Mathematics at Barrow Hedges

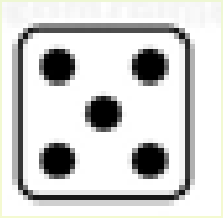
Aims of the workshop:

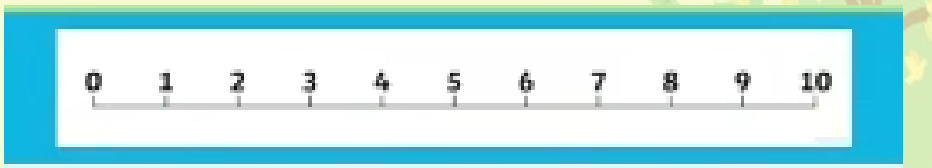
- Consider the most important knowledge and understanding within each year group
- To gain an understanding of how Maths is taught at Barrow Hedges
- To understand the 'Mastery Approach' of teaching Mathematics
- To gain ideas on how to support your child(ren) at home with Maths!

EYFS

In Early Years Foundation Stage, developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically.

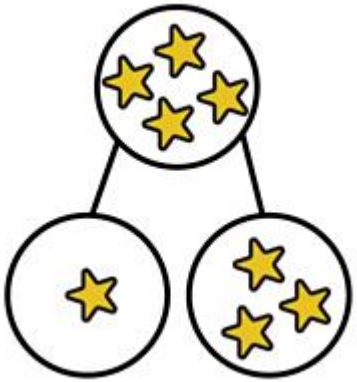
Cardinality and counting





Comparing

Composition



Patterns

Key Stage 1 – Years 1 and 2

The principal focus of mathematics teaching in key stage 1 is to ensure that children **develop confidence and mental fluency with whole numbers, counting and place value.** This should involve working with numerals, words and the four operations, including with practical resources.

At this stage, children should develop their ability to **recognise, describe, draw, compare and sort different shapes** and use the related vocabulary. A range of measures should be used to **describe** and **compare different quantities** such as **length, mass, capacity/volume, time and money.**

By the **end of year 2**, children should know the **number bonds to 20** and be precise in using and understanding place value.

Lower Key Stage 2 – Years 3 and 4

The principal focus of mathematics teaching in lower key stage 2 is to ensure that children become increasingly **fluent with whole numbers and the four operations, including number facts and the concept of place value.** Children will develop **efficient written and mental methods** and **perform calculations accurately with increasingly large whole numbers.** At this stage, children should develop their ability to solve a range of problems, including with **simple fractions and decimal place value.**

Children should be able to **draw with increasing accuracy** and **develop mathematical reasoning** so they can **analyse shapes** and their properties, and confidently **describe the relationships between them**.

By the end of year 4, pupils should have **memorised their multiplication tables up to and including the 12-multiplication table** and show precision and fluency in their work.

Upper Key Stage 2 – Years 5 and 6

The principal focus of mathematics teaching in upper key stage 2 is to ensure that children **extend their understanding of the number system and place value to include larger integers.** This should develop the **connections** that they make between **multiplication and division with fractions, decimals, percentages and ratio.** At this stage, children should develop their ability to solve a wider range of problems, including increasingly **complex properties of numbers and arithmetic**, and problems demanding **efficient written and mental methods** of calculation. With this foundation in arithmetic, pupils are introduced to the language of **algebra** as a means for solving a variety of problems.

Children should be able to **classify shapes with increasingly complex geometric properties** and understand the vocabulary they need to describe them.

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.**

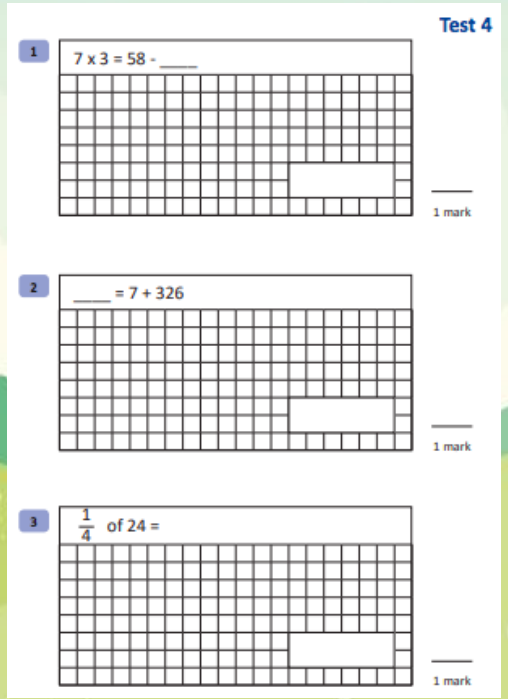
The National Curriculum aims to ensure that all pupils:

•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.

