Number and place value; addition and subtraction; multiplication and division; fractions (including decimals); measurements

Year 4 Pitch and Expectations

Count in multiples of 6, 7, 9, 25 and 1000

Explain the relationship between 8 × 7 = 56, 6 × 7 = 42 and 14 × 7 = 98

Count backwards through zero to include negative numbers

☐ > -3

| | -6 | | -2 | 0 | | | 6 | | 10 |

Make this statement true.

Find 1000 more or less than a given number

7456 — ☐ = 2456

What's the missing number? How do you know?

Become fluent in the order and place value of numbers beyond 1000

Recall of X and ÷ facts for tables up to 12 x 12 to aid fluency

I buy 9 apples at 21p each. How much do the apples cost?

I know that 10 x 21 = 210, so I need to subtract 1 lot of 21, which is 189p.

72 = ☐ x ☐

Recognise the place value of each digit in a four-digit number

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

- largest odd number
- largest even number
- largest multiple of 3
- smallest multiple of 5
- number closest to 5000

Use the digit cards to make 4 digit numbers, making each statement true. Use the digits only once in each statement.

Round any number to the nearest 10, 100 and 1000 and *connect estimation and rounding numbers to measuring instruments.*

How much liquid is in the cylinder?

How much liquid is there, rounded to the nearest 100ml?

How much liquid is there, rounded to the nearest whole litre?

What is 776g, rounded to the nearest 100g?

What is 228g, rounded to the nearest whole kg?

What is 67m to the nearest 100cm?

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A number rounded to the nearest ten is 540. What is the smallest possible number it could be?

Identify, represent and estimate numbers using different representations

Which of these numbers is closest to the answer of 342 – 119: 200, 220, 230, 250, 300

What does the digit 7 represent in each of these measures?

£2.70, 7.35m, £0.37, 7.07m

I can show $^7/_{10}$ of £1, which is 70p.

I can show $^7/_{100}$ of £1, which is 7p.

Count in tens and hundreds as well as in multiples of 6, 7, 9, 25 and 1000,

"1000, 2000, 3000…. 36, 46, 56…. 878, 778, 678…. 350, 375, 400…. 780, 1780, 2780, 3780…. 220, 320, 420…. 600, 700, 800, 900, 1000….."

I know my facts for the 6 x tables so I can find the answer to 60 x 3

I know that 6 x 3 = 18

So 60 x 3 must be 10 times as big. 60 x 3 = 180

Practice mental methods and extend this to three-digit numbers to derive facts.

60 x 3 =

180 ÷ 3 =

I know that 200 x 3 = 600

So…. 600 ÷ 3 = 200 and 600 ÷ 2 = 300

Estimate and use inverse operations to check calculations.

1174 - 611

3330 - 779

9326 - 8777

Which of these has an answer between 550 and 600?

Using the 4 digit cards, make 4 four-digit numbers and order them in ascending order:

| 5 | 6 | 7 | 5 |

Each number should be greater than 6000.

Order and compare numbers beyond 1000

Make these statements true:

☐ + ☐ > 2000

3000 < ☐ - ☐

Add and subtract numbers with up to 4 digits using the formal written method of columnar addition and subtraction where appropriate.

372—147 =

300 + 70 + 2
-100 + 40 + 7

→ 300 + 60 + 12
-100 + 40 + 7
200 + 20 + 5

→ 300 + 70 + 2
- 100 + 40 + 7
200 + 20 + 5

7 8 9
+ 6 4 2
1 4 3 1
Answer: 1431

8 7 4
− 5 2 3
3 5 1
Answer: 351

9 3 2
- 4 5 7
4 7 5
Answer: 475

9 3 2
- 4 5 7
4 7 5
Answer: 475

Estimate and use inverse operations to check answers to a calculation

Which of these number sentences have the answer that is between 550 and 600?

1174 - 611

3330 - 2779

9326 - 8777

Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.

Jim made a cake that weighed 670g. The icing weighed 83g, which he added to the top. After eating a slice, the remaining cake weighed 486g. How much did the slice weigh?

Solve integer scaling problems and correspondence problems, using recall of multiplication and division facts.

The larger parcel weighs 320g. It is 4 times as heavy as the smaller parcel. How heavy is the smaller parcel?

