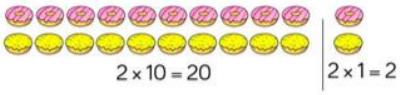
Multiplication

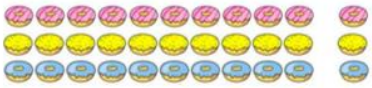
By the end of year 4 children are expected to be able to rapidly recall all of their tables and the inverses up to and including 12 x 12.

Building on their knowledge of the 1, 10 and 2 times tables, children will explore the 11 and 12 times tables through partitioning. Encourage children to notice patterns within and between the 11 and 12 times tables.

Fill in the blanks:

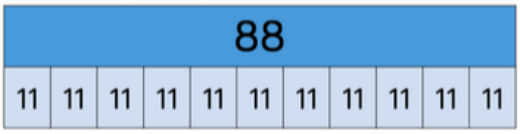


2 lots of 10 add 2 lots 1 is the same as 2 lots of _____



3 lots of 10 add 3 lots of 1 = ____ × 11

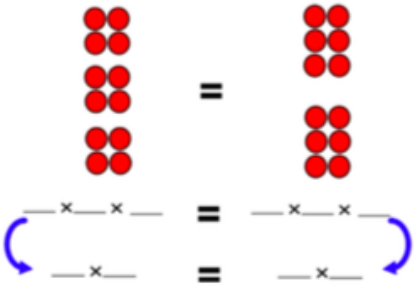
Sarah used a bar model to show 88 ÷ 11.
Explain Sarah's mistake.



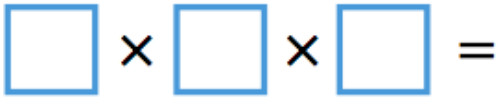
Can you represent 88 ÷ 11 using a bar model correctly?

Children should know multiplication is commutative (it can be done in any order) to find the most efficient order in which to multiply three single digit numbers. For example, 2 × 7 × 5 = 2 × 5 × 7

Complete the calculations.
Using counters, create your own examples and record the calculations.



Choose 3 single digit cards. Arrange them to create a multiplication calculation and work out the answer.



Rearrange the cards to create 2 different calculations.
What do you notice about the three answers?

Factor Pairs

Use counters initially to create arrays as a way of exploring factor pairs. They develop their understanding of factor pairs alongside systematic recording of factors.
E.g. Factor pairs for 12 - begin with 1 × 12, 2 × 6, 3 × 4.

Complete the sentences.

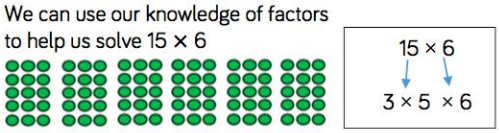
42 has ____ factors.
The factors of 42 are _____.

Are there any other factor pairs for 12?

An even number always has an even number of factor pairs and an odd number always has an odd number of factor pairs.

Is this true or false?
Prove it.

We can use our knowledge of factors to help us solve 15 × 6

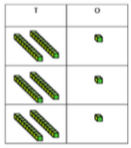


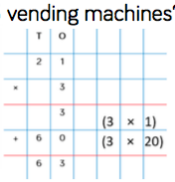
We have ____ lots of ____ × ____
The question becomes 3 × 5 × 6
How could you use this to help you work out the answer?

Written methods of calculation

Children use their understanding of repeated addition to represent a two-digit number multiplied by a one-digit number with concrete manipulatives.

There are 21 chocolate bars in each vending machine.
How many chocolate bars are there in 3 vending machines?





Use this method to solve

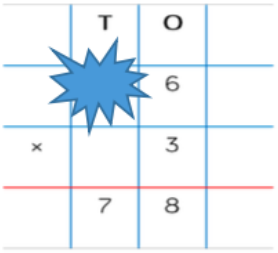
22 × 3 12 × 4 33 × 3

There are 76 sweets in a bag.
I buy 3 bags.
How many sweets do I have in total?

Grace answered the question 35 × 3, her answer is 9015

Can you explain the mistake she may have made?

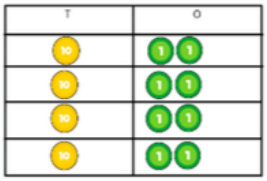
Nicky thinks the value of the digit under the splat is 2.
Do you agree?

