

Dr Fog Presents

Number problems using ratio

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



Resources

- Boxes
- Beads in two different colours



Mental Learning Objective

- Solve simple problems involving ratio.



Mental Learning Task

- I am going to start the lesson with some practise in doubling.
- I will show a number.
- Your teacher will raise their hand
- Everybody call out the number.



Mental Learning Task

- What is double...

3



Mental Learning Task

- What is double...

19



Mental Learning Task

- What is double...

90



Mental Learning Task

- What is double...

0.3



Mental Learning Task

- What is double...

25



Mental Learning Task

- What is double...

27



Mental Learning Task

- What is double...

0.9



Mental Learning Task

- What is double...

12.5



Mental Learning Task

- Today you are going to learn about proportion and ratio.
- How much can you remember about this topic?
- What does ratio and proportion mean?



Mental Learning Task

- A painter is painting a room.
- She has decided to mix her own paint and makes a lovely green by mixing one litre of yellow paint and two litres of blue.



Mental Learning Task

- Everybody loves the colour so much that they want her to paint their rooms that colour....



Mental Learning Task

- However some people have small rooms needing very little paint.
- Some people have large rooms needing lots of paint.



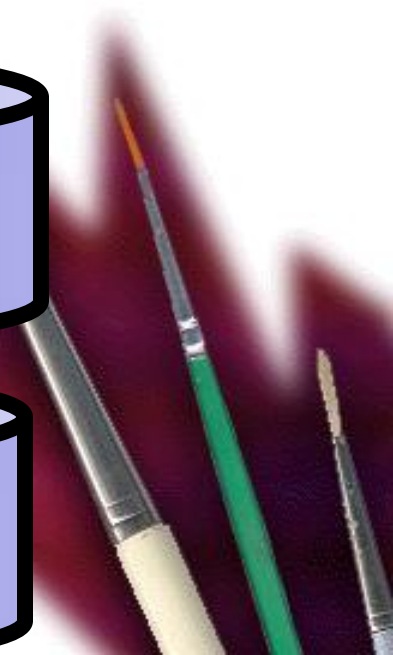
Mental Learning Task

- If she wants to make twice as much paint as she did the first time, how much of each colour should she use?



Mental Learning Task

- If she wants to make twice as much paint as she did the first time, how much of each colour should she use?



Mental Learning Task

- If she wanted to use 3 litres of yellow, how much blue should she use?
- *Work this one out before clicking on.*



Mental Learning Task

- If she used 10 litres of blue paint, how much yellow should she use?



Mental Learning Task

- She wants to paint a small room.
- She uses a litre of blue paint.
- How much yellow does she need?



Mental Learning Objective

- Solve simple problems involving ratio.



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.**



Main Learning Task

- In this lesson we are going to do some more work on ratio, this time using beads.



Main Learning Task

- Can two children go to the front of the class?
- Give each one a box in which to place the beads you give them.
- I also need someone to record.



Main Learning Task

- Write down how many beads of each colour there are in the boxes.
- The total number of beads.



Main Learning Task

Red beads	Blue Beads	Total number
1	2	
2	4	
3	6	
4		

- If one box has 4 red beads, how many blue beads will I need?

Main Learning Task

Red beads	Blue Beads	Total number
1	2	
2	4	
3	6	
4		

- If one box has 100 red beads, how many blue beads will I need?

Main Learning Task

Red beads	Blue Beads	Total number
1	2	
2	4	
3	6	
4		

- Why is there always an even number of beads in the blue bead box?

Main Learning Task

Red beads	Blue Beads	Total number
1	2	
2	4	
3	6	
4		

- If I had given out 30 beads in total. How many blue and how many red are there?

Main Learning Task

Red beads	Blue Beads	Total number
1	2	
2	4	
3	6	
4		

- How did you work that out?

Main Learning Task

Red beads	Blue Beads	Total number
1	2	
2	4	
3	6	
4		

- Your teacher will ask you other ratio and proportion questions.

Main Learning Task

- Simplification:- Provide coloured cubes or beads so children can model the problem.
- Challenge:- Children can invent their own total numbers and share them out in a ratio of say 1 to 6.
- What happens when the number is not divisible by 6?



Main Learning Task

- Copy and complete this table.

Red beads	Blue beads	Total number
5	10	?
?	20	?
80	?	?
?	100	?
?	?	60
?	?	180



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

- What were the answers to the table?
- How did you find this?
- Which parts were easy?
- Which were hard?



Plenary

Red beads	Blue beads	Total number
5	10	?
?	20	?
80	?	?
?	100	?
?	?	60
?	?	180

How else could we write red : blue?

How many red = 1 blue?

Plenary

- For every red bead there were two blue beads.
- The ratio of red to blue is 1 to 2.
- The number of blue beads is twice the number of red beads.



Review of Key Idea

- I can make generalisations.
- Did you learn this in this lesson?



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