Filmdoctor.co.uk

Pupils practice to become fluent in the formal written method of short division, finding exact answers:

- Divide by a one-digit number

492 ÷ 4

Pupils use concrete materials to develop understanding of exchange within the standard written method of division

Pupils practice to become fluent in the formal written method of short multiplication:

- Multiply two-digit by one digit
- Multiply three-digit by one digit

Recognise and use factor pairs and commutativity in mental calculations.

18 x 3
9 x 2 x 3
9 x 3 x 2
27 x 2 = 54

I know that a factor pair of 18 is 9 and 2.

I can use commutativity to rearrange the factors to make it easier to do mentally.

Use mental methods to add and subtract increasingly large numbers to aid fluency.

68 - 29 =

68 - 30 + 1 = 39

I can round numbers to the nearest 10 and adjust to add and subtract mentally.

123 - 25 =

125 - 25 - 2 = 98

149 + 148 =

150 + 150 - 3 = 297

I can use near doubles to add and subtract mentally.

13323 - 70 =

12893 + 300 =

19354 - 200 =

19954 + 100 =

Which questions are easy and which are hard? Explain why.

Combine their knowledge of number facts and rules of arithmetic to solve mental and written calculations (Distributive law, associative law)

Associative law

www.mathsisfun.com

(2 × 4) × 3 = 2 × (4 × 3)

How many is 6 lots of 15?

I could do:

(6 x 3) x 5, or (6 x 5) x 3

Use the associative law to multiply three one digit numbers.

Which is the most efficient order to find the answer to:

8 x 2 x 3 = ?

(8 x 2) x 3?

(8 x 3) x 2?

Or (2 x 3) x 8?

Why is your order the most efficient?

Distributive law

3 x 6 = (3 x 2) + (3 x 4) = 18

3 x (2+4)

3x2 + 3x4

www.mathsisfun.com

How many is 16 lots of 5?

I would do (10 x 5)+(6 x 5)

So: 50 + 30 = 80

Solve multiplication problems applying the distributive law to multiply a two-digit number by a one-digit number.

Five children each had 18 sweets. How many did they have altogether?

How much do 8 oranges cost if each one costs 14p?

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$$\frac{6}{7} + \frac{3}{7} = \frac{9}{7}$$

mathsframe.co.uk

$$\frac{9}{7} = 1\frac{2}{7}$$

Sam ate $^4/_6$ of a pizza, while Omar ate $^5/_6$ of another pizza. How much pizza have they eaten altogether?

There is $1\frac{3}{10}$ of a litre of juice is in the jug. $^8/_{10}$ of a litre is drunk. How much is left?

Add and subtract fractions with the same denominator *beyond one whole, becoming fluent through a variety of increasingly complex problems.*

Round decimals with one decimal place to the nearest whole number

Which of these numbers rounds to 19?

19.6   18.2   18.5   20.2   19.5   19.3

Round these lengths to the nearest metre:

1.5m, 6.7m, 4.1m, 8.9m

Record these measurements as decimals:
5m 32cm, 4m 98cm, 5m 3cm, 4m 89cm
2kg 400g, 2kg 500g, 1kg 100g, 1kg 800g

Convert between different units of measure (km to metres, hour to minute).

Which measurement is closest to 5m?

Which measurement is closest to 2kg?

How many tenths are there in each measurement?

How many hundredths?

Find the area of rectilinear shapes by counting squares *and relating it to arrays and multiplication.*
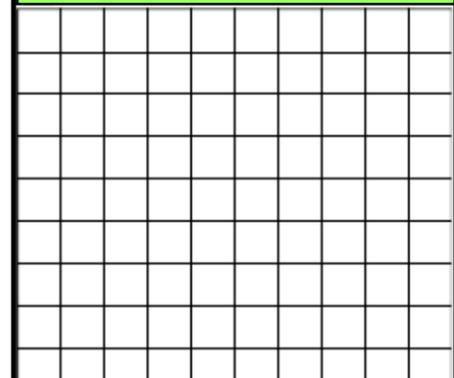
Extend the use of the number line to include fractions, numbers and measures and make connections between fractions of length, shape and quantities

$\frac{1}{10}$ $\frac{2}{10}$ □   □   □ $\frac{8}{10}$ □

200ml   500ml   800ml

Represent numbers to one and two decimal places in several ways, including on a number line.

□   2.3Kg   2.5Kg   □   □

2200g   □   2800g

Pupils will begin to see that there are pairs of sides the same length. They will begin to express this algebraically. Later, this will develop so that algebraic conventions are followed:

2 x a + 2 x b

2a + 2b

2(a+b)

A field measures 89.5m by 60m.

