

# Welcome



## Parent workshop - Maths

### Aims of the evening:

To outline the expectations of the National Curriculum for maths

To share how we teach maths at Belleville Wix

To offer strategies you may want to use when supporting your children at home



**Quality First** Education Trust



## Relentless drive for improvement, excellence and equality

### Aims

**Our aim is that all children and adults:**

- 1) Are safe
- 2) Are excellent learners
- 3) Have excellent social and emotional skills
- 4) Achieve and succeed



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Education

**WHATEVER IT TAKES**

### Mantra

**For all children and adults:**

Know where we are going

Recruit retain and develop excellent people

Ensure we know what to do

Ensure we know why we are doing the task

Ensure we have excellent skills to do the task

Ensure we have excellent resources to do the task

Ensure we do the task with excellence

Monitor, evaluate and improve

# What we have to do!

## National Curriculum - Maths

The National Curriculum for Mathematics aims to ensure that all pupils:

- become **fluent in the fundamentals of mathematics**, including through varied and frequent practice with **increasingly complex problems** over time, so that pupils **develop conceptual understanding** and the **ability to recall and apply knowledge** rapidly and accurately.





# National Curriculum - Maths

The National Curriculum for Mathematics aims to ensure that all pupils:

- **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and **developing an argument, justification or proof** using mathematical language.
- can **solve problems** by applying their mathematics to a variety of **routine and non-routine problems** with increasing sophistication, including breaking down problems into a series of simpler steps and **persevering** in seeking solutions.

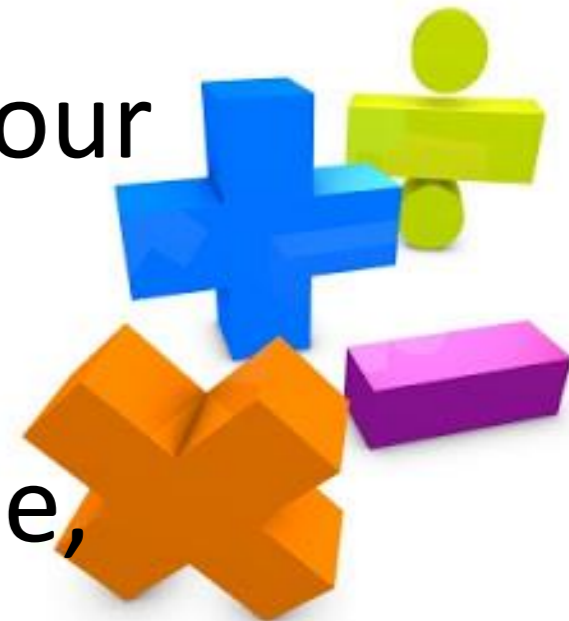


# Key stage 1

Pupils develop confidence and mental fluency with whole numbers, counting and place value.

Working with numerals, words and the four operations

Including practical resources [for example, concrete objects and measuring tools].



# Key stage 1

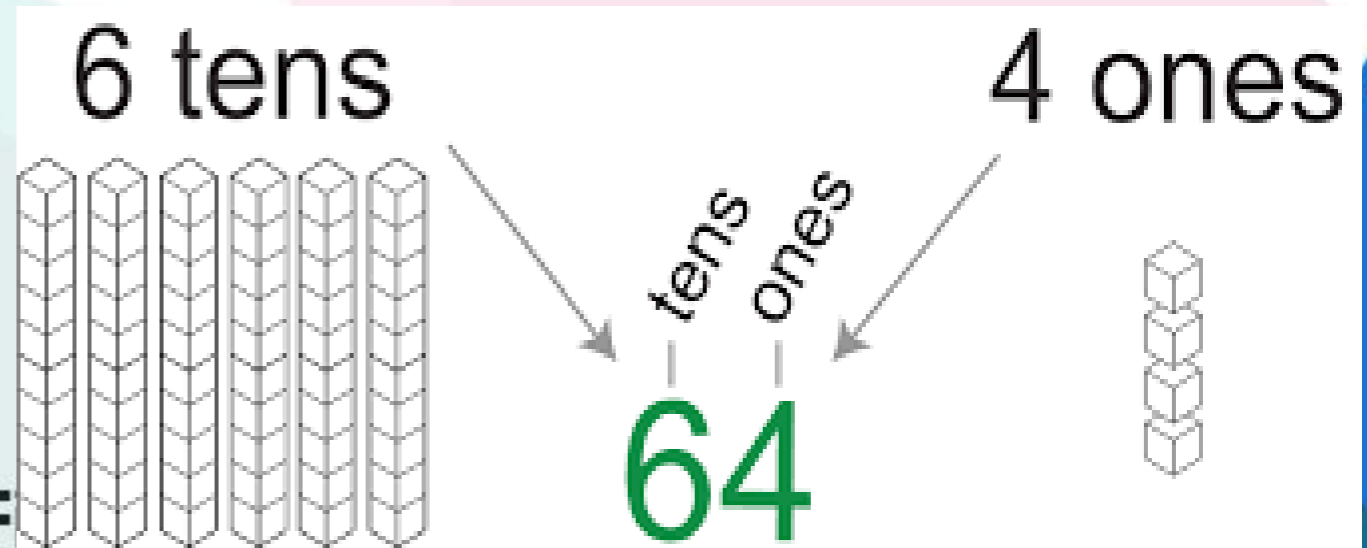
By the end of year 2, pupils should know the number bonds to 20

Be precise in using and understanding place value.

Read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at Key stage 1.



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# Lower Key Stage 2

- Pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value.
- Pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers.

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$$\begin{array}{r} 48\overset{5}{\cancel{6}}\overset{1}{5} \\ -3956 \\ \hline 9 \end{array}$$

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# Lower Key Stage 2

- By the end of year 4, pupils should have memorised their multiplication tables, and associated division facts, up to and including the 12 x tables (they will be tested)
- Show precision and fluency in work
- Read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.





