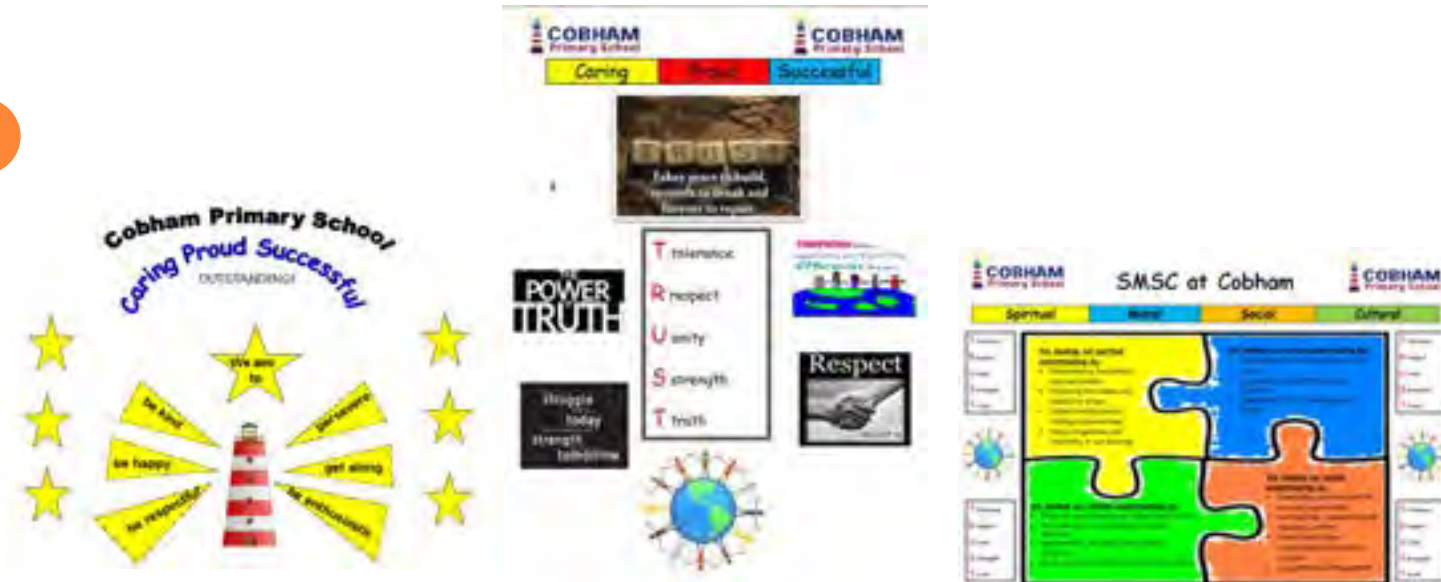
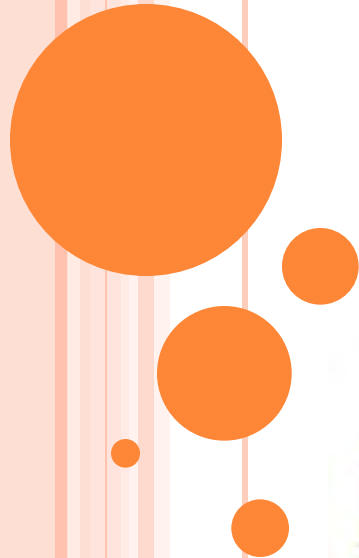


Year 6

Stay and Share

November 2016



Gobham Primary School
Caring Proud Successful
OUTSTANDING!



Welcome to Year 6...

COBHAM Primary School

Caring Proud Successful

TRUTH

Takes years to build, seconds to break and forever to repair.

THE POWER OF TRUTH

Struggle today, strength tomorrow.

Tolerance
R respect
U nity
S trength
T ruth

Respect



Class 6

The biggest! The brightest! The ones that we never want to leave! Class 6 is always full of hard-working, polite and well-mannered children who have been fondly 'Cobhamised' and we never want to let them go. However, off into the big wide world they must - with Cobham eternally in their hearts and they in ours.

COBHAM Primary School

SMSC at Cobham

Spiritual Moral Social Cultural





Maths in Year 6...