Daily Arithmetic

1. 6^2=
2. 7 x 20 = ___
3. 1 214 + 224 = _____
4. 2375 - _____ = 1375
5. 0.75 x 1000 ◯ 75 x 10
6. 9 x 8 = _____
7. 5.06 x 10 = _____

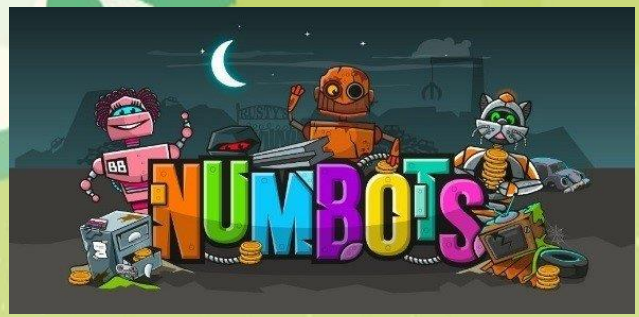
Friday Arithmetic test (Y2-6)


Test 4

1 7 x 3 = 58 - ____ ____ 1 mark

2 ____ = 7 + 326 ____ 1 mark

3 $\frac{1}{4}$ of 24 = ____ 1 mark

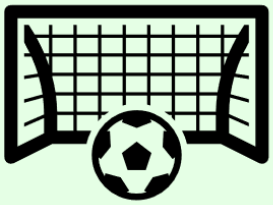


The National Curriculum aims to ensure that all pupils:

- 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.

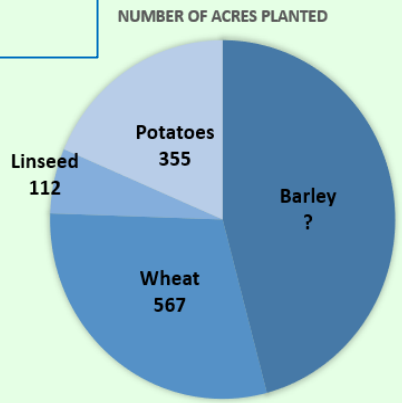
Your turn

Liam scored 2 goals and Keeley scored 7 goals. What is the total of the goals scored?



Use some objects to help solve this problem.

Your turn



Now follow the steps to answer this question.

The pie chart shows the number of acres a farmer has planted for different crops. If the total number of acres planted is 1,910, how many acres of barley are planted?

Solving word problems

Pupils at Churchill School are organised into 13 teams for Sports Day. If there are 6 pupils in each team, how many pupils are there in total?

Boxing-up
Removing the language

13	teams
6	in each team
	pupils in total

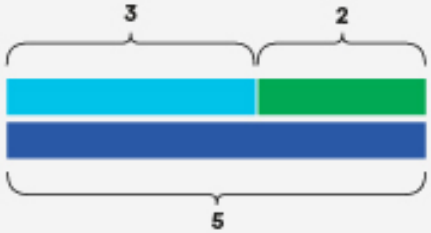
Number-free strategy

Pupils at Churchill School are **organised** into ☐ teams for Sports Day. If there are ☐ pupils in each team, how many pupils are there in **total**?

The National Curriculum 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.

Concrete



Pictorial

$3+2=5$

Abstract

What does it mean to master something?

- I know how to do it
- It becomes automatic and I don't need to think about it- for example driving a car
- I'm really good at doing it – painting a room, or a picture
- I can show someone else how to do it.

