Maths – Bar Modelling

A workshop for parents

Thursday 7th November 2019

Aims

~ Importance of Maths
~ Our school data
~ Revise our school approach
~ Understand bar modelling
~ Know how to use bar models when solving word problems

Why is maths important?

~ Links to everyday life – money, time, finances
~ Career opportunities
~ Understanding of the world around us
~ Self-confidence
~ Compulsory to GCSE

How many times have you used maths today?

How many times have you used maths today?

- Reading the clock – what is the time? How long can I stay in bed for before I'll be late for work?
- Checking the date on the milk carton
- Weighing yourself
- Filling up a water bottle – 1000ml = 1L
- Reading the temperature – addition/subtraction, compare temp to yesterday
- Checking the speed dial on your car – Oh no! I am 5 mph over the speed limit!
- Counting – how many times were you stopped by a red light?
- Etc, Etc

"Good numeracy is the best protection against unemployment, low wages and poor health".

Andreas Schleicher of the OECD

Statutory End-of-Key-Stage Tests

~ 2014 New Primary Curriculum
~ Increased expectations of children in all year groups
~ Removal of calculator paper
~ Removal of mental maths paper
~ Instead: arithmetic and two reasoning papers

School data YEAR 2

71% ARE 2017

66.2% ARE 2018

73% ARE 2019

Target: 85.2% ARE 2020

School data YEAR 6

39% ARE 2017

58% ARE 2018

71% ARE 2019

Target: 82.6% ARE 2020

What has enabled us to improve?

~ Consistent approach (new calculation policy from 2018)

~ Plugging gaps

~ Revising key skills

~ Greater exposure to abstract problems

~ Times table challenges

~ Problem of the month

~ Encouraging children to be resilient

Barriers to supporting children at home

- Time
- Knowledge of approach to use
- Knowledge of year group expectations

Maths with Parents

Parent Launch

www.mathswithparents.com
@parentmaths

Crown Wood Primary School

Mathematics Mastery

Working together

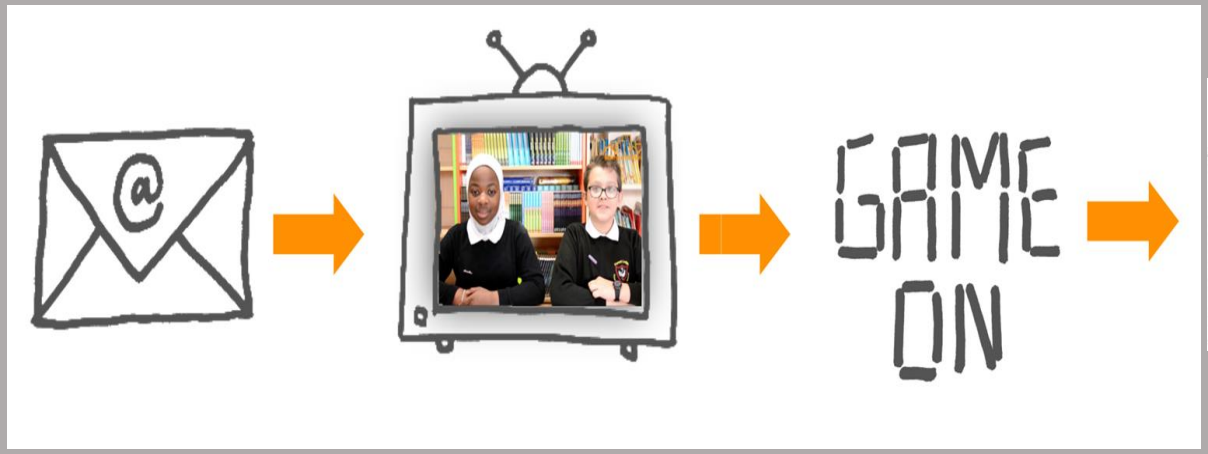
Child

Maths with Parents

Parent

School

How it works



Alison recently learnt 3 digit place value at school.

Watch the video below and then play the activities together

Activities for Alison

Place Value Battle

Explore

Zap Zone

Explore

Four Digit Targets

Explore

Exit Class

Did you enjoy it?

Family comment:

What did Alison find easy or difficult in this activity?

Alison's comment:

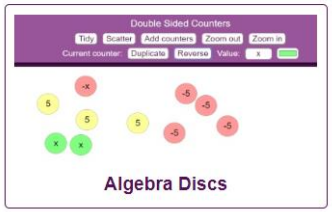
What did you enjoy? Let your teacher know!