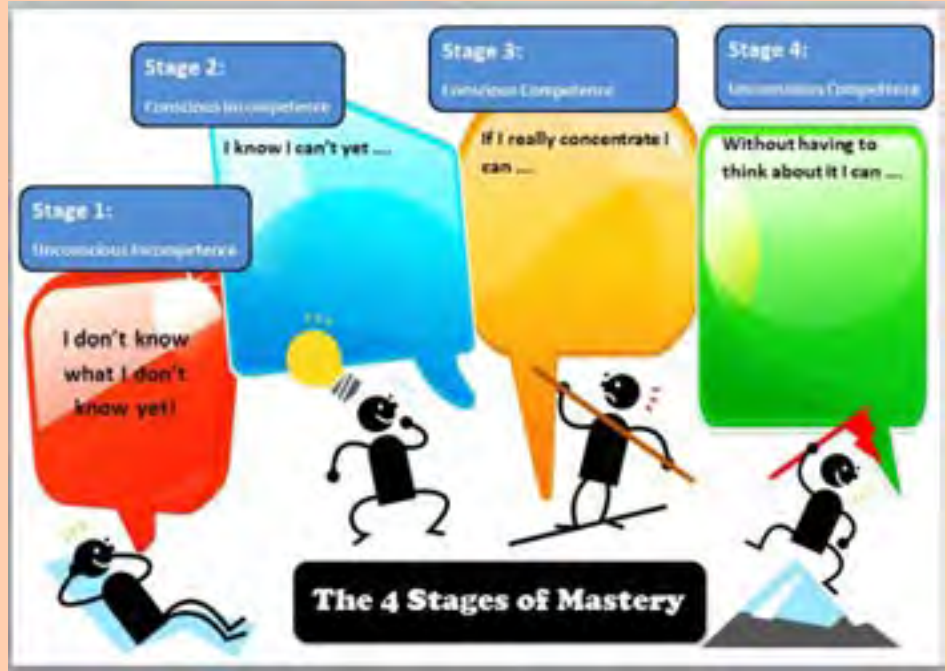
- Year 6 maths has developed and changed rapidly over the last two years and encompasses all of the skills and knowledge the children have explored so far throughout their learning journey.
- Our main priority in maths this year is to develop the children's ability to reason, explain and master their own curriculum to have a secure subject knowledge.
- Weekly recap, consolidation and mastery lessons have so far enabled the children to develop their reasoning skills and fully understand the topics we have been exploring.





Recap, Consolidation and Mastery

| | |
|-------------|----------------------------------|
| ? ← Answer | ! |
| Draw it! | First I... Oh, I see! Explain |
| Prove it! | |
| | |
| Maths Story | Odd one out |



mastering
MATHS



Maths in Year 6...

- Here is an example of a recap, consolidation and mastery question that we have already explored:

Mastering 4 operations

Peter paid £21 for 5 presents.
 For A and B he paid a total of £6.
 For B and C he paid a total of £10.
 For C and D he paid a total of £7.
 For D and E he paid a total of £9.
 How much did Peter pay for each present?



Working example...

Peter paid £21 for 5 presents.
 For A and B he paid a total of £6.
 For B and C he paid a total of £10.
 For C and D he paid a total of £7.
 For D and E he paid a total of £9.
 How much did Peter pay for each present?



| A | B | C | D | E |
|---|---|---|---|---|
|---|---|---|---|---|

1) 1 5 5 2 7 = 15 This does not add up to £21.

2) 2 4 6 1 8 = 21 ✓ This combination adds up to £21, so Peter payed £2 for A, £4 for B, £6 for C, £1 for D and £8 for E.

I worked systematically, starting with A costing £1, then going on to A being £2. I knew that if A and B cost £6 together, then £1 and £5 could be what the individual presents cost. I worked from A being £1 and B being £5, but that did not work since as it states at the beginning of the question that all of the presents cost £21 altogether, and the attempt only totalled £15. Then I started the next solution with A costing £2. ✓



Maths in Year 6...

- Here is an example of a recap, consolidation and mastery question that we have already explored:

Mastering fractions

A jug contains some milk. Josh pours $\frac{1}{2}$ of the milk into a glass. Josh pours $\frac{3}{10}$ of the milk into another glass. What fraction of the milk is left?





