Maths Mastery at Mount Hawke

Maths Mastery

How and Why did the Mathematics Mastery Approach Develop

- Too many children are falling behind
- Not enough children are excelling
- Teaching has been focussed on procedures over understanding
- Negative attitudes towards maths ability and enjoyment

The Mathematics Mastery Approach

- Depth before breadth – a rigorous and systematic programme that is developed to ensure every child can achieve excellence.
- Children are kept together to work on the same concept and have the same opportunities.
- Differentiation is achieved through support and depth and breadth of questions
- It provides a deep understanding of the subject through a Pictorial, Concrete and Abstract approach.
- Mastery – when a concept or skill can be applied over time in a multiple of ways and to an unfamiliar setting
- A child's mindset is more important than prior attainment.

Growth Mindset

- A belief that effort creates success
- A belief that skill and ability can be increased over time
- View mistakes as an opportunity to develop
- Are resilient – and don't give up easily
- Think about *how* they learn not just what
- A belief that natural talent is just a starting point and does not determine who has more or less potential to achieve. Everybody can achieve in maths.

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.
- I can make links and apply my understanding to solve unfamiliar problems

I can represent the place value of each digit in a 2 digit number

Words to help you!

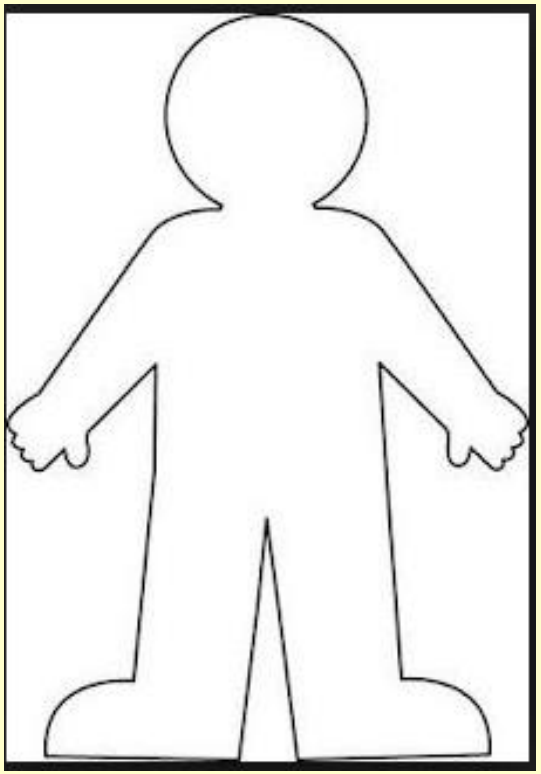
- place value
- tens
- ones
- part part whole
- reasoning
- multiple

Success Criteria

- Be able to identify numbers which are represented in different ways.
- Understand what each digit represents.
- Understand which digit is the smallest / largest.
- Understand the term place value.

Body Counting in 3s

Then try counting in multiples of 3 backwards starting from 30



Mark My Work

3 6 9 13
3 6 9 11
__ 6 9 __ 16
3 6 9 12 ___ 17
3 6 9 12 15 18 ___ 24
3 __ 9 __ 15 ___ 21 ___ 27 30
All multiples of 3 are odd
Knowing my 3x table will help me know my 6x table.

Write down the correct answer if my answer is incorrect.

ODD ONE OUT

Which number sequence is the odd one out because it is wrong?

- 3 6 9 12 15
- 9 12 15 18 21
- 30 27 25 21
- I think it is sequence 3.

Am I correct ? Prove it

What is place value ?

Mrs Beckerleg thinks that it is when you sequence numbers smallest to largest.

Mrs Webb think that it is the value of where the digit is in the number.

