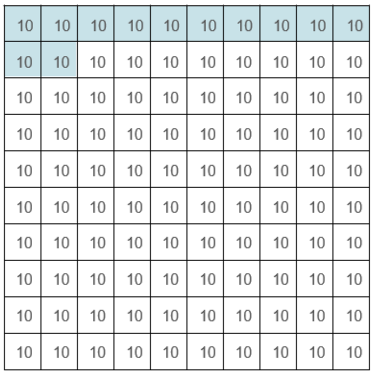
	Number and place value	Number facts	Addition and subtraction	Multiplication and division	Fractions, decimals and percentages	Geometry
3	Know that 10 tens are equivalent to 1 hundred, and that 100 is 10 times the size of 10; apply this to identify and work out how many 10s there are in other three-digit multiples of 10. Recognise the place value of each digit in three-digit numbers, and compose and decompose three-digit numbers using standard and non-standard partitioning. Reason about the location of any three-digit number in the linear number system, including identifying the previous and next multiple of 100 and 10. Divide 100 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 100 with 2, 4, 5 and 10 equal parts.	Secure fluency in addition and subtraction facts that bridge 10, through continued practice. Recall multiplication facts, and corresponding division facts, in the 10, 5, 2, 4 and 8 multiplication tables, and recognise products in these multiplication tables as multiples of the corresponding number. Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 10).	Calculate complements to 100. Add and subtract up to three-digit numbers using columnar methods. Manipulate the additive relationship: Understand the inverse relationship between addition and subtraction, and how both relate to the part–part–whole structure. Understand and use the commutative property of addition, and understand the related property for subtraction.	Apply known multiplication and division facts to solve contextual problems with different structures.	Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts. Find unit fractions of quantities using known division facts (multiplication tables fluency). Reason about the location of any fraction within 1 in the linear number system. Add and subtract fractions with the same denominator, within 1.	Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts. Find unit fractions of quantities using known division facts (multiplication tables fluency). Reason about the location of any fraction within 1 in the linear number system. Add and subtract fractions with the same denominator, within 1.

Number and place value



10	10	10	10	10	10	10	10	10	10
10	10	10	10	10	10	10	10	10	10
10	10	10	10	10	10	10	10	10	10
10	10	10	10	10	10	10	10	10	10
10	10	10	10	10	10	10	10	10	10
10	10	10	10	10	10	10	10	10	10
10	10	10	10	10	10	10	10	10	10
10	10	10	10	10	10	10	10	10	10
10	10	10	10	10	10	10	10	10	10
10	10	10	10	10	10	10	10	10	10

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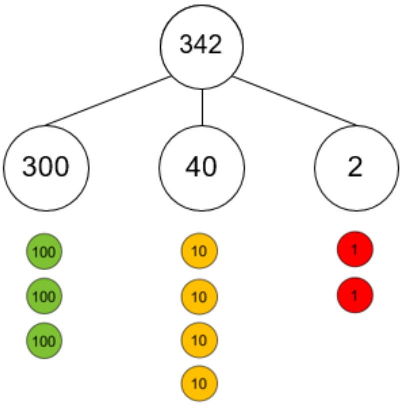
- What do you notice about the value of the each row? And of the whole grid?
- Click in the grid to reveal a number of tens.
- How many tens are there? What is the total value of those tens?
- Highlight some of the tens in a grid yourself. How many tens are there? What is the number you have made?



- Represent this number using place value counters and a part-part-whole model.
- What digit is in the tens place? What is the value of the hundreds digit?
- What does the 2 represent?

The 2 represents two ones.

- Repeat for different 3-digit numbers
- Show children representations of numbers either using part-part-whole or place value counters and ask them to write the value of each number represented.