Maths in Year 6...

- Here is an example of a recap, consolidation and mastery question that we have already explored:

| | |
|--|--------------------------|
| <input checked="" type="checkbox"/> | <h2>Mastering times</h2> |
| <p>10 people from different countries meet at an international peace ceremony. Each person shakes the hand of each other person. How many handshakes are there altogether?</p> | |
| | |





Working example...

Mastering times

10 people from different countries meet at an international peace ceremony. Each person shakes the hand of each other person. How many handshakes are there altogether?

1 person
= 9 handshakes

What I would do is I would find out that one person would shake hands with the nine other people but there are ten people so you must times nine by ten which is ninety.

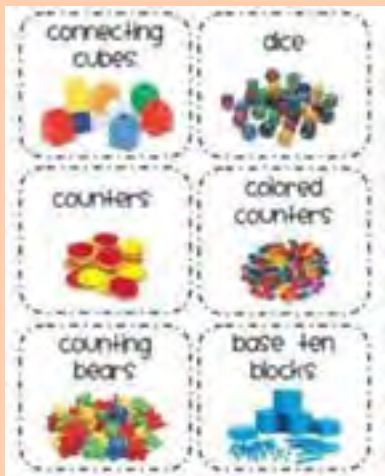
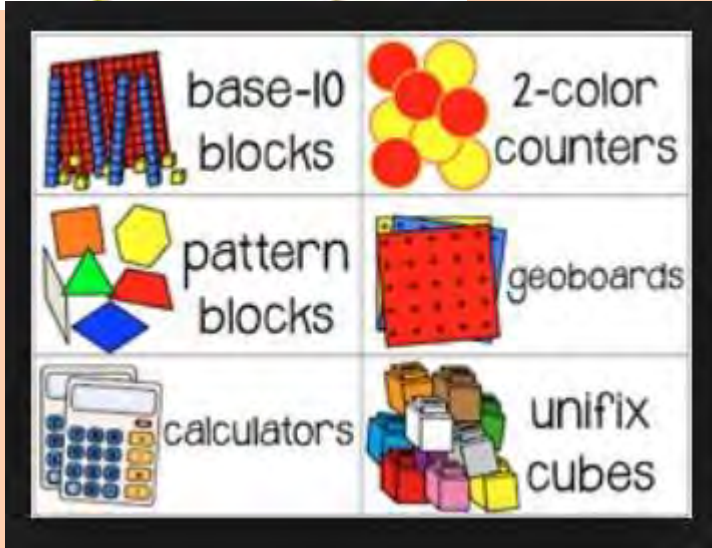
Meaning that there are ninety handshakes all together

1 person
= 9 hand
shakes





Visual Images...





Visual Images...

- Visual images have become a main focus when introducing new concepts to the children to enable them to actually see their learning in picture formation.
- With every new concept introduced, the children will explore it in the following way:
 - *Using real life contexts*
 - *Visual images to provide a visual aid*
 - *Application to a range of different questions*





Working example...

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Comparing Quantities

In Focus

The shorter piece is $\frac{3}{5}$ the length of the longer piece.

The ratio of the lengths is 3 : 5.

Let's Learn

1

2 cm 2 cm 2 cm

2 cm 2 cm 2 cm 2 cm 2 cm

Ratio = 6 cm : 10 cm
= 3 : 5

3 to 5

Is this $\frac{3}{5}$ the length of the...

It means for every 3 cm of the green piece, there are 5 cm of orange piece.

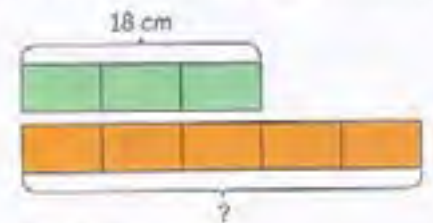




Working example...

The ratio of the length of a shorter strip of paper to the length of a longer strip of paper is 3 : 5.

(a) If the shorter strip is 18 cm, how long is the longer strip?