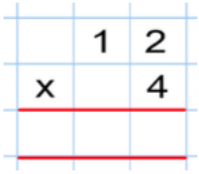


Multiply 2 digits by 1 digit and multiply 3 digits by 1 digit.

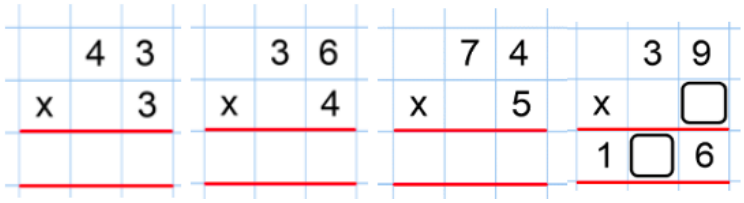
Children move from expanded multiplication to the short multiplication method.

Calculate 12 × 4
Use place value counters and the formal method.

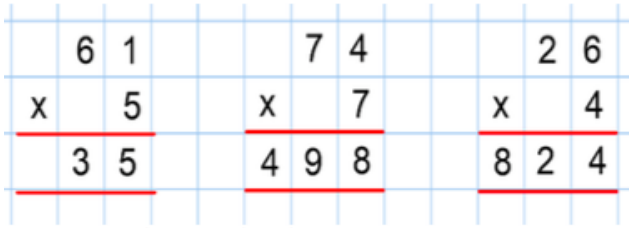




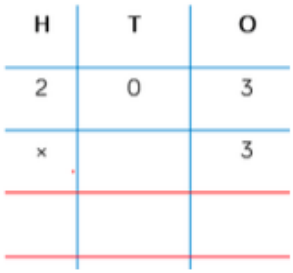
Calculate:



Here are three multiplications.

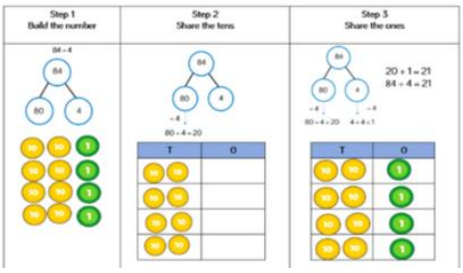


Correct the multiplications.



Divide 2 digits by 1 digit and multiply 3 digits by 1 digit.

Charlie solves 84 ÷ 4 like this:



Macey is working out 72 ÷ 3.
Before she starts, she says the calculation will involve an exchange.

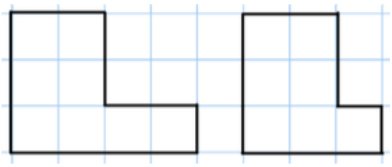
Do you agree?
Explain why.

Place <, > or = to make these number sentences correct.

738 ÷ 6		868 ÷ 7
976 ÷ 8		625 ÷ 5
584 ÷ 4		438 ÷ 3

Area

Look at the shapes and discuss what's the same and what's different?
Which shape has the largest area?



Work out the area of these shapes.
The shape is made of ___ squares.
The area of the shape is ___ square centimetres or ___ cm^2
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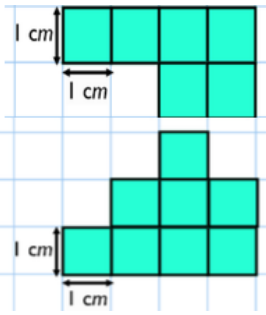
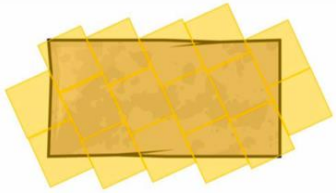
The area of the shape is ___ square centimetres or ___ cm^2



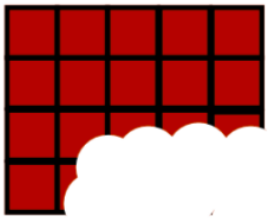
Leona is finding the area of a floor tile.



She says the area is 16 squares.

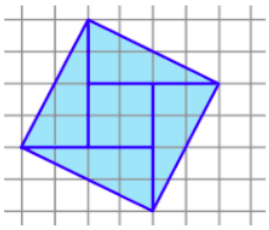
Do you agree?
Explain why.