Previous multiple of 100 | | **Next multiple of 100**

300 **342** **400**

Previous multiple of 10 | | **Next multiple of 10**

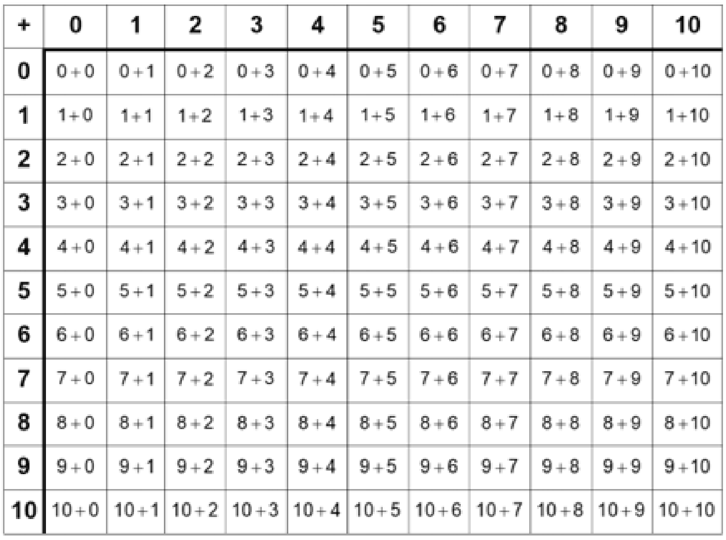
340 **342** **350**

- Look at the 3-digit number. Can you say the previous multiple of 100 and the next multiple of 100?
- For the same number, can you say the previous multiple of 10 and the next multiple of 10?

The previous multiple of 100 is ___.
The next multiple of 100 is ___.

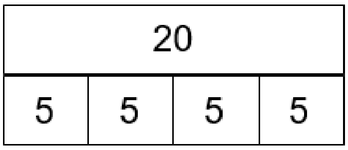
The previous multiple of 10 is ___.
The next multiple of 10 is ___.

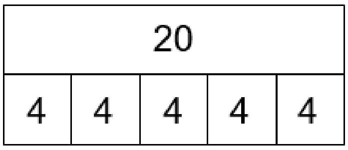
Number facts



+	0	1	2	3	4	5	6	7	8	9	10
0	0+0	0+1	0+2	0+3	0+4	0+5	0+6	0+7	0+8	0+9	0+10
1	1+0	1+1	1+2	1+3	1+4	1+5	1+6	1+7	1+8	1+9	1+10
2	2+0	2+1	2+2	2+3	2+4	2+5	2+6	2+7	2+8	2+9	2+10
3	3+0	3+1	3+2	3+3	3+4	3+5	3+6	3+7	3+8	3+9	3+10
4	4+0	4+1	4+2	4+3	4+4	4+5	4+6	4+7	4+8	4+9	4+10
5	5+0	5+1	5+2	5+3	5+4	5+5	5+6	5+7	5+8	5+9	5+10
6	6+0	6+1	6+2	6+3	6+4	6+5	6+6	6+7	6+8	6+9	6+10
7	7+0	7+1	7+2	7+3	7+4	7+5	7+6	7+7	7+8	7+9	7+10
8	8+0	8+1	8+2	8+3	8+4	8+5	8+6	8+7	8+8	8+9	8+10
9	9+0	9+1	9+2	9+3	9+4	9+5	9+6	9+7	9+8	9+9	9+10
10	10+0	10+1	10+2	10+3	10+4	10+5	10+6	10+7	10+8	10+9	10+10

- This grid shows the addition facts within 10 and across 10 that children need to be fluent in.
- Children should also practise the corresponding subtractions to fluency.





$5 \times 4 = 20$ $20 \div 5 = 4$ $\frac{1}{5}$ of $20 = 4$

$4 \times 5 = 20$ $20 \div 4 = 5$ $\frac{1}{4}$ of $20 = 5$

- What other related facts can you write using division?
- Can you write any facts using fractions of amounts?

End points for knowledge Year 3

Addition and subtraction

Correct bond to 100	Incorrect bond to 100

62 + 48

43 + 67

39 + 71

28 + 72

55 + 45

84 + 16

- Which of these expressions are correct bonds to 100 and which are incorrect bonds to 100?
- Draw a table like the one shown and sort the expressions using the headings.
- Click to see if you were right.
- Can you write two more expressions which are correct bonds to 100?
- Can you write two more expressions which are incorrect bonds to 100?
- What is the same about all the expressions which are correct bonds to 100?

Missing addend

329 + ☐ = 743 → 743 – 329 = ☐

Missing subtrahend

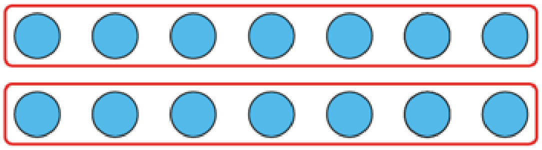
447 – ☐ = 285 → 447 – 285 = ☐

Missing minuend

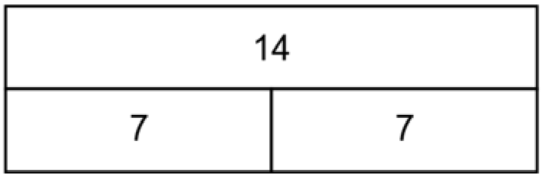
☐ – 527 = 87 → 527 + 87 = ☐

- For each of these equations, can you write the numbers in the correct place on a bar model?
- How can you find the missing number? Can you rearrange these missing number equations so you can solve them?