# Upper Key Stage 2

- Pupils extend their understanding of the number system and place value to include larger integers (*whole numbers*)
- Develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio.

Ratio	Decimal	Percent
$\frac{3}{10} = \frac{30}{100}$	0.30	30%
$\frac{1}{2} = \frac{50}{100}$	0.50	50%
$\frac{3}{4} = \frac{75}{100}$	0.75	75%

# Upper Key Stage 2

- By the end of year 6, pupils should be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages
- Pupils should read, spell and pronounce mathematical vocabulary correctly.



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# National Curriculum

The National Curriculum for Mathematics reflects the importance of spoken language and all pupils mastering maths:

- developing mathematical vocabulary
- presenting a mathematical justification, argument or proof
- articulating their thinking
- building secure foundations by using discussion to probe and remedy their misconceptions
- all pupils mastering the content taught each year and discourages the acceleration of pupils into content from subsequent years.

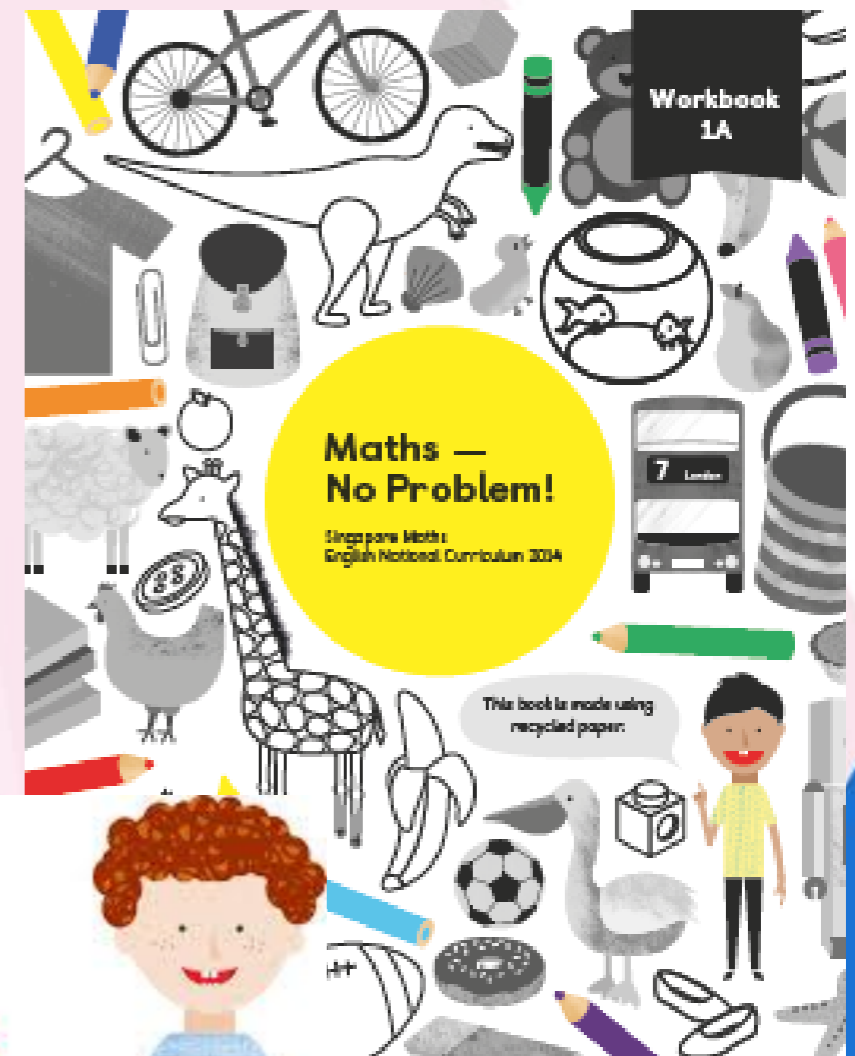




# What does that look like in our classrooms?

Singapore style maths is a method of teaching mathematical skills by encouraging problem solving in a visual way.

We use Maths — No Problem!



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# What does that look like in our classrooms?

- Each lesson based around a 'real life' problem
- Concrete-pictorial-abstract approach
- Lots of discussion, explanation and solving problems in different ways
- All working on the same problems
- Use of textbooks and workbooks



# Lesson structure – a three part lesson

## Anchor task (In focus)

A problem that promotes discussion.

Working as a class, it gives the opportunity to address misconceptions and to challenge and support through questioning.

## Guided practice

A series of problems for children to work through in pairs, giving opportunity for evaluating children's learning.

## Independent work

To assess children's understanding of the learnt concept.