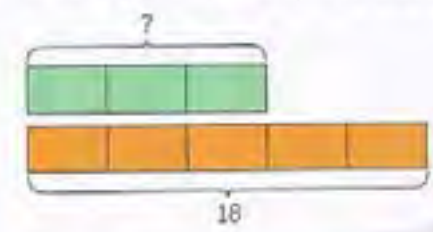


$$18 \div 3 = 6 \text{ cm}$$

$$5 \times 6 = 30 \text{ cm}$$

The longer strip is 30 cm.

(b) If the longer strip is 18 cm, how long is the shorter strip?



$$18 \div 5 = 3.6 \text{ cm}$$

$$3 \times 3.6 = 10.8 \text{ cm}$$

The shorter strip is 10.8 cm.

$$18 \div 5 = 3.6 \times 10 = 36 \text{ cm}$$

$$36 \div 10 = 3.6 \text{ cm}$$

$$3 \times 3 = 9 \text{ cm}$$

$$3 \times 0.6 = 1.8 \text{ cm}$$



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| | | | |
|---|---|--|--|
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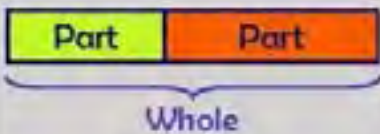




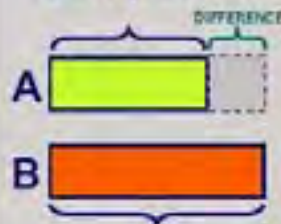
The Bar Model

Solving Problems with Bar Modeling

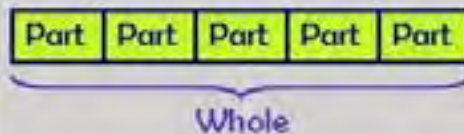
Part-Part-Whole



Comparison

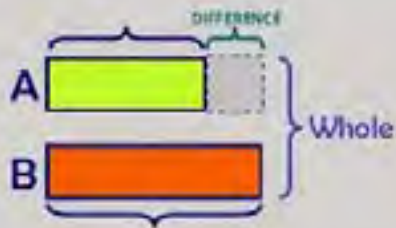


Equal Parts of a Whole

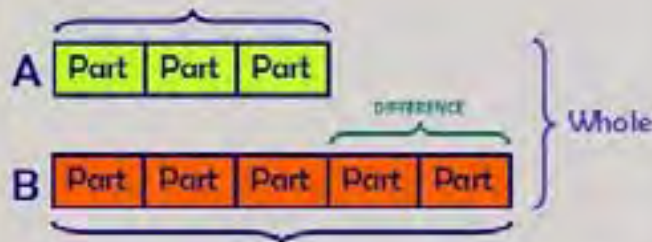


an Equal Part is a UNIT

Comparison AND Part-Part-Whole



Comparison AND Equal Parts of Wholes



an Equal Part is a UNIT



Bar Modelling

Jacob cuts 4 metres of ribbon into **three** pieces.

The length of the first piece is **1.28** metres.

The length of the second piece is **1.65** metres.

Work out the length of the third piece.

| | | |
|-------------|-------------|--|
| 4 metres | | |
| 1.28 metres | 1.65 metres | |

Maths in Year 6...

The Bar Model is a tool the children use to support their maths learning in problem solving situations to help interpret the questions they are exploring.



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Bar Modelling

Lara had some money.

She spent £1.25 on a drink.

She spent £1.60 on a sandwich.

She has **three-quarters** of her money left.

How much money did Lara have to **start with**?

| | | | |
|---------------|-------|-------|-------|
| | | | ? |
| £1.25 + £1.60 | ? | ? | ? |
| £2.85 | £2.85 | £2.85 | £2.85 |

Maths in Year 6...

The Bar Model is a tool the children use to support their maths learning in problem solving situations to help interpret the questions they are exploring.

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Working example...

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| | |
|--|--|
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| <p>Social</p> <p>to enable all pupils to flourish by:</p> <ul style="list-style-type: none"> developing their understanding of their own and others' beliefs, values and traditions developing their understanding of the world and their place in it developing their understanding of the human condition developing their understanding of the human body and mind developing their understanding of the human spirit developing their understanding of the human soul | <p>Cultural</p> <p>to enable all pupils to flourish by:</p> <ul style="list-style-type: none"> developing their understanding of their own and others' beliefs, values and traditions developing their understanding of the world and their place in it developing their understanding of the human condition developing their understanding of the human body and mind developing their understanding of the human spirit developing their understanding of the human soul |



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|---|---|--|--|





Methods explored...