Mastering Maths…

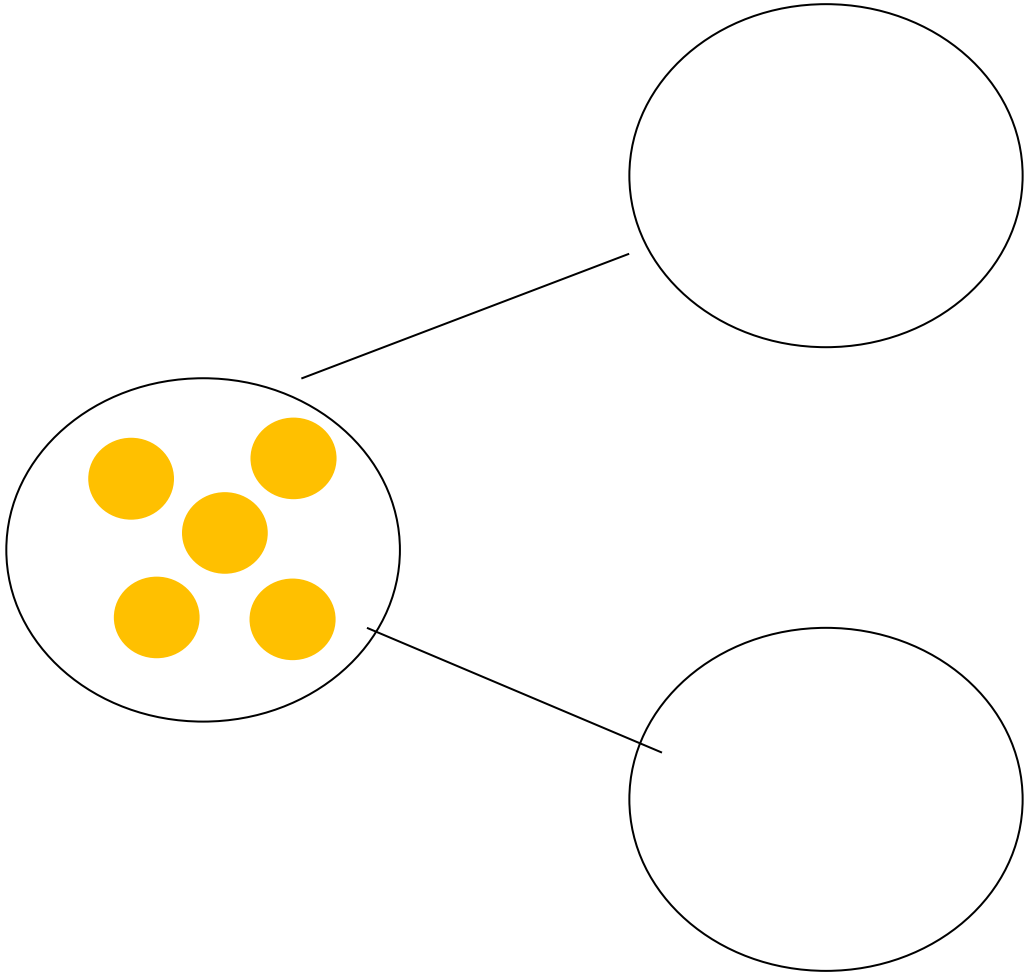
Mastering maths means pupils acquiring a deep, long-term, secure and adaptable understanding of the subject.

Achieving mastery means acquiring a solid enough understanding of the maths that's been taught to enable pupils to move on to more advanced material.

- Achievable for all
- Ability to build on something that has already been sufficiently mastered
- Ability to reason about a concept and make connections
- Deep and sustainable learning
- The belief that all pupils can achieve
- Development of deep mathematical understanding
- Spending a longer time on key topics, providing time to go deeper and embed learning
- Keeping the class together

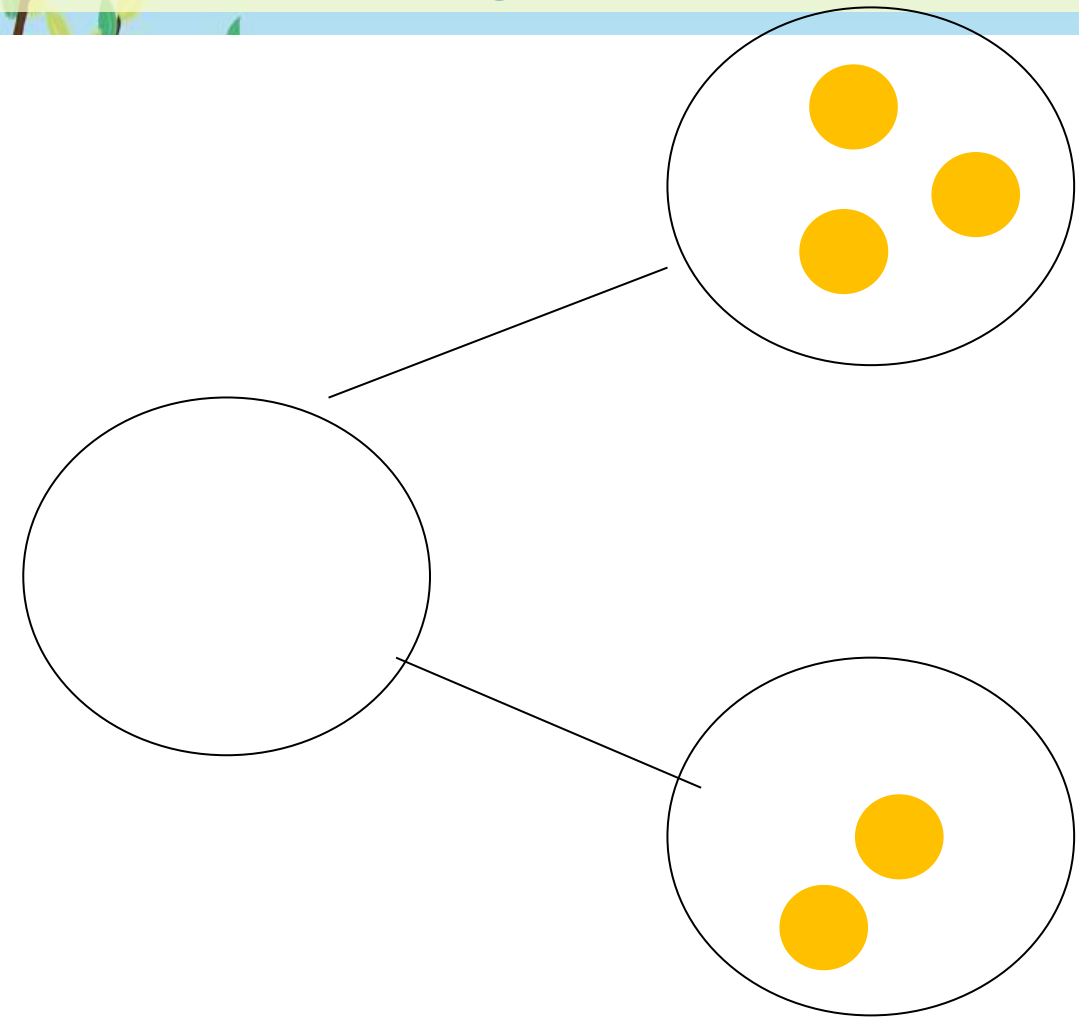
What is depth?

