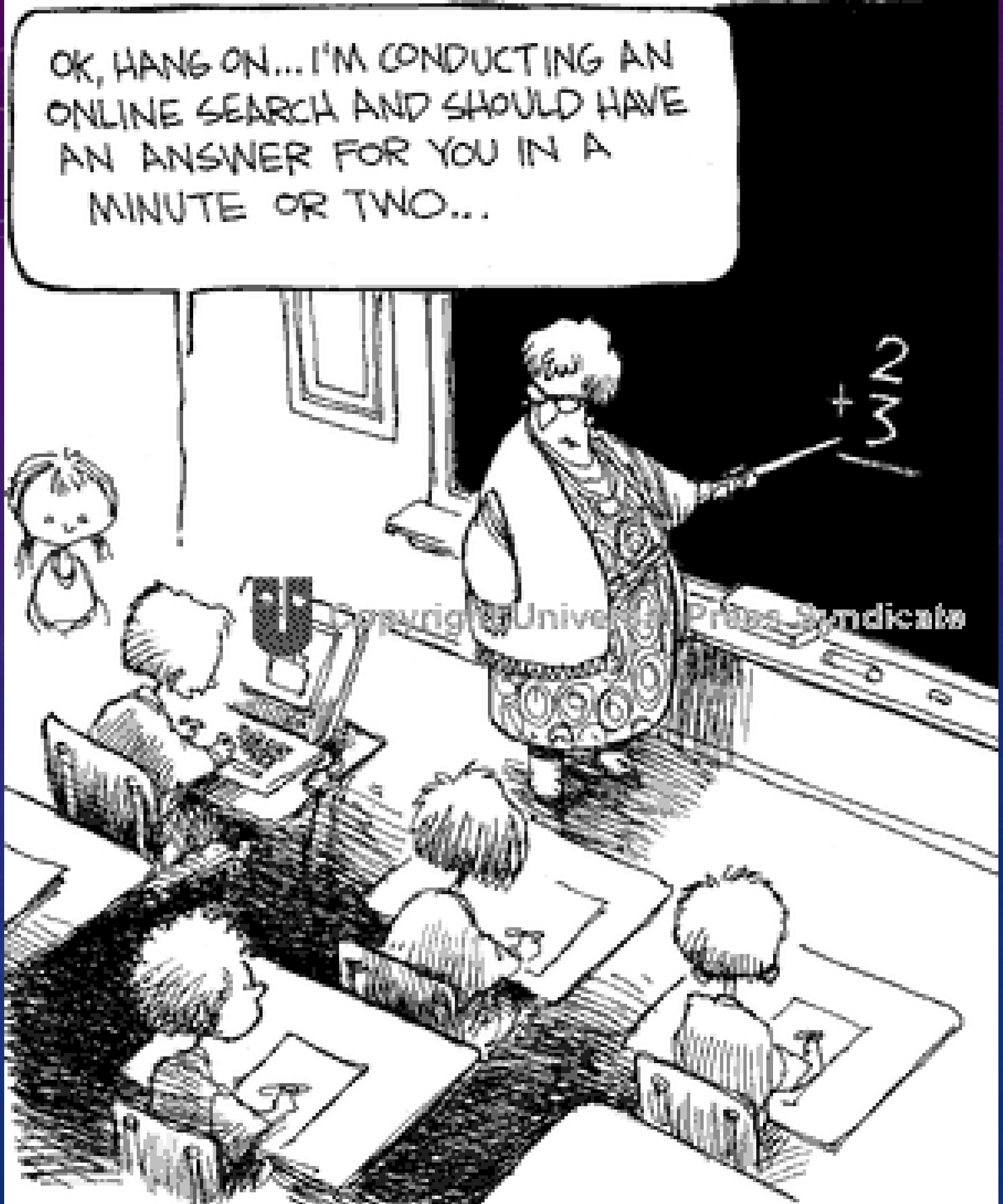
MATHEMATICAL FLUENCY IN THE EARLY AND PRIMARY YEARS

Thursday 2nd November 2021
6.30 – 7.30 pm



AIMS:

- To have a shared understanding of what mathematical fluency looks like in the primary years
- To know some of the approaches used in the classroom to develop fluency
- To know what is expected in different year groups (recall and approaches)
- To take away some ideas of how to support your child in building fluency – the use of playing cards!

WHAT IS MATHEMATICAL FLUENCY?

WHAT DID YOU SEE?

