10, 100 or 1000<br>• Add/subtract: 3-digit and 1-digit numbers, a 3-digit number and tens and a 3-digit number and hundreds, combinations of 2 and 3 digit numbers<br>• Count on/back in $\frac{1}{2}$s , $\frac{1}{4}$s , 1/3s , 1/10s and other unit fractions including on a number line<br>• Find complements to 100 and to 1000 and recall addition and subtraction facts for 100 and 1000 (e.g. 37 + 63 = 100, 63 + 37 = 100, 100 – 37 = 63, 100 – 63 = 37, 530 + 470 = 1000) |

# Year 4
# Arithmetic
# Non-Negotiables

## Summer Term

| 1st Half Term | 2nd Half Term |
|---|---|
| • Count on/back in steps of 2s, 3s, 4s 5s, 8s, 10s, 6s, 9s, 7s<br>• Recall the 2, 3, 4, 5, 6, 7, 8, 9 and 10 times tables and the derived division facts<br>• Multiply and divide numbers mentally using place value and known facts including multiplying by 1 and 0 and dividing by 1<br>• Count on/back in 25s, 50s, and 100s from 0 to 10,000 and in 1000s from 0 to 10,000 and beyond<br>• Count in tenths, hundredths, read and write numbers with up to 2 decimal places and compare numbers with the same number of decimal places up to 2 decimal places<br>• Find 10/100/1000 more or less than a given number up to 10,000<br>• Read and write all numbers to at least 10,000 in both numerals and words<br>• Partition 4 and begin to partition 5 digit numbers (thousands, hundreds, tens and ones) Partition in different ways<br>• Order a set of numbers (4 and/or 5)up to 100,000 in increasing and decreasing value<br>• Compare numbers up to 100,000 using =, <, > symbols<br>• Round numbers up to 50,000 to the nearest 10, 100 or 1000<br>• Add/subtract: 3-digit and 1-digit numbers, a 3-digit number and tens and a 3-digit number and hundreds, combinations of 2 and 3 digit numbers<br>• Find complements to 100 and to 1000 and recall addition and subtraction facts for 100 and 1000 (e.g. 37 + 63 = 100, 63 + 37 = 100, 100 – 37 = 63, 100 – 63 = 37, 530 + 470 = 1000) | • Count on/back in steps of 11 and 12<br>• Recall the 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 and 12 times tables and the derived division facts<br>• Multiply and divide numbers mentally using place value and known facts including multiplying by 1 and 0 and dividing by 1<br>• Multiply together three numbers by using place value and known facts<br>• Partition 4 and begin to partition 5 digit numbers<br>• Count on/back in 25s, 50s, and 100s from 0 to 10,000 and in 1000s from 0 to 10,000 and beyond<br>• Count in tenths, hundredths, read and write numbers with up to 2 decimal places and compare numbers with the same number of decimal places up to 2 decimal places<br>• Find 10/100/1000 more or less than a given number beyond 10,000<br>• Read and write all numbers to at least 10,000 in both numerals and words<br>• Order a set of numbers (4 and/or 5) to 100,000 and beyond in increasing and decreasing value<br>• Compare numbers up to 100,000 and beyond using =, <, > symbols<br>• Round numbers up to and beyond 100,000 to the nearest 10, 100 or 1000<br>• Add/subtract: 3-digit and 1-digit numbers, a 3-digit number and tens and a 3-digit number and hundreds, combinations of 2 and 3 digit numbers<br>• Count on/back in $\frac{1}{2}$s , $\frac{1}{4}$s , 1/3s , 1/10s and other unit fractions including on a number line<br>• Find complements to 100 and to 1000 and recall addition and subtraction facts for 100 and 1000 (e.g. 37 + 63 = 100, 63 + 37 = 100, 100 – 37 = 63, 100 – 63 = 37, 530 + 470 = 1000) |

# YEAR 4 : AUTUMN 1: Overview and Teaching Steps

| WEEK 1 | WEEK 2 | WEEK 3 | WEEK 4 | WEEK 5 | WEEK 6 |
|---|---|---|---|---|---|
| **1 Place Value Negative Numbers** | **2 Place Value** | **1 Addition & Subtraction** | **2 Addition & Subtraction** | **1 Geometry Shape** | **1 Measures Time** |
| Count backwards through zero to include negative numbers | Count in multiples of 6, 7, 9, 25 and 1000. | Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction, where appropriate. | Estimate and use inverse operations to check answers to a calculation. | Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes. | Read, write & convert time between analogue and digital 12- and 24-hour clocks. |
| ➢ Know that the value of any negative number is less than 0<br>➢ Know which of two negative numbers is greater<br>➢ Know which of two negative numbers is smaller<br>➢ Count accurately forwards from any negative number to any positive number, moving across 0<br>➢ Count accurately backwards from any positive number to any negative number, moving across 0<br>➢ Order a set of negative and positive numbers showing smallest to largest<br>➢ Order a set of negative and positive numbers showing largest to smallest | ➢ Count on and back in 1000s from 0 to 10,000<br>➢ Count on and back in 10s from any given multiple between 0 and 10,000<br>➢ Count on and back in 100s from 0 to 10,000<br>➢ Count on and back in 50s from 0 to 1000 starting at any given multiple<br>➢ Count on and back in 25s from 0 to 1000 starting at any given multiple<br>➢ Count on and back in 9s from 0 to 1000 starting at any given multiple<br>➢ Count on in 8s from 0 to 1000 starting at any given multiple<br>➢ Count on in 7s from 0 to 1000 starting at any given multiple<br>➢ Count on in 6s from 0 to 1000 starting at any given multiple. | ➢ Add numbers with 4-digits without exchanging<br>➢ Add numbers with 4-digits where the total of hundreds, tens or ones exceed 10<br>➢ Subtract a number from a 4-digit number which requires no exchanging<br>➢ Subtract a number from a 4-digit number where exchanging is required | ➢ Estimate the answer to any given addition involving two 2-digit numbers to the nearest 10.<br>➢ Estimate the answer to any given addition involving two 3-digit numbers to the nearest 100.<br>➢ Estimate the answer to any given addition involving two 3-digit numbers to the nearest 10.<br>➢ Estimate the answer to any given subtraction involving two 2-digit numbers to the nearest 10.<br>➢ Estimate the answer to any given subtraction involving two 3-digit numbers to the nearest 100.<br>➢ Estimate the answer to any given subtraction involving two 3-digit numbers to the nearest 10.<br>➢ Explain the term 'inverse' and exemplify with an example.<br>➢ Check the answer to any calculation with 2 and 3 digit numbers using the inverse. | ➢ Sort shapes according to their properties using correct vocabulary<br>➢ Draw and classify shapes based on given criteria, then sort | ➢ Know how to set out each analogue time in digital format<br>➢ Know how to set out each digital time in analogue format.<br>➢ Convert between analogue and digital and vice versa<br>➢ Explain how the digital clock system works, e.g. 10 past 2 in the afternoon = 2:10pm = 14:10. |

