

# Introduction to Bar Modelling

Boolean Maths Hub 30.1.16  
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# KS2 2012

24

In a class, 18 of the children are girls.

A quarter of the children in the class are boys.

Altogether, how many children are there in the class?



Show  
your  
working



# Bar Modelling

Laura had £240. She spent  $\frac{5}{8}$  of it.

How much money did she have left?

Why were Singapore so successful?

*They used a particular representation which enabled pupils to access the structure of the mathematics.*

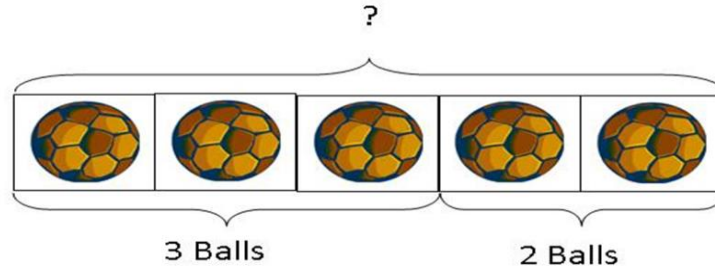
*Overall percent correct:*

*Singapore: 78%,  
United States: 25%*

# Addition - Aggregation

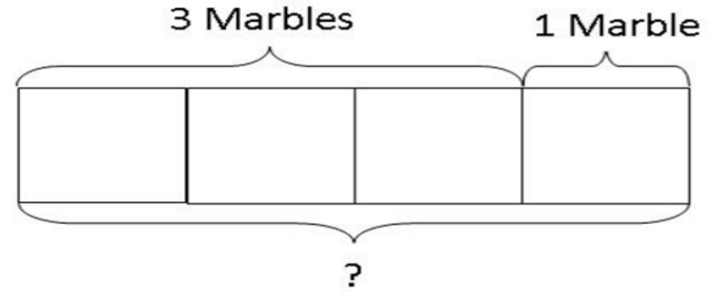
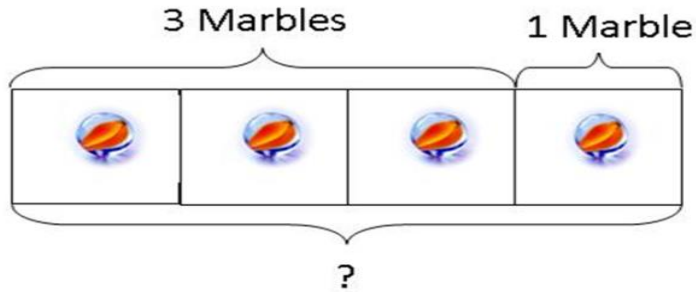
There are 3 footballs in the red basket and 2 footballs in the blue basket.

How many footballs are there altogether?



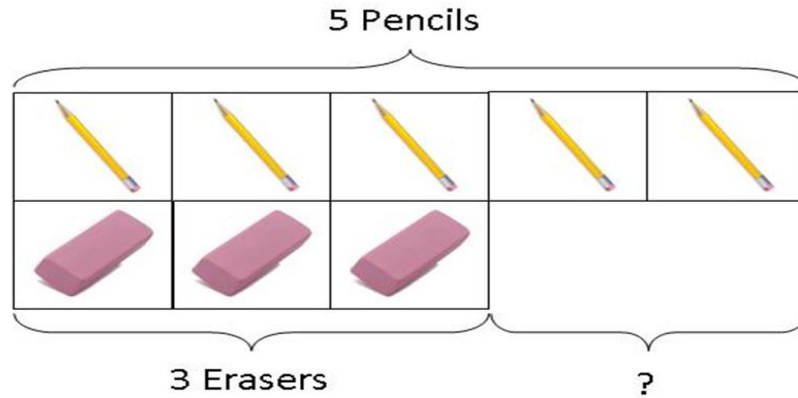
# Addition: Augmentation

Peter has 3 marbles. Harry gives Peter 1 more marble. How many marbles does Peter have now?