Partitioning and Combining

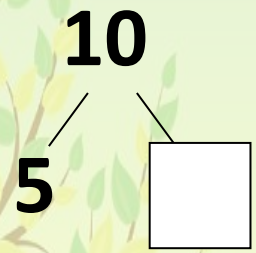


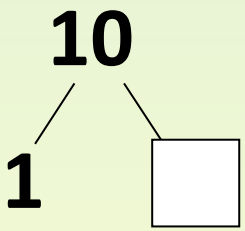
What is depth?

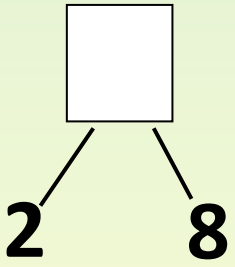
Partitioning and Combining

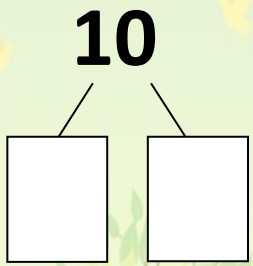


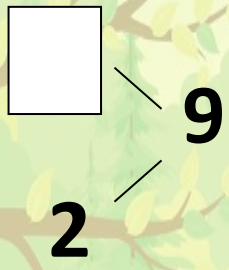
Part-whole relationships

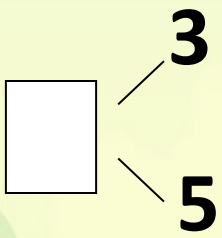


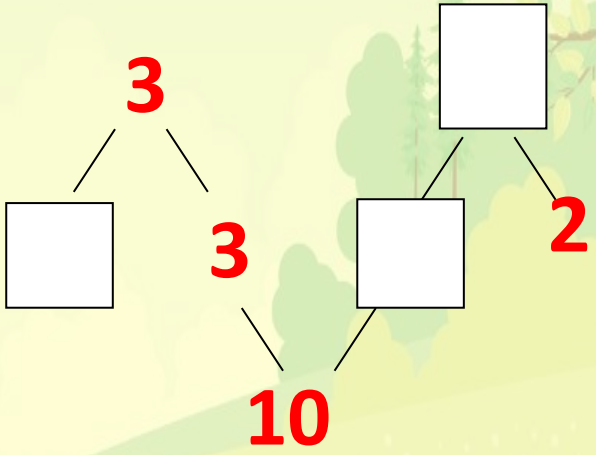