# YEAR 4 : AUTUMN 2: Overview and Teaching Steps

| WEEK 1 | WEEK 2 | WEEK 3 | WEEK 4 | WEEK 5 | WEEK 6 |
|---|---|---|---|---|---|
| **1 Multiplication & Division - Mental** | **2 Multiplication & Division** | **3 Multiplication & Division** | **2 Measures Perimeter** | **1 Statistics** | **Consolidate and Assess** |
| Recall multiplication and division facts for tables up to 12x12. | Recognise and use factor pairs and commutativity in mental calculations. | Multiply 2-digit and 3-digit numbers by a 1-digit number using formal written layout. | Measure and calculate the perimeter of a rectilinear figure (including squares) in cm and m. | Interpret and present discrete and continuous data using appropriate graphical methods, including:<br>- bar charts<br>- time graphs | Start this week by revising the learning covered in the Autumn term so as to ensure pupils are fluent and secure with their basic skills.<br><br>Use a simple assessment process to check on pupils' confidence and consistency in using the learning outlined in the Autumn term.<br><br>Analyse the results and use information to help focus the intervention and pre-teaching sessions, as needed, for the following term. |
| ➢ Count in 6s; forward and backwards.<br>➢ Recite the x6 tables up to x12, without error.<br>➢ Answer any calculation involving x6, out of order.<br>➢ Know that 2x6 is the same as 6x2 etc.<br>➢ Answer any calculation involving ÷6, out of order.<br>➢ Count in 7s; forward and backwards.<br>➢ Recite the x7 table up to x12, without error.<br>➢ Answer any calculation involving x7, out of order.<br>➢ Know that 3x7 is the same as 7x3 etc.<br>➢ Answer any calculation involving ÷7, out of order.<br>➢ Count in 9s; forward and backwards.<br>➢ Recite the x9 table up to x12, without error.<br>➢ Answer any calculation involving x9, out of order.<br>➢ Know that 4x9 is the same as 9x4 etc.<br>➢ Answer any calculation involving ÷9, out of order.<br>➢ Recall multiplication facts for all tables up to 12x12 out of order<br>➢ Recall division facts for all tables up to 12x12 out of order | ➢ Explain the term 'factor pair'.<br>➢ Know all the factors within all numbers to 10.<br>➢ Work out all the factors of any number to 144.<br>➢ Know the term 'square number' and recall all square numbers associated with numbers 1 – 144. | ➢ Multiply a multiple of 100 by a single-digit number mentally, using 2, 3, 4, 5, 6, 7, 8 and 9x.<br>➢ Multiply a 2-digit number by a single digit number using 2, 3, 4, 5, 6, 7, 8, 9x.<br>➢ Multiply a 3-digit number by a single digit number using 2, 3, 4, 5, 6, 7, 8, 9x. | ➢ Know the formula for calculating the perimeter of a rectangle (2 x length plus 2 x breadth)<br>➢ Know that the perimeter of an irregular shape can be calculated by adding the length of each individual side together | ➢ 'Tell the story' of a bar chart with no scales on the axes<br>➢ 'Tell the story' of a bar chart with scales on the axes<br>➢ 'Tell the story' of a time graph with no scales on the axes<br>➢ 'Tell the story' of a time graph with scales on the axes<br>➢ Construct a bar chart with correct labelling of both axes<br>➢ Plot information on a time graph | |

# YEAR 4 : SPRING 1: Overview and Teaching Steps

| WEEK 1 | WEEK 2 | WEEK 3 | WEEK 4 | WEEK 5 | WEEK 6 |
|---|---|---|---|---|---|
| **3 Place Value Roman Numerals** | **1 Fractions** | **2 Fractions** | **2 Geometry Position and Direction** | **3 Measures Area** | **4 Multiplication & Division** |
| Read Roman numerals to 100 and understand that over time, the numeral system changes to include the concept of zero and place value. | Recognise and show, using diagrams, families of common equivalent fractions. | Add and subtract fractions with the same denominator. | Describe positions on a 2D grid as coordinates in the first quadrant | Find the area of rectilinear shapes by counting squares. | Divide 2-digit and 3-digit numbers by a 1-digit number using formal written layout with no remainder. |
| ➢ Read Roman numerals from 1 to 10<br>➢ Read Roman numerals to 50<br>➢ Read Roman numerals to 100<br>➢ Write Roman numerals from 1 to 10<br>➢ Write Roman numerals to 50<br>➢ Write Roman numerals to 100 | ➢ Know all equivalent fractions of 1/2 up to and including the denominator 12<br>➢ Know all equivalent fractions of 1/4 up to and including the denominator 12<br>➢ Know all equivalent fractions of ¾ up to and including the denominator 12<br>➢ Know all equivalent fractions of 1/3 up to and including the denominator 12<br>➢ Know all equivalent fractions of 2/3 up to and including the denominator 12 | ➢ Add two fractions with the same denominator that add up to more than one whole.<br>➢ Subtract one fraction from another with the same denominator crossing one whole. | ➢ Read coordinates using both axes<br>➢ Plot points using both axes<br>➢ Answer questions involving coordinates<br>➢ Create shapes by plotting points in first quadrant | ➢ Count squares to identify the area of a shape.<br>➢ Draw shapes of a given size, e.g. 20 squares.<br>➢ Introduce the term square centimetre/cm$^2$<br>➢ Use the formula for calculating the area of a rectilinear shape (l x b) | ➢ Divide a multiple of 10 by a single digit number using 2, 3, 4, 5, 6, 7, 8, 9x with no remainder.<br>➢ Divide a 2-digit number by a single digit number using 2, 3, 4, 5, 6, 7, 8, 9x with no remainder.<br>➢ Divide a 3-digit number by a single digit number using 2, 3, 4, 5, 6, 7, 8, 9x with no remainder. |