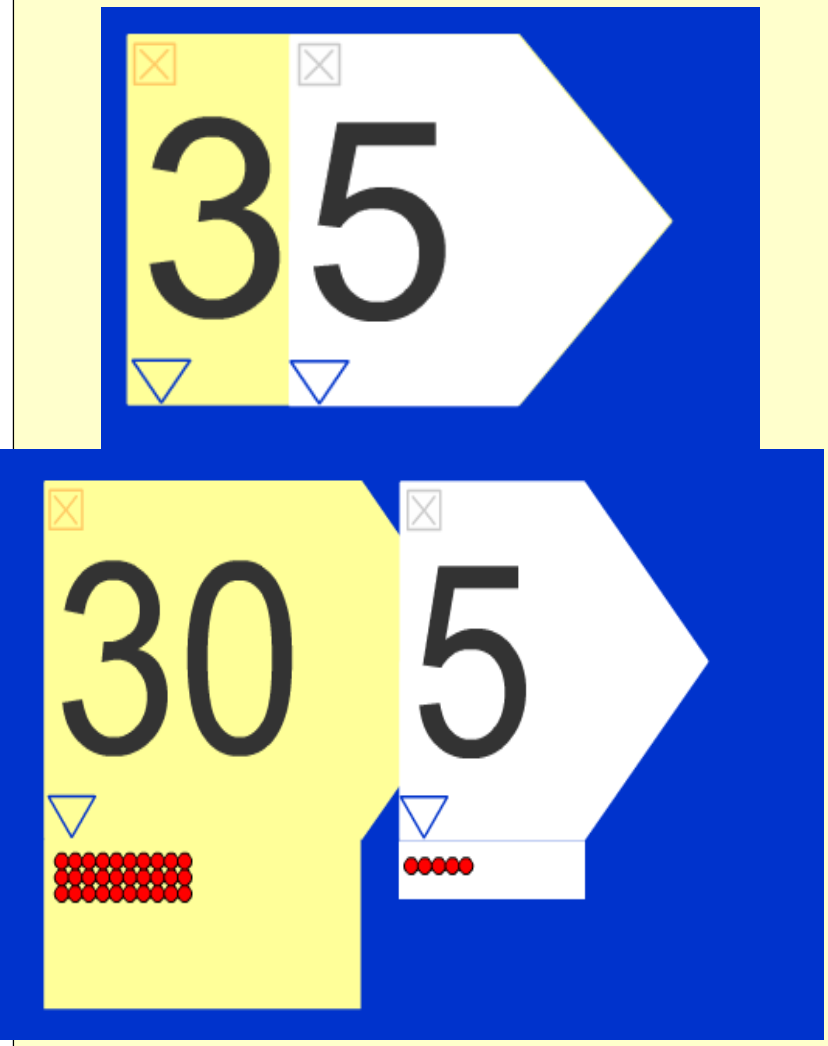
Mrs Beckerleg's view

6 12 3 9 18 15

Smallest to largest

3 6 9 12 15 18

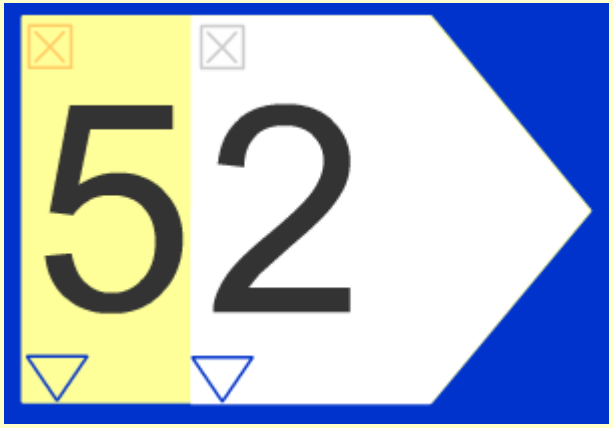
Mrs Webb's view



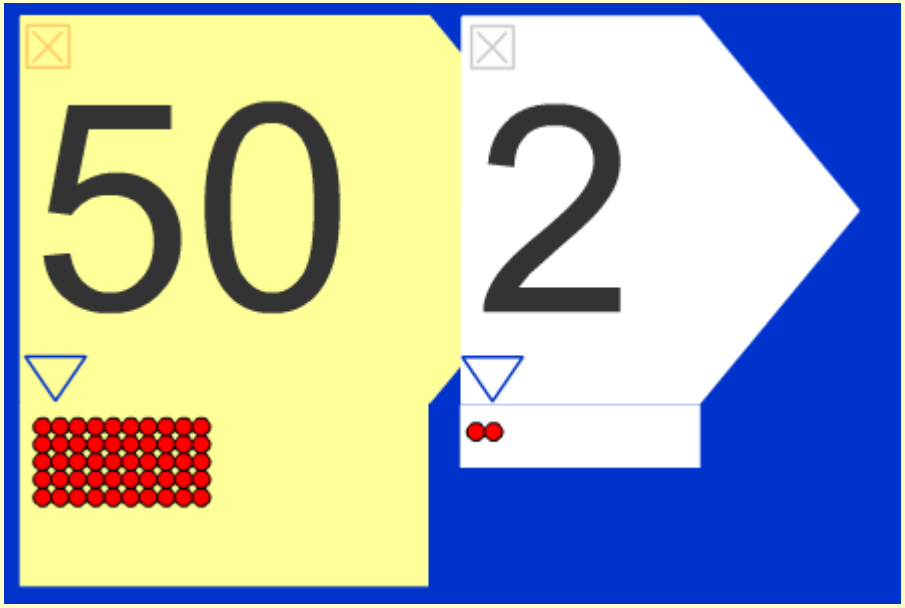
If we look at each digit.

The 3 represents 3 tens.
The 5 represent 5 units.