WHAT IS MATHEMATICAL FLUENCY?

18 x 5

Efficiency: valuing an ability to use strategic thinking to carry out a calculation without being hindered by unnecessary steps.

Accuracy: depends on several aspects of the problem-solving process, among them careful recording, knowledge of number facts and other important number relationships, and double-checking results:

"is this a sensible answer?"

Flexibility: requires the knowledge of more than one approach to solving a particular kind of problem, such as two-digit multiplication. We need flexibility in order to choose an appropriate strategy for the numbers involved, and also be able to use one method to solve a problem and another method to check the results.

MUCH MORE THAN ROTE MEMORISATION OF NUMBER FACTS

A CULTURE THAT PROMOTES FLUENCY (NOT SPEED)

- **Everyone** has something to contribute and we **all** value those contributions
- An appreciation that we 'see' things differently: there may be one answer but there are a myriad of available journeys
- There is an expectation that we have to try to **communicate** our ideas so that everyone else can understand them and that we are expected to try to **understand the thinking of others**.
- There is an expectation that we have to **listen** to what others say and then try to build on it – agreeing and disagreeing by offering proof.

THE CPA APPROACH: CONCRETE-PICTORIAL-ABSTRACT

3 + 2 = 5

"3 cubes and 2 cubes equal 5 cubes"

"3 cubes and 2 more cubes is 5 cubes"

"five is two more than three"

"three girls and two boys is five children altogether"

"3 girls and 2 more girls makes 5 girls"

"What other facts could we use to make 5?"

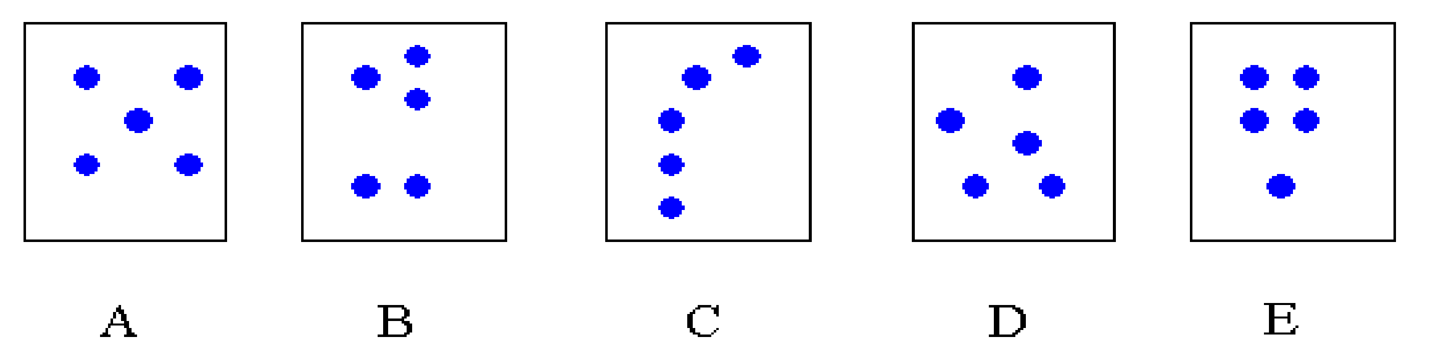
WHAT DOES IT LOOK LIKE IN THE EARLY YEARS?

‘Number Sense’

- A deeper understanding of number beyond the number names
- Intuitive understanding of number reinforced through use of concrete objects and TALK