# YEAR 4 : SPRING 2: Overview and Teaching Steps

| WEEK 1 | WEEK 2 | WEEK 3 | WEEK 4 | WEEK 5 | WEEK 6 |
|---|---|---|---|---|---|
| **5 Multiplication & Division** | **4 Place Value** | **3 Addition & Subtraction** | **3 Geometry 2D Shape** | **6 Multiplication & Division - Decimals** | **Consolidate and Assess** |
| Use place value, known and derived facts to multiply and divide mentally, including multiplying by 0 and 1; multiplying three numbers together. | Find 1000 more or less than a given number. | **Consolidate**<br>Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate. | -Identify lines of symmetry in 2D shapes presented in different orientations.<br>- Complete a simple symmetric figure with respect to a specific line of symmetry | Find the effect of multiplying a number with up to 2 decimal places by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths. | Start this week by revising the learning covered in the Autumn and Spring terms so as to ensure pupils are fluent and secure with their basic skills.<br><br>Use a simple assessment process to check on pupils' confidence and consistency in using the learning outlined in the Autumn and Spring terms.<br><br>Analyse the results and use information to help focus the intervention or pre-teaching sessions, as needed, for the following term. |
| ➢ Use all table facts up to 12x12 in calculations involving multiplication and division.<br>➢ Know what happens when multiplying by 0 or 1.<br>➢ Know what happens when dividing by 1.<br>➢ Know what happens when three numbers are multiplied together. | ➢ Find 100 more than any 3 digit number<br>➢ Find 100 less than any 3 digit number<br>➢ Find 100 more than any 4 digit number<br>➢ Find 100 less than any 4 digit number<br>➢ Find 1000 more than any 4 digit number<br>➢ Find 1000 less than any 4 digit number<br>➢ Find 1000 more than any 2 digit number<br>➢ Find 1000 more than any 3 digit number | ➢ Add numbers with 4-digits without exchanging<br>➢ Add numbers with 4-digits where the total of hundreds, tens or ones exceed 10<br>➢ Subtract a number from a 4-digit number which requires no exchanging<br>➢ Subtract a number from a 4-digit number where exchanging is required | ➢ Define and show understanding of symmetry<br>➢ Show lines of symmetry in an equilateral or isosceles triangle (in different orientations)<br>➢ Show lines of symmetry in a quadrilateral (in different orientations)<br>➢ Show lines of symmetry in circle<br>➢ Create simple symmetrical figures and show lines of symmetry<br>➢ Recognise lines of symmetry in given shapes | ➢ Multiply any number with up to 2 decimal places by 10 and express the answer using tenths.<br>➢ Multiply any number with up to 2 decimal places by 100 and express the answer using tenths and hundredths. | |

# YEAR 4 : SUMMER 1: Overview and Teaching Steps

| WEEK 1 | WEEK 2 | WEEK 3 | WEEK 4 | WEEK 5 | WEEK 6 |
|---|---|---|---|---|---|
| **5 Place Value** | **3 Fractions** | **4 Fractions** | **4 Measures Length/ Mass/ Capacity/Time** | **4 Geometry Position & Direction** | **5 Fractions** |
| Compare and order numbers beyond 1000 | Find the effect of dividing a 1-digit or 2-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths. | Count up and down in hundredths; recognise that hundredths arise from dividing an object into 100 equal parts and in dividing numbers or quantities by 100. | Convert between different units of measure (e.g. km to m; hr to min) | -Describe positions on a 2D grid as coordinates in the first quadrant<br>- Describe movements between positions as translations of a given unit to the left/right and up/down<br>- Plot specified points and draw sides to complete given polygon | -Recognise and write decimals equivalents of any number of tenths or hundredths<br>- Recognise and write decimal equivalents to ¼, ½ and ¾. |
| ➢ Know which number in a set of 4 digit numbers is the greatest<br>➢ Know which number in a set of 4 digit numbers is the smallest<br>➢ Order a set of 4 digit numbers from smallest to largest<br>➢ Order a set of 4 digit numbers from largest to smallest | ➢ Divide any 2 digit number by 10 and express the answer using tenths.<br>➢ Divide any 2 digit number by 100 and express the answer using tenths and hundredths. | ➢ Count up in hundredths starting at zero<br>➢ Count back in hundredths to zero<br>➢ Count up in hundredths starting at any 'hundredth number'<br>➢ Count back in hundredths starting at any 'hundredth number'<br>➢ Know that hundredths arise from dividing an object, quantity or number into 100 equal parts<br>➢ Place factions (hundredths) in order – ascending and descending. | ➢ Revise relationships between measures: 1000m = 1km; 100cm = 1m; 10mm = 1cm<br>➢ Revise relationships between measures: 1000g = 1kg<br>➢ Revise relationships between measures: 60 min = 1 hour; 60 secs = 1 min; 12 months = 1 year<br>➢ Solve problems involving conversion between units of measure<br>➢ Express a distance of more than 1km in m<br>➢ Express a distance of more than 1cm in mm<br>➢ Express a mass of more than 1kg in g<br>➢ Express a volume of more than 1l in ml<br>➢ Express the passing of time of more than 1 hour in minutes<br>➢ Express the passing of time of more than 1 minute in seconds. | ➢ Read coordinates using both axes<br>➢ Plot points using both axes<br>➢ Answer questions involving coordinates<br>➢ Create shapes by plotting points in first quadrant<br>➢ Explain a change in a given position by the movement made along the axes of the quadrant<br>➢ Use numbered axes to plot points to form a polygon<br>➢ Describe the properties of the polygon | ➢ Know that 1/10 = 0.1 [for each tenth value]<br>➢ Know that 1/100 = 0.01 [for each hundredth value]<br>➢ Know that 0.25 = ¼<br>➢ Know that 0.5 = ½<br>➢ Know that 0.75 = ¾ |