CLOSE ACTIVITY

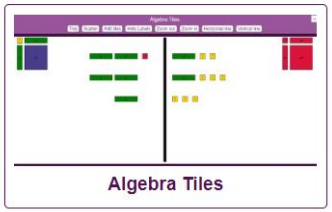
Hi Alison, welcome to your homepage

MathsBot.com

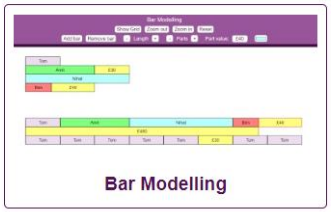
Manipulatives



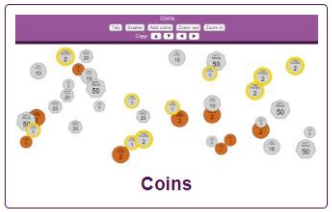
Algebra Discs



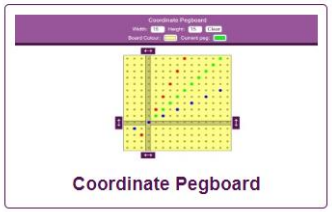
Algebra Tiles



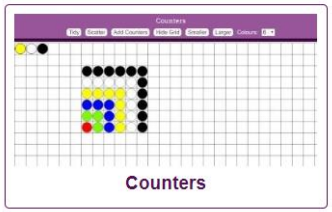
Bar Modelling



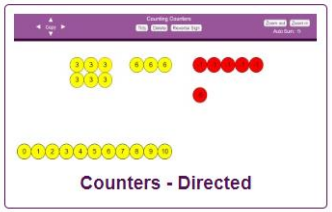
Coins



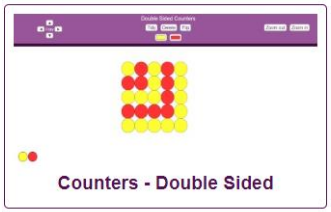
Coordinate Pegboard



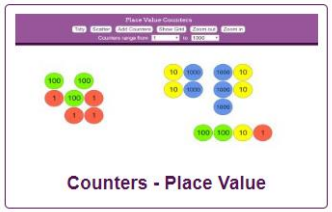
Counters



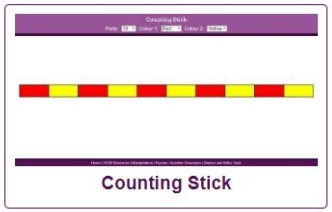
Counters - Directed



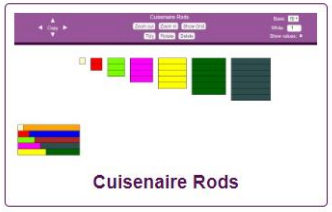
Counters - Double Sided



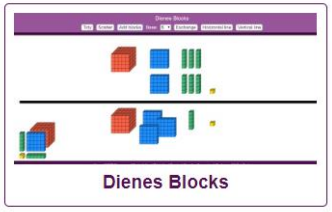
Counters - Place Value



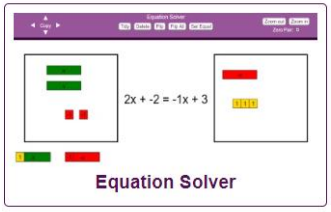
Counting Stick



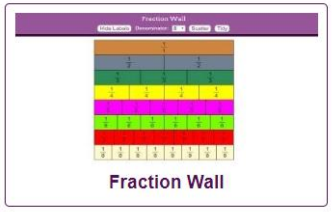
Cuisenaire Rods



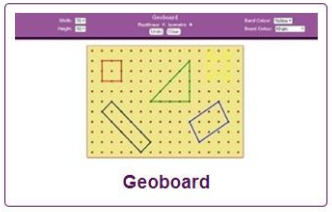
Dienes Blocks



Equation Solver



Fraction Wall



Geoboard

MathsBot.com

Copy

Dienes Blocks

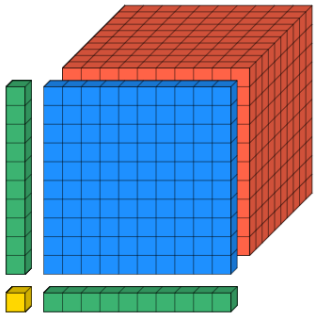
Tidy Rotate Delete Exchange Move Back

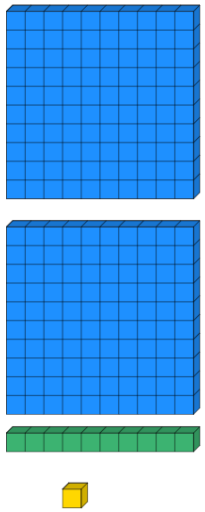
Horizontal line Vertical line

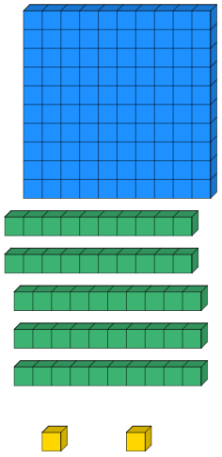
Zoom out Zoom in

Table Grid None

Base: 10 3D:








PiXL

PiXL

Results analysis

KNOWLEDGE

Practice (no time limit)

1 Times table

Begin activity

TIME ATTACK

Beat your best times!