Who is correct? Mrs Webb



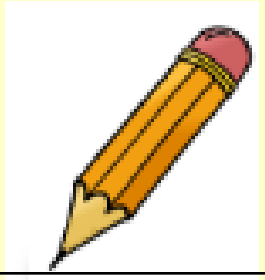
Because place value is the value of the digit within a number

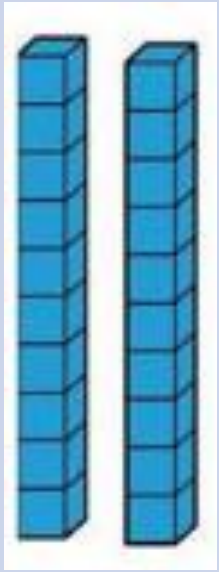


Context

My classroom has been left in a mess!
My head teacher has told me to sort out the equipment and count how much I have got of each item.
However, I have to count the objects in tens and units.
Please can you help me count the objects!!

I have 27 pencils.
How can I write this?



Tens	Ones
	

I have 2 groups of 10.
2 groups of 10 make 20.

I have 7 ones.
I have 7 groups of 1 (one)
makes 7

20 + 7 = 27

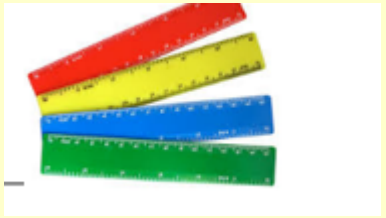
I have 56 rulers.
How can I write this?

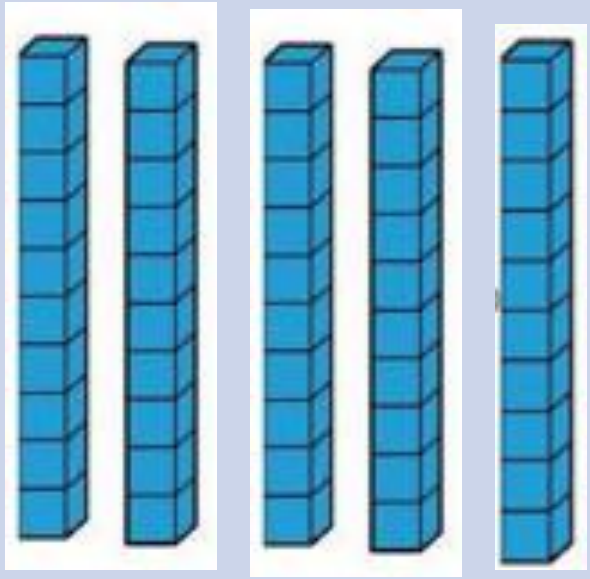
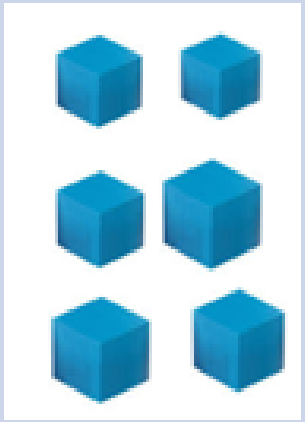
Tens	Ones