# YEAR 4 : SUMMER 2: Overview and Teaching Steps

| WEEK 1 | WEEK 2 | WEEK 3 | WEEK 4 | WEEK 5 | WEEK 6 |
|---|---|---|---|---|---|
| **6 Place Value** | **2 Statistics** | **4 Addition & Subtraction** | **6 Fractions Decimals** | **5 Geometry** | **Consolidate and Assess** |
| Round any number to the nearest 10, 100 or 1000 | Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs | Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. | Round decimals with one decimal place to the nearest whole number.<br>Compare numbers with the same number of decimal places up to two decimal places. | Identify acute and obtuse angles and compare and order angles up to two right angles by size. | Start this week by revising the learning covered in Year 4 so as to ensure pupils are fluent and secure with their basic skills.<br><br>Use a simple assessment process to check on pupils' confidence and consistency in using the learning outlined in Year 4.<br><br>Analyse the results and use information to help focus the pre-teaching sessions, as needed, for the following term. |
| ➢ Round any number up to 100 to the nearest 10<br>➢ Round any number up to 1000 to the nearest 10<br>➢ Round any number up to 1000 to the nearest 100<br>➢ Round any number up to 10,000 to the nearest 1000 | ➢ Compare information in bar charts to answer questions<br>➢ Solve addition problems using information in bar charts to answer questions<br>➢ Solve difference problems using information in bar charts to answer questions<br>➢ Compare information in pictograms to answer questions<br>➢ Solve addition problems using information in pictograms to answer questions<br>➢ Solve difference problems using information in pictograms to answer questions<br>➢ Compare information in tables to answer questions<br>➢ Solve addition problems using information in tables to answer questions<br>➢ Solve difference problems using information in tables to answer questions | ➢ Solve two-step problems using addition to 1000.<br>➢ Solve two-step problems with subtraction to 1000.<br>➢ Solve two-step problems using addition and subtraction to 1000. | ➢ Round a number with one decimal place to nearest whole number.<br>➢ Given 3 numbers with one decimal place, place in order (smallest to largest and vice versa).<br>➢ Given 5 numbers with one decimal place, place in order (smallest to largest and vice versa).<br>➢ Given 3 numbers with two decimal places, place in order (smallest to largest and vice versa).<br>➢ Given 5 numbers with two decimal places, place in order (smallest to largest and vice versa). | ➢ Know that an angle smaller than a right angle is known as an acute angle<br>➢ Know that an angle larger than a right angle is known as an obtuse angle<br>➢ Identify and describe an acute angle<br>➢ Identify and describe an obtuse angle<br>➢ Compare and order angles by size | |

## Autumn 2: Week 3: Pre-Learning Task

The pre-learning task below could be used to assess pupils' starting points within this objective. It needs to be completed by all/ or some of the pupils in advance of the main teaching.

Name

Autumn 2: Week 3

| **Objective: Multiplication & Division** | Multiply 2-digit and 3-digit numbers by a 1-digit number using formal written layout. | | | |
|---|---|---|---|---|
| 25<br>x 6 | 75<br>x 7 | | 26<br>x 9 | 56<br>x 7 |
| 137<br>x 8 | 429<br>x 9 | | 257<br>x 8 | 290<br>x 6 |
| 320<br>x 10 | 167<br>x 11 | | 269<br>x 10 | 365<br>x 11 |

# Autumn 2: Week 3: Practice and Consolidation

**Multiplication & Division:** Multiply 2-digit and 3-digit numbers by a 1-digit number using formal written layout.

## Teaching Sequence

- Multiply a multiple of 100 by a single-digit number mentally, using 2, 3, 4, 5, 6, 7, 8 and 9x.
- Multiply a 2-digit number by a single digit number using 2, 3, 4, 5, 6, 7, 8, 9x.
- Multiply a 3-digit number by a single digit number using 2, 3, 4, 5, 6, 7, 8, 9x.

## Oral and Mental Activities: Examples:

- Remind pupils about multiplying by 10 and show what happens when you multiply by 100.
- Create a quick fire answer system to multiplying by 100.
- Show a card with a single or two-digit number on and get pupils to multiply number by 100 and to respond as quickly as possible.
- Set out, using the columnar system, a multiplication of a 2-digit number by x2; x3; x4; x5; x6; x7; x8; or x9
- Move on to demonstrate the multiplication of a 3-digit number by a single digit.

## Pencil and Paper Activities Examples:

Multiply the following numbers by 10:

67 23 156 89 256 12 489 236 452

Multiply the following numbers by 100:

12 231 476 76 239 100 123 360 147 89

Ensure that the following are completed using the columnar method of multiplication.

| | | | |
|---|---|---|---|
| 23 x 9 | 123 x 7 | 237 x 6 | 167 x9 |
| 356 x 7 | 401 x 9 | 602 x 8 | 154 x 7 |
| 157 x 10 | 126 x 11 | 125 x 12 | 327 x 11 |

**Card Game**

Make up 25 cards with 2 and 3-digit numbers on them.
Show your friend one at a time and see how quickly s/he can multiply by 10 or multiply by 100.
Time him or her for one minute and see how many they get right. Then swap places.

# Autumn 2: Week 3: Mastering this Objective – Deeper Understanding

**Multiplication & Division:** Multiply 2-digit and 3-digit numbers by a 1-digit number using formal written layout.

## Teaching Sequence

- Multiply a multiple of 100 by a single-digit number mentally, using 2, 3, 4, 5, 6, 7, 8 and 9x.
- Multiply a 2-digit number by a single digit number using 2, 3, 4, 5, 6, 7, 8, 9x.
- Multiply a 3-digit number by a single digit number using 2, 3, 4, 5, 6, 7, 8, 9x.

## If pupils have mastered this objective they will be able to complete these activities independently:

Complete these by using the columnar method of multiplication:

| | | |
|---|---|---|
| 562 x 8 | 765 x 9 | 892 x 7 |
| 483 x 6 | 284 x 8 | 501 x 9 |

**Find the missing digit:**

6 ☐ x 7 = 483

58 ☐ x 8 = 4,648

2 ☐ 9 x 9 = 2,151

6 ☐ 4 x 5 = 3270

**How close can you get?**

☐☐☐ X 7

Using the digits 3, 4 and 6 in the calculation above, how close can you get to 4500?

What is the largest product you can make?

What is the smallest product you can make?

Put the cards into the correct place in the table.

| | | | |
|---|---|---|---|
| 5 x 7 | 8x 3 | 10 x 2 | 9 x 6 |
| 11 x 5 | 7 x 7 | 5 x 7 | 8 x 4 |

| Less than 40 | Between 40 and 50 | More than 50 |
|---|---|---|
| | | |

# Autumn 2: Week 3: Working at greater depth

**Multiplication & Division:** Multiply 2-digit and 3-digit numbers by a 1-digit number using formal written layout.

## Teaching Sequence

- Multiply a multiple of 100 by a single-digit number mentally, using 2, 3, 4, 5, 6, 7, 8 and 9x.
- Multiply a 2-digit number by a single digit number using 2, 3, 4, 5, 6, 7, 8, 9x.
- Multiply a 3-digit number by a single digit number using 2, 3, 4, 5, 6, 7, 8, 9x.