1 Times table

Begin activity

Earn trophies

THE CHECK

25 timed questions

Begin activity

Earn trophies

TROPHIES

Your rewards system

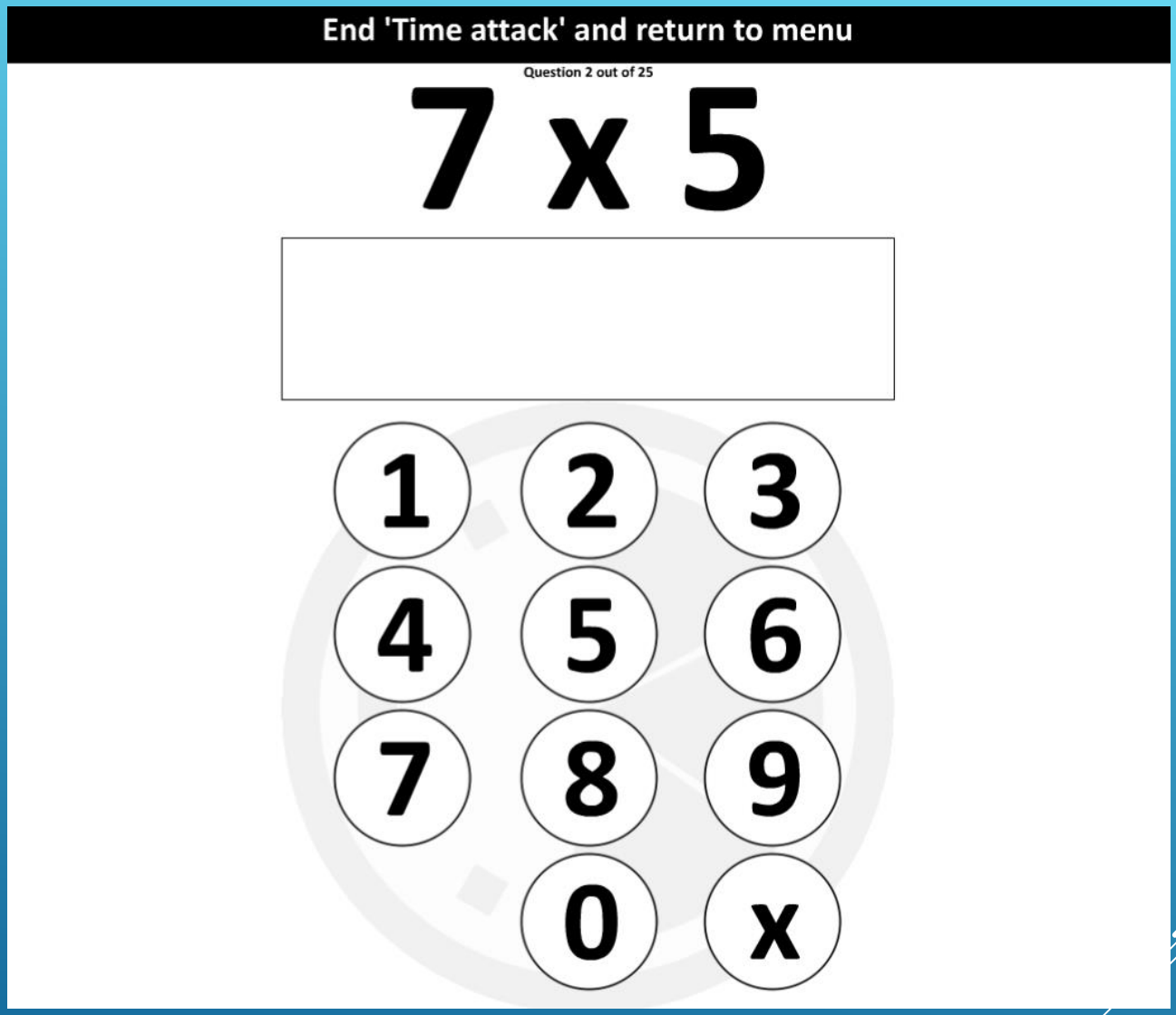
Click here for the Fastest Times

View

RAFT RUN

Earn trophies

Begin activity


End 'Time attack' and return to menu
Question 2 out of 25
7 x 5
1
2
3
4
5
6
7
8
9
0
x

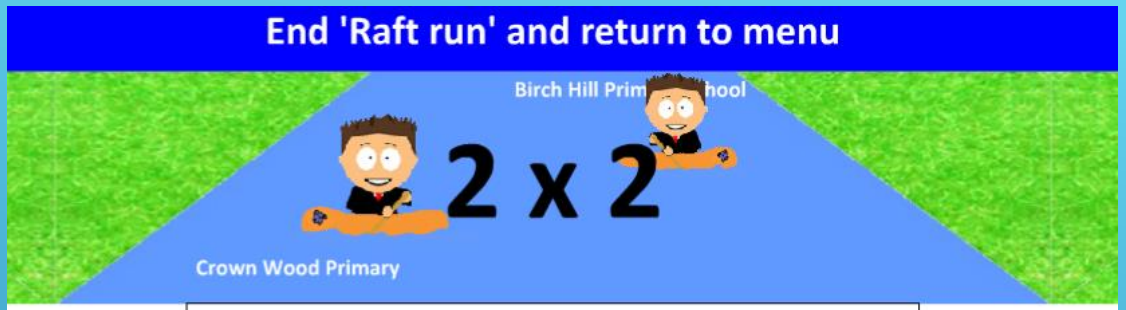
End 'The test' and return to menu

Question 3 out of 25

12 x 2

1	2	3
4	5	6
7	8	9
	0	x

End 'Raft run' and return to menu



1	2	3
4	5	6
7	8	9
	0	x

PiXL

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RAFT RUN

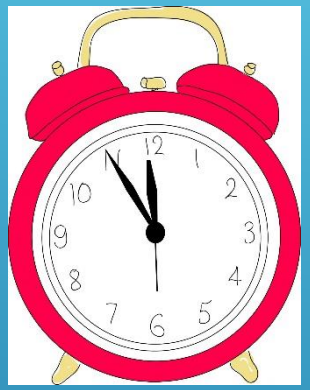
Earn trophies

Begin activity

What can you do?

~ Practical ways
~ Fun ways
~ Doesn't have to take lots of time
~ Not about teaching but about relating maths to life

Telling the time (purposeful)



