Exemplification for Year 5 Expected Standard in Mathematics

Key Performance Indicators for Moderation

The year 5 mathematics moderation document exemplifies key performance indicators of the expected standard in mathematics at year 5. It is not a planning or assessment tool as it does not cover the entire year 5 programme of study.

It should be used to support the moderation of teacher judgements when assessing the extent to which a child has demonstrated the expected standard for year 5 through the application of these indicators in a range of problem solving situations.

Thank you to everyone involved from Nottingham City primary schools in the production of these materials.

Exemplification for Year 5 Expected Standard in Mathematics

Key Performance Indicators for Moderation

Number and Place Value

Reads, writes, orders, compares and rounds numbers up to at least 1,000,000 and determines the value of each digit

a) 302,456 → $\boxed{300,000}$ $\boxed{400,000}$

b) 745,900 → $\boxed{700,000}$ $\boxed{800,000}$
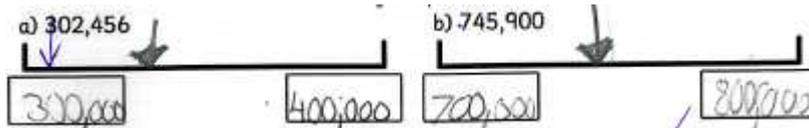
Places	Population	to the nearest 100,000
Iceland	317,900	300,000
Bahamas	346,000	300,006
Malta	416,333	400,000
Samoa	179,000	200,000
Maldives	314,000	300,000
Solomon Islands	536,000	500,000
Guyana	761,000	800,000
Cyprus	801,851	800,000
Fiji	854,000	900,000

Write in figures forty thousand and twenty

A car costs more than £8600 but less than £9100. Tick the prices that the car might cost.

£8569 □ £9090 □ £9130 □ £8999□

Interprets negative numbers in context, counts forwards and backwards with positive and negative whole numbers, including through zero

3) −6, −4, −2, 0, 2, 4 6 ✓

4) 14, −10, −6, −2, 2, 6, 10 ✓

5) 5, 3 1, −1, −3, −5, −7 ✓

6) 8, 6, 4, 2, 0, −2, −4 ✓
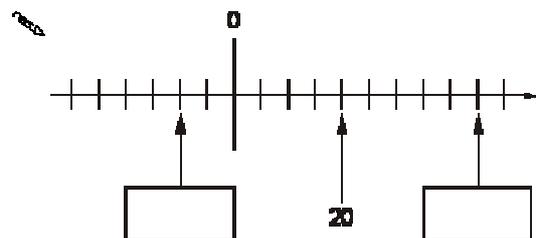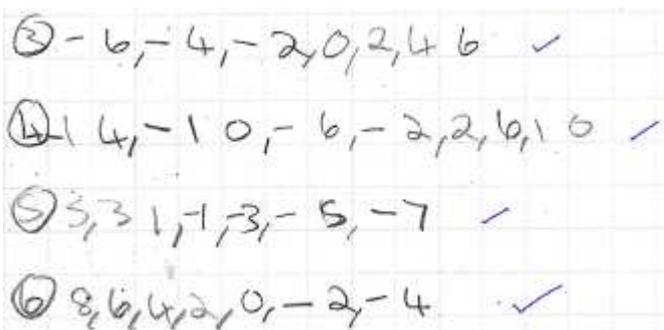
Addition and Subtraction

Adds and subtracts whole numbers with more than 4 digits, including using formal written methods (column)

1) $4\,756{,}1 + 7\,46\,5.8 = 12{,}221{,}9$ ✓

1) $2531.73 + 4687.75 = 11219.48$ ✓

2) $866.3 - 354.5 = 511.8$ ✓

4) $645.9 - 536.6 = 109.3$ ✓

6432 + ☐ = 8025

```
   3  4  6  ☐
+  4  ☐  2  8
----------------
   7  8  ☐  2
```

Solves addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why

The table shows the number of 'hits' on a website for Sunday and Monday.

How many more people visited the website on Sunday than Monday?