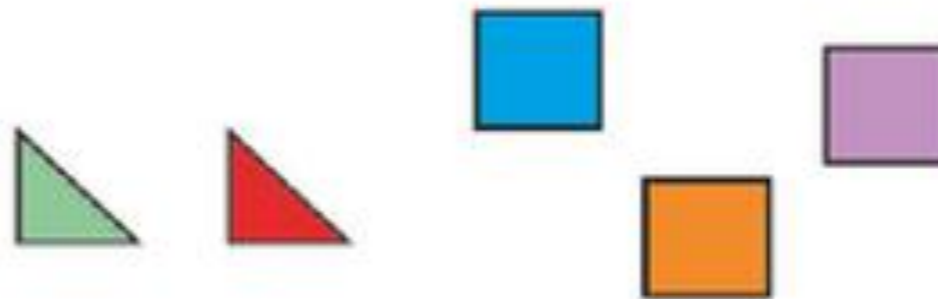
# Anchor task – In Focus - textbook

A problem that promotes discussion

## Measuring Area

Lesson  
4

In Focus



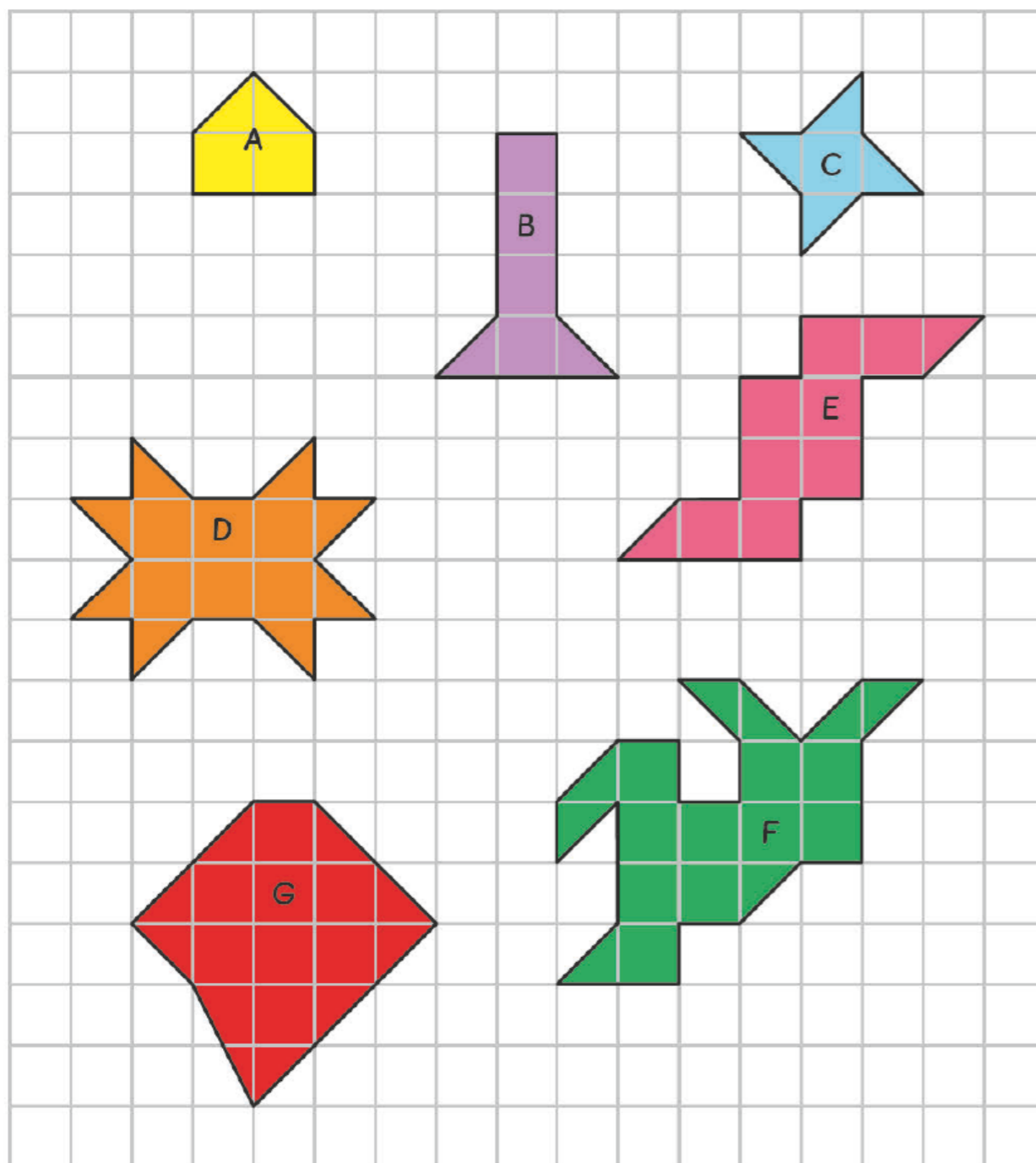
Make different figures using all 5 pieces.



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## Guided Practice

Find the area of each figure.  has an area of 1 square unit.



## Guided practice - textbook

A series of problems  
for children to work  
through in pairs.

Progression between  
questions.