## Activities for pupils working at greater depth:

### Electric Bill

The electric bill for a house was £875 per year.
However, after putting in energy saving bulbs the bill was reduced to £58 per month.

- Work out how much the electricity bill now is.
- Find out how much money they saved on the electric after switching to energy saving bulbs.

### Sum and the Product

The sum of two numbers is 32 and their product is 192.
What are the two numbers?

The sum of two numbers is 23 and their product is 112.
What are the two numbers?

### Football Stickers

Aleem has 8 times more football stickers than Jo.
Together they have 81.
How many stickers does each one have?
Explain how you reasoned this out.

Now try this one:
Harry has 4 times more marbles than Jill.
Together they have 55 marbles.
How many has each got?

### Monthly payments

A mother decided to pay £75 each month towards all her Christmas presents.
At the end of the year she was told that she had saved £60 too much.

How much did all her Christmas presents cost?

How much could she have paid each month so that she had the right amount?

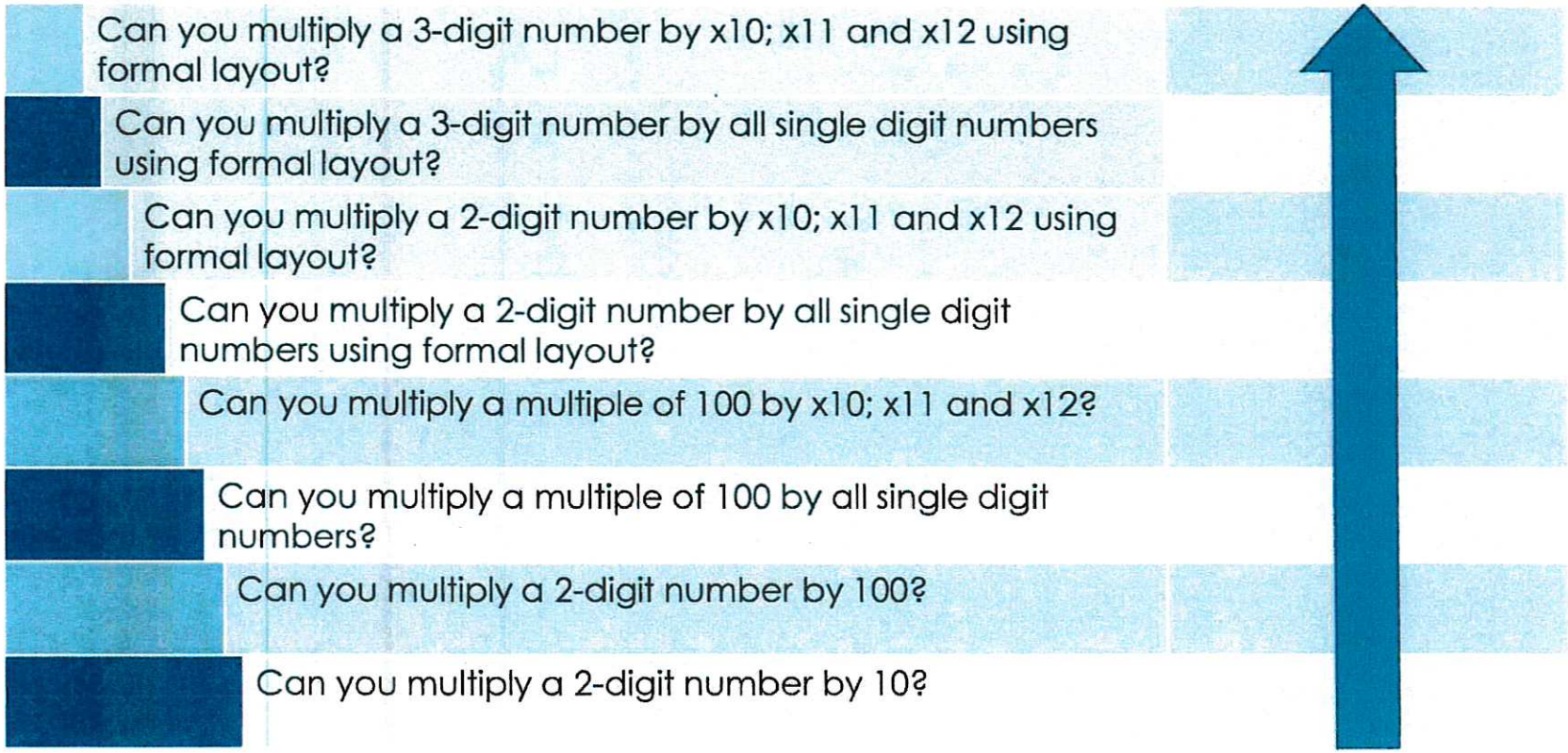
# Autumn 2: Week 3: Assessment

The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils' books so that they can keep their own checks.

**Multiplication & Division:** Multiply 2-digit and 3-digit numbers by a 1-digit number using formal written layout.

Me

My Teacher



## Spring 2: Week 4: Pre-Learning Task

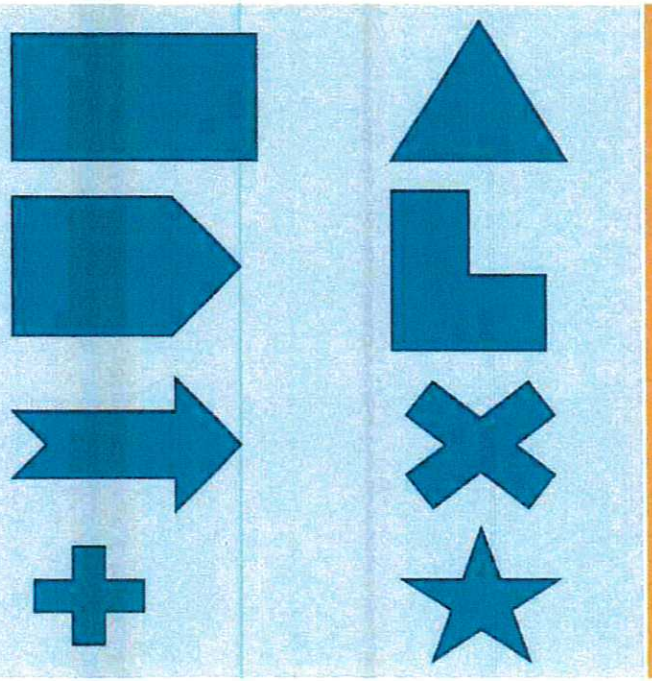
The pre-learning task below could be used to assess pupils' starting points within this objective. It needs to be completed by all/ or some of the pupils in advance of the main teaching.

