

Exemplification for Year 4 Expected Standard in Mathematics

Key Performance Indicators for Moderation

The year 4 mathematics moderation document exemplifies key performance indicators of the expected standard in mathematics at year 4. It is not a planning or assessment tool as it does not cover the entire year 4 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 4 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 4 Expected Standard in Mathematics

Key Performance Indicators for Moderation

Number and Place Value

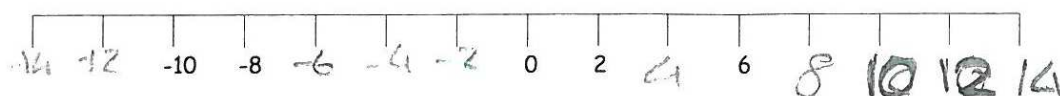
Counts in multiples of 6, 7, 9, 25, 1000

Sam continues the sequence which begins 150, 175, 200, 225, 250

She says the number 340 will be in the sequence.

Is she correct? Explain how you know.

Counts backwards from zero to include negative numbers



Here is a sequence of numbers

9, 6, 3, 1, -2, _____, _____

What will the next 2 numbers be?

Can you explain the rule for this sequence of numbers?

Orders and compares numbers beyond 1000

2) 3856 is greater than 3568

3) 9706 is greater than 9670

4) 408 1849 1984 4124

Fill in numbers to make these number statements correct

$$3000 > \square + \square$$

$$5500 < \square + \square > 6000$$

Rounds any number to the nearest 10, 100, 1000

Nearest 100

1) 219 → 200 ✓	6) 333 → 300 ✓	11) 8,401 → 8,400 ✓
2) 342 → 300 ✓	7) 454 → 500 ✓	12) 1,902 → 1,900 ✓
3) 743 → 700 ✓	8) 9,709 → 9,700 ✓	13) 5,833 → 5,800 ✓
4) 841 → 800 ✓	9) 5,160 → 5,200 ✓	14) 8,555 → 8,600 ✓
5) 975 → 1000 ✓	10) 1,100 → 1,100 ✓	15) 3,761 → 3,800 ✓

Nearest 1000

1) 4,125 → ~~4~~4000 ✓

I round a number to the nearest 10.

The answer is 340.

What number could I have started with?

Which number is closest to 400?

345

405

382

411

394

Addition and Subtraction

Add and subtract numbers up to 4 digits, using formal written methods

Missing digit questions

$$\begin{array}{r} 34\ \square \\ + 4\ \square\ 6 \\ \hline 772 \end{array}$$

















$$\begin{array}{r} 6\ \square\ 3 \\ - 57\ \square \\ \hline 115 \end{array}$$

Solve addition and subtraction two-step problems in different contexts, deciding which operation is required and why




1 Harry does English and maths homework each week. It takes him a total of two and a half hours. He spends 70 minutes doing English homework. How many minutes does he spend doing maths homework?

$$\begin{array}{r}
 2\ 20 \\
 + \quad 30 \\
 \hline
 1\ 50
 \end{array}
 \quad
 \begin{array}{r}
 2\ 50 \\
 - \quad 70 \\
 \hline
 1\ h\ 20\ mins
 \end{array}$$

Can you work out what number is represented by each symbol then find the missing totals?


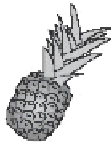

				24
				
				33
				

28 34 27

 6
 7
 9

There are 8 shelves of books. 6 of the shelves hold 65 books each. 2 of the shelves have 105 books each. How many books altogether are on the shelves?

Amir and Lara buy some fruit.

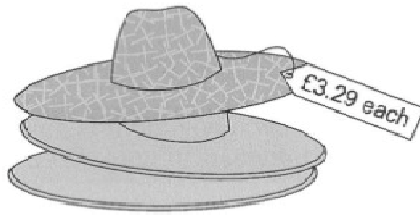
		
grapes	pineapples	peaches
£2.50	£1.40	£1.99
for 1 kg	each	for a box

Amir buys 2 pineapples and a box of peaches.
How much does he pay?

Lara buys half a kilogram of grapes and one pineapple.
How much change does she get from £5?



A shop sells sun hats.



Ryan buys some sunglasses for £4.69 and a sun hat. How much change does he get from £10?

