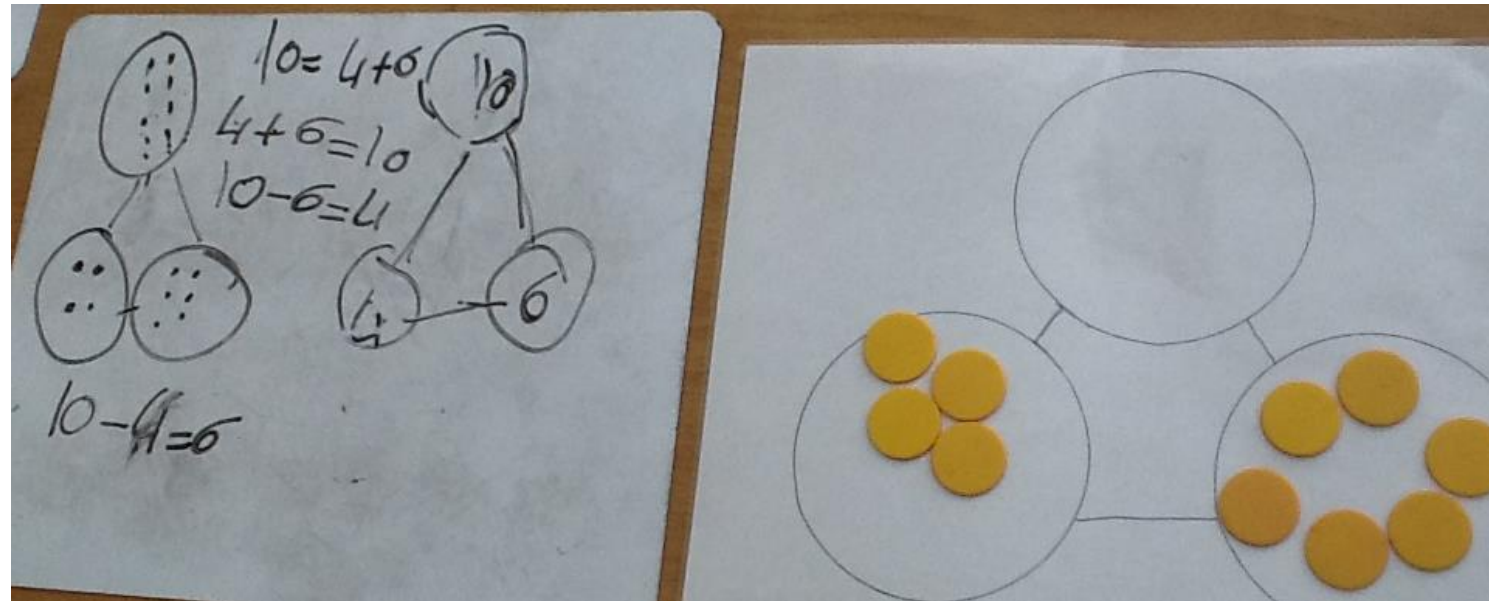


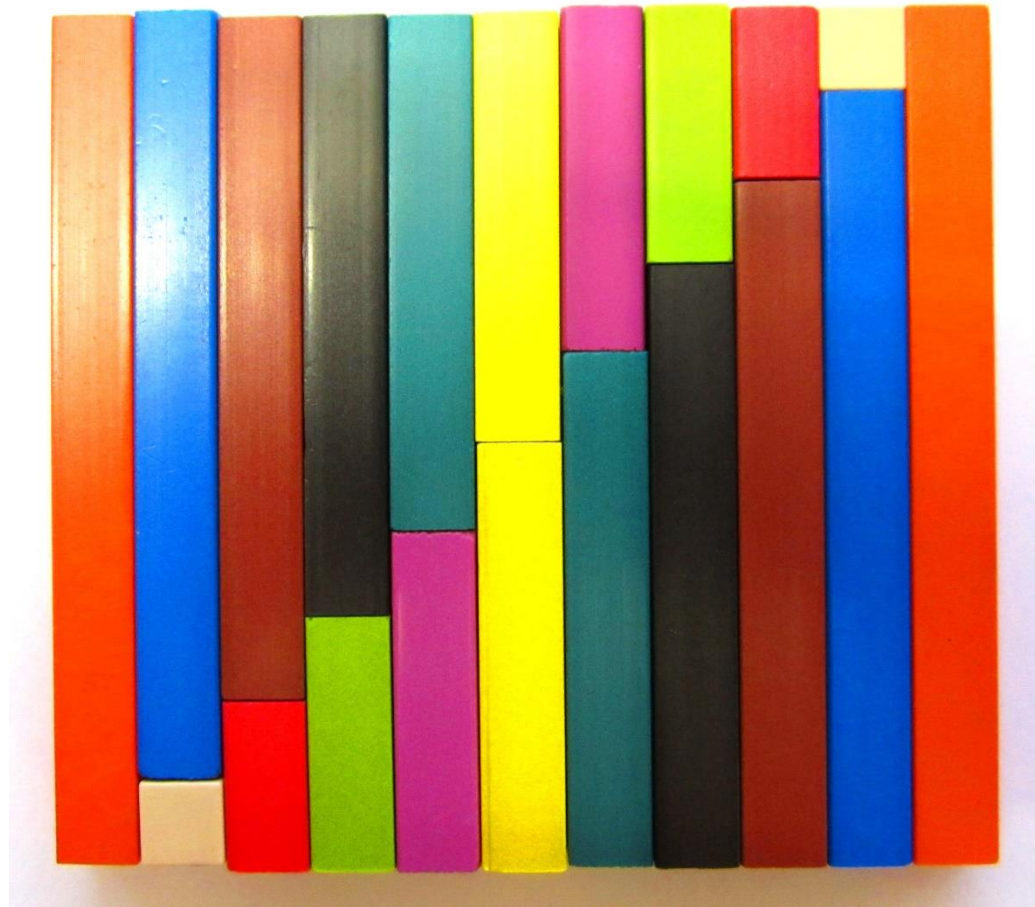
Progression from equipment to diagrams



By

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Explore the equipment and talk about it!



Familiarisation Activities

- Matching rods to pictures