# Independent work – workbook and maths book

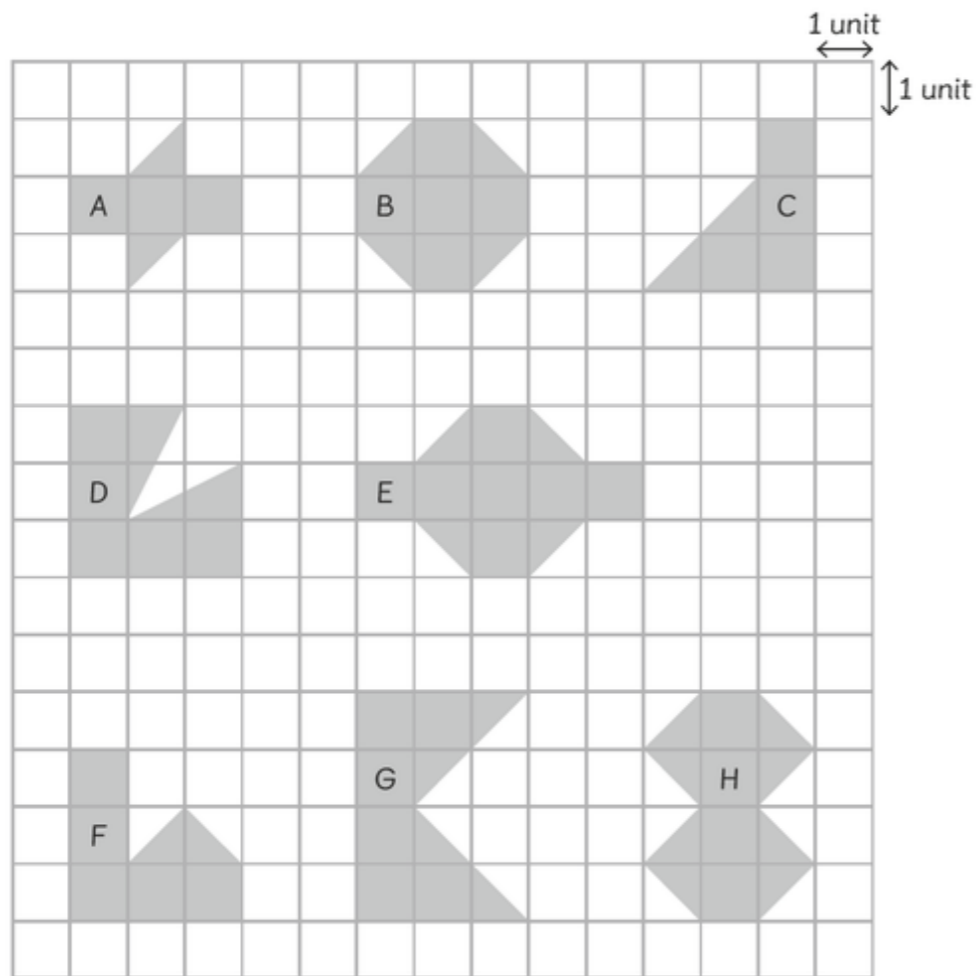
## To assess children's understanding of the learnt concept.

Name: \_\_\_\_\_ Class: \_\_\_\_\_ Date: \_\_\_\_\_

### Worksheet 4

#### Measuring Area



1 Find the area of each figure. Each  has an area of 1 square unit.

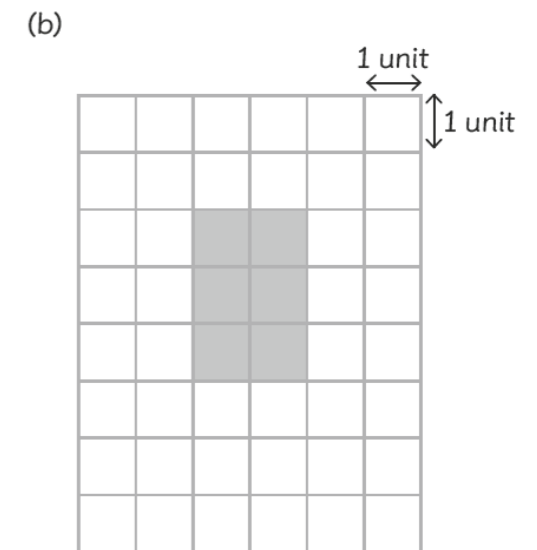
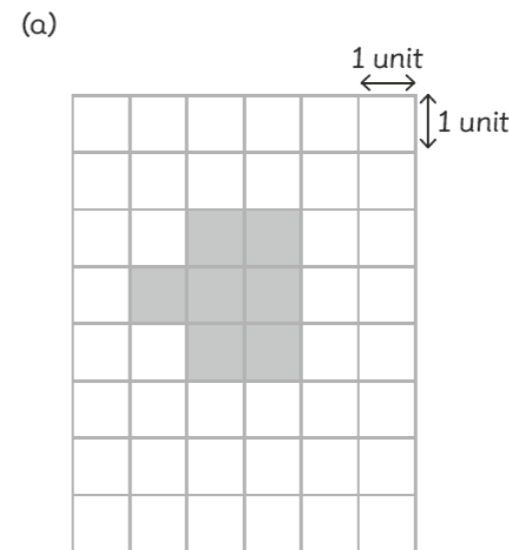


(a)

	Area
Figure A	square units
Figure B	square units
Figure C	square units
Figure D	square units
Figure E	square units
Figure F	square units
Figure G	square units
Figure H	square units

(b) Which figure has the largest area?

2 Shade more  or  so that each figure has an area of 12 square units.





# What we use in a our maths lessons to develop deep understanding

- **C-P-A approach**
- **Concrete – The DOING stage**
- **Pictorial/Representational – The SEEING stage**
- **Abstract – The SYMBOLIC Stage**