Cooking

Spotting shapes or numbers on walks

Counting
Counting in 2s/5s

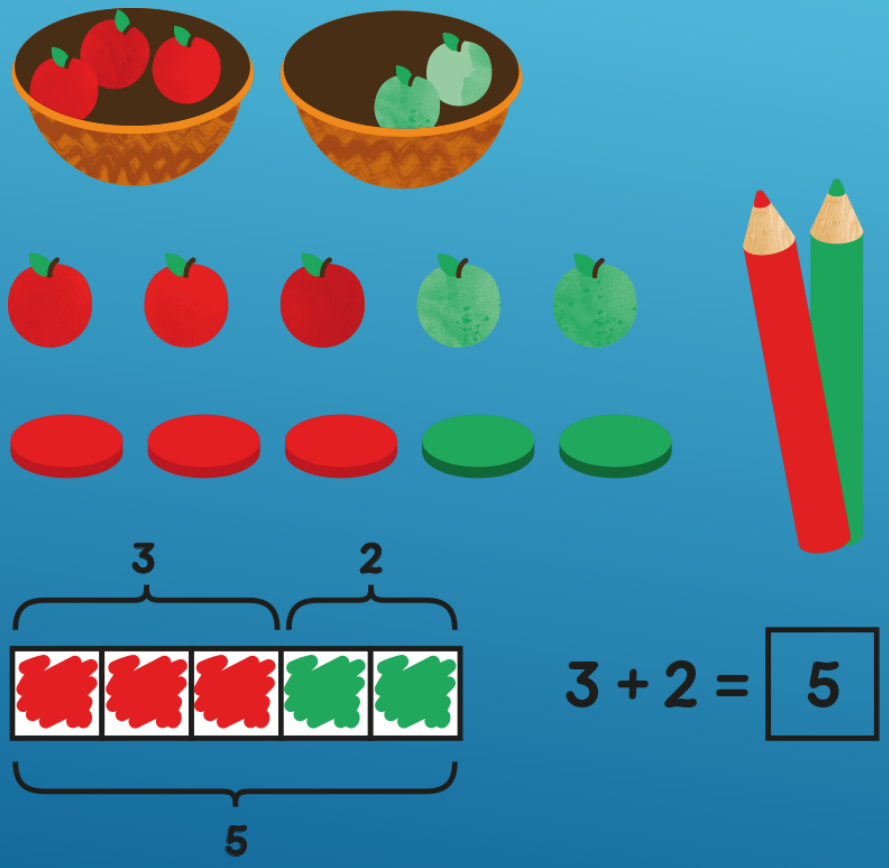
Shopping/change

Sharing items

Timetables

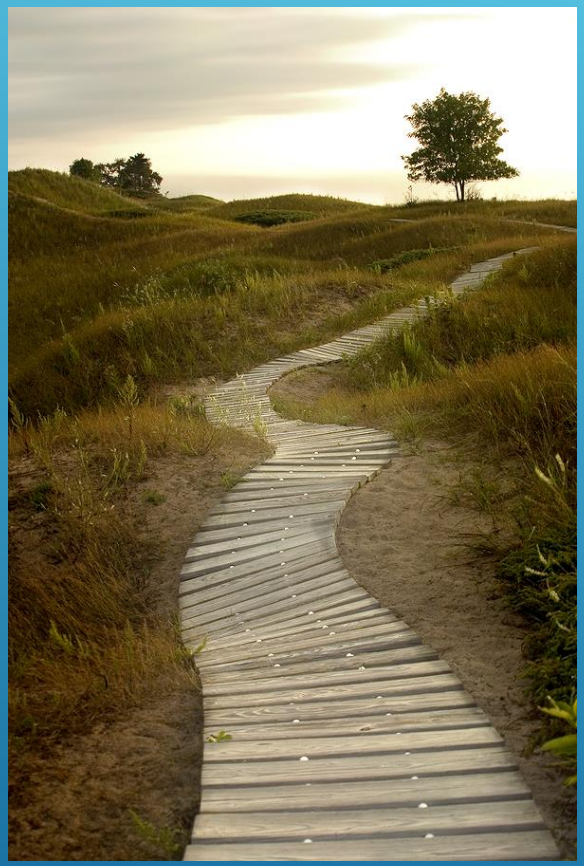
Travel – distance, time, measures

The Methods We Use



The Journey of Addition

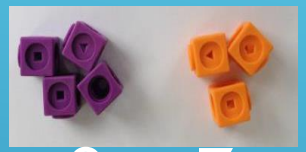
Abstract



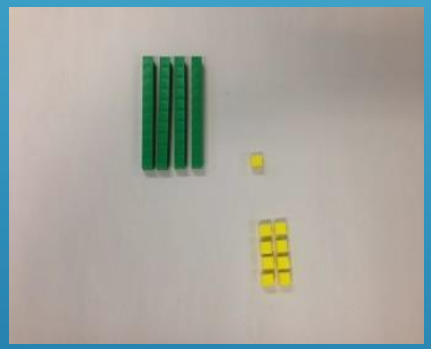
Pictorial

Concrete

Years 1 and 2

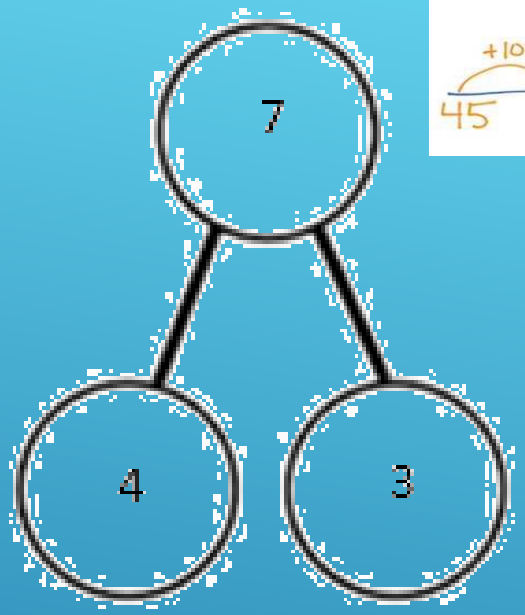


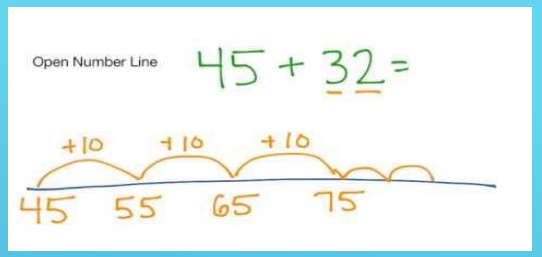
4 + 3 = 7



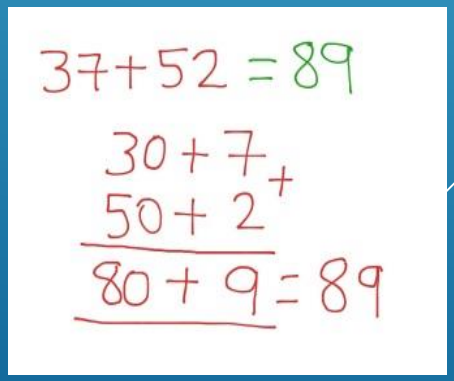
41 + 8 = 49

4 + 2 = 6

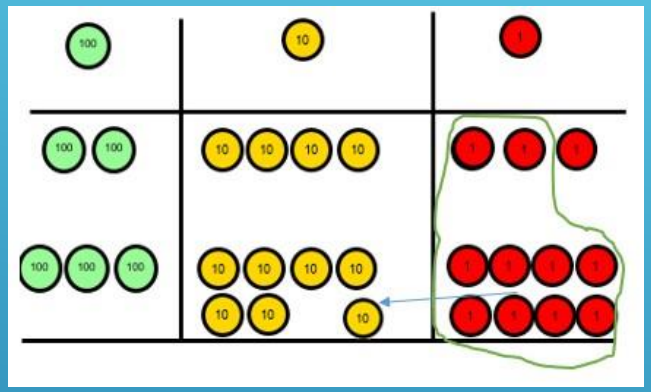




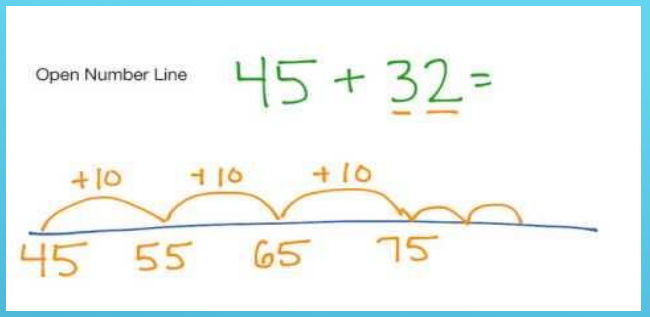
8 = 6 + [ ]