- Making patterns and talking about them
- Put the rods in order of length

Behind the back games WRPBr

- Find me two rods equivalent to...
- Find me a rod the same as / longer than / shorter than
- If the ... rod represents....

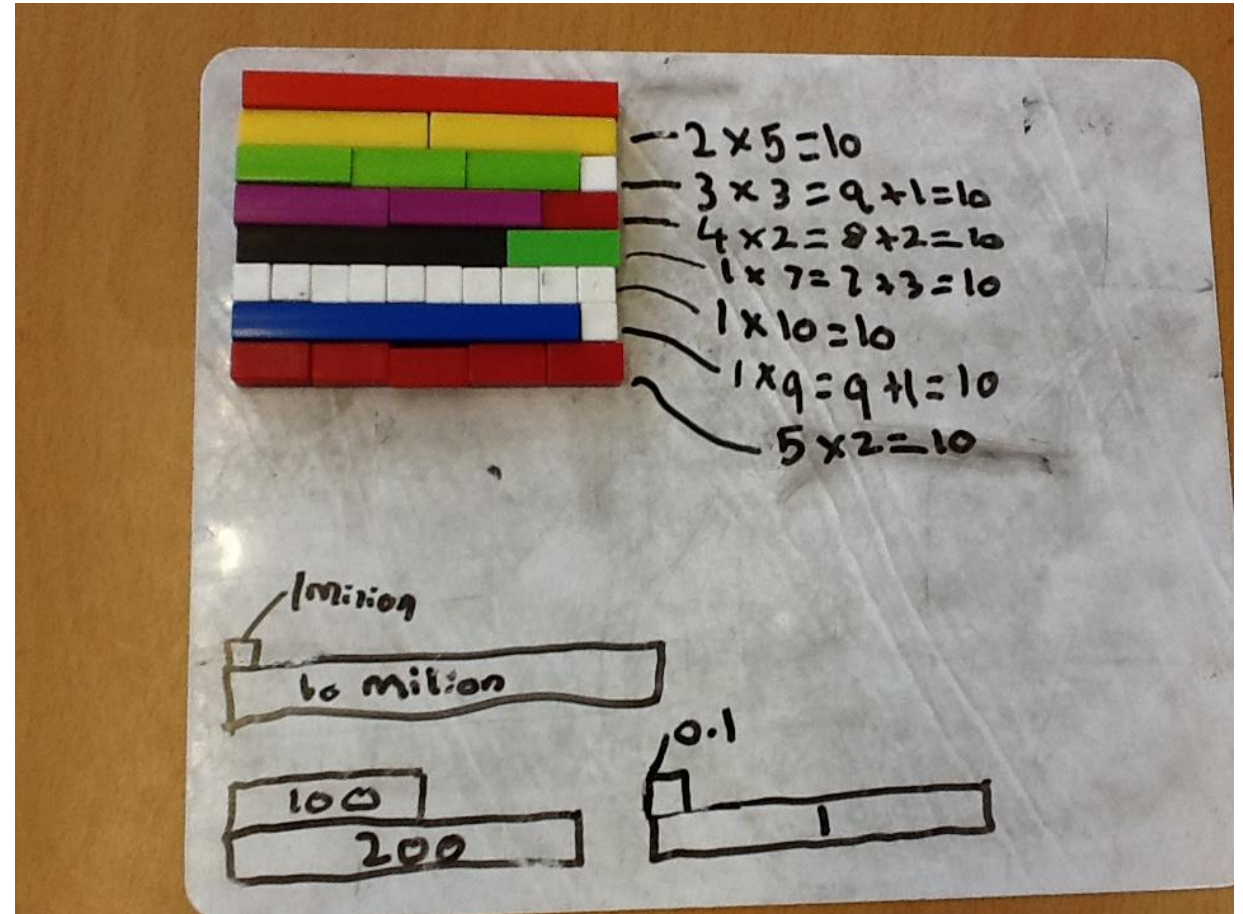
Why use?

Call one anything.