Partition this amount

- *Using place value counters*
- *As an expanded number sentence*

Because



Tens	Ones
	

I have 5 groups of 10.
5 groups of 10 make 50.
50

+

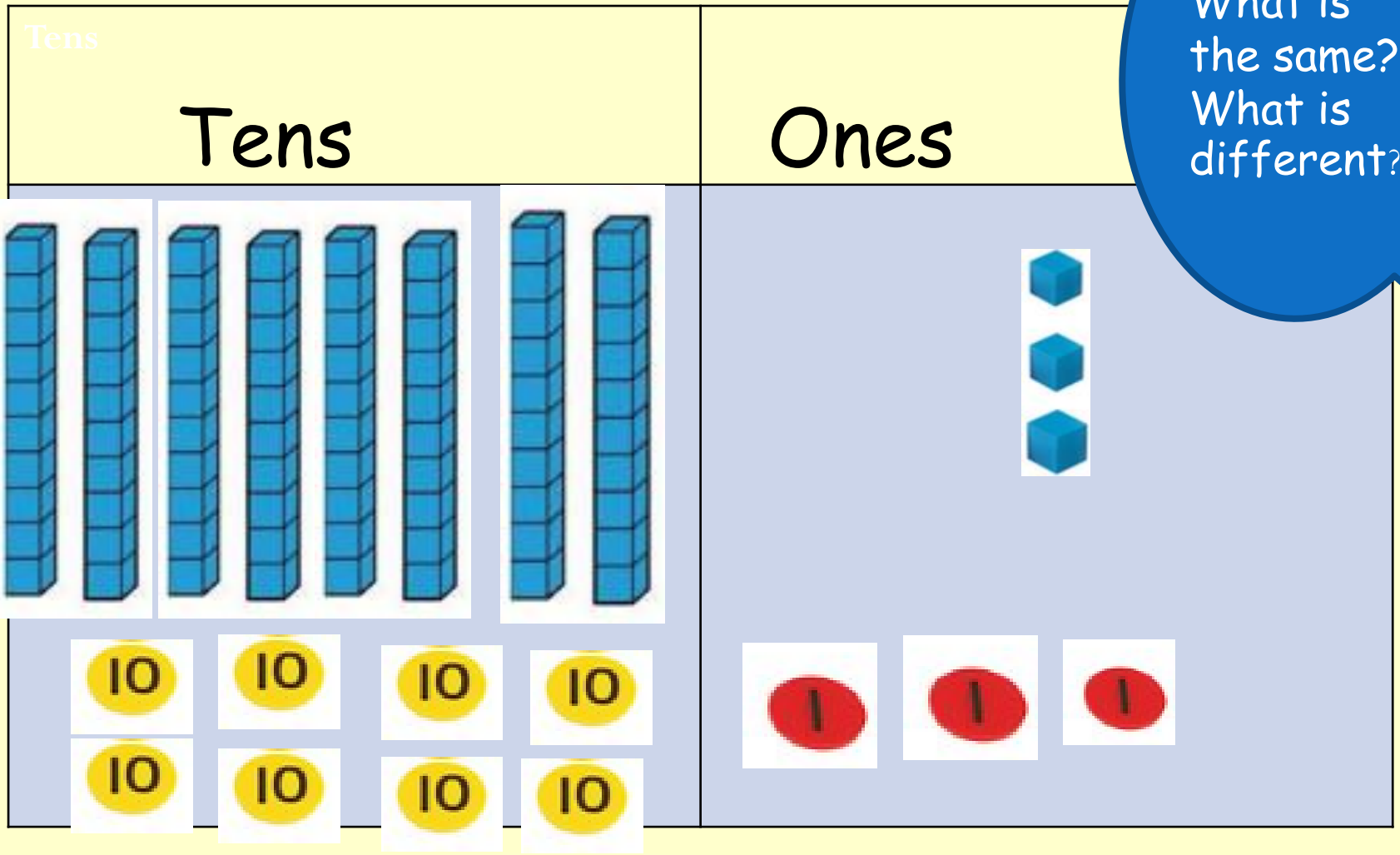
I have 6 ones.
6 ones makes 6
6 = 56

50 + 6 = 56

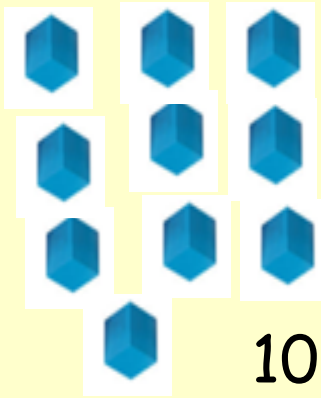
Now when counting I find I have .....

eighty three paper clips

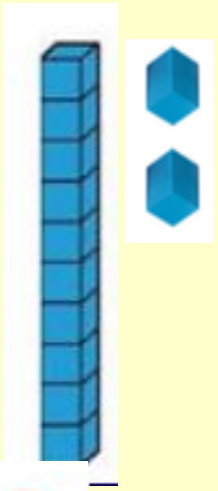
80 + 3 paper clips



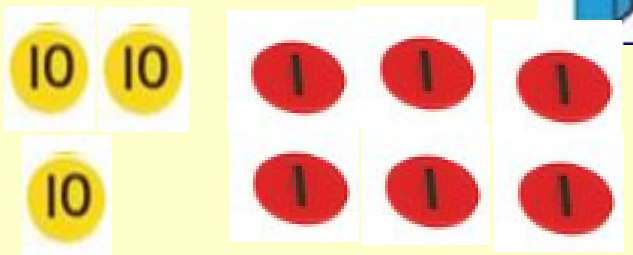
What is the same? What is different?