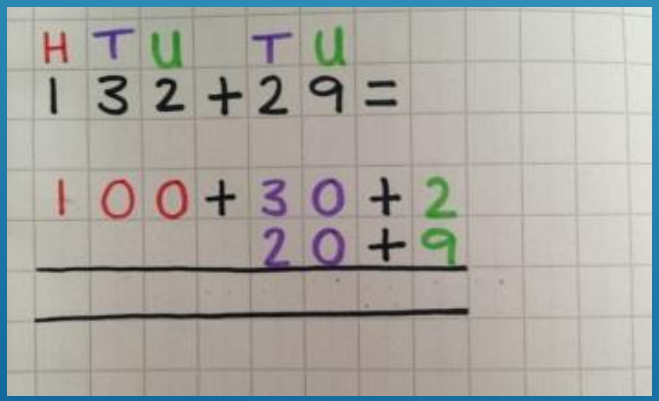
Year 3

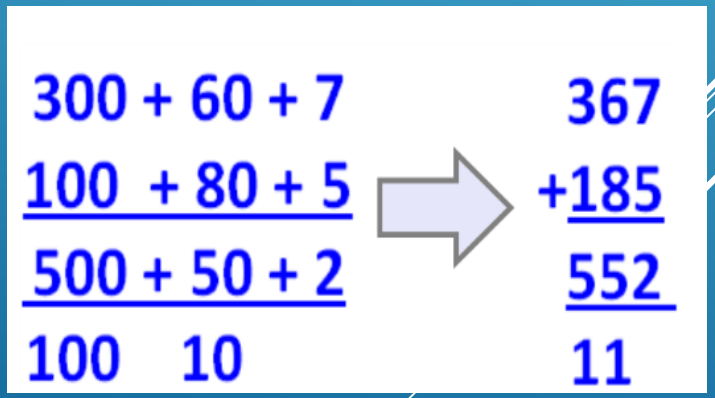


243 + 368



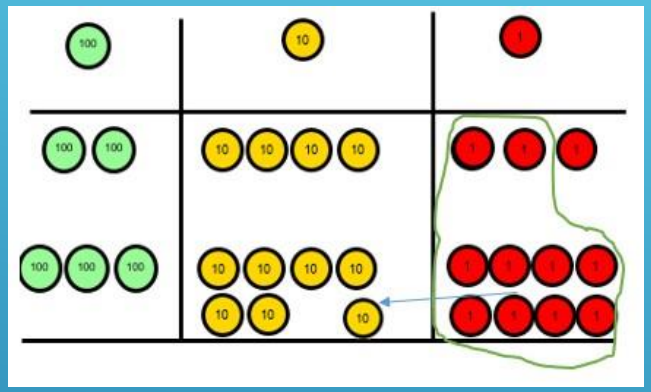
?	
243	368





Years 4 to 6

?	
243	368



243 + 368

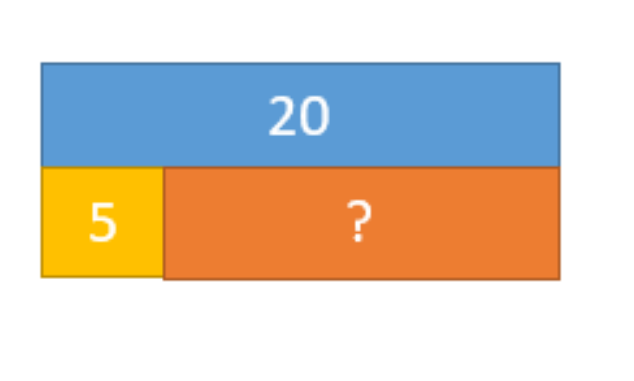
$$\begin{array}{r} 243 \\ +368 \\ \hline 611 \\ \hline {\scriptstyle 1\ \ 1\ \ } \end{array}$$

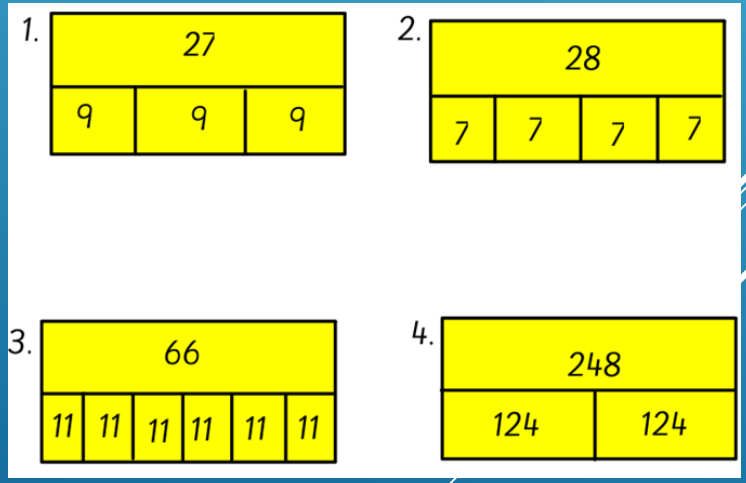
300 + 60 + 7	367
100 + 80 + 5	+185
500 + 50 + 2	552
100 10	11

12.5 + 23.7	34.5 + 27.43
12.5	34.50
+ 23.7	+ 27.43
36.2	61.93
1	1

Bar Models - Pictorial

Bar models are visual representations of problems or ideas that can be used for any of these operations: subtraction, addition, multiplication and division. In word problems, **bar models** have the big benefit of helping children to decide which operations they can use or how to visualise problems.