Multiplication and Division

Recalls multiplication and division facts up to 12 x 12 and uses related facts

X	9	2	5	10	6	8	3	7	1	4
3	27	6	15	30	18	24	9	21	3	12
5	45	10	25	50	30	40	15	35	5	20
9	81	18	45	90	54	72	27	63	9	36
10	90	20	50	100	60	80	30	70	10	40
1	9	2	5	10	6	8	3	7	1	4
8	72	16	40	80	48	64	24	56	8	32
6	54	12	30	60	36	48	18	42	6	24
2	18	4	10	20	12	16	6	14	2	8
7	63	14	35	70	42	56	21	49	7	28
4	36	8	20	40	24	32	12	28	4	16

X	8	3		7
4	32		48	
		15		

	x3	x6	x9
0	0	0	0
1	3	6	9
2	6	12	18
3	9	18	27
4	12	24	36
5	15	30	45
6	18	36	54
7	21	42	63
8	24	48	72
9	27	54	81
10	30	60	90
11	33	66	99
12	36	72	108

- 1 Divide 28 by 4.
- 2 Find 4 groups of 6.
- 3 What number, when multiplied by 6, gives an answer of 54?
- 4 How many straws are needed to make five squares?
- 5 What is the product of 7 and 3?
- 6 What number, when divided by 6, gives an answer of 7?
- 7 How many legs are needed for 9 chairs?

$$1) 28 \div 4 = 7$$

$$2) 4 \times 6 = 24$$

$$3) 9 \times 6 = 54$$

$$4) 5 \times 4 = 20$$

$$5) 7 \times 3 = 21$$

Multiplies 2 and 3 digit numbers by a 1 digit number using formal written layout

A washing machine costs £179.

What would be the cost of 3 washing machines?

Solves problems involving multiplication and division

Handwritten calculations for the composite shape:

$$\begin{array}{r} \textcircled{1} \quad 7 \times 7 = 49 \text{ cm} \\ \textcircled{2} \quad 9 \times 4 = 81 \text{ cm} \\ \hline 130 \text{ cm}^2 \end{array}$$

Handwritten calculations for the composite shape:

$$\begin{array}{r} \textcircled{1} \quad 8 \times 5 = 40 \text{ cm} \\ \textcircled{2} \quad 4 \times 14 = 56 \text{ cm} \\ \hline 96 \text{ cm}^2 \end{array}$$

Handwritten calculations for the composite shape:

$$\begin{array}{r} \textcircled{1} \quad 8 \times 4 = 32 \text{ cm} \\ \textcircled{2} \quad 6 \times 12 = 72 \text{ cm} \\ \hline 104 \text{ cm}^2 \end{array}$$

I buy 6 cakes and spend £3.45

What is the cost of 1 cake?

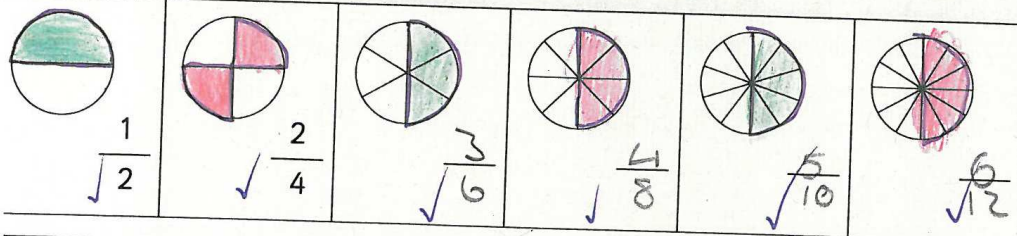
A bottle contains 260ml of apple juice.

If I drink 4 bottles, how much juice will I have drunk?

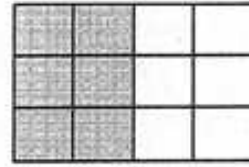
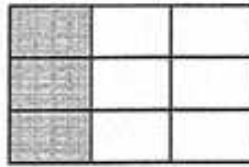
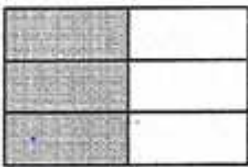
Fractions (including decimals)

Recognises and shows, using diagrams, families of equivalent fractions

Equivalent to $\frac{1}{2}$



Record the fraction in different ways



Solves fraction problems to calculate quantities, including none unit fractions

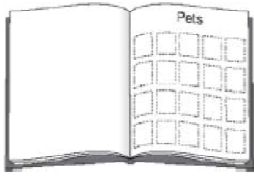
6. Billy collected 256 conkers but lost $\frac{3}{4}$ of them on his way to school through a hole in his bag. When he arrived at school how many conkers did Billy have left?

$$\frac{3}{4} \text{ of } 256 = 4 \times 3 = 192$$

$$\begin{array}{r} 0.64 \\ 4 \overline{) 256} \\ \underline{4} \\ 0 \\ \underline{0} \\ 0 \\ \underline{0} \\ 0 \\ \underline{0} \\ 0 \end{array}$$

3. Mr Murrin is 160cm tall and his brother Tom is $\frac{7}{8}$ as tall as him. How tall is Tom?

$$\frac{7}{8} \text{ of } 160 = 20 \times 7 = 140 \text{ cm} \quad \checkmark$$



Tia has 20 stickers. $\frac{1}{4}$ of them are dog stickers. $\frac{1}{2}$ of them are cat stickers. The rest are rabbit stickers. How many rabbit stickers does she have?