## Concrete – The DOING stage

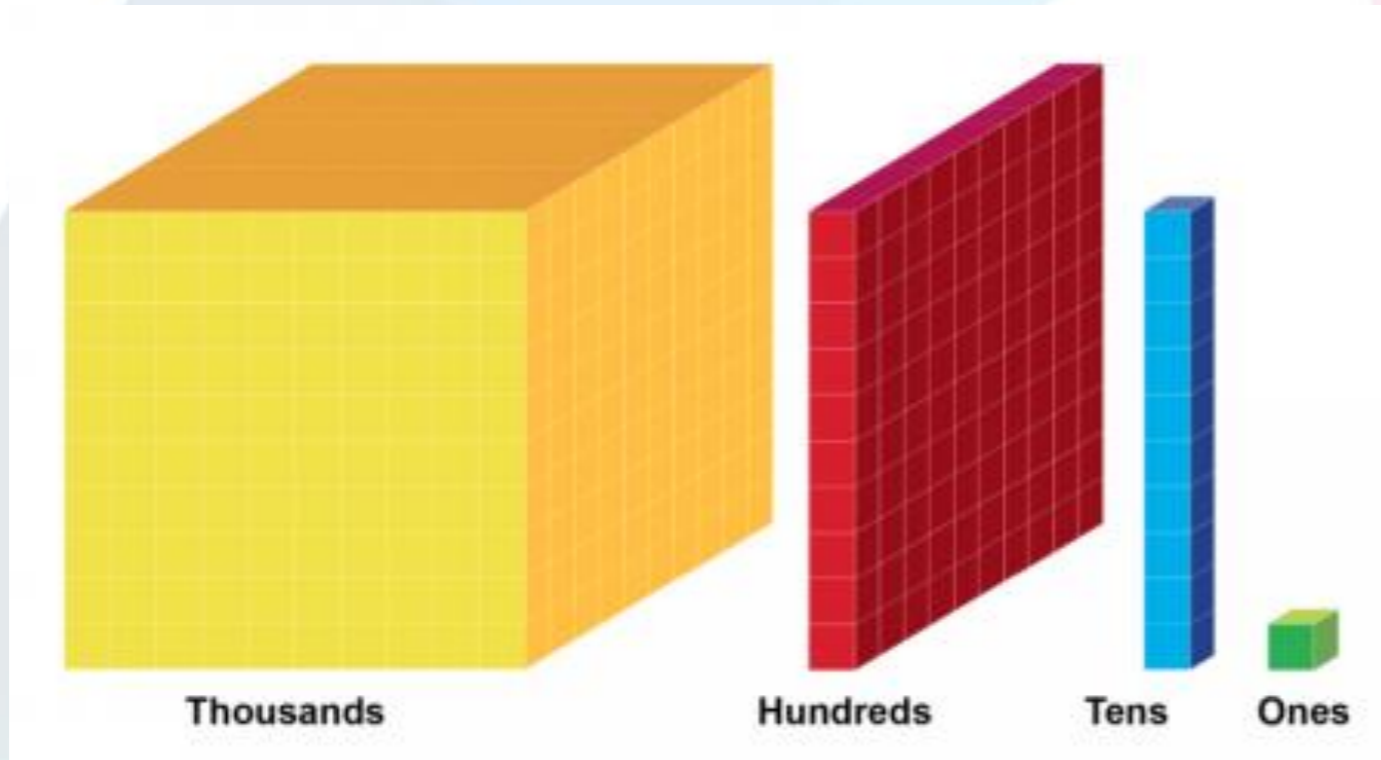
A child is first introduced to an idea or a skill by acting it out with real objects.

This is a 'hands on' component using real objects and it is the foundation for conceptual understanding.



# Pictorial – The SEEING stage

A child has sufficiently understood the hands-on experiences, has performed and can now relate them to representations, such as a diagram or picture of the problem.



tens	ones
● ●	●



# Abstract – The SYMBOLIC Stage

A child is now capable of representing problems by using mathematical notation, for example:

$$21 + 9 = 30$$





# Supporting your children

- Ask your child to show you how they solve the problem. If they get stuck, don't rush them. Praise effort and reassure them that they'll get it with practice. Ask them if they can think of more ways to solve the problem.
- Find opportunities to solve maths problems everywhere. Take real-life situations and look for patterns, connections and things that can be matched. Play games that involve numbers. Show them that maths is fun and isn't only reserved for the classroom.



# Mastering ideas - Number

- ‘When I count in tens from any number the ones digit stays the same.’ Do you agree? Explain your reasoning.
- **I am going to count backwards in twos from 20. How many steps will it take to reach 0? Convince me.**



# Mastering ideas - Number

What amounts can we make 674 from?

- 674 is made of 6 hundreds, 7 tens and 4 ones
- 674 is also made of 67 tens and 4 ones
- 674 is also made of 6 hundreds and 74 ones
- 674 is also made of 674 ones.



# Mastering ideas - Number

Three pupils are asked to estimate the answer to the sum  $4243 + 1734$ .

Andrew says, 'To the nearest 100, the answer will be 5900.'

Bob says, 'To the nearest 50, the answer will be 6000.'

Chris says, 'To the nearest 10, the answer will be 5970.'

Do you agree with Andrew, Bob or Chris? Explain their reasoning?

**AT HOME:**

**Estimate, round to the nearest, approximate...**



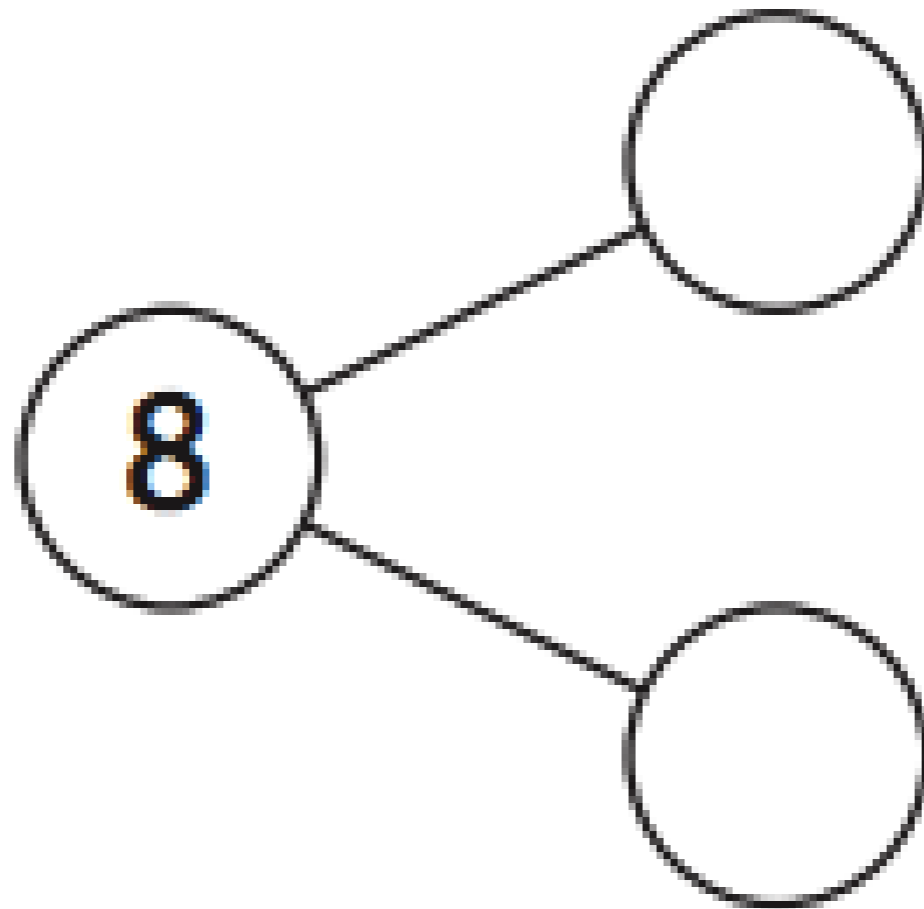
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# Mastering ideas - addition and subtraction