Name

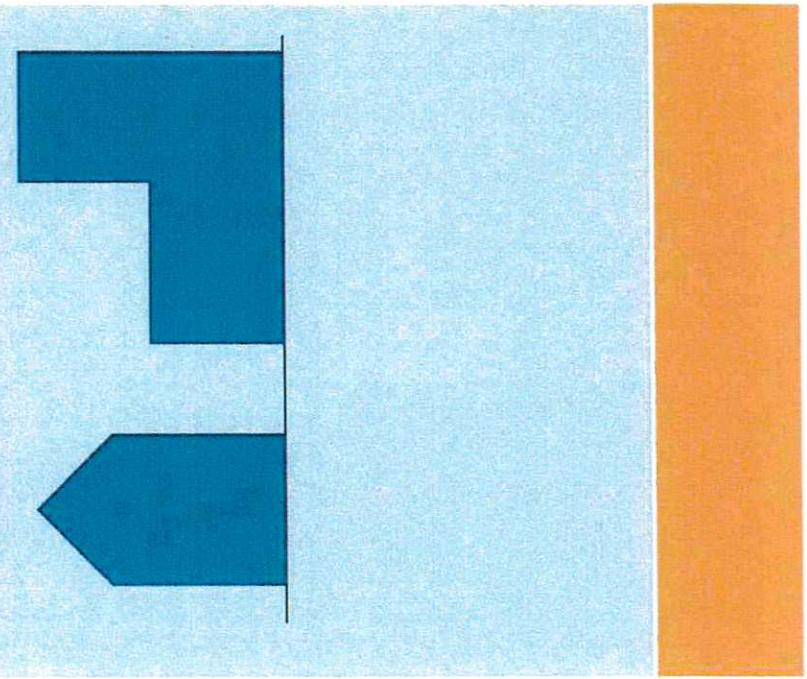
Spring 2: Week 4

| | |
|---|---|
| **Objective: Geometry** | **2D Shape:** -Identify lines of symmetry in 2D shapes presented in different orientations.<br>- Complete a simple symmetric figure with respect to a specific line of symmetry |

Show the lines of symmetry in the shapes shown below:

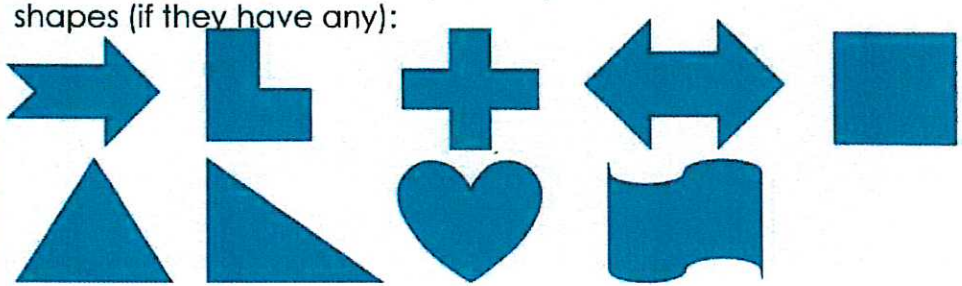
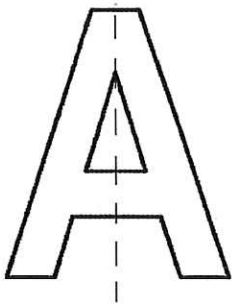


Complete the figures by looking at the line being the line of symmetry



# Spring 2: Week 4: Practice and Consolidation

**Geometry: 2D Shape:** -Identify lines of symmetry in 2D shapes presented in different orientations.
- Complete a simple symmetric figure with respect to a specific line of symmetry

| Teaching Sequence | Oral and Mental Activities: Examples: | Pencil and Paper Activities Examples: |
|---|---|---|
| ➢ Define and show understanding of symmetry<br>➢ Show lines of symmetry in an equilateral or isosceles triangle (in different orientations)<br>➢ Show lines of symmetry in a quadrilateral (in different orientations)<br>➢ Show lines of symmetry in circle<br>➢ Create simple symmetrical figures and show lines of symmetry<br>➢ Recognise lines of symmetry in given shapes | • Focus on the term 'symmetry' and talk about its origin.<br>• Let pupils fold paper and then hold the folded line and cut at the 'open' end and then open to see their symmetrical shape.<br>• Do a similar activity using paints to create a symmetrical effect.<br>• Show some of the regular shapes we know and get pupils to look at where their lines of symmetry are. | Use folded paper to create symmetrical effect.<br>Do so by folding once and then by folding twice.<br>Now use paint to create a more creative example.<br><br>Mark clearly all the lines of symmetry associated with these shapes (if they have any):<br>  <br>Given half a shape – complete the other side.<br>  <br>The example here is of the letter 'A'.<br>Fold a paper in half and draw on one side of the paper and get your partner to reflect the shape on the other side creating a symmetrical shape.<br>Then, swap over. |

# Spring 2: Week 4: Mastering this Objective – Deeper Understanding

**Geometry: 2D Shape:** -Identify lines of symmetry in 2D shapes presented in different orientations.
- Complete a simple symmetric figure with respect to a specific line of symmetry

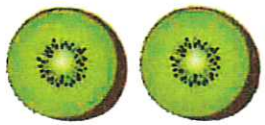
## Teaching Sequence

- Define and show understanding of symmetry
- Show lines of symmetry in an equilateral or isosceles triangle (in different orientations)
- Show lines of symmetry in a quadrilateral (in different orientations)
- Show lines of symmetry in circle
- Create simple symmetrical figures and show lines of symmetry
- Recognise lines of symmetry in given shapes

## If pupils have mastered this objective they will be able to complete these activities independently:

**Symmetry in Nature**

Find as many examples of symmetrical patterns in nature that you can see or can find out about.