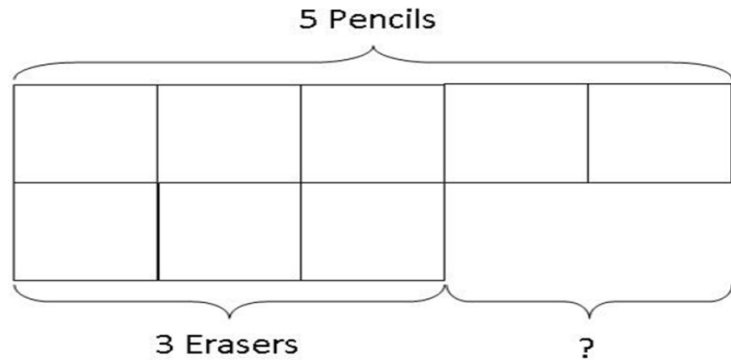
# Subtraction: Comparison Model

Peter has 5 pencils and 3 erasers. How many more pencils than erasers does he have?

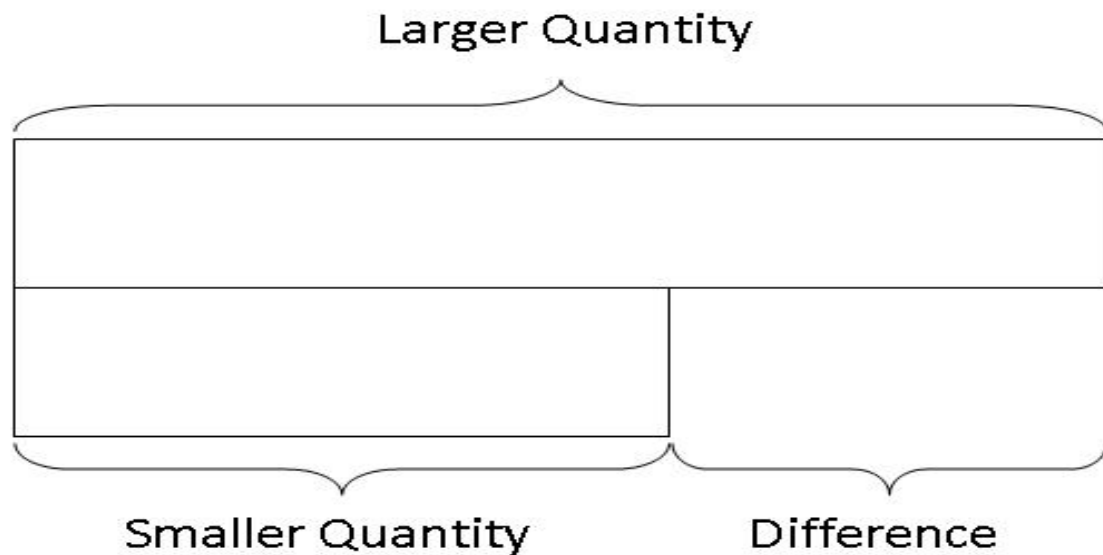


# Moving to the abstract

Peter has 5 pencils and 3 erasers. How many more pencils than erasers does he have?