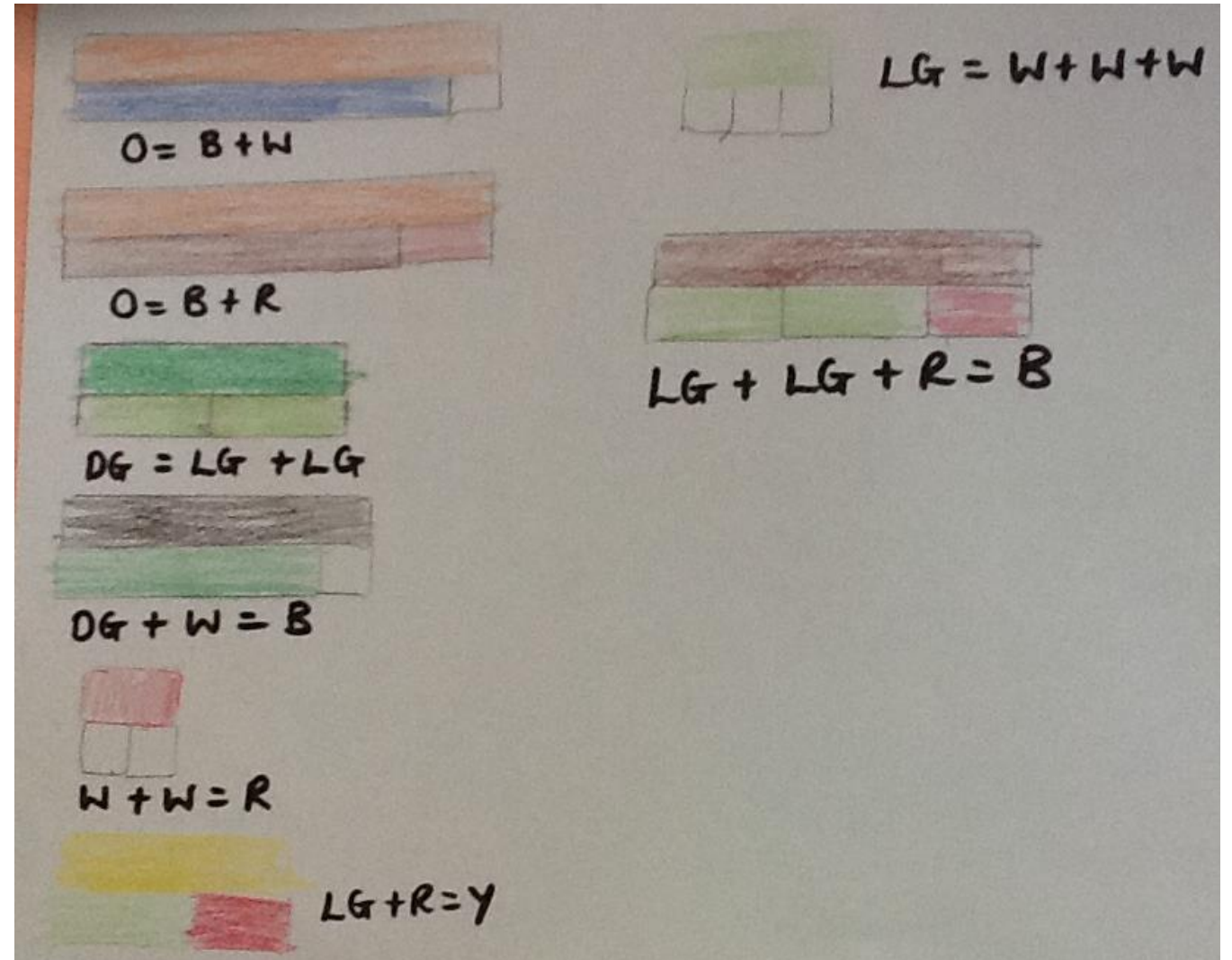
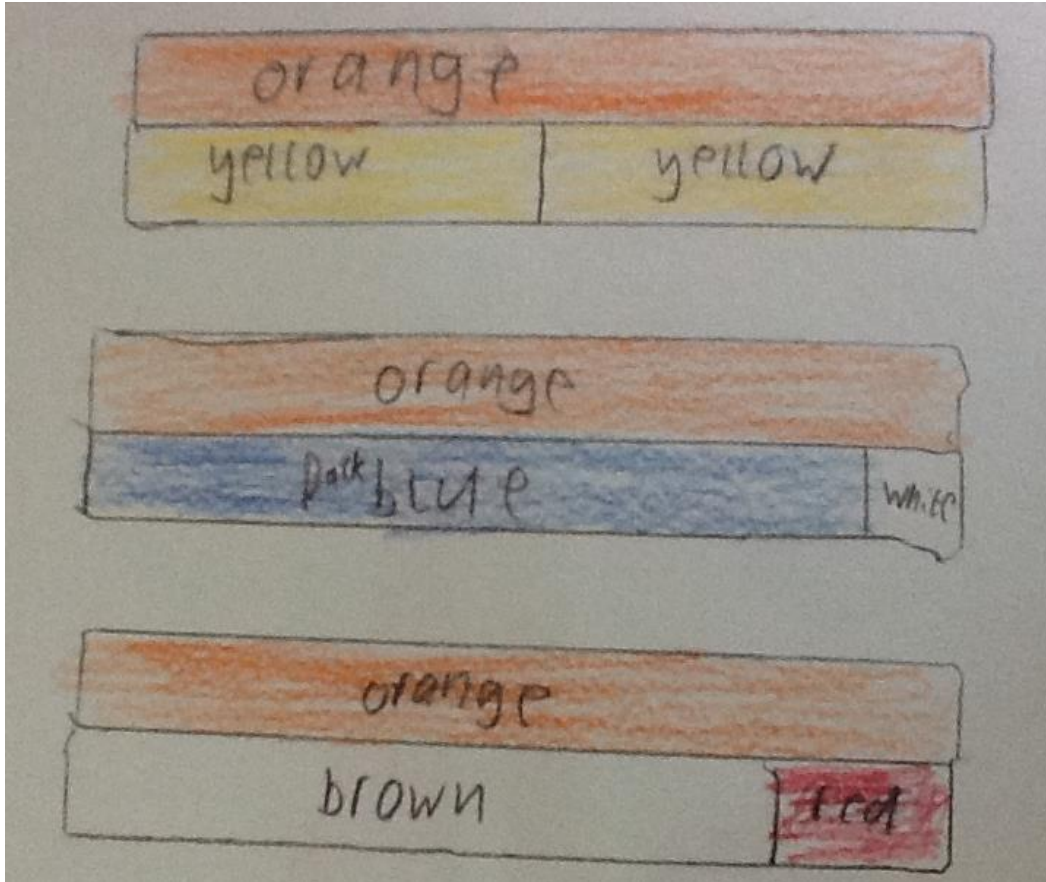
Watch the video. Get children to explore with the rods.