Multiplication and Division



14 ÷ 2 = 7



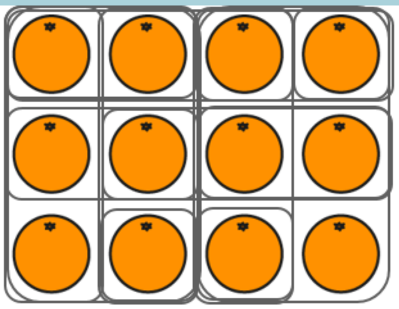
- £14 is shared between 2 children. How much money does each child get?

7 times 2 is 14, so 14 divided by 2 is 7.
£14 shared between 2 is equal to £7 each.

- Use counters and draw a bar model to represent the following story.
- £24 is shared between 4 children. How much money does each child get?
- What multiplication fact did you use to help you answer the question?

Fractions

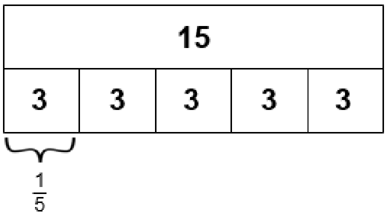
The whole has been divided into 12 equal parts, 5 of them are selected.



- To work out the fraction of oranges selected, think about the denominator and then the numerator.
- How many equal parts has the whole group has been divided into? This is the denominator.
- How many equal parts have been selected? This is the numerator.
- You could use 12 counters and set some questions like these for a partner to answer.

The denominator tells us the number of equal parts the whole is divided into. The numerator tells us the number of equal parts selected.

$\frac{1}{5}$ of 15

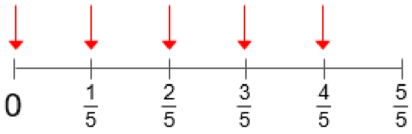


$15 \div 5 = 3$

_ **so $\frac{1}{5}$ of $15 = 3$**

- Can you use your division facts to help you find fractions of quantities?
- How many equal parts has 15 been divided into?
- What do you notice about the devisor and the denominator?
- Use the language focus sentences below to help you describe what is happening.

To find $\frac{1}{5}$ of 15, we divide 15 into 5 equal parts.
15 divided by 5 is equal to 3,
so $\frac{1}{5}$ of 15 is 3.

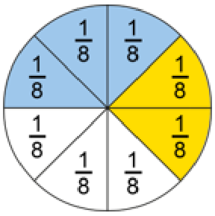


- Count up in steps of $\frac{1}{5}$
- What do you notice about $\frac{5}{5}$?
- Can you describe the fraction $\frac{5}{5}$ in a different way?
- What do you notice about the numerator and denominator in the fraction $\frac{5}{5}$?
- Use fraction pieces to show that five-fifths is equal to one whole.

When the numerator and denominator are the same, the fraction has a value of one.

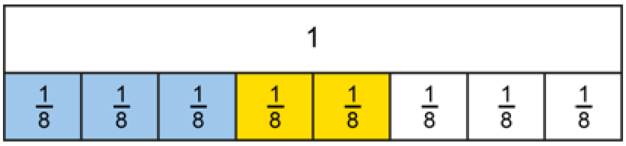
End points for knowledge Year 3

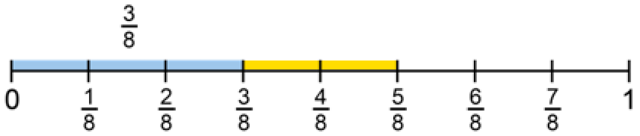
Fractions



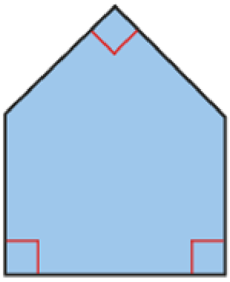
- How many one-eighths are blue?
- How many one-eighths are yellow?
- How many one-eighths are shaded altogether?

3 one-eighths plus 2 one-eighths is equal to 5 one-eighths.