Match each box to the correct number

$$\frac{1}{2} \text{ of } 30$$

$$\frac{1}{3} \text{ of } 75$$

$$\frac{1}{5} \text{ of } 150$$

45

40

35

30

25

20

15

I have 32 sweets and give $\frac{3}{8}$ of them to my sister.

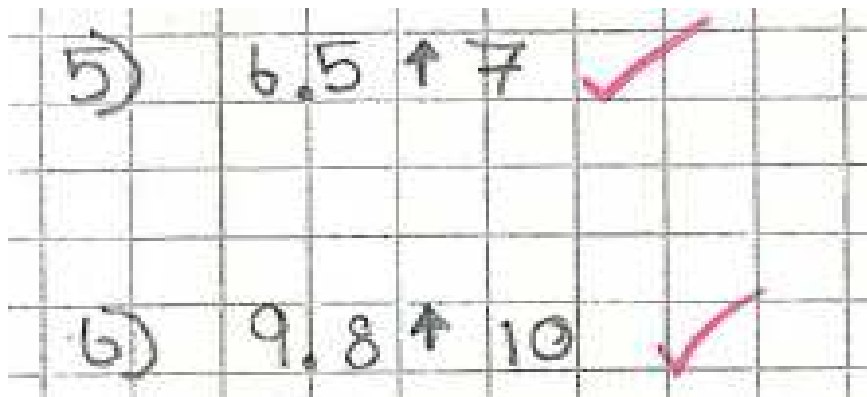
How many sweets do I have left?

Adds and subtracts fractions with the same denominator

I eat two fifths of a cake and later eat another two fifths of the cake.

How much cake have I eaten in total and how much is left?

Rounds decimals with one decimal place to nearest whole



6 children ran a race

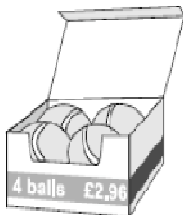
Helen	David	Khai	Tom	Jamie	Leo
8.9 secs	8.3 secs	9.2 secs	8.1 secs	9.5 secs	7.8 secs

Whose time would round to 9 seconds?

Solves simple money and measure questions involving decimals to two places

2 Sita had £10. She spent £2.65 on a pencil case and £2.99 on felt pens.
How much money did she have left?

$$\begin{array}{r}
 2.65 \\
 + 2.99 \\
 \hline
 5.64
 \end{array}
 \quad
 \begin{array}{r}
 \cancel{10.00} \\
 - 5.64 \\
 \hline
 \pounds 4.36 \quad \checkmark
 \end{array}$$



A box of four balls costs £2.96. How much does each ball cost?

Dean and Alex buy 3 boxes of balls between them.

Dean pays £4.50. How much must Alex pay?

Max jumped **2.25 metres** on his **second** try at the long jump.

This was **75 centimetres** longer than on his **first** try.

How far in **metres** did he jump on his **first** try?

Measurement

Convert between different units of measure

$$12.24\text{m} = 224\text{cm} \quad \checkmark$$

$$8.93\text{m} = 893\text{cm} \quad \checkmark$$

$$7\text{kg} = 7000\text{g} \quad \checkmark$$

$$5.5\text{kg} = 5500\text{g}$$

A bag of flour weighs 2kg

I use a quarter of the bag for baking

g

What is the weight of the flour left?

I have a litre bottle of lemonade

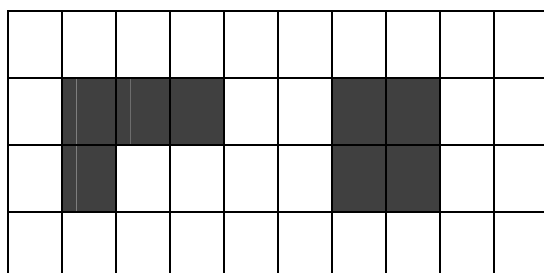
I drink 450ml

How much lemonade is left?

Measure and calculate the perimeter of shapes

Which shape has the largest perimeter?