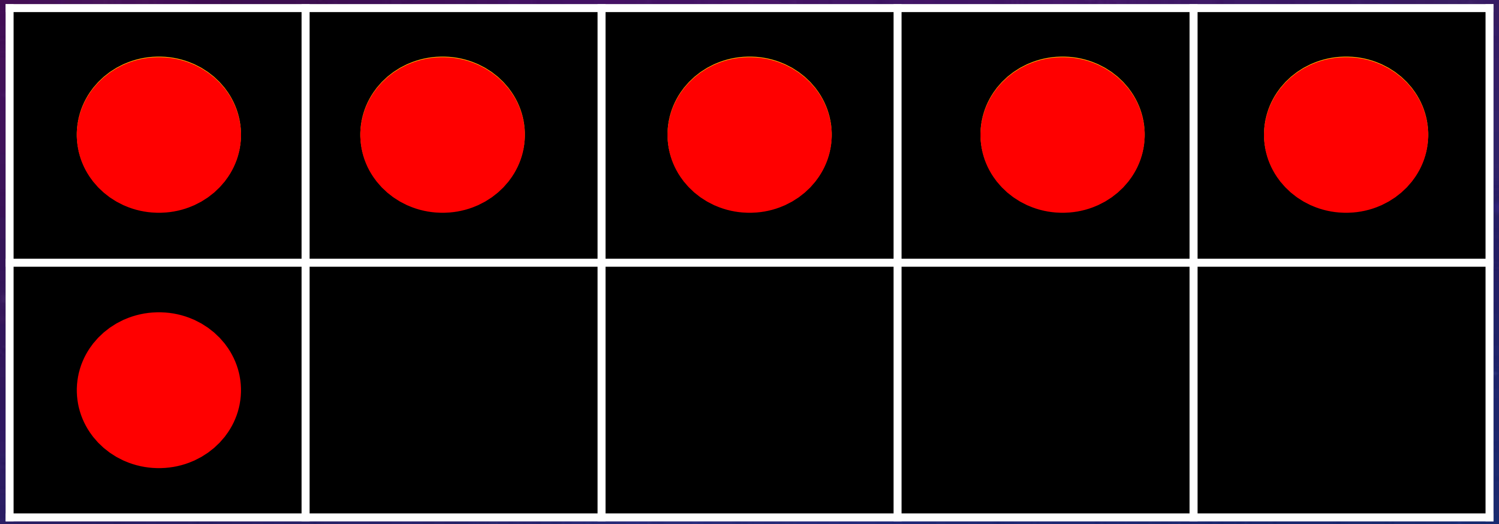
Subitising

The ability to recognise a number without counting

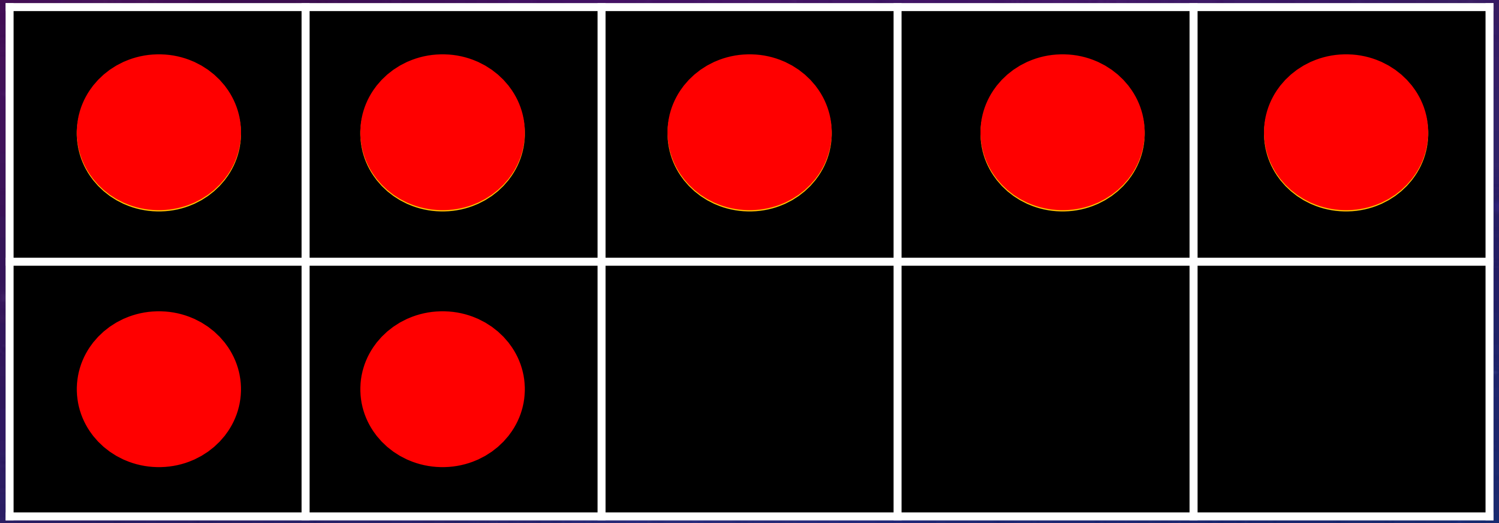


My child needs to

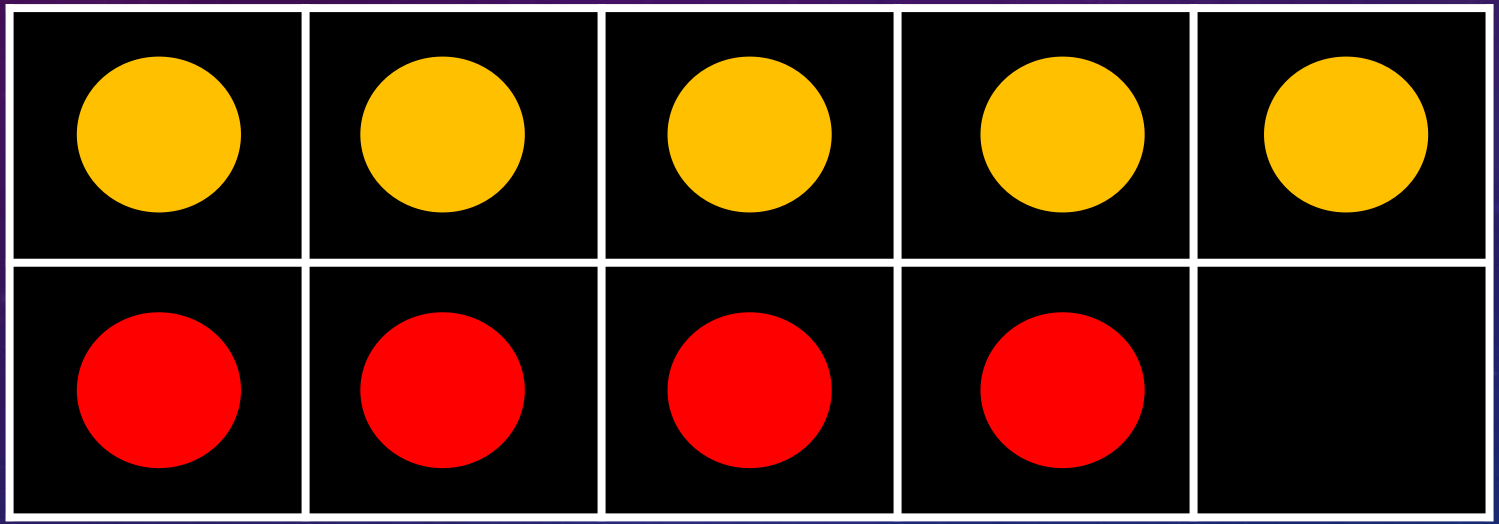
- Have a deep understanding of number to 10, including the composition of each number;
- Subitise up to 5;
- Automatically recall number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.
- Verbally count beyond 20
- Compare quantities up to 10 in different contexts, - Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.