Year 1

14

Beth has **5** more stickers than Tim.

Tim has **11** stickers.

How many does Beth have?

Write the number sentence you would use to solve the problem.

			=	

1 mark

Year 1

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			=	

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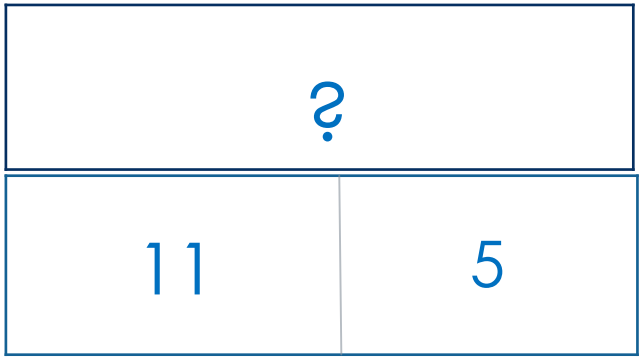
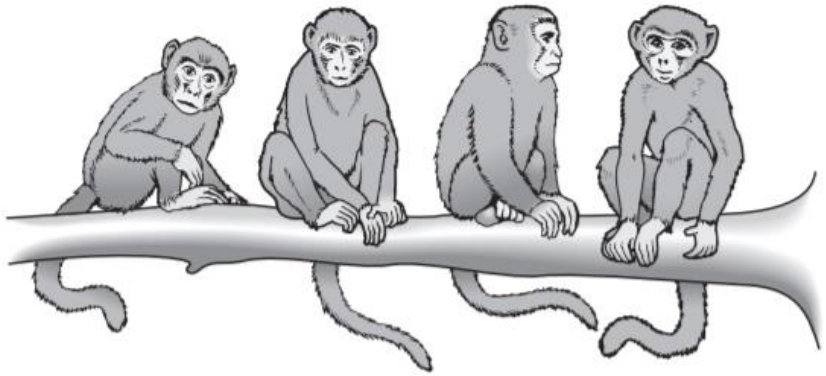


Year 2

14 **20** bananas are shared equally among **4** monkeys.

How many bananas does **each** monkey get?



bananas

Year 2

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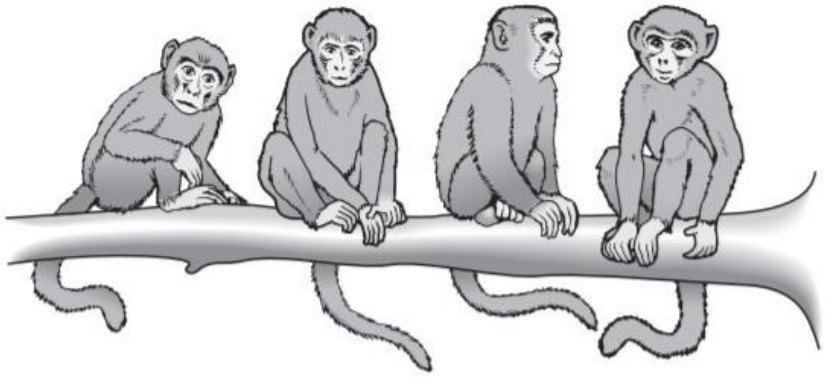
How many bananas does **each** monkey get?



20			
5	5	5	5

bananas

20 divided by 4 = 5

Year 2

21 Ajay, Sam and Kemi have 4 conkers each.

How many conkers do they have **altogether**?

conkers

16

A shopkeeper has **20** fish and **5** fish bowls.

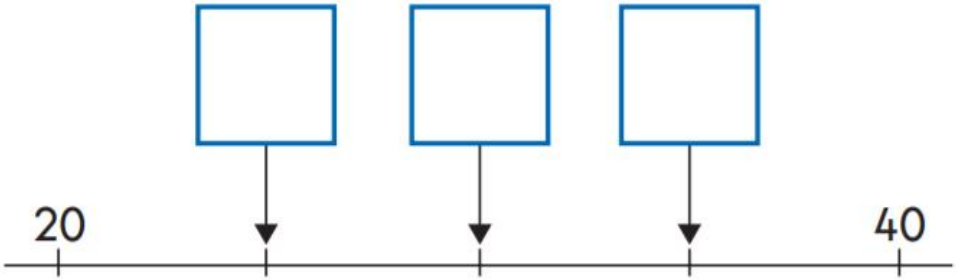
He puts the same number of fish in each bowl.

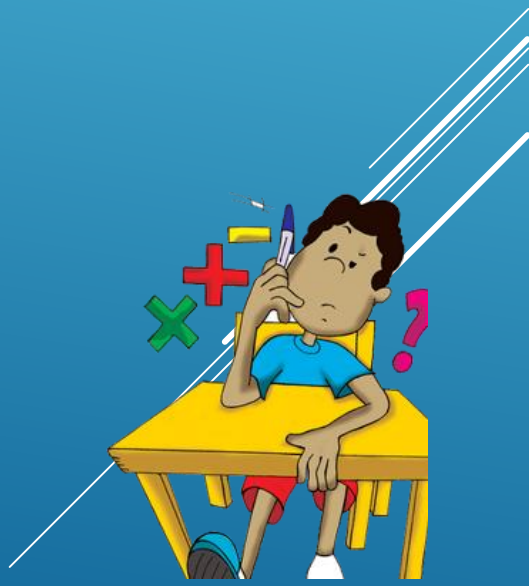
How many fish go in each bowl?

fish

20 The numbers on this number line go up by the **same amount** each time.

Write the missing numbers in the boxes.





Year 3

21.

On Saturday, a total of 465 people went on the London Eye.

129 people went on it in the morning.

207 people went on it in the afternoon.

The rest went on it in the evening.

How many people went on it in the evening?

Show your working.

people

2 marks

Year 3

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On Saturday, a total of 465 people went on the London Eye.