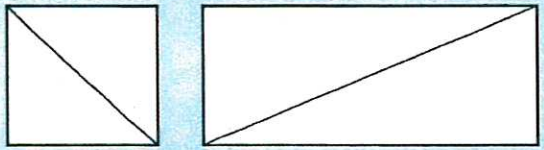
**Symmetrical Shapes**

Draw a 2D shape that has no more than one line of symmetry.

Draw a 2D shape that has 2 lines of symmetry.

Draw a 2D shape that has more than 2 lines of symmetry.

Are these both lines of symmetry?



If not, why not?

Explain your reasoning.

**Human Face**

Many human faces are almost perfectly symmetrical. Take a photograph of yourself, print it out and fold in half.

Glue the half in to your maths book and draw as accurately as you can the other half.

# Spring 2: Week 4: Working at greater depth

**Geometry: 2D Shape:** -Identify lines of symmetry in 2D shapes presented in different orientations.
- Complete a simple symmetric figure with respect to a specific line of symmetry

## Teaching Sequence

- Define and show understanding of symmetry
- Show lines of symmetry in an equilateral or isosceles triangle (in different orientations)
- Show lines of symmetry in a quadrilateral (in different orientations)
- Show lines of symmetry in circle
- Create simple symmetrical figures and show lines of symmetry
- Recognise lines of symmetry in given shapes

## Activities for pupils working at greater depth:

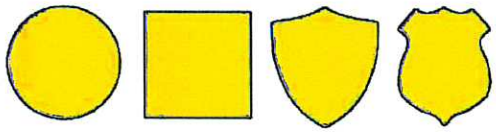
| | |
|---|---|
| A | B |
| C | D |

Create a shape in Segment A. Start with a line which starts from the top of the vertical line in segment A and ends at the horizontal line between A and C.

Reflect into segment B creating a symmetry. Then reflect A into C, creating another symmetry.
Finally, reflect from B to D.

Make your design as interesting as you can.

**Create a school logo.**
It must have at least one line of symmetry. It must also relate to the school in some way.
You could start with one of these shapes.



**Symmetry in Nature**
Make up a reference book showing all symmetrical patterns in nature.

Use photographs you have taken or pictures you have downloaded from the Internet.
You should group your examples, using subheadings like animals, insects, leaves, etc.

# Spring 2: Week 4: Assessment

The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils' books so that they can keep their own checks.

**Geometry: 2D Shape:** -Identify lines of symmetry in 2D shapes presented in different orientations.
- Complete a simple symmetric figure with respect to a specific line of symmetry

| | Me | My Teacher |
|---|---|---|
| Can you create simple symmetrical figures and show lines of symmetry? | | |
| Do you understand about lines of symmetry within a circle? | | |
| Can you show lines of symmetry in a square and rectangle in different orientations? | | |
| Can you show lines of symmetry in a square and rectangle? | | |
| Can you show lines of symmetry in an equilateral or isosceles triangle? | | |
| Can you explain what the term symmetry is? | | |

# Summer 2: Week 2: Pre-Learning Task

The pre-learning task below could be used to assess pupils' starting points within this objective. It needs to be completed by all/ or some of the pupils in advance of the main teaching.

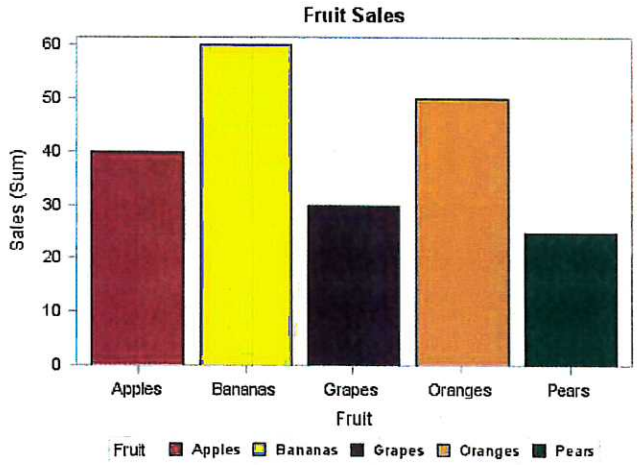
Name

Summer 2: Week 2

**Objective: Statistics**

Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs

Look at the bar chart below which shows the sales of different fruit on a Sunday.




How many apples were sold?
What is the difference between the most popular fruit and the least popular fruit?

Look at the pictogram below. This shows pupils' favourite sport in a London school.

| | |
|---|---|
| RUGBY | 8 |
| NETBALL | 8 |
| TENNIS | 4 |
| HOCKEY | 2 |
| SOCCER | 6 |

= 20

How many pupils chose hockey?
How many more pupils favour netball over tennis?
How many prefer rugby to soccer?

# Summer 2: Week 2: Practice and Consolidation

**Statistics:** Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs

## Teaching Sequence

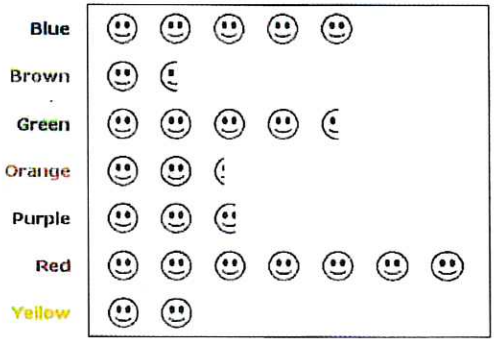
- Compare information in bar charts to answer questions
- Solve addition problems using information in bar charts to answer questions
- Solve difference problems using information in bar charts to answer questions
- Compare information in pictograms to answer questions
- Solve addition problems using information in pictograms to answer questions
- Solve difference problems using information in pictograms to answer questions
- Compare information in tables to answer questions
- Solve addition problems using information in tables to answer questions
- Solve difference problems using information in tables to answer questions

## Oral and Mental Activities: Examples:

- Have three charts ready (could be on IWB).
- The three charts are a bar chart; pictogram and table giving the same information.
- Explain to the pupils how they differ and get them to consider which is their favourite and why.
- Help pupils to think of a range of questions they could ask related to the information on the charts.
- Take particular care to talk about the scales along the axes.

## Pencil and Paper Activities Examples:

100 students chose favourite colour




Each ☺ stands for four students.