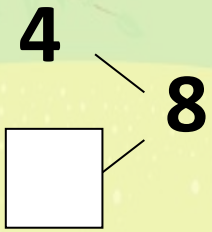




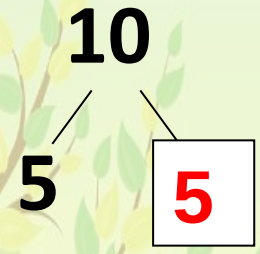


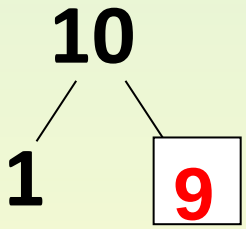


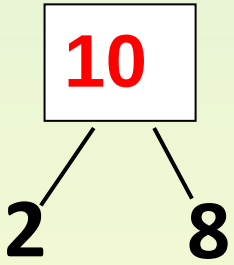


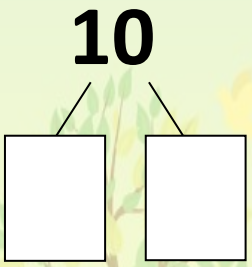


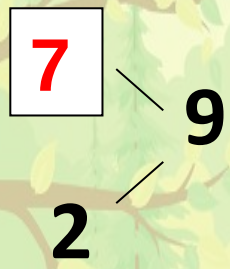
Part-whole relationships

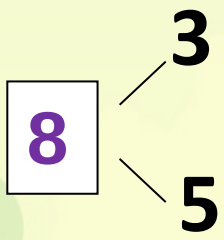


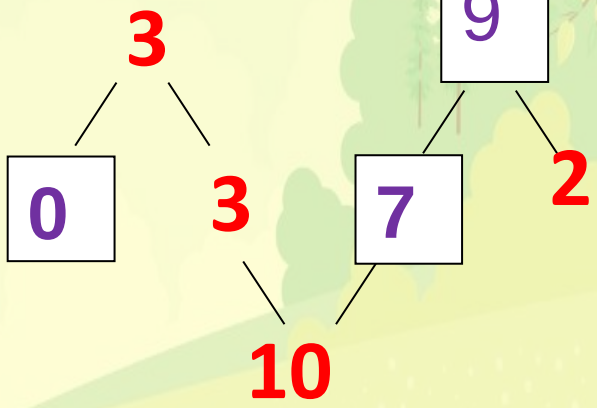