# Generalisation





# Problems to solve

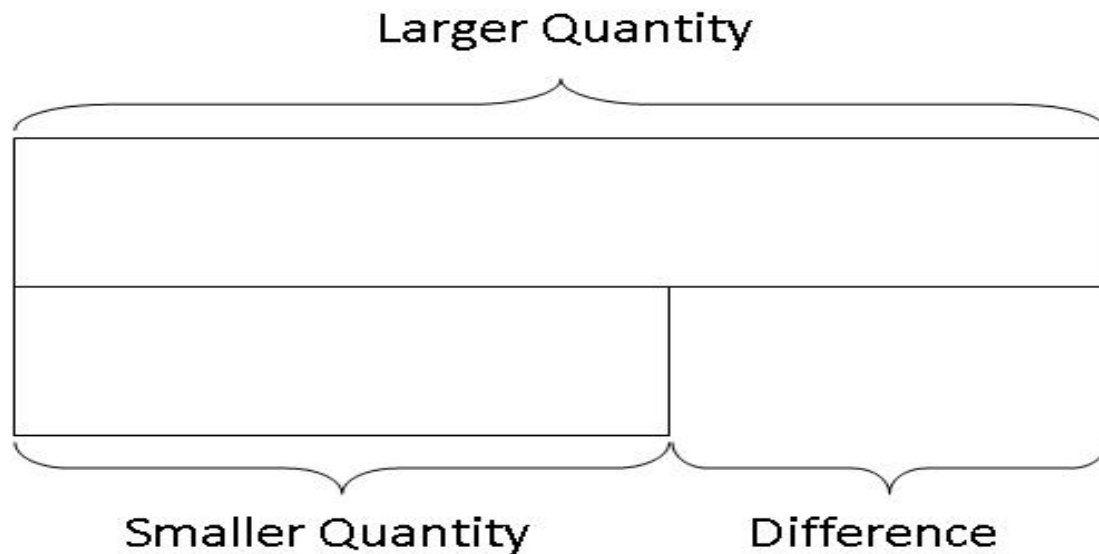
Tom has a bag of 64 marbles. His friend gives him 28 more. How many does he have now?

Kelsey was running a 26 mile marathon. After 18 miles she felt very tired. How many more miles did she have to run?

Carly bought an apple for 17p and a banana for 26p. How much has she spent?

Ali had £10. He bought a DVD for £6.70 and a CD for £2.90. How much money did he have left?

# Cuisenaire Investigations



# Multiplication / Division

Peter has 4 books Harry has five times as many books as Peter. How many books has Harry?

4

4 4 4 4 4

# Multiplication / Division

Helen has 9 times as many football cards as Sam. Together they have 150 cards. How many more cards does Helen have than Sam?

The sum of 2 numbers is 64. One number is 7 times as big as the other. What is the smaller number?

Sam had 5 times as many marbles as Tom. If Sam gives 26 marbles to Tom, the two friends will have exactly the same amount. How many marbles do they have altogether?

Ralph posts 40 letters, some of which are first class, and some are second. He posts four times as many second class letters as first. How many of each class of letter does he post?



# A different way?

24

In a class, 18 of the children are girls.

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Show your working

# Ratio



Tim and Sally share marbles in the ratio of 2:3  
If Sally has 36 marbles, how many are there altogether?

# Ratio

A herbal skin remedy uses honey and yoghurt in the ratio 3 : 4.  
How much honey is needed to mix with 120 g of yoghurt?

A health bar sells desserts with chopped apricot and yoghurt in the ratio 2 : 5. How much chopped apricot will be mixed with 150g of yoghurt?



# How would you solve this problem?

Penny had a bag of marbles. She gave one-third of them to Rebecca, and then one-fourth of the remaining marbles to John. Penny then had 24 marbles left in the bag. How many marbles were in the bag to start with?

(Overall percent correct: Singapore 81%, United States 41%)

# Useful websites

<http://www.mathplayground.com/thinkingblocks.html>

<https://www.tes.com/news/blog/how-help-every-child-understand-ratio-%E2%80%93-method-2>

# Apply to some routine word problems

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/439414/Sample\\_ks2\\_mathematics\\_paper2\\_reasoning.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/439414/Sample_ks2_mathematics_paper2_reasoning.pdf)

# And a non-routine problem

<http://nrich.maths.org/content/id/2421/Andys%20marbles%20problem.pdf>

# ncetm assessment materials

<https://www.ncetm.org.uk/resources/46689>

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