Look at the information on the pictogram.
How many students favoured red over brown?
How many students chose brown, yellow or purple?
How many students chose orange?
Which were the three most favoured colours, in order?
Which were two least popular?

| | Males | Females | Total Participants |
|---|---|---|---|
| Baseball | 29 | 0 | 29 |
| Basketball | 14 | 14 | 28 |
| Cross Country | 16 | 18 | 34 |
| Lacrosse | 35 | 19 | 54 |
| Soccer | 29 | 24 | 53 |
| Swimming | 29 | 33 | 62 |
| Tennis | 10 | 10 | 20 |
| Track and Field | 34 | 23 | 57 |
| Wrestling | 37 | 0 | 37 |
| Softball | 0 | 16 | 16 |
| Volleyball | 0 | 16 | 16 |

This table tells you about students' favourite sports at university.
Which sport was favourite?
What is the difference between those that favoured lacrosse and tennis?
Which sports proved to be most popular with males?

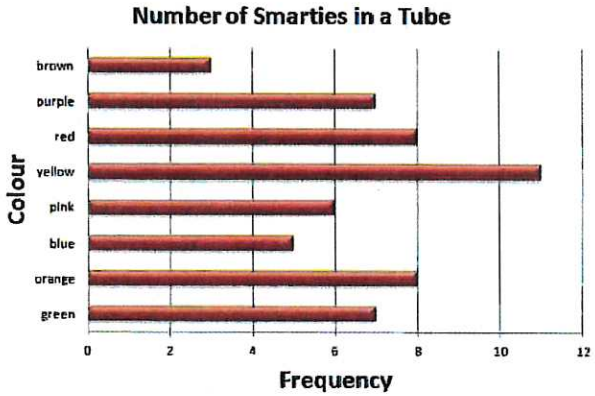
# Summer 2: Week 2: Mastering this Objective – Deeper Understanding

**Statistics:** Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs

## Teaching Sequence

- Compare information in bar charts to answer questions
- Solve addition problems using information in bar charts to answer questions
- Solve difference problems using information in bar charts to answer questions
- Compare information in pictograms to answer questions
- Solve addition problems using information in pictograms to answer questions
- Solve difference problems using information in pictograms to answer questions
- Compare information in tables to answer questions
- Solve addition problems using information in tables to answer questions
- Solve difference problems using information in tables to answer questions

## If pupils have mastered this objective they will be able to complete these activities independently:




**Smarties in the tube**

Which colour is most frequently seen in a Smarties tube?

Is this for all Smarties tubes? How could you find out?

If you put all the yellow, red and orange Smarties together do they make up more than all the rest put together?

Do you think the bar chart would be the same if the subject was 'The favourite Smarties colour of the children in your class'?

| Age (years) | Height (cm) |
|---|---|
| 1 | 75 |
| 2 | 86 |
| 3 | 91 |
| 4 | 99 |
| 5 | 105 |
| 6 | 110 |
| 7 | 117 |
| 8 | 121 |

**Height chart**

What is this table telling you?

Between which two years do you grow most?

Between which two years do you grow the least?

How much do you typically grow between the ages of 1 and 7?

Thinking of height, create a table, bar chart or pictogram related to information you collect about people's height.

Present your information in the best possible way and think of a range of questions to ask someone who looks at it.

# Summer 2: Week 2: Working at greater depth

**Statistics:** Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs

## Teaching Sequence

- Compare information in bar charts to answer questions
- Solve addition problems using information in bar charts to answer questions
- Solve difference problems using information in bar charts to answer questions
- Compare information in pictograms to answer questions
- Solve addition problems using information in pictograms to answer questions
- Solve difference problems using information in pictograms to answer questions
- Compare information in tables to answer questions
- Solve addition problems using information in tables to answer questions
- Solve difference problems using information in tables to answer questions

## Activities for pupils working at greater depth:

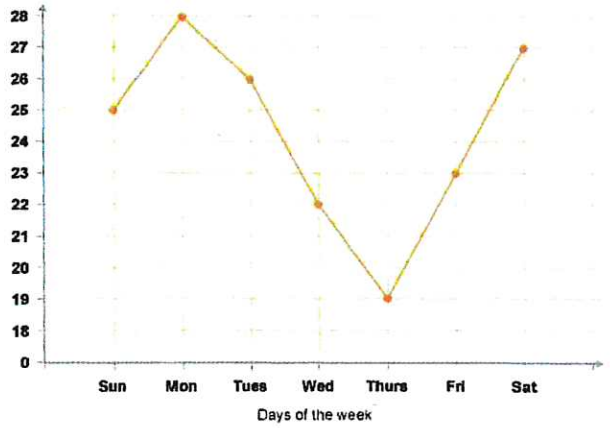
**Percentages of mobile phone owners using various mobile phone features**

| | 2006 | 2008 | 2010 |
|---|---|---|---|
| Make calls | 100 | 100 | 99 |
| Take photos | 66 | 71 | 76 |
| Send & receive text messages | 73 | 75 | 79 |
| Play games | 17 | 42 | 41 |
| Search the Internet | no data | 41 | 73 |
| Play music | 12 | 18 | 26 |
| Record video | no data | 9 | 35 |

Look at the information above about how people have changed their uses of mobile phones.
In 2006 and 2008 all mobile phone owners used the phones to make calls.
In 2006 two-thirds of owners used the phone to take photographs.
Look carefully at the information and list three things that you have learnt.
Why do you think very few people seemed to play games or play music on their mobile phones in 2006?
Why has the percentage using the internet shot upwards in the last few years?

### What's it all about?

Look at the information contained within the graph below.
What do you think is being measured?
Consider that whatever is being measured is done on a daily basis for one week.
Try and come up with a plausible suggestion as to what this is all about.
There are no right or wrong answers but your explanation needs to fit the graph.



## Summer 2: Week 2: Assessment

The grid below helps to identify the journey pupils make towards mastering this objective. It can be used by the teacher to keep an on-going check on progress or more likely placed in the pupils' books so that they can keep their own checks.

| **Statistics:** Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs | Me | My Teacher |
|---|---|---|
| Can you solve problems in relation to bar charts, pictograms or tables? | | |
| Can you answer questions related to sum or difference in relation to bar charts, pictograms or tables? | | |
| Can you read a table accurately? | | |
| Can you read a pictogram accurately with scales on the axes? | | |
| Can you read a pictogram accurately with no scales on the axes? | | |
| Can you read a bar chart accurately with scales on the axes? | | |
| Can you read a bar chart accurately with no scales on the axes? | | |