<https://www.youtube.com/watch?v=sbsPK3LXVLc>



Explore relationships between rods.





Proportion

Take a strip and a paperclip:



If the strip represents 10, show me 5.

If the strip represents 100, show me 50.

If the strip represents 100, show me 75.

If the strip represents 100, show me 25.

If the strip represents 1, show me 0.25.

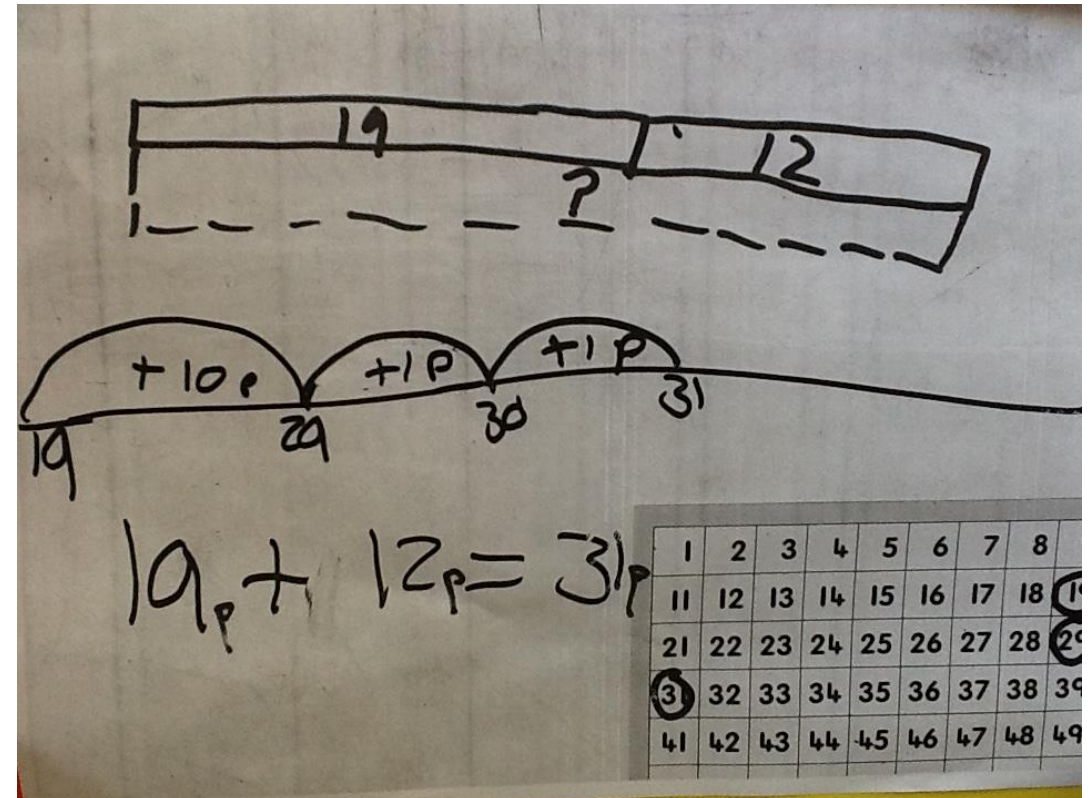
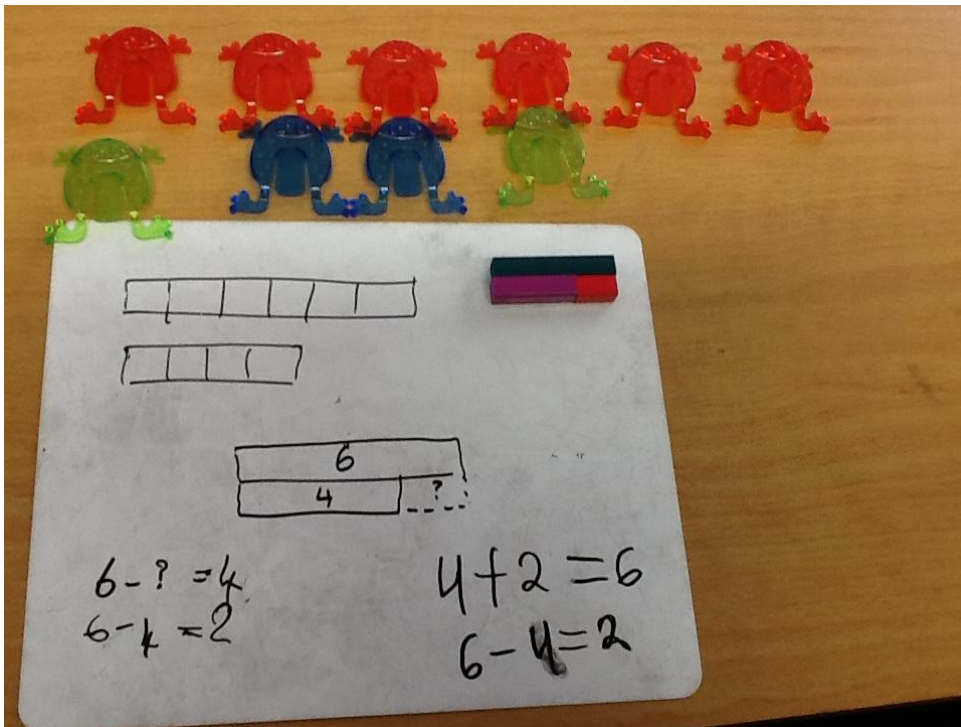
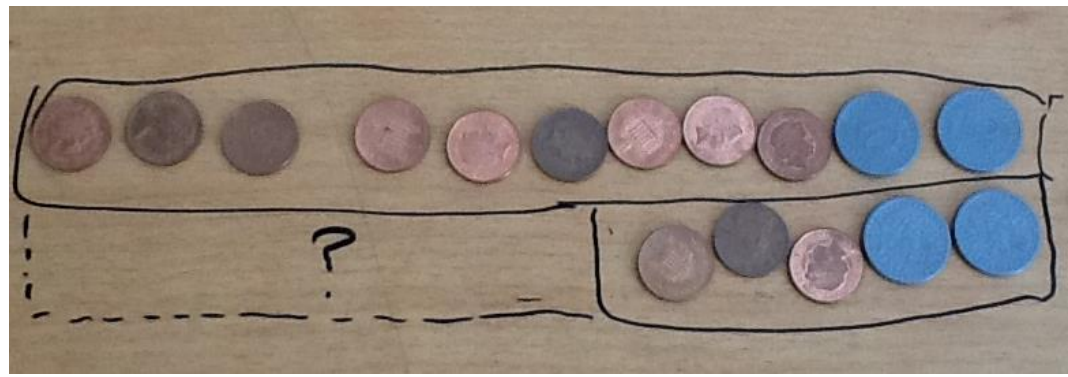
If the strip represents 2, show me 2.5.

If the strip represents 86, show me 30.

Which develop fluency/which develop conceptual understanding?

Make connections.