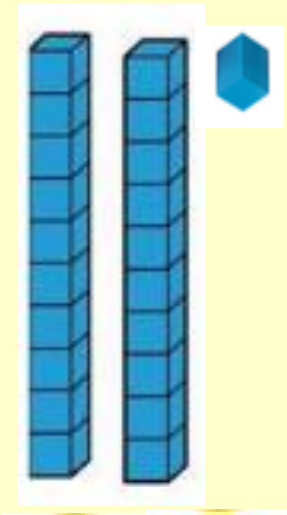
10



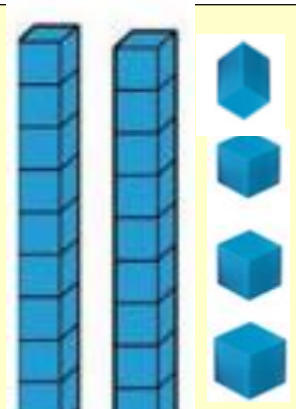
13



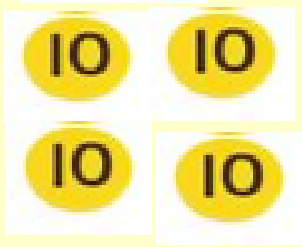
26



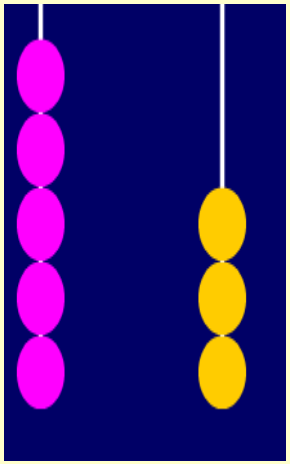
12



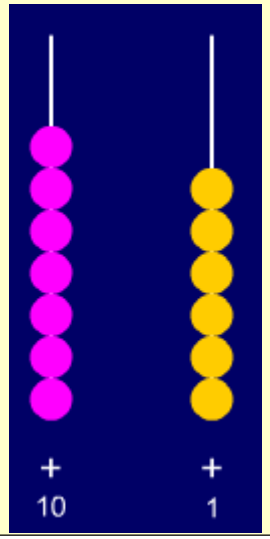
24



