

Dr Fog Presents

Ratio and proportion

Year 6 (National Numeracy Strategy)
(Based on DFEE Sample Lessons)



Resources

- None!



Mental Learning Objective

- Solve simple problems using ratio and proportion.



Mental Learning Task

- Spend a few minutes reciting multiplication tables.
- Then ask questions about isolated facts, adjusted to suit children's skills.



Mental Learning Task

- Now we are going to keep on doubling and halving to see how far, *as a class* you can go.



Mental Learning Task

- How far can you double, starting at....

1



Mental Learning Task

- How far can you double, starting at....

3



Mental Learning Task

- How far can you double, starting at....

10



Mental Learning Task

- How far can you double, starting at....

21



Mental Learning Task

- How far can you double, starting at....

100



Mental Learning Task

- How far can you half, starting at...

100



Mental Learning Task

- How far can you half, starting at...

1000



Mental Learning Task

- How far can you half, starting at...

100



Mental Learning Task

- How far can you half, starting at...



Mental Learning Task

- How far can you half, starting at...

30



Mental Learning Objective

- Solve simple problems using ratio and proportion.



Main Learning Objective

- Identify and use appropriate operations to solve word problems.
- Make and investigate a general statement about familiar numbers by finding examples that satisfy it.



Key idea

**I can make
generalisations with
proportion and number.**



Main Learning Task

- Today I want you to do a thought experiment.
- The work is still on ratio, but there are no beads.
- You have to imagine the things being given out



Main Learning Task

- Cinderella and her step-sister never got treated equally.
- Cinderella did all the housework and her sister did none.
- And every pound Dad gave Cinderella, he gave £3 to the sister.



Main Learning Task

- Both sisters put their money in the building society but of course the sister managed to save three times as fast as Cinders.
- The ratio of Cinders' savings to her sister's savings were 1 to 3.



Main Learning Task

- I now want you to help me work out how their savings accumulated.

Cinders savings : sisters savings is a ratio of 1:3		
Cinders	Sister	Total savings
£1		
£2		
£3		



Main Learning Task

- For every pound Cinders saves, her sister saves £3.

Cinders savings : sisters savings is a ratio of 1:3		
Cinders	Sister	Total savings
£1		
£2		
£3		



Main Learning Task

- What the sister has saved is a multiple of 3.

Cinders savings : sisters savings is a ratio of 1:3		
Cinders	Sister	Total savings
£1		
£2		
£3		



Main Learning Task

- What is multiple for the total savings?

Cinders savings : sisters savings is a ratio of 1:3		
Cinders	Sister	Total savings
£1		
£2		
£3		



Main Learning Task

- By the time Cinders has saved £11, how much will her sister have saved?

Cinders savings : sisters savings is a ratio of 1:3		
Cinders	Sister	Total savings
£1		
£2		
£3		



Main Learning Task

- If they have saved £20 together, how much of that belongs to Cinders and how much to the sister?

Cinders savings : sisters savings
is a ratio of 1:3

Cinders	Sister	Total savings
£1		
£2		
£3		



Main Learning Task

- How did you solve this problem?

Cinders savings : sisters savings is a ratio of 1:3		
Cinders	Sister	Total savings
£1		
£2		
£3		



Main Learning Task

- Best way is to divide the £20 into 4 parts and give 3 to the sister and 1 to Cinders.

Cinders savings : sisters savings is a ratio of 1:3		
Cinders	Sister	Total savings
£1		
£2		
£3		



Main Learning Task

- Now you are going to construct a similar table for a different ratio.



Main Learning Task

- The situation is even more unfair. Every time Cinders gets £1 her sister gets even more - say £4 or £5. You choose the ratio.
- Write down every amount Cinders saves up to £10 and work out how much the sister gets and what their savings are each time.



Main Learning Task

- Challenge:-
- Direct children to work with higher numbers or use a ratio of say 2:5.
- They can work with fractional numbers or decimal numbers.



Main Learning Task

- Simplification:- Copy and complete

Cinders savings : sisters savings is a ratio of 1:5		
Cinders	Sister	Total savings
£1		
£2		
£3		
£4		



Main Learning Objective

- Identify and use appropriate operations to solve word problems.
- Make and investigate a general statement about familiar numbers by finding examples that satisfy it.



Plenary

- Complete the following table

Cinders savings : sisters savings is a ratio of 1:5		
Cinders	Sister	Total savings
£1		
	£10	
£3		£18
?	?	£30



Plenary

- How could we generalise what we find?

Cinders savings : sisters savings is a ratio of 1:5		
Cinders	Sister	Total savings
£1		
	£10	
£3		£18
?	?	£30



Plenary

- Homework:-
- Construct a similar table for a ratio of 1:10.
- Challenge children:-
Complete one with either 3:7 or 4:9.



Review of Key Idea

- I can make generalisations with proportion and number.
- Did you learn this in today's lesson?



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