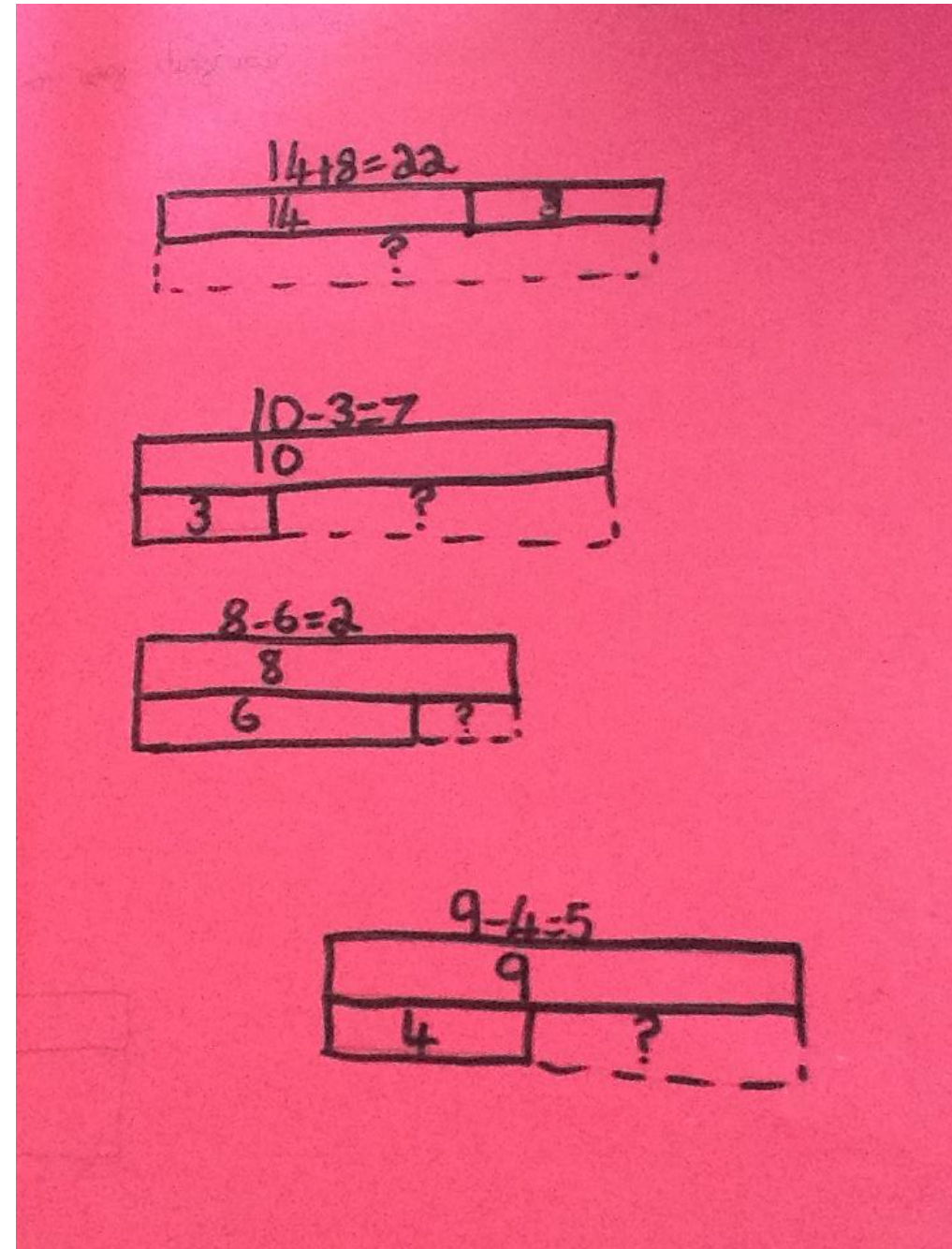
- Children need to have lots of experience of moving from concrete to abstract and seeing equipment alongside linear images.



Bar model.

A bar model is a picture that represents the problem.

Model the bar model and discuss proportion



Can you show these using
equipment?

Can you draw a bar model for
these?

Addition and subtraction.

- Tom has a bag of 6 marbles. His friend gives him 2 more. How many does he have now?
- Kelsey was running a 100 mile marathon. After 80 miles she felt very tired. How many more miles did she have to run?
- Ali had £100. He bought a DVD for £60 and a CD for £20. How much money did he have left?

What do we know?

What is the unknown?

Whole/Part relationship

Multiplication and division.

- If I give 5 chocolates to each of my 9 friends. How many chocolates did I have?
- The children are having a picnic. There are 6 children and 24 sandwiches. How many sandwiches will each child get?
- My mum baked 12 cakes. There are 3 children in the family. If mum shares the cakes between the children how many will they get each?

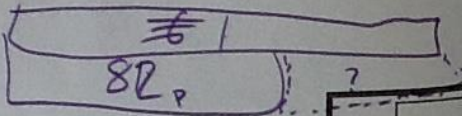
What do we know?

What is the unknown?

Whole/Part relationship

Link Bar model to the connections mat.

Picture



Story

Mrs. L had £1 in her purse. She spent 82p. How much change will she get from her £1?

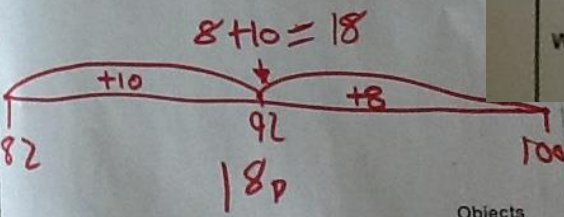
Number Sentence

$$£1 - 82p = 18p$$

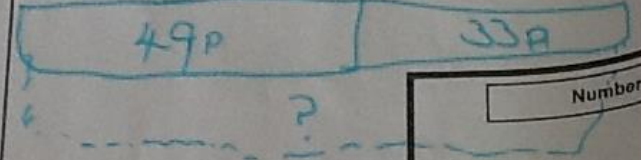
Words

Less
—
takeaway

Objects



Picture



Story

Mrs. L buys a toy car at 33p and a power ranger at 49p. How much do they cost altogether?

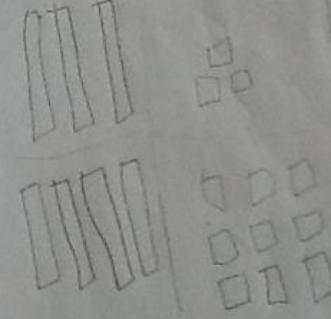
Number Sentence

$$49p + 33p = 82p$$

Words


+ add

Objects



Connection mats can be used in lots of different ways.

Picture



Story


One day Bob ^{the Builder} fixed a shed roof, which cost £7.92. The owner paid with a £10 note. What change would the owner get back?