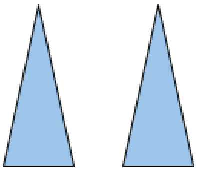


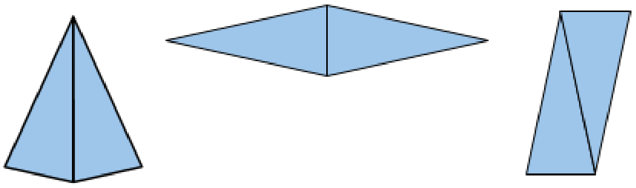


Geometry



- What do you notice about this shape?
- How many sides has the shape got?
- How many vertices?
- Do you think there are any right angles in the shape? Use a right-angle checker to help you. This could be a card circle with a quarter cut out or a piece of paper folded in half and then half again to create a right angle.
- Is it a regular shape or an irregular shape? How do you know?
- Can you name the shape?
- Use squared or dotty paper. Can you draw an irregular pentagon with only two right angles? What about only one right angle?
- Repeat this activity with other polygons.

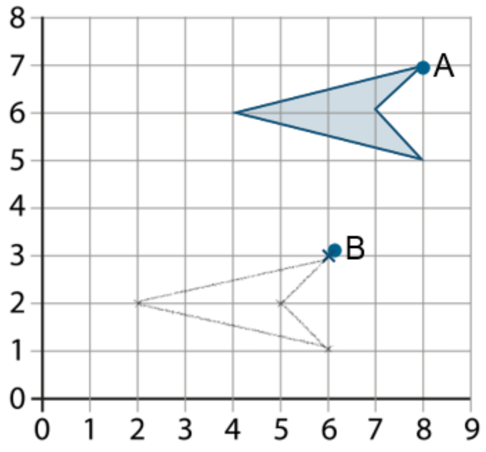




- Give children two identical shapes, like these two isosceles triangles. Ask the children to put the shapes together to fit certain criteria, e.g. *Join these two isosceles triangles to make a parallelogram. Join these two isosceles triangles together to make a quadrilateral with no parallel sides.*

End points for knowledge Year 5

Geometry



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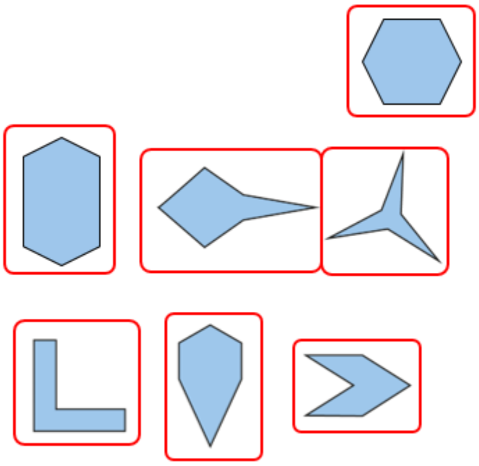
- What do we call this shape? Can you describe how point A has moved to point B.
- Now can you translate the three remaining points in the same way? When you join the translated points, what do you notice about the two shapes?
- Is the new polygon any different to the original polygon?
- What if point B was one square up, can you see straight away where the other vertices would need to be?



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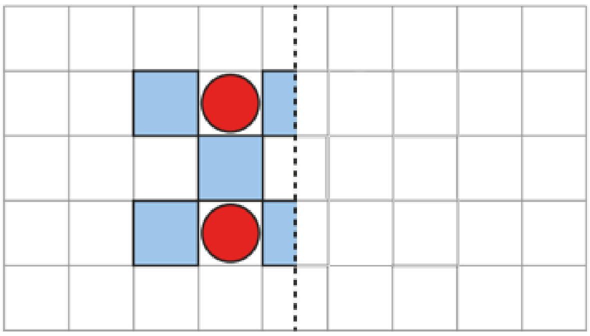
- Look at these shapes. What is the same/different about them?
- Can you think how we could sort these shapes? Which shapes have equal sides? Which shapes have equal angles? Which shapes have equal sides *and* equal angles? What do we call these shapes?

This is a regular polygon, because all of the sides are the same length, and all of the interior angles are equal.

- Can you draw/find a shape with equal sides and unequal angles? Equal angles but unequal sides? Equal sides and equal angles? Unequal sides and unequal angles?



- Can you complete the symmetrical pattern?
- What is your strategy? Can you start closest to the mirror line?
- How can you check your answer?
- Can you see another line of symmetry?
- Repeat for other patterns.