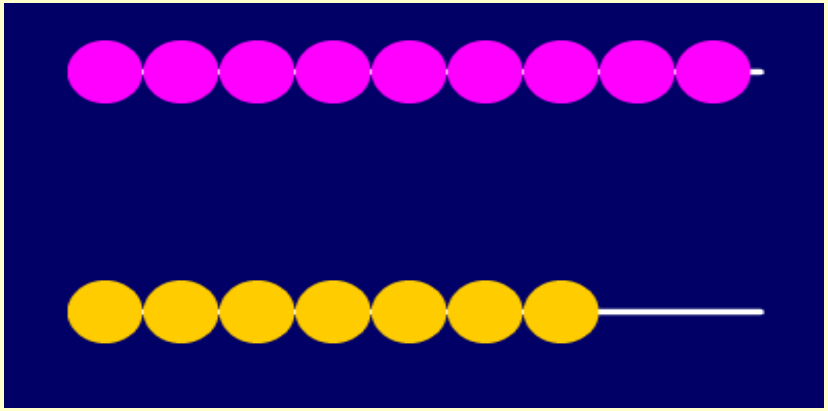
34



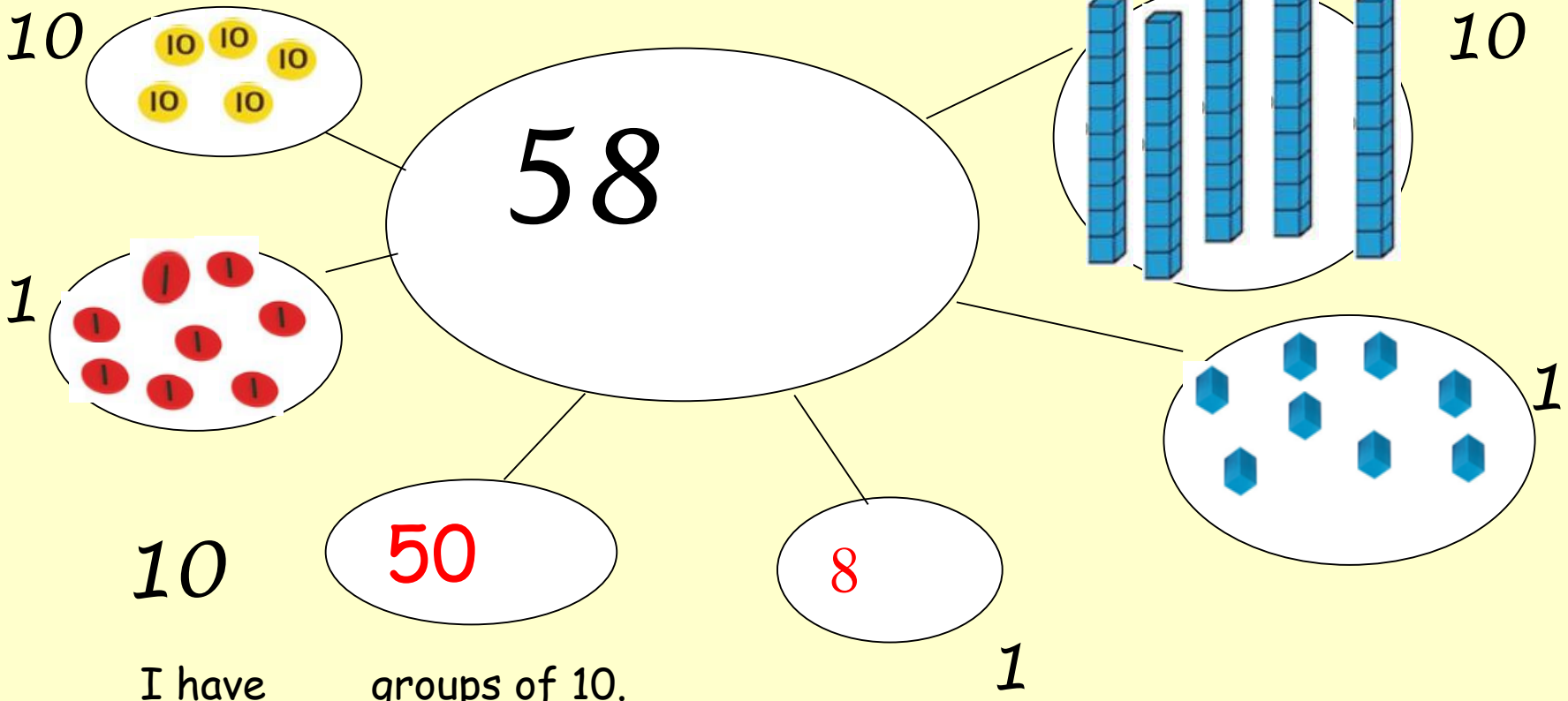
52



66



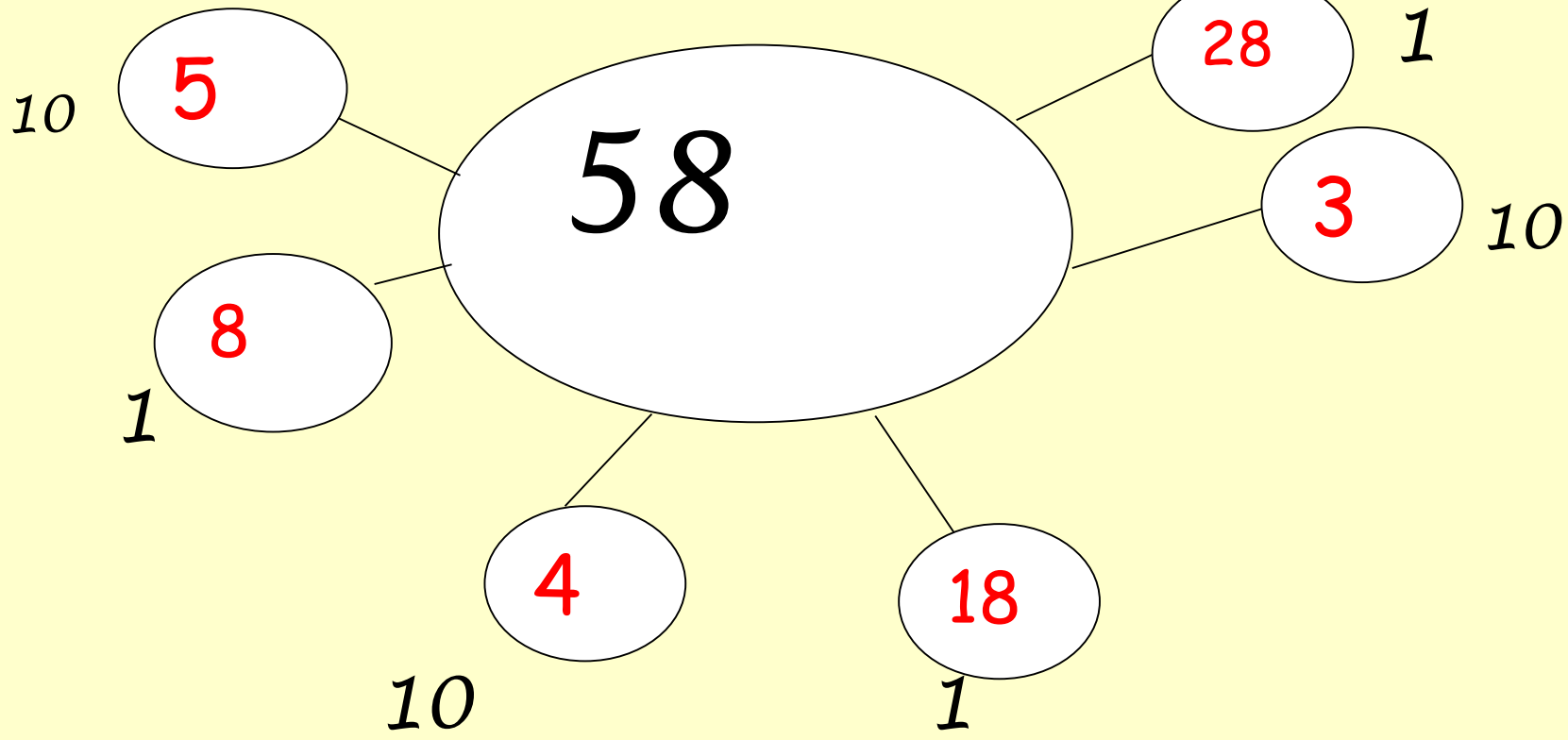
87



I have ___ groups of 10.
I have _____ ones.
___ groups of 10 add _____ units equals 58

