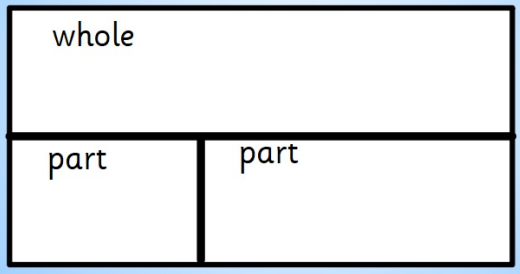
Engage

Can you put these equations into a bar model?

$3 \times 5 = 15$

$20 \div 5 = 4$



$7 \times 10 = 70$

$10 \div 2 = 5$

Where are the whole and parts in these equations?

Part x Part = Whole Whole ÷ Part = Part

Key Learnin: to understand the relationship between multiplication and division.

Success Criteria

- I understand that doubling and halving are inverse operations.
- I understand that multiplication and division are inverse operations.
- I can write the 4 number sentences for a division / multiplication fact family

Star words

multiply divide fact family inverse operation

Introduce

What is 'doubling'?

I think doubling is...

Adding the same number to itself, so the number becomes twice as much.

You multiply the number by 2.

eg. double 10 is 20... 10 x 2 = 20.

What is 'halving'?

I think halving is...

Splitting into two equal parts.

You divide the number by 2.

eg. Half of 10 is 5... 10÷2 = 5

Doubling and halving are inverse - this means they are opposites.

Introduce

"If I know double 6 is 12, then I know half of 12 is 6"

It's your turn.

If I know half of 10 is 5, then I know...

What other multiplciation/division statements can we make about doubling and halving?

"If I know..... then I know....."

What do you notice about these multiplcation and division equations?

Introduce

$$3 \times 2 = 6$$

$$6 \div 2 = 3$$

I can see that...

I think that...

Multiplication and division are the **inverse** of each other. You can use the numbers in a multiplication equation to create a division equation.

What is a fact family

Introduce

I think a fact family is...

A fact family is 3 numbers that you can create 2 multiplication and 2 divison equations with.

There are **two parts and one whole.**

Part x Part = Whole Whole ÷ Part = Part

Part x Part = Whole Whole ÷ Part = Part

Introduce

Let's put this equation into a bar mode

Where is the whole? Where are the parts?

3 x 5 = 15

What other multiplcation equation could I make?

5 x 3 = 15

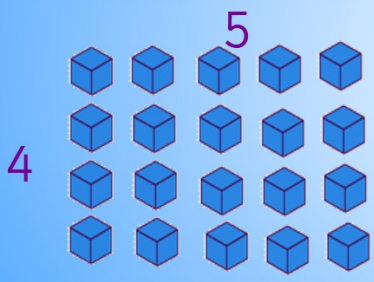
What division equations could I make?

15 ÷ 5 = 3 **15 ÷ 3 = 5**

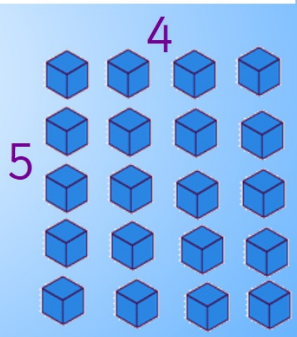
Mrs Peersman says "multiplication can be done in any order!"

True or False?

$4 \times 5 = 20$



$5 \times 4 = 20$

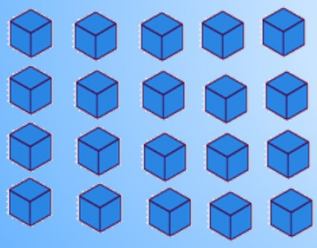


TRUE! This is because multiplication is commutative!

Mrs Pryce says "division can also be done in any order!"

True or False?

20 ÷ 4 = 5



4 ÷ 20 = 5

FALSE! In a division equation the whole has to go first!