Number Sentence

£10 - £7.92

Subtraction

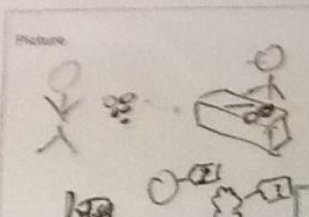
Objects



£10

TEN

Picture



Story

A girl went to a yard sale and bought a pen and 2 rubbers for £2.14. The pen cost £1.50. How much does 1 rubber cost?

Number Sentence

$2.14 - 1.50 = ?$


$? \div 2 = 32p$

Subtraction

Division

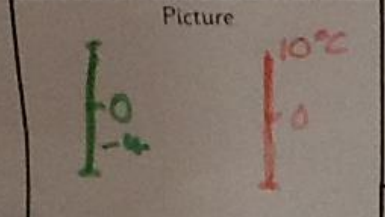
Words

Objects



£1.50

Picture



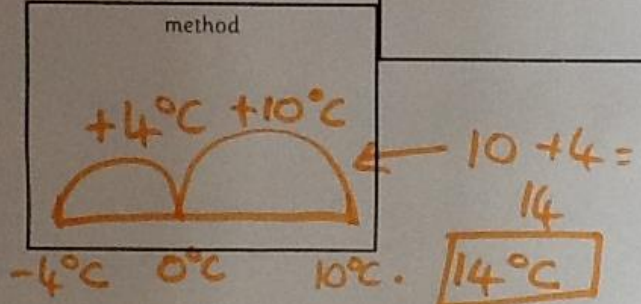
Story

The temperature was -4°C . It is now 10°C . How much has it risen?

Number sentence

$10^{\circ}\text{C} - -4^{\circ}\text{C} = ?$

method



$+4^{\circ}\text{C} + 10^{\circ}\text{C}$

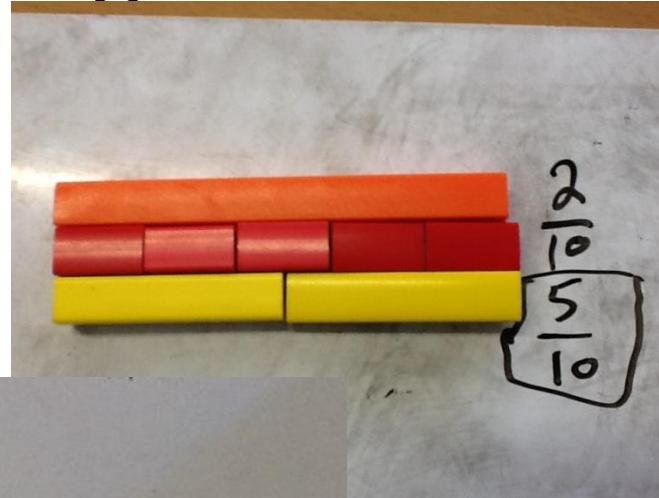
$10 + 4 = 14$

$-4^{\circ}\text{C} \quad 0^{\circ}\text{C} \quad 10^{\circ}\text{C} \quad 14^{\circ}\text{C}$

Vocabulary

rise

Ideas for extending children's thinking...



Sophie and Bailey

Can I solve problems using division?

$76 \div 4 = 18$

76
4

Answer: 18

Right or Wrong?

Answer: 18

90
6

Answer: 18

Right or Wrong?