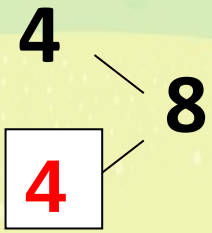






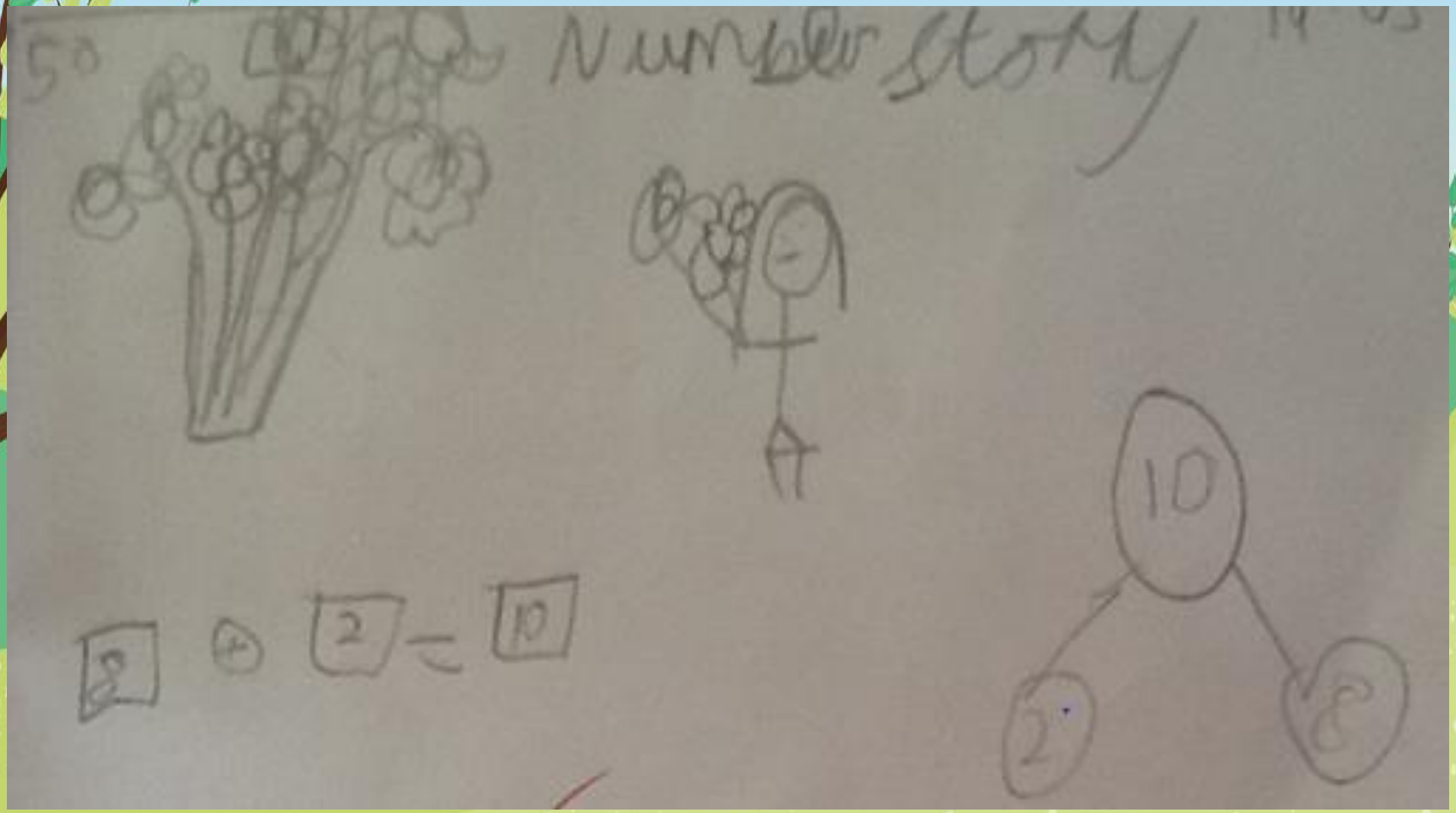






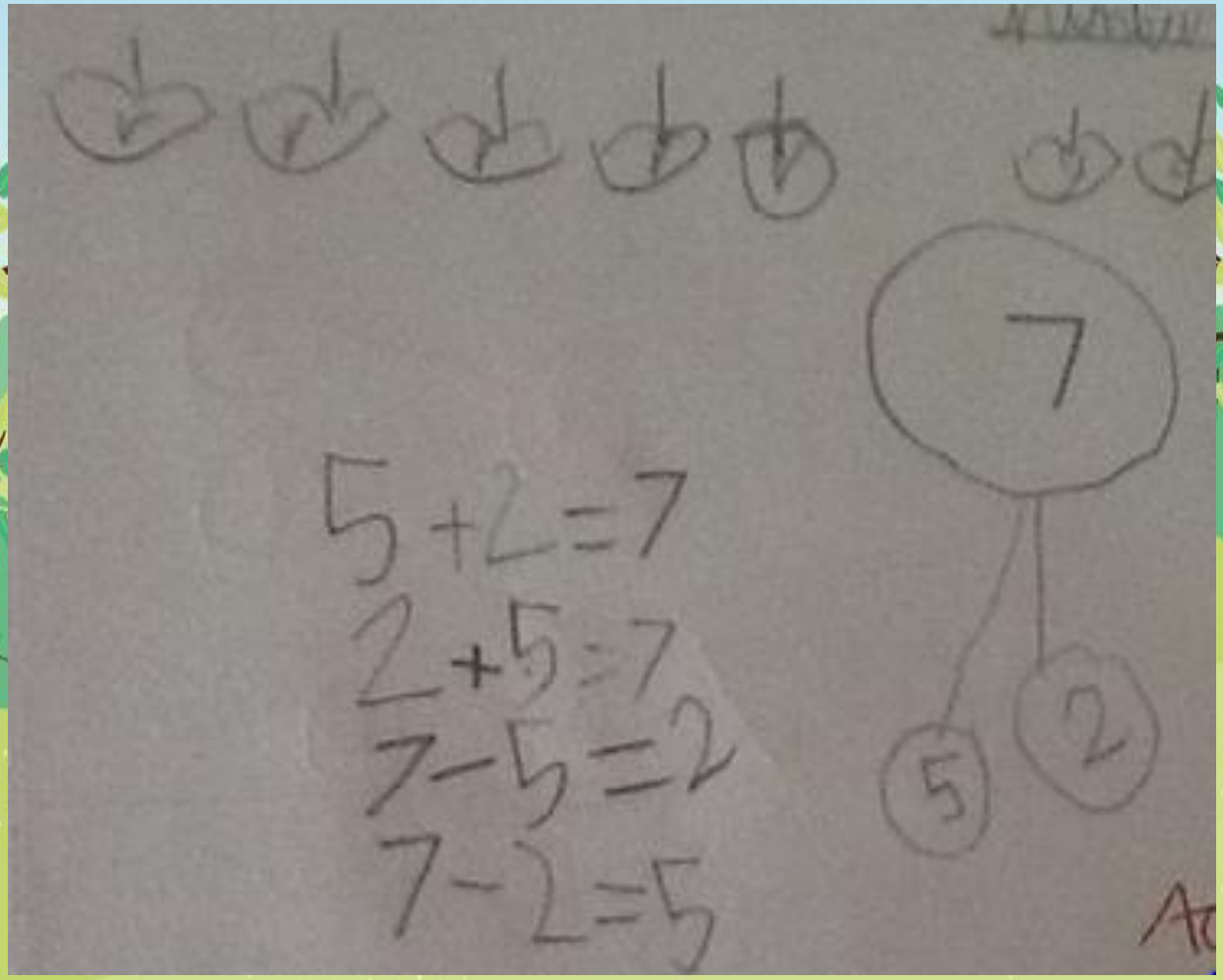
Depth shown in children's work

8 flowers and 2 flowers



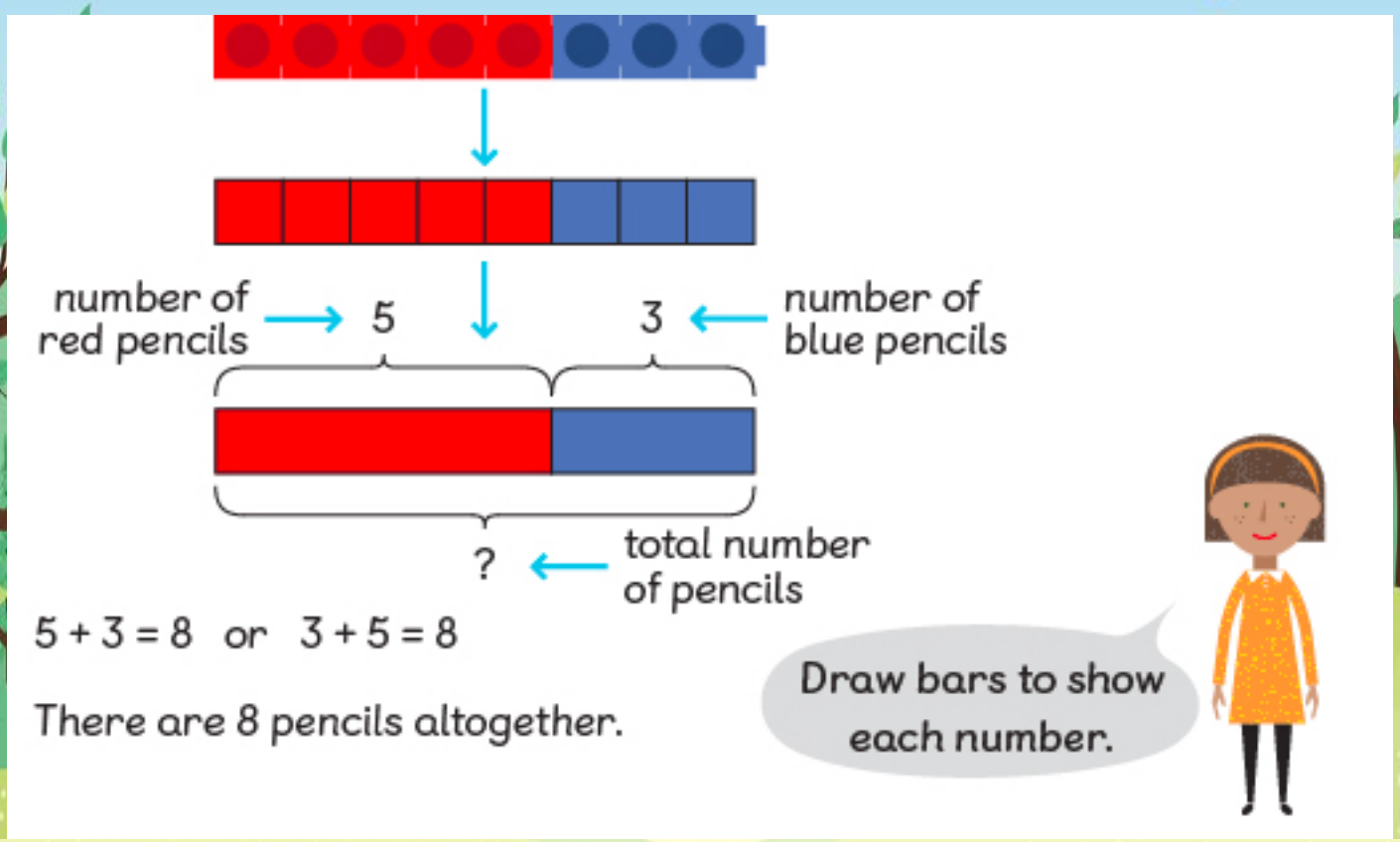
Depth shown in children's work

Tessa has 5 apples. Anita gives her 2 more. How many does she now have?



Using the ‘part-part-whole’ bar model

On a table in the classroom, there are 5 red pencils and 3 blue pencils. How many pencils are there altogether?



On a table in the classroom, there are some red and blue pencils. If there are 8 pencils altogether, and 5 of them are red, how many are blue?,

Using the ‘part–part–whole’ bar model

Tessa has 2 apples. Anita gives her 5 more. How many does she now have?