Explain how you know this



Draw 2 different shapes with a perimeter of 10cm

Geometry: properties of shape

Compares and classifies geometric shapes based on their properties and sizes

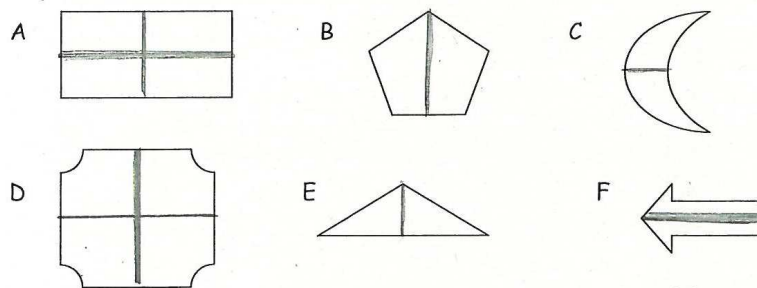
Joe says he has drawn a square



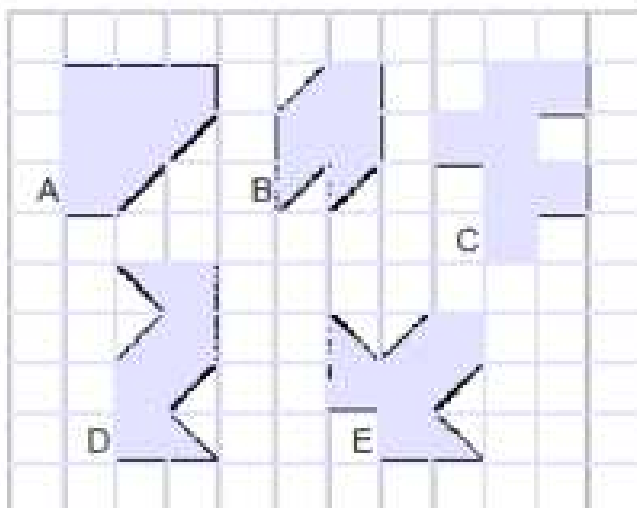
Is he correct?

Explain how you know

Identify lines of symmetry in 2D shapes presented in different orientations



Here are five shapes on a square grid.

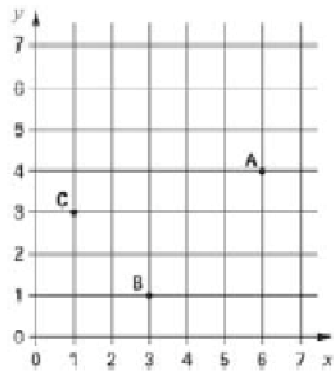
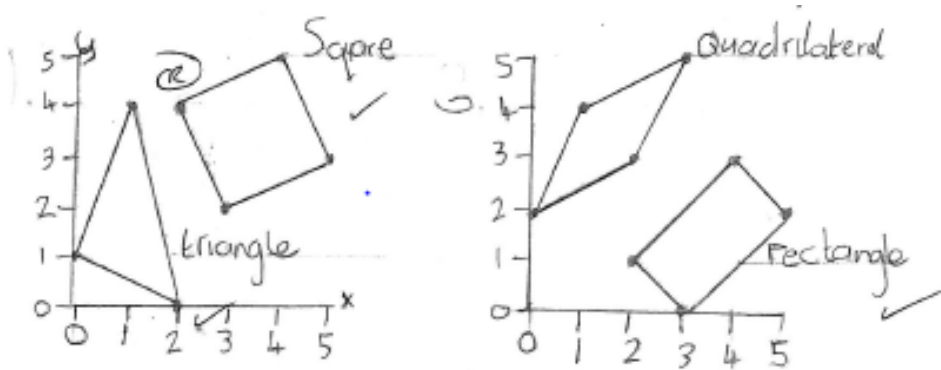


Write the letters of the two shapes which have a line of symmetry.



Geometry: position and direction

Plots specified points and draws sides to complete a given polygon



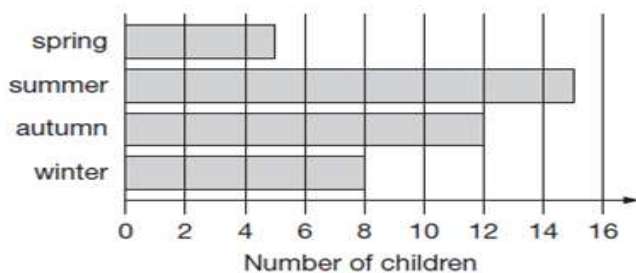
A, B and C are three corners of a rectangle. What are the coordinates of the fourth corner?

Statistics

Solves comparison, sum and difference problems using information from graphs, charts and tables

A survey was done to find out children's favourite season.

This chart shows the results.



How many more children preferred autumn than spring?