_____ + _____ = 58

58 = _____ + _____



I have ___ groups of 10.
I have _____ ones.
___ groups of 10 add _____ units equals 58

_____ + _____ = 58

58 = _____ + _____

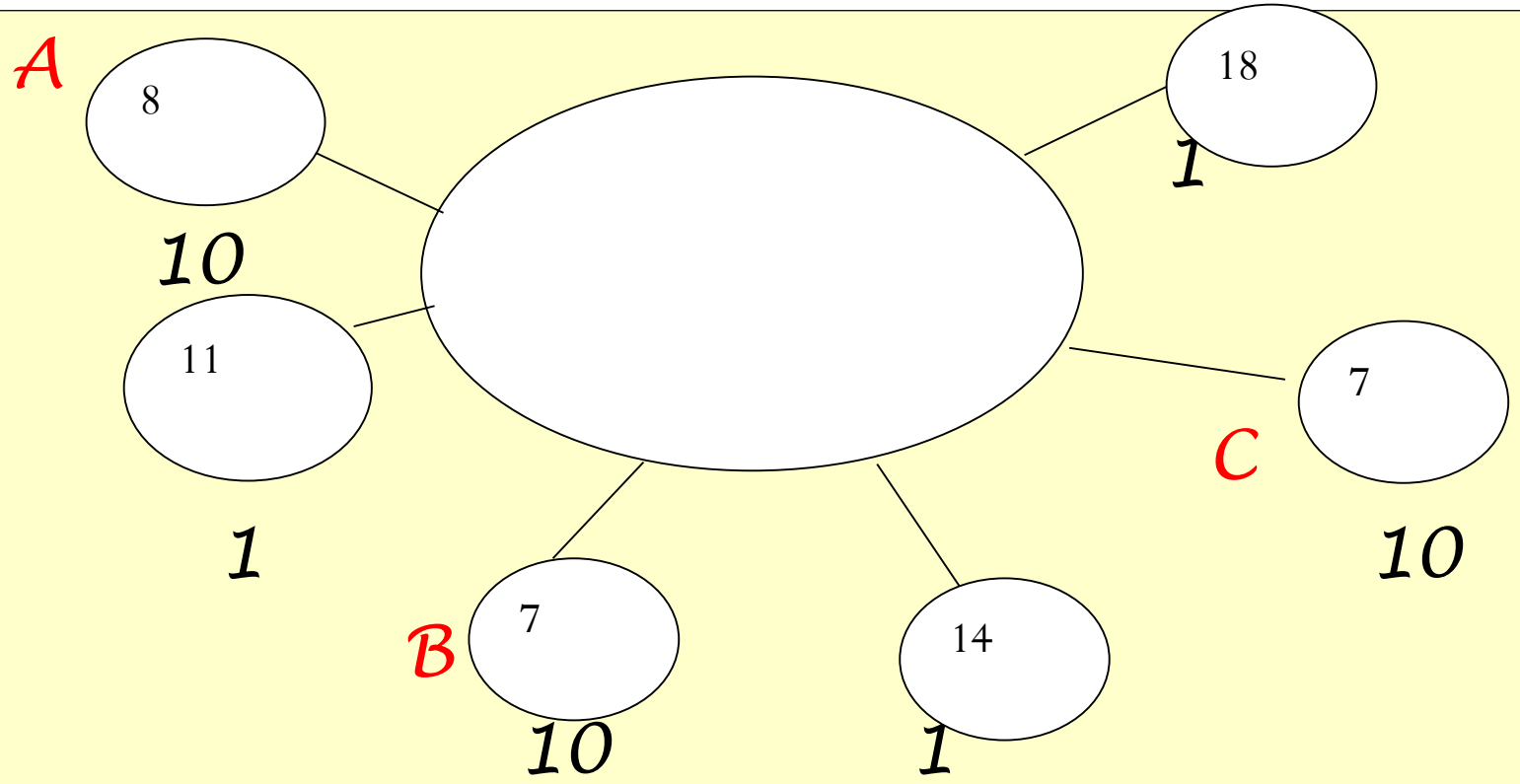
Mrs Beckerleg has 80 + 9 pencils.

Mrs Webb has 70 + 19 crayons.

Miss Biddick has 90 + 0 pens.

Who has the most?