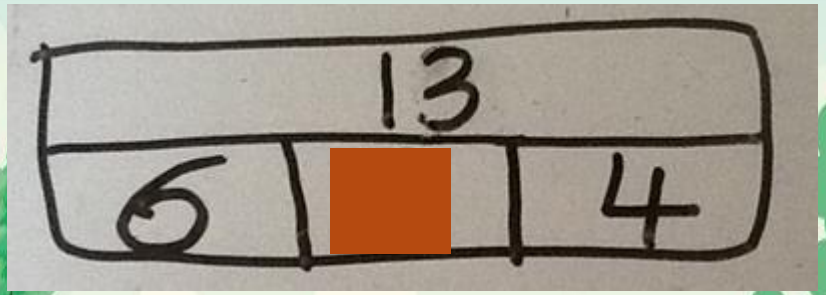
7	
2	5

7	
1.9	5.1

7.4	
1.7	5.7

c	
a	b

$6 + \square + 4 = 13$



$6 + \boxed{3} + 4 = 13$

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

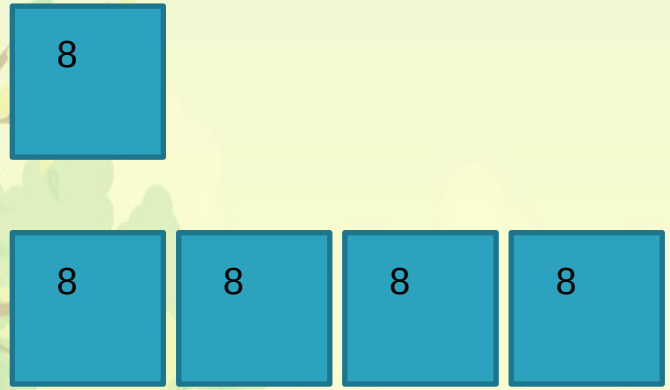
He posts four times as many second class letters as first.

How many of each class of letter does he post?

40 letters

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

How many of each class of letter does he post?



40

40 ÷ 5 = 8

8 x 4 = 32

1st Class 8 letters

2nd Class 32 letters

GCSE higher paper!

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?

Year group workshops

Workshop A: 7.10pm-7.30pm

Workshop B: 7.35pm-7.55pm

Reception: Cardinality and Composition

Year 1: Composition of numbers within 100

Year 2: Bridging in addition and subtraction

Year 3: The four operations

Year 4: Fractions and scaling problems using bar modelling

Year 5: Finding fractions of amounts using bar modelling

Year 6: Long division

Maths Parent Workshop 6:30pm - 7:05pm (for all):	
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Reception Workshop A (7:10pm - 7:30pm):	**Reception Workshop B (7:35pm - 7:55pm):**
https://teams.microsoft.com/l/meetup-join/19%3ameeting_NDhkYTNhYWItNWIwYy00MDkyLWFmODMtZDdhMTkOTZhMzM4%40thread.v2/0?context=%7b%22Tid%22%3a%2268097779-53b9-45f7-a434-a5d945b5241a%22%2c%22Oid%22%3a%2213f609eb-0d4b-418d-8434-e321b36071e7%22%7d	https://teams.microsoft.com/l/meetup-join/19%3ameeting_YmFjYzUxMzItNjc4NC00ZWRmLThjZWUtYjM3YWI3ZWEzNGJh%40thread.v2/0?context=%7b%22Tid%22%3a%2268097779-53b9-45f7-a434-a5d945b5241a%22%2c%22Oid%22%3a%2213f609eb-0d4b-418d-8434-e321b36071e7%22%7d
Year 1 Workshop A (7:10pm - 7:30pm):	**Year 1 Workshop B (7:35pm - 7:55pm):**
https://teams.microsoft.com/l/meetup-join/19%3ameeting_NzczNGJlZmEtOGI3NS00NzcfLThhZDEtMjUyMmEzODdjYWE0%40thread.v2/0?context=%7b%22Tid%22%3a%2268097779-53b9-45f7-a434-a5d945b5241a%22%2c%22Oid%22%3a%2213f609eb-0d4b-418d-8434-e321b36071e7%22%7d	https://teams.microsoft.com/l/meetup-join/19%3ameeting_Mg1MzFhZGQtZWY1MC00MTA3LTlkNDktNjdlOWFlN2UxMTBl%40thread.v2/0?context=%7b%22Tid%22%3a%2268097779-53b9-45f7-a434-a5d945b5241a%22%2c%22Oid%22%3a%2213f609eb-0d4b-418d-8434-e321b36071e7%22%7d
Year 2 Workshop A (7:10pm - 7:30pm):	**Year 2 Workshop B (7:35pm - 7:55pm):**
https://teams.microsoft.com/l/meetup-join/19%3ameeting_MWYzZWI5MDYtYTU3OC00NWNmLTg1NzUtZjhmNTgzMDgzY2Fl%40thread.v2/0?context=%7b%22Tid%22%3a%2268097779-53b9-45f7-a434-a5d945b5241a%22%2c%22Oid%22%3a%2213f609eb-0d4b-418d-8434-e321b36071e7%22%7d	https://teams.microsoft.com/l/meetup-join/19%3ameeting_YTFhYjFlZGItY2I0OS00NDkxLThmNGUtNGVlZjE1MTU2ZDQ2%40thread.v2/0?context=%7b%22Tid%22%3a%2268097779-53b9-45f7-a434-a5d945b5241a%22%2c%22Oid%22%3a%2213f609eb-0d4b-418d-8434-e321b36071e7%22%7d