129 people went on it in the morning.

207 people went on it in the afternoon.

The rest went on it in the evening.

How many people went on it in the evening?

Show your working.

people

2 marks

465		
129	207	?
Morning	Afternoon	Evening

Year 4

18

A group of 150 children choose their favourite sports.

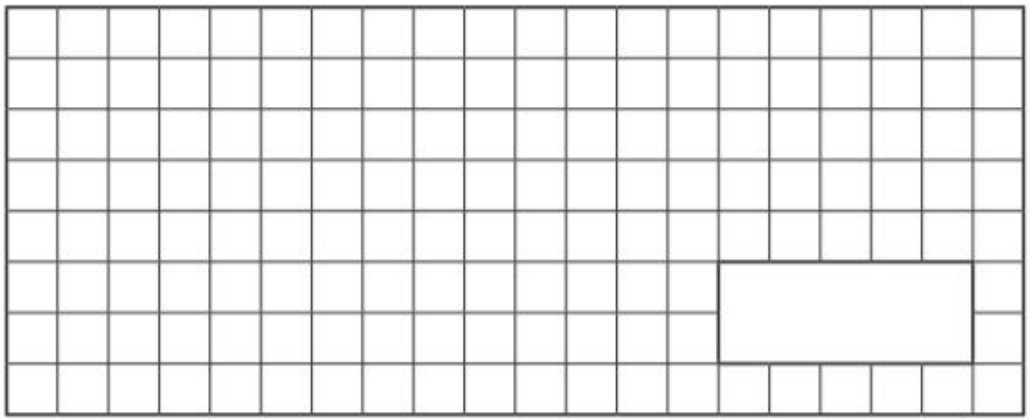
$\frac{3}{10}$ chose football.

$\frac{1}{3}$ chose tennis.

The rest of the children like swimming the best.

How many children like **swimming**?

Show your working.



3 marks

Year 4

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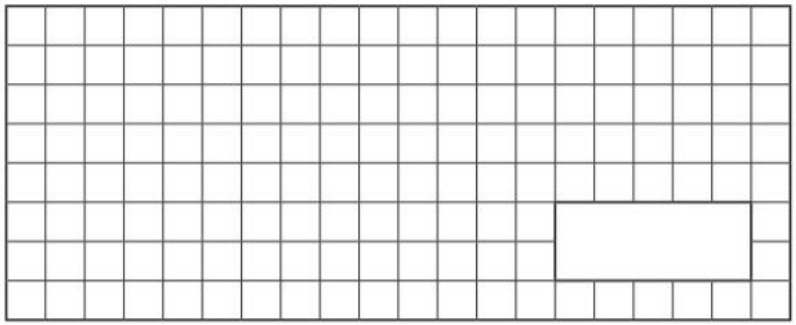
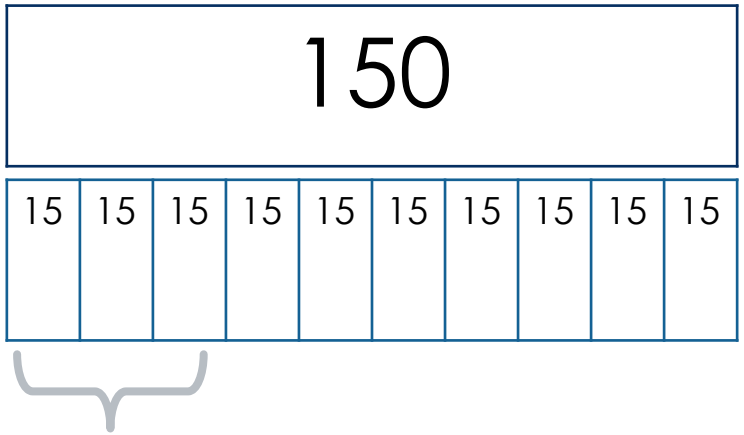


3 marks

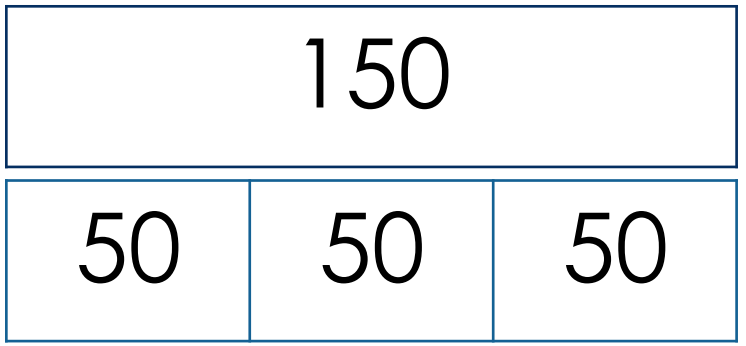
1.



15
+15
+15

=45

2.



3. 45 + 50 = 95

150 – 95 = 55

Year 4

15

Mo has 420 building bricks in a box.

He makes a model with $\frac{2}{7}$ of the building bricks.

He gives $\frac{4}{7}$ of the building bricks to one of his friends.

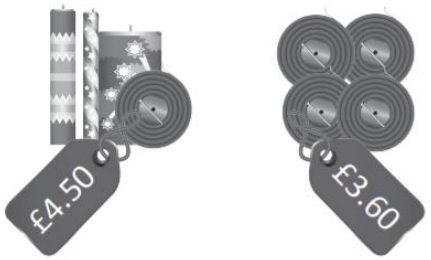
How many building bricks are left in the box?

Show your method.

bricks

2 marks

18



3 rockets and a Catherine wheel cost £4.50.
4 Catherine wheels cost £3.60.

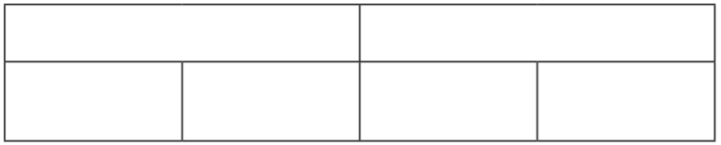
How much does one rocket cost?

Show your method.