89.5m

60m

What is the perimeter of the field?

Measure and calculate the perimeter of a rectilinear figure in cm and m.

Draw four rectangles with a perimeter of 100cm.

How many possible rectangles can be drawn with an area of 12cm^2?

Draw them on the grid above.

I can find the area by thinking about factors of 12:

6 x 2 and 3 x 4 and 1 x 12

Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number

A larger beaker holds $^3/_{10}$ of a litre more than the a smaller beaker, which holds 500ml of juice. How much does the larger beaker hold?

What would you rather have?
$^3/_4$ of 16 sweets
Or
$^2/_5$ of 25 sweets?

16
| 4 | 4 | 4 | |

25
| 5 | 5 | | |

Understand the relation between non-unit fractions and x and ÷ of quantities, with particular emphasis on tenths and hundredths.

Sidney snails travels $^4/_{10}$ of a metre, had a snooze, then travelled a further $^{56}/_{100}$ of a metre. How far had he travelled?

Pupils will be able to use equipment and visual models to represent these problems. They use division to find fractions of numbers.

What is $^1/_6$ of 42?

What is $^4/_6$ of 42?

Pupils draw models to show $^1/_6$ of 42. Then $^4/_6$ of 42

42
| 7 | 7 | 7 | 7 | | |

Use factors and multiples to recognise equivalent fractions and simplify where appropriate

Which is the odd one out of this trio?
$^3/_4$ $^9/_{12}$ $^4/_6$ How do you know?
Draw a diagram to show your thinking.

$^9/_{12}$ $^{10}/_{15}$ $^2/_3$

wordpress.ed.pacificu.ed

Express this in pictures and with two different fractions. What do you notice?

I can simplify $^6/_9$ because 6 and 9 are both multiples of 3. If I divide both by 3, I get $^2/_3$.

Estimate, compare and calculate different measures, including money in pounds and pence

I estimate that the plant is roughly 26.5 cm tall and if I compare it to the other plant, it is about half it's height.

A string is 6.5 metres long. I cut off 70 cm pieces to tie up some balloons. How many pieces can I cut from the string?

Solve simple measure and money problems involving fractions and decimals to two decimal places.

Gran gave me £8 of my £10 birthday money. What fraction of my birthday money did Gran give me?

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 did he jump in metres on his first try?

Compare numbers with the same number of decimal places up to two decimal places.

Which is lighter: 3.5kg or 5.5kg? 3.72kg or 3.27kg?

Which is less: £4.50 or £4.05?

Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.

A chicken takes 3 hours 20 minutes to roast. How many minutes must you set the oven timer for?

www.talklocal.com   350°   7:44

SELECTOR   TEMP   TIMED OVEN
BAKE BROIL CLEAN   COOK TIME DELAY START TIME STOP TIME

Read, write and convert time between analogue and digital 12 and 24-hour clocks.

Here is a clock.

14 : 53

What time will the clock show in 20 minutes? Draw it on an analogue clock.

What time would this be on a 12 hour clock?

Count up and down in hundredths; recognise that hundredths arise when dividing an object by a hundred and dividing tenths by ten

What comes next?
75/100. 76/100, 75/100......
0.79, 0.78, 0.77.....

How many tenths and how many hundredths in 0.75?

Spot the mistake and correct it:
Seven hundredths, eight hundredths, nine hundredths, twenty hundredths

0.1   0.01

$\frac{1}{10}$ $\frac{1}{100}$

T	U		tenths	hundredths
			3	4

How much is $^7/_{10}$ of £1?

How much is $^{75}/_{100}$ of £1?

60p is what fraction of £1?

Recognise and write decimal equivalents of any number of tenths or hundredths

Recognise and write decimal equivalents to $^1/_4$, $^1/_2$, $^3/_4$

How far is 0.5 of a km?

What fraction of a kg is 0.25?

Match each box to the number which has the same value. One has been done for you.

0.5
$^3/_4$ 0.8
0.3
$^4/_{10}$ 0.75
$^{80}/_{100}$ 0.4

$\frac{1}{2}$

How many times larger is 2600 than 26? How many £1 notes are in £120, £1200? Divide three hundred and ninety by ten. Write in the missing number.

Find the effect of dividing one and two-digit numbers by 10 and 100, identifying the value of the digits in the answer as units, tenths and hundredths.

If 4.5 x 10 is 45......
What is 45 ÷ 10 ?
How many tenths are there when 67 is divided by 100? How many hundredths?

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