Written calculations
Add numbers with up to four digits, using the formal written (columnar) method

$$\begin{array}{r} \pounds 12.32 \\ + \pounds 11.81 \\ \hline \pounds 24.13 \\ \hline \end{array}$$

789 + 642 becomes

$$\begin{array}{r} 789 \\ + 642 \\ \hline 1431 \\ \hline \end{array}$$

Using Dienes

262 + 145 =

The diagram shows 262 represented by two large blocks (hundreds), six medium blocks (tens), and two small blocks (ones). 145 is represented by one large block (hundred), four medium blocks (tens), and five small blocks (ones). The sum is shown as three large blocks (hundreds), one medium block (ten), and zero small blocks (ones).

Answer: 1431





Maths in Year 6...

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Concise method for adding decimals



Example

$$\begin{array}{r} 123.9 \\ + 7.25 \\ \hline 131.15 \\ \hline \end{array}$$

$$\begin{array}{r} 6.72 \\ + 8.56 \\ \hline 15.28 \\ \hline \end{array}$$

Once secure with the previous methods the children will be introduced to adding decimals to decimals (and decimals to whole numbers), ensuring that place value is maintained throughout.

Children may, at this stage, record a '0' in any spare space in order to assist them in maintaining place value.

Decimal numbers



Example

$$34.8 - 26.4 = ?$$

$$\begin{array}{r} 2 \quad 1 \\ 34.8 \\ - 26.4 \\ \hline 08.4 \end{array}$$

so $34.8 - 26.4 = 8.4$

Example

$$34.84 - 26.4 = ?$$

$$\begin{array}{r} 34.84 \\ - 26.40 \\ \hline 08.44 \end{array}$$

so $34.84 - 26.4 = 8.44$

The children will also be given opportunities to subtract numbers with a different number of decimal places (eg. $34.85 - 14.7$). Putting a 0 in any 'spare' spaces will help them to put the digits in the correct place.



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The 'half a house' method (2)



Children will then extend upon this method, introducing decimals to 2 decimal places and then beyond.

Example

$$13 \div 5 =$$

How many 5s are in 13?

$$\begin{array}{r} 02.6 \\ 5 \overline{) 13.0} \end{array}$$

Estimation will be encouraged first.

This will then be extended to decimals in the context of money.

$$£4.29 \div 4 =$$

$$\begin{array}{r} £1.0725 \\ 4 \overline{) £4.2900} \end{array}$$

Children will then be taught to continue to divide into further decimal places until it divides exactly. They will then be encouraged to apply what this means in the context of money.

Short division with a fraction



Children will then extend upon this method using a two digit divisor, using jottings once again to support them in this.

Example

$$90 \div 7 = 12 \frac{6}{7}$$

How many 5s are in 13?

$$\begin{array}{r} 035r \frac{8}{11} \\ 11 \overline{) 39} \end{array}$$

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Multiplication

Example

$$4.62 \times 3 = ?$$

$$\begin{array}{r} 4.62 \\ \times 3 \\ \hline 13.86 \\ \hline 1 \end{array}$$

Short multiplication methods

Example

$$46 \times 19 = ?$$

$$\begin{array}{r} 46 \\ \times 19 \\ \hline 414 \quad (46 \times 9) \\ 460 \quad (46 \times 10) \\ \hline 874 \end{array}$$

- Step 1: Multiply top amount x units
- Step 2: Multiply top amount x tens
- Step 3: Add the answers together

This method will also be used to multiply HTU x TU and decimal numbers



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Short multiplication methods



Example

$$46 \times 19 = ?$$

$$\begin{array}{r} 46 \\ \times 19 \\ \hline 414 \\ 460 \\ \hline 874 \end{array}$$

- Step 1: Multiply top amount x units
- Step 2: Multiply top amount x tens
- Step 3: Add the answers together

(46x9)
(46x10)

This method will also be used to multiply HTU x TU and decimal numbers.