Part-whole diagram

**Whole**



**Part**

**Part**

# Mastering ideas - addition and subtraction

I have five coins in my pocket.

How much money could I have?

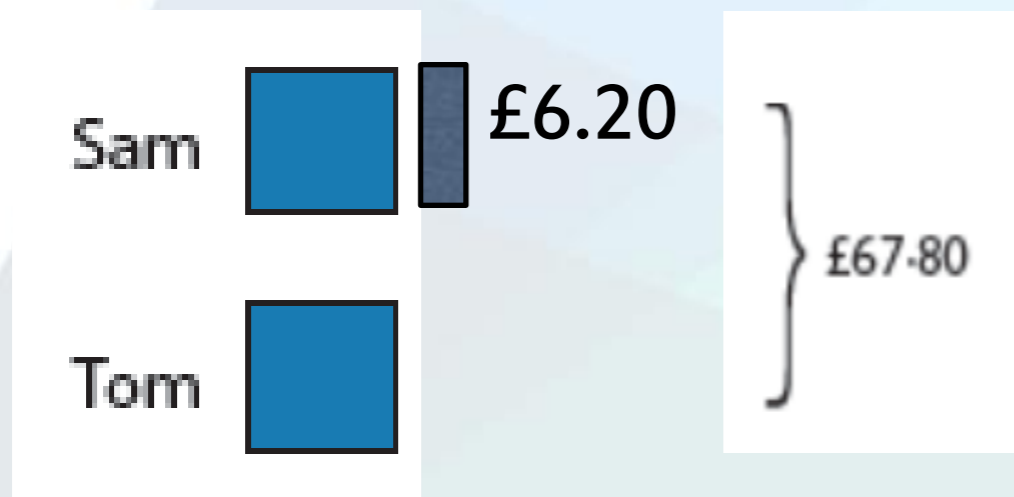
What is the greatest amount I can have?

What is the least amount I can have?



# Mastering ideas - addition and subtraction

Sam and Tom have £67.80 between them.  
If Sam has £6.20 more than Tom, how much does Tom have?



$$\mathbf{£67.80 - £6.20 = £61.60}$$

$$\mathbf{£61.60 \div 2 = £30.80}$$



# Mastering ideas – multiplication and division

- Year 2 = 2, 5, 10
- Year 3 = 3, 4, 8
- Year 4 = 0, 1, 6, 7, 9, 11, 12

Summer, 2020 - Year 4

National testing - multiplication tables check



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# Mastering ideas – multiplication and division



- Baking
- 4, 8, 12, mm-mm 20, 24
- Three children calculated  $7 \times 6$  in different ways, how could they do that?
- If you know  $2 \times 3$ , what else can you work out from that fact?



# Mastering ideas - Money

Can you show how to make ...p?

How many ways can you make....p?

How do you know?

Which would you rather have, 3 × 50p coins or 7 × 20p coins?  
Explain why.





# Mastering ideas-Ratio and Money

You can buy 3 pots of banana yoghurt for £2.40 .  
How much will it cost to buy 12 pots of banana yoghurt?



A child's bus ticket costs £3.70 and an adult bus ticket costs three times as much. How much does an adult bus ticket cost?

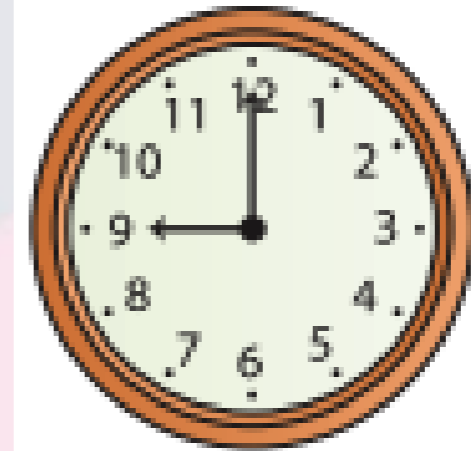


# Mastering ideas - Time

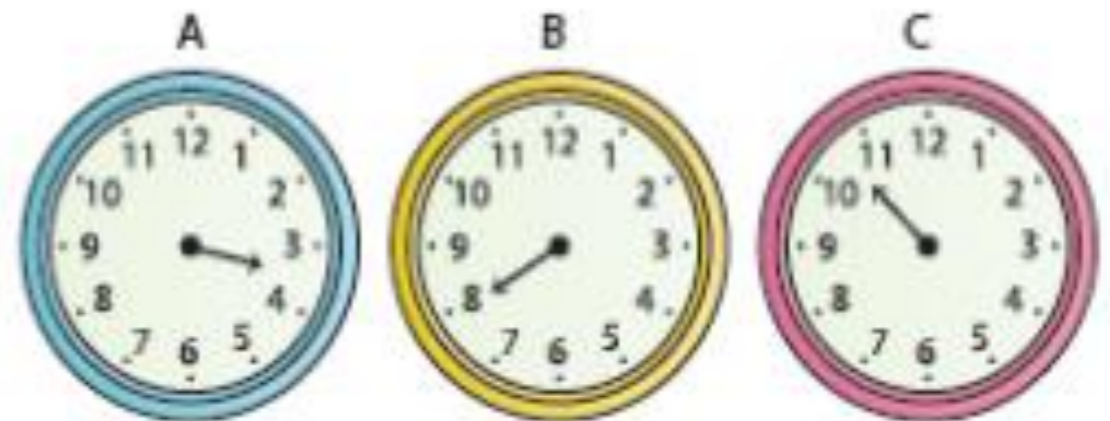
Wake up at...