£ . p

2 marks

5

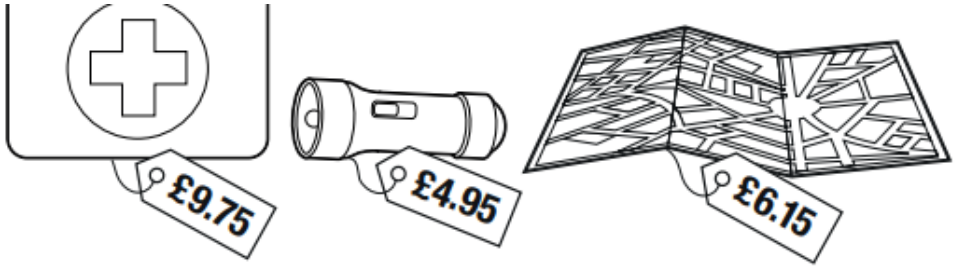


Using the diagram above, fill in the missing digits to complete the equivalent fractions.

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

2 marks

Year 5

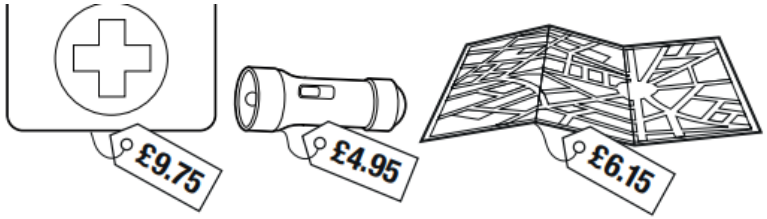


Item	Cost
First Aid	£9.75
Torch	£4.95
Map	£6.15

Zoe buys a map and a torch. How much change does she get from £20?

Show your working.

Year 5



Item	Cost
First Aid	£9.75
Torch	£4.95
Map	£6.15

Zoe buys a map and a torch. How much change does she get from £20?

Show your working.

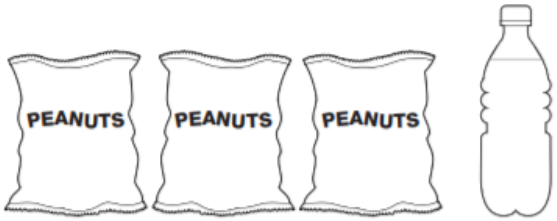
3 marks

£20		
£6.15	£4.95	?

Year 6

11

3 small bags of peanuts cost the same as 1 bottle of water.



Jen pays the shopkeeper £2 for a bottle of water and gets 20p change.

What is the cost **in pence** of one bag of peanuts?

Show your working.

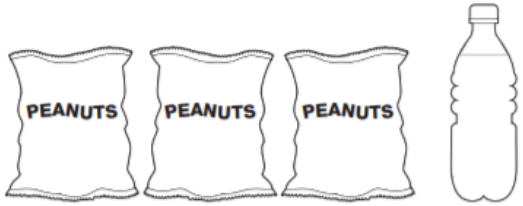
p

2 marks

Year 6

11

3 small bags of peanuts cost the same as 1 bottle of water.



Jen pays the shopkeeper £2 for a bottle of water and gets 20p change.

What is the cost **in pence** of one bag of peanuts?

Show your working.

p

2 marks

Water		
Nuts	Nuts	Nuts

£2 – 20p = **£1.80**

Nuts	Nuts	Nuts

£1.80 divided by 3 = the cost of one bag of peanuts…

Year 6

16 A book has 276 pages.

Amina has read $\frac{1}{3}$ of the book.

How many pages are **left** for Amina to read?

Show your method

pages

2 marks

5

Calculate 55% of £640

Show your working.

£

1 mark

8 Jack has £400

He spends **35%** of his money on a new bike.

How much does Jack spend on his new bike?

£

1 mark

Tues 5 Nov

BARVEMBER 2019

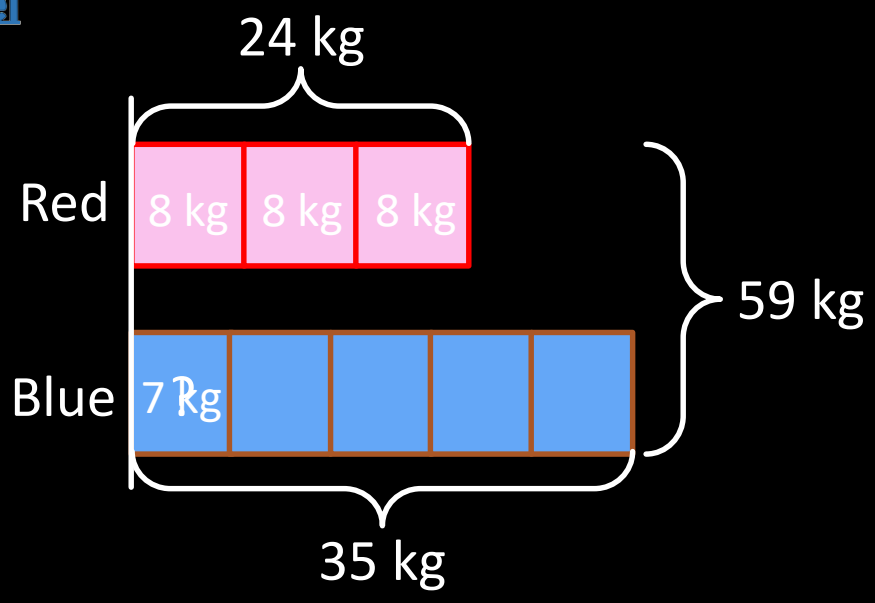
White Rose Maths

3 The total weight of 3 red and 5 blue boxes is 59 kg.

Each red box weighs 8 kg

How much does a blue box weigh?

Model



Calculations

$3 \times 8 = 24$

$59 - 24 = 35$

$35 \div 5 = 7$

A blue box weighs __7__ kg.

Any questions?

Thank you for your time and support ☺

Resources to take away

~ Curriculum Objectives Document
~ Glossary (KS2)
~ Practical ways to help your child (EYFS/KS1)

Thank you for your time and support ☺