It's Your Turn!
Let's make some fact family fish tanks!

Practise and consider

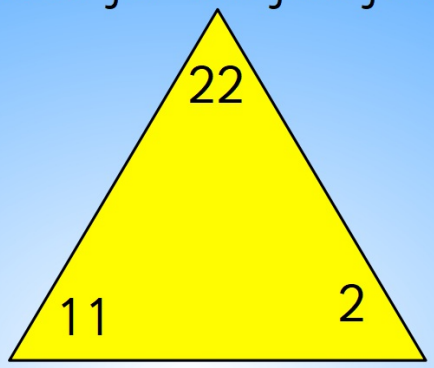
Work in pairs to create a fact family fish tank for our maths wall!

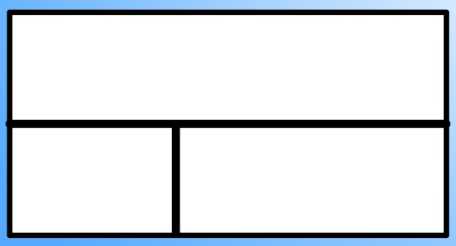
Choose 3 numbers from the sheet and re-arrange them to write the 2 multiplication and 2 division equations for that family of numbers.

Part x Part = Whole Whole ÷ Part = Part

What are the two multiplcation and two division equations we can write for this fact family?

Independent task





x =

x =

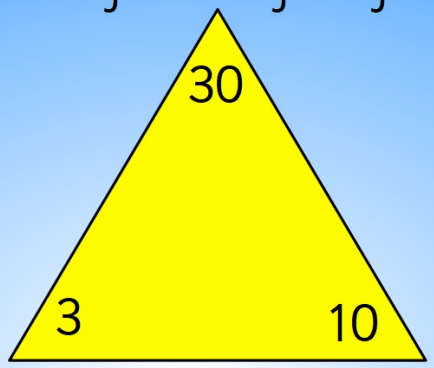
÷ =

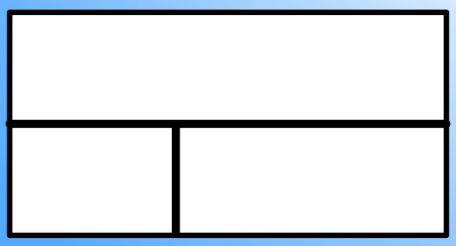
÷ =

Part x Part = Whole Whole ÷ Part = Part

What are the two multiplcation and two division equations we can write for this fact family?

Independent task





x =

x =

÷ =

÷ =

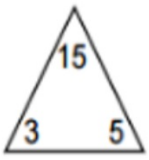
Part x Part = Whole Whole ÷ Part = Part

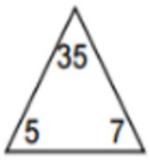
It's Your Turn!

Independent task

Independent

Write the 4 equations for each fact family.





□ x □ = □
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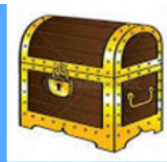
It's Your Turn!

Deepening

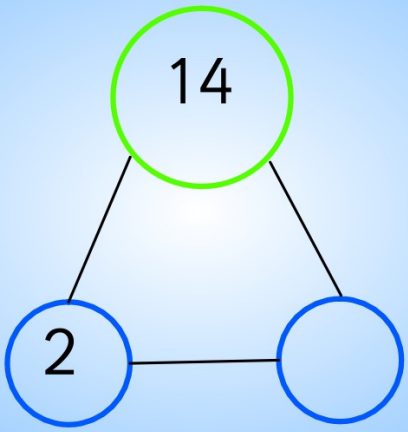
Deepening

Write 2 more fact families in your book using the 2, 5 or 10 times table.

Remember! Each fact family will have 2 multiplication equations **AND** 2 division equations.



Fill in the missing number from each fact family by using the inverse equation



Part x Part = Whole Whole ÷ Part = Part