School starts at...

Bedtime at...



These clocks have only one hand, but can you work out a time that each could be showing?





# Mastering ideas – Fractions and percentages

Last month your sister saved a of her £10 pocket money. They also saved 15% of her £20 birthday money.

How much did she save altogether?

Dad ate half the pizza and your brother ate half of what was left.

What fraction is left for us?



# Mastering ideas - Measurement

My cousin , Sarah, is **0.2 m** taller than me.

My sister is **15 cm** taller than Sarah.

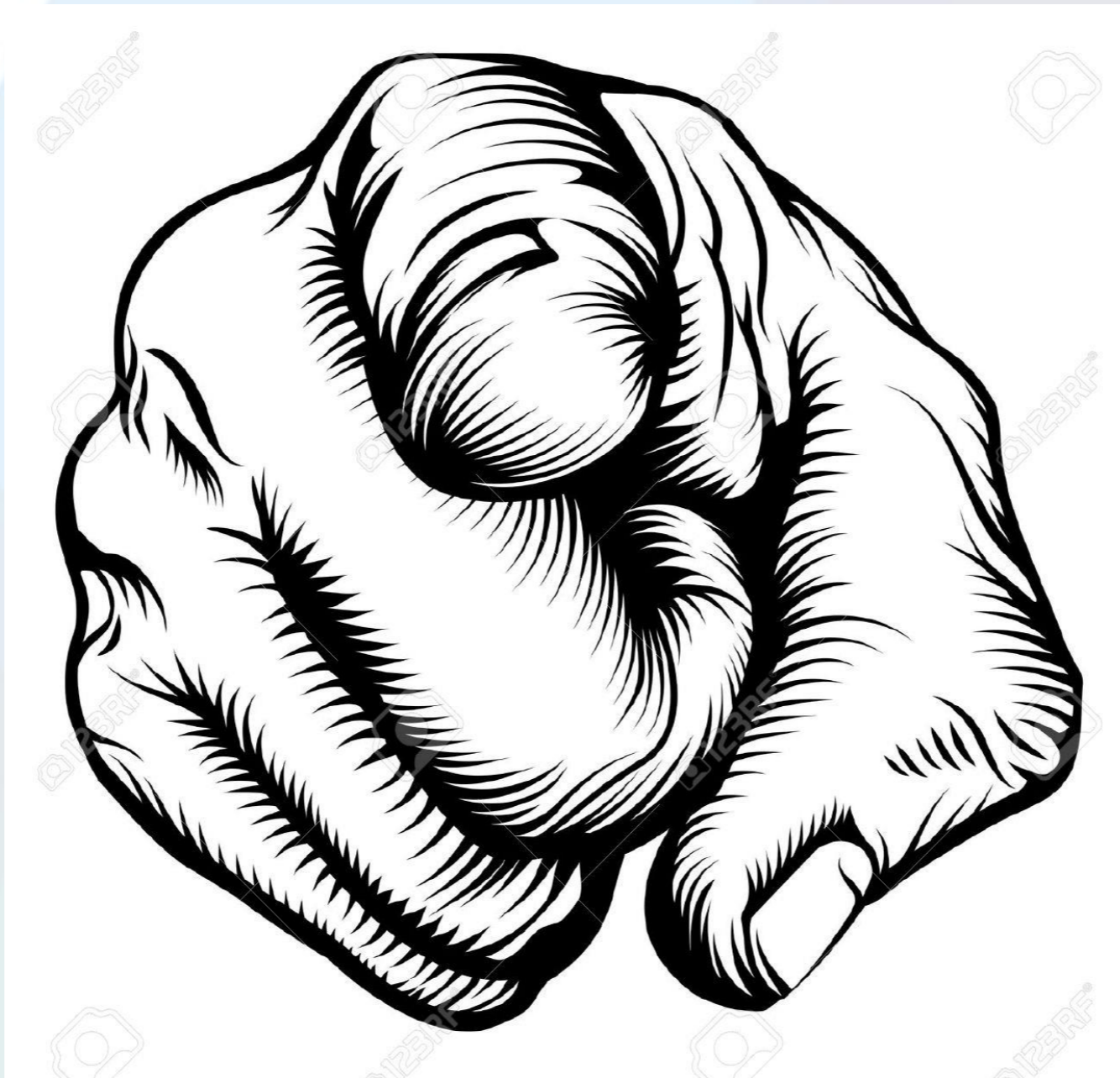
I'm **one and a quarter metres**.

Who is the tallest person?

What is the difference in height between the tallest and the shortest person?