Day of the week	am	pm
Sunday	36,432	57,478
Monday	19,758	24,642

1) Sunday
$36{,}432 + 57{,}478 = 93{,}910$ ✓

2) Monday
$19{,}758 + 24{,}642 = 44{,}400$ ✓

$93{,}910 - 44{,}400 = 49{,}510$

13 502 people were at the match last week and there are 2483 more this week. How many more people need to attend to bring the total to the club's target of 20 000 people?

Multiplication and Division

Identifies multiples and factors, including finding all factor pairs of a number, and common factors of two numbers

Use the vocabulary factor, multiple and product. Identify all the factors of a given number; for example, the factors of 20 are 1, 2, 4, 5, 10 and 20.

Find some numbers that have a factor of 4 and a factor of 5. What do you notice?

My age is a multiple of 8. Next year my age will be a multiple of 7. How old am I?

Multiplies numbers up to 4 digits, by a one or two-digit number using a formal written method, including long multiplication for two-digit numbers

```
  3 6 ☐ 7
  X   6
  ─────────
2 ☐ 8 8 2
```

A can of coke costs 69p

If I buy 14 cans, how much money would I have spent?

Divides numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders

Six slices of ham weigh 252g. What does one slice weigh?

186 cakes are shared between 7 children. How many cakes do they each receive?

Solves problems involving multiplication and division

In a supermarket storeroom there are:

7 boxes of tomato soup
5 boxes of pea soup
4 boxes of chicken soup
There are **24 tins** in every **box**.
How many **tins** of soup are there **altogether**?

# Fractions (including decimals and percentages)

Compares and orders fractions whose denominators are all multiples of the same number

Which fraction is the odd one out? Explain how you know

$$\frac{3}{5} \qquad \frac{9}{12} \qquad \frac{6}{10} \qquad \frac{12}{20}$$

Adds and subtracts fractions with the same denominator and denominators that are multiples of the same number
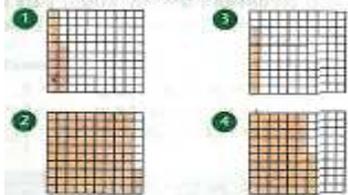
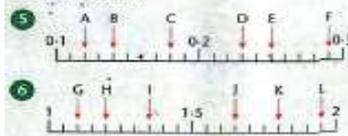Use the cards to make the calculation correct

$\frac{1}{2}$ $1\frac{1}{2}$ 2 $2\frac{1}{2}$ $3\frac{1}{2}$
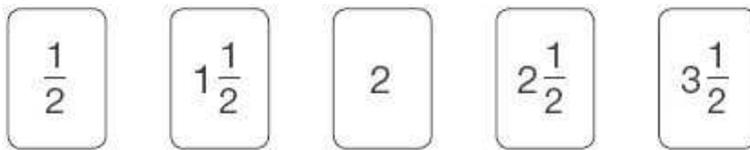
$$\left(\boxed{} + \boxed{} \right) \times \boxed{} = 10$$

Reads and writes decimal numbers as fractions

Express the shaded part of each diagram as a fraction and as a decimal fraction.

① ② ③ ④

Write each number shown by the arrows as a decimal fraction.

⑤ A B C D E F
0·1   0·2   0·3

⑥ G H I J K L
1   1·5   2

① $\frac{6}{100} = 0.16$ ✓

② $\frac{43}{100} = 0.93$ ✓

③ $\frac{8}{100} = 0.08$ ✓

④ $\frac{65}{100} = 0.65$ ✓

Reads, writes, orders and compares numbers with up to 3 decimal places

Write these numbers in order of size, starting with the smallest.

1.01, 1.001, 1.101, 0.11

Put the correct symbol, < or >, in each box   3.03☐3.3

0.37 ☐ 0.327

Solves problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5, 4/5 and those fractions with a denominator of a multiple of 10 or 2

Which is bigger: 65% or ¾? How do you know?

In a bag of 48 sweets. ¼ are orange, 50% are red and the rest are green

How many sweets are green?

Which is a better mark in a test: 61%, or 30 out of 50? How do you know?