Mikey has taken a bite of the chocolate bar.



The chocolate bar was a rectangle.
Can you work out how many squares of chocolate there were to start with?

Work out the area of this shape.

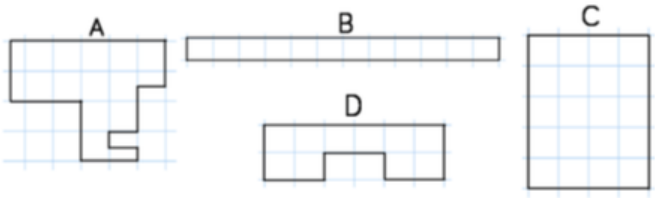


Cut out the triangles and squares to make a new shape.
Can you make a rectangle?
Can you make a different rectangle?

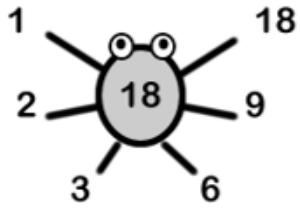
Use the words 'greater than' and 'less than' to compare the rectilinear shapes.
Complete the sentence stems using < and >

____ cm^2 ◯ ____ cm^2 ____ cm^2 ◯ ____ cm^2

Put these shapes in order from largest to smallest area.

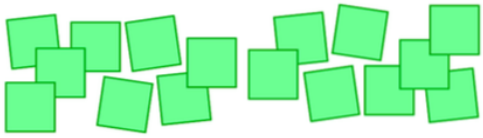


Here is a factor spider for the number 18:



What would a factor spider for the number 20 look like?

Use 16 identical squares. Take half of the squares to make a rectangle and the other half to make a different rectilinear shape.



What's the same, what's different?

Use the written method to find the answers.

(a) 27 × 7 =

(b) 56 × 4 =

(c) 65 × 6 =

(d) 47 × 8 =

What are the missing digits?
Explain how you know.

● 5	● 6	● 4
x 4	x 9	x 7
2 0	5 4	2 8
2 4 0	2 7 0	1 4 0
2 6 0	3 2 4	1 6 8

James has tried to work out these answers, but he has made some mistakes. Can you see what he has done and correct the mistakes he has made?

56	94	46
x 5	x 4	x 3
2530	366	1218

One fifth of a bag of potatoes is 3 potatoes.

Use a bar model and counters to work out how many potatoes are in the whole bag.

Ffion has drawn two different shapes on centimetre squared paper. She says,

> My shapes are both rectangles.
> They both have areas of 17cm².

Ffion has made a mistake.
How do we know this without seeing the shapes she has drawn?

$$\frac{11}{11} - \frac{\square}{11} = \frac{8}{11}$$

$$\frac{4}{4} - \frac{3}{4} = \frac{\square}{4}$$

$$\frac{8}{8} - \frac{\square}{8} = \frac{4}{8}$$

$$3 - \square = \frac{3}{4}$$

$$5 - \square = \frac{21}{5}$$

$$2 - \square = \frac{14}{9}$$

$$2 - \square = \frac{12}{11}$$

Roy is deciding whether he needs to fill his lorry up with fuel.

A full tank of fuel means that he can travel 350 miles before he has to fill up again.

His tank is currently $\frac{4}{10}$ full.

Roy needs to travel another 150 miles to get home.

Can he get home without filling up with fuel?

$$2 \div 10 = 8 \div \boxed{?} \div 10$$

$$30 \div 5 \div 10 = \boxed{?} \div 10$$

$$32 \div 4 \div 10 = 56 \div \boxed{?} \div 10$$

These are some websites that could help your child:
Addition
https://www.topmarks.co.uk/Flash.aspx?f=bingoaddition

Subtraction
https://www.topmarks.co.uk/maths-games/subtraction-grids

Timetables and number bonds- Hit the Button
https://www.topmarks.co.uk/maths-games/hit-the-button

Timetables- Shooting bubbles
http://www.mad4maths.com/4_x_multiplication_table_math_game/

Timetables- Fishy timetables
http://www.what2learn.com/home/examgames/maths/subtraction/

Place Value- Place value chart
https://www.topmarks.co.uk/

Recognising numbers- Blast off
https://www.topmarks.co.uk/learning-to-count/blast-off

TimesTableRockStars

BBC Bitesize