# Your turn!!



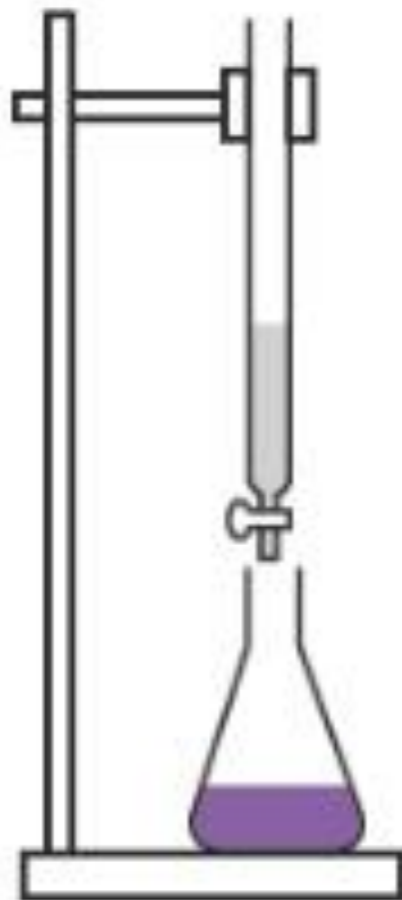
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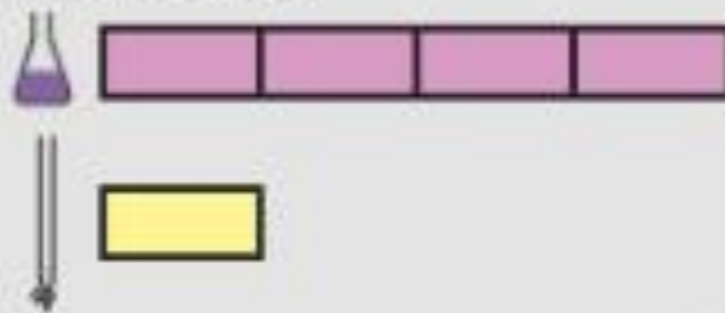
## Guided Practice

# Year 5 word problem

- 1 Two containers  and  begin with equal volumes of liquid. 120 ml is then poured from  to . The  then contains 4 times as much liquid as .



At the end,



Find the volume of liquid left in  at the end.

- Understand
- Plan
- Calculate
- Check



# Where is it all going?

Ralph posts 40 letters, some of which are first class, and some are second.

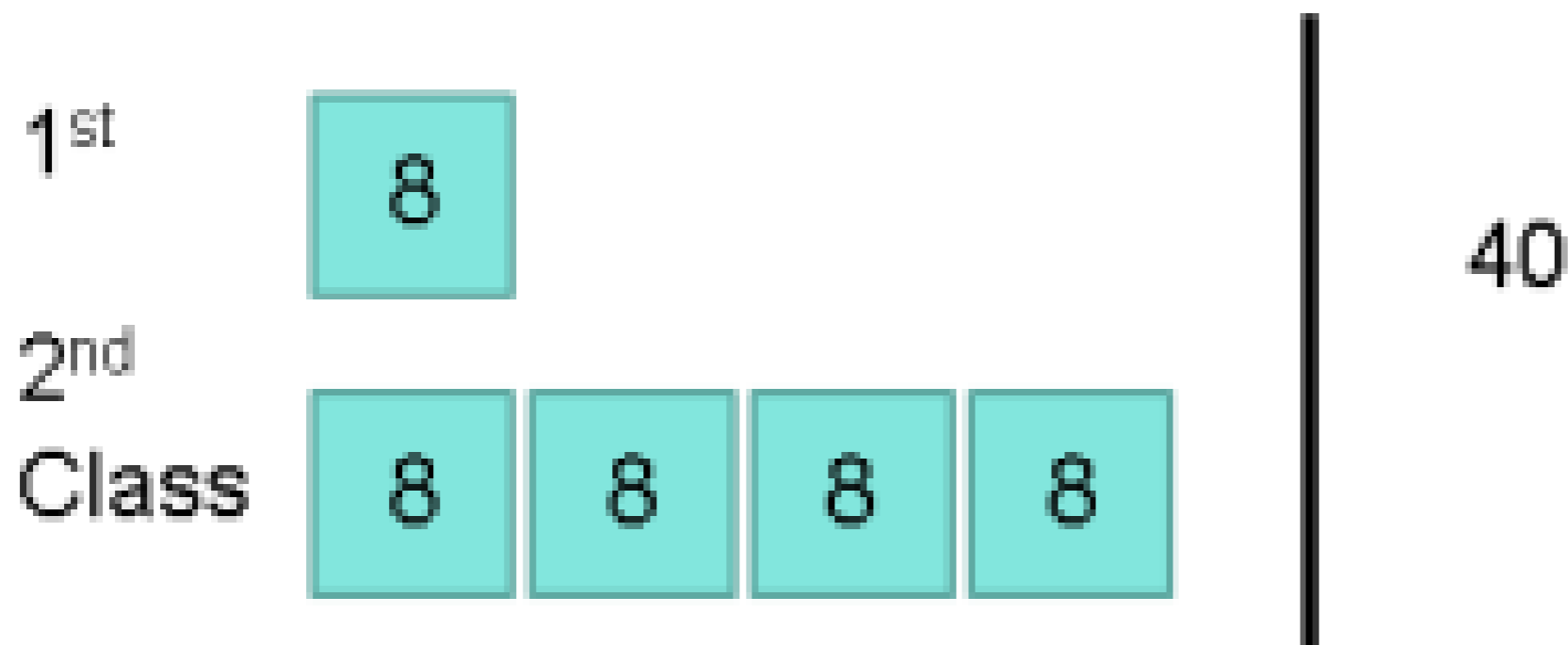
He posts four times as many second class letters as first.

How many of each class of letter does he post?



# GCSE higher maths paper

He posts four times as many second class letters as first.  
How many of each class of letter does he post?



$$40 \div 5 = 8$$

$$8 \times 4 = 32$$

1<sup>st</sup> Class 8 letters

2<sup>nd</sup> Class 32 letters