Measurement

Converts between different units of metric measures (km and m; cm and m; cm and mm; g and kg; litre and ml)

☑ Write a word problem involving length conversion.
The length of the classroom is 12.3m wide
how wide is it in cm?
12.3 = 1230

Tom needs 267cm of string. It is only sold in whole metres.

How many metres does he need to buy?

Megan wants to fill a bucket with water.
A bucket holds 6 litres.
A jug holds 500 millilitres.

How many jugs of water does Megan need to fill an empty bucket?

Calculates and compare the area of rectangles

①
```
      9
  x  4.6
  4 1.4 Km²  ✓
      9
```

③
```
    2 0
  x  1 1
  2 2 0 m²  ✓
```

②
```
      1 0
  x  2 4.6
  2 4 6.0 m²  ✓
      4 6
```

Which has the greatest area – a square with sides 6 cm long or a rectangle which is 7 cm long by 5 cm? How much greater is the area?

**Solves problems involving converting between units of time**

Kirsty ran a race in one and a half minutes.
Mina took 10 seconds longer.
How many **seconds** did Mina take to run the race?

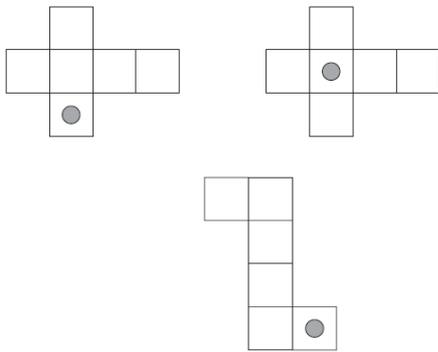| Tom	Seb	Fiona	Cari	Aamina
15.9	12.7	13.1	14.5	15.2

Five children ran the 100m race. Who came second in the race?

Geometry – properties of shapes

Identifies 3-D shapes, including cubes and other cuboids, from 2-D representations
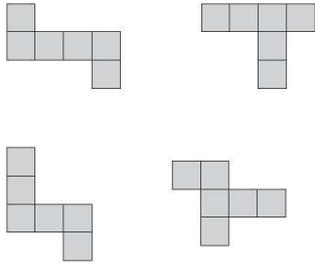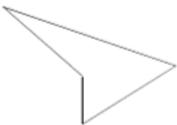
Which of these nets will make
a cube?

Here are three nets of a cube.

On each net draw **one more dot** so that each cube will have dots on **opposite** faces.

**Draws given angles, and measure them in degrees**

Measure accurately the smallest angle in the above shape.

Geometry – position and direction

Recognises and uses reflection and translation in a variety of diagrams, including continuing to use a 2-D grid and coordinates in the first quadrant. Reflection should be in lines that are parallel to the axes.
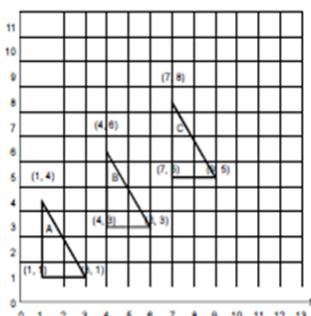
Write the co-ordinates of the next triangle in the sequence.
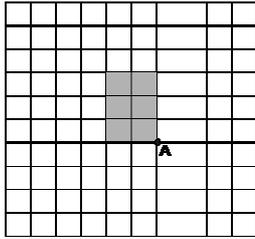
This rectangle is **rotated 90° clockwise** about point **A**.

Draw the rectangle in its new position.

Statistics

Completes, reads and interprets information in tables, including timetables

The table shows the cost of coach tickets to different cities.

		Hull	York	Leeds
Adult	single	£12.50	£15.60	£10.25
	return	£23.75	£28.50	£19.30
Child	single	£8.50	£10.80	£8.25
	return	£14.90	£17.90	£14.75

What is the total cost for a return journey to York for one adult and two children?

Here is a sorting diagram for numbers.

Write a number **less than 100** in each space.

	even	**not** even
a square number		
not a square number		

Copy the Carroll diagram and use it to sort these numbers.

60   151   8   52   210   45
5   87   70   195   38   306

	multiples of 5	not multiples of 5
2-digit numbers		
not 2-digit numbers		