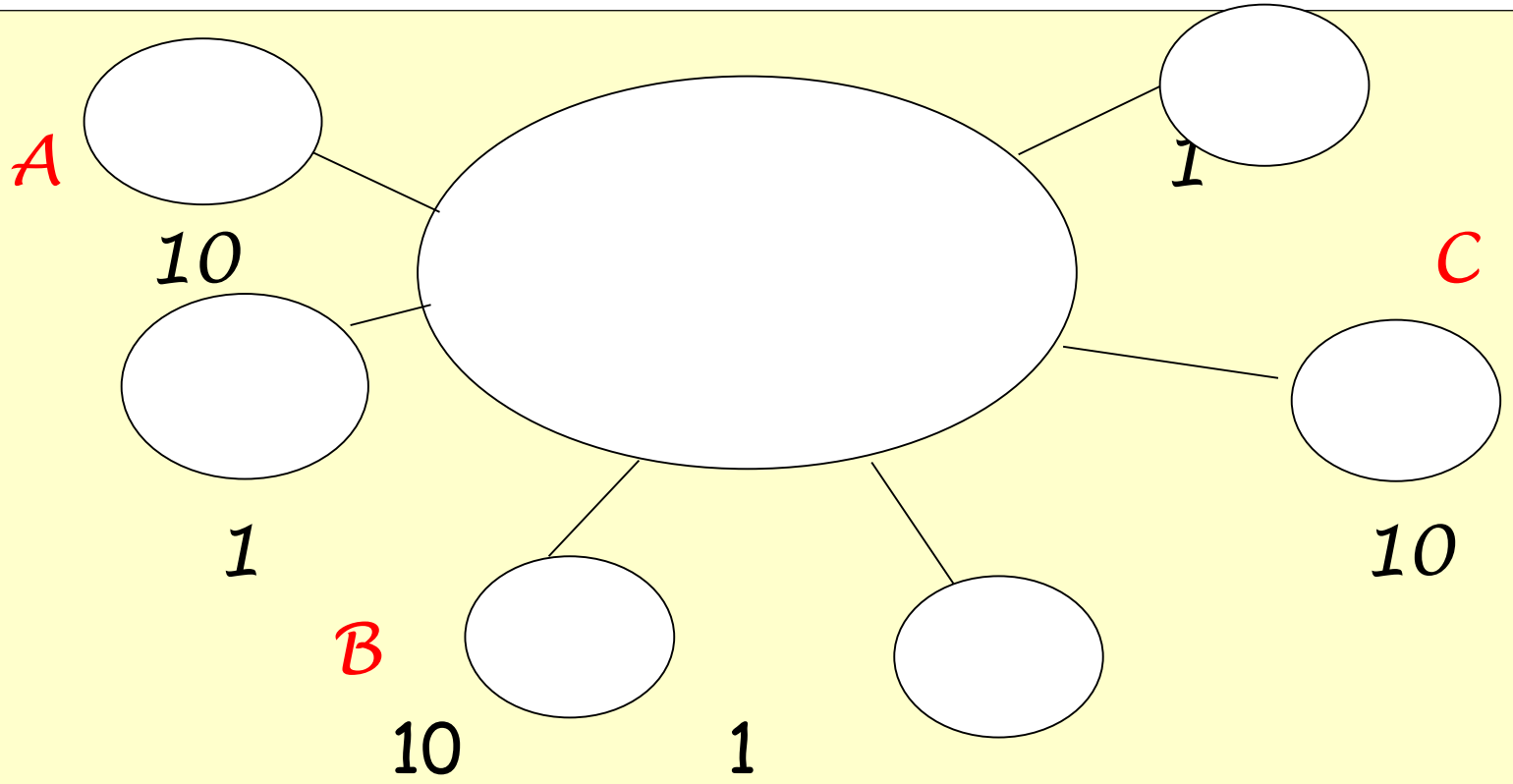
Mrs Beckerleg thinks that 70 + 16 is greater than 80 + 6
Is she correct?
Prove your answer please.



I think that A < B < C.

How can I work this out?

Am I correct?



Create your own diagrams to make the statements correct.

A = B = C

A > B >C

A> B < C

Partition each amount in 3 different ways

Questions used for mastery

True or False…. 3 + 4 x 8 = 56	**Always, sometimes, never…** When you multiply, the number always gets bigger?	**Odd one out…** 24, 56, 16, 34 Explain your choice
Prove it…. The area of a rectangle is 60cm. 6cm  The length must be 10cm.	**Missing number problems…** 2/3 + ?/? = 22/15	**Convince me…** 14% of 85 = 11.9
SATs question Order these fractions smallest to largest: 2/3, 4/8, 2/6, 10/12	**Creating questions…** The answer is -2. Tell me 2 different questions it could it.	**Word problems** For every 16 cookies, Julie needs 1.2kg flour and 250g butter. How many grams of flour and butter is needed for 4 cookies?

How you can support your child at home?

- Look for and talk about numbers in the environment
- Play games
- Shopping and giving change.
- Number bonds for 10, 20, 100
- Times tables
- Cooking
- Telling the time and reading timetables

How to help at home

Play Games

• Playing number games, including board games like Snakes and Ladders, has been proven by research to increase children's understanding of relative number size as well as counting.