10x6 5x6
0 60 + 30 = 90
10+5=15

$\frac{1}{4} = 1 = \frac{4}{4}$

$\frac{3}{4} = 1 = \frac{4}{4}$

$\frac{2}{4} = 1 = \frac{4}{4}$

$\frac{1}{4} + \frac{1}{4} = 1 = \frac{4}{4}$

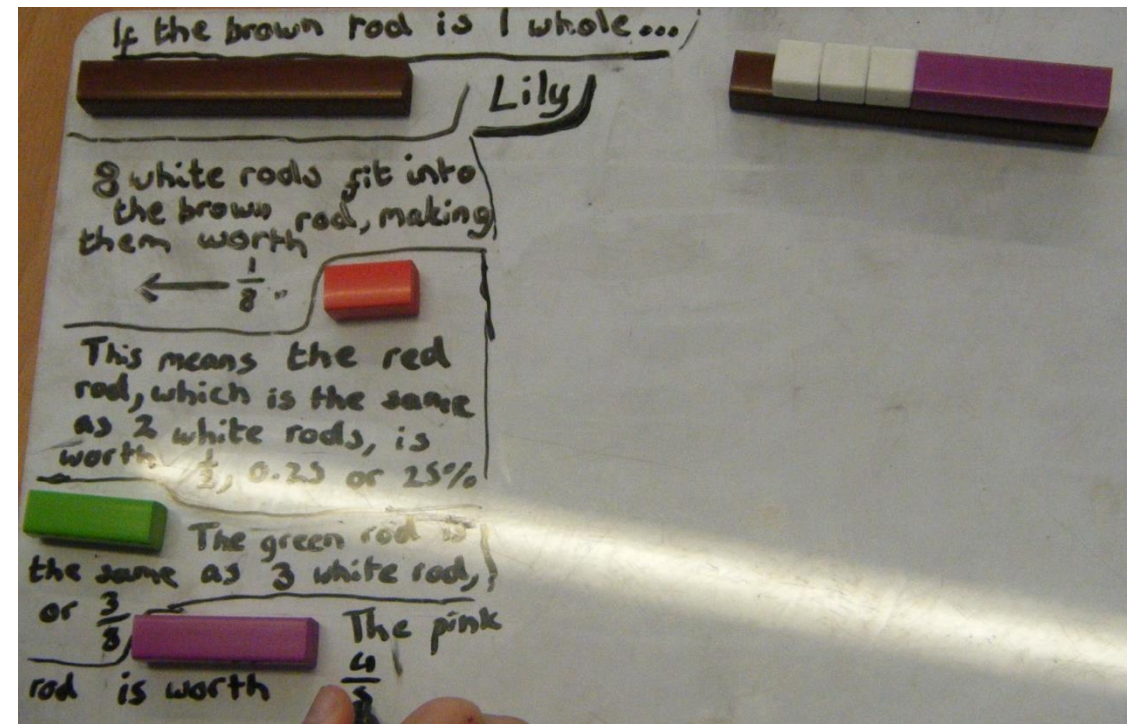
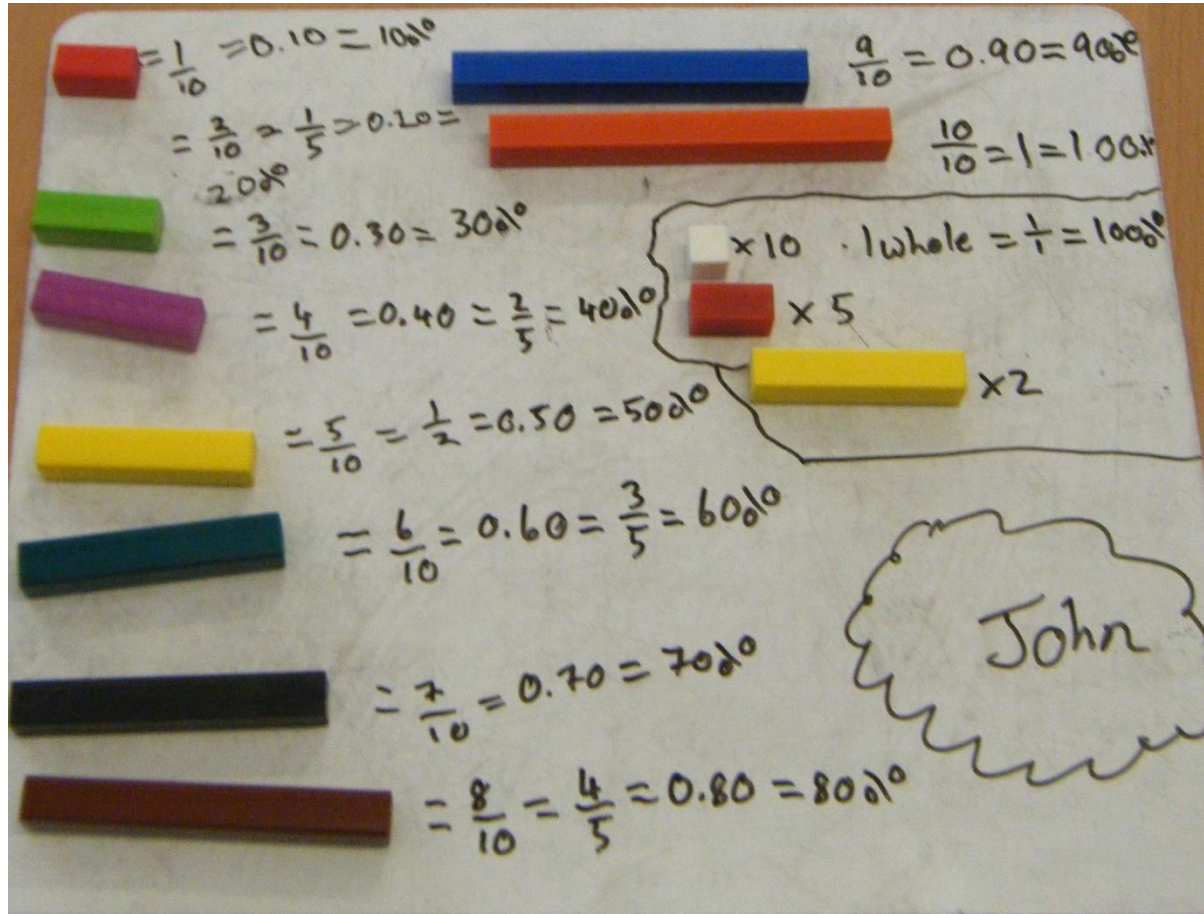
$\frac{3}{4} + \frac{1}{4} = 1 = \frac{4}{4}$

$\frac{2}{4} + \frac{2}{4} = 1 = \frac{4}{4}$

$\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = 1 = \frac{4}{4}$

$\frac{3}{4} + \frac{1}{4} = 1 = \frac{4}{4}$

$\frac{2}{4} + \frac{1}{4} + \frac{1}{4} = 1 = \frac{4}{4}$



What could this bar model be showing?



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