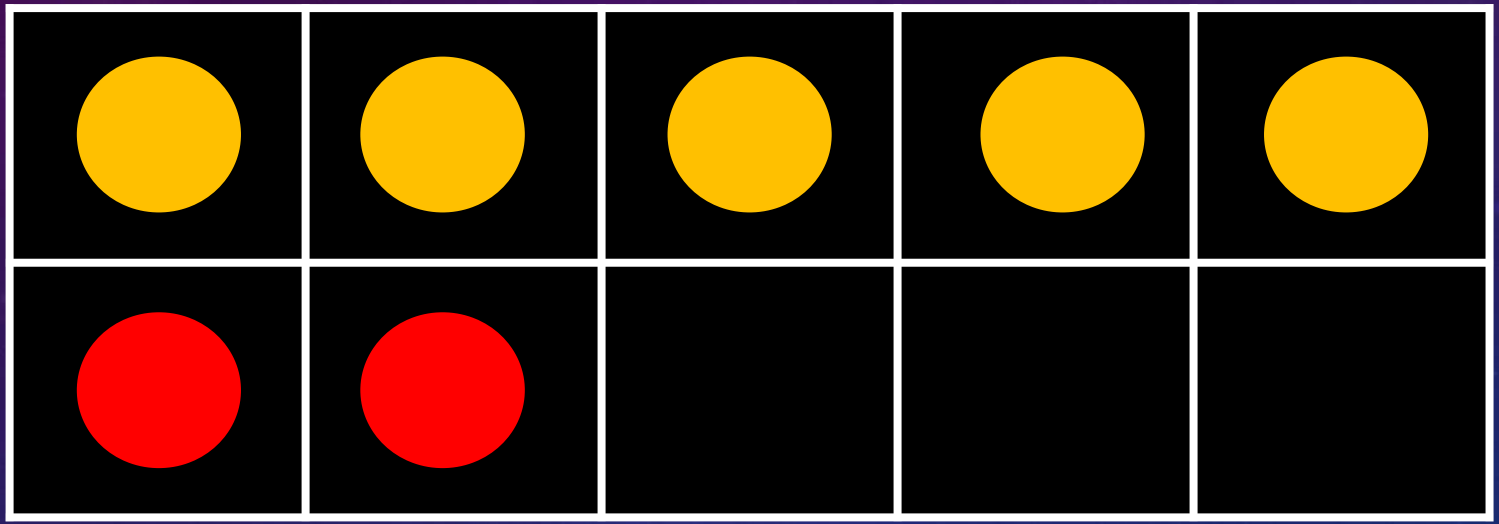


_____ is made of 5 and _____ ; 5 and _____ make _____ .



_____ is made of 5 and _____ ; 5 and _____ make _____ .

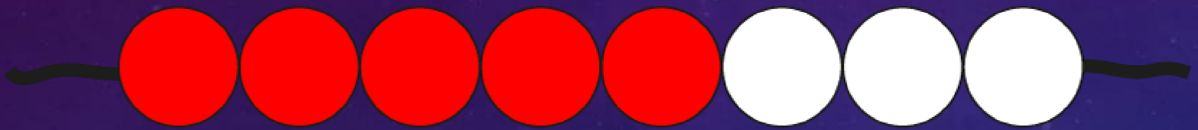


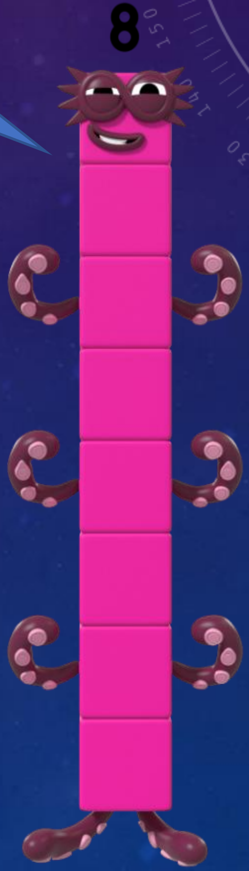


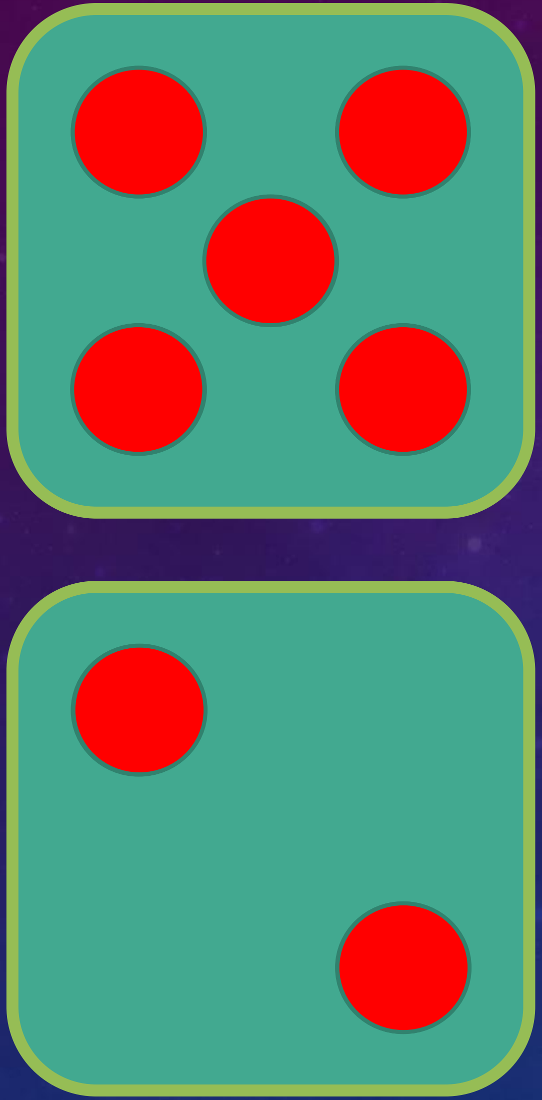
PLEASE HELP US SPOT OUR NUMBERS!
LOOK FOR THE 5 IN US!

6 is made of 5 and 1,
5 and 1 make 6.

8 is made of 5 and 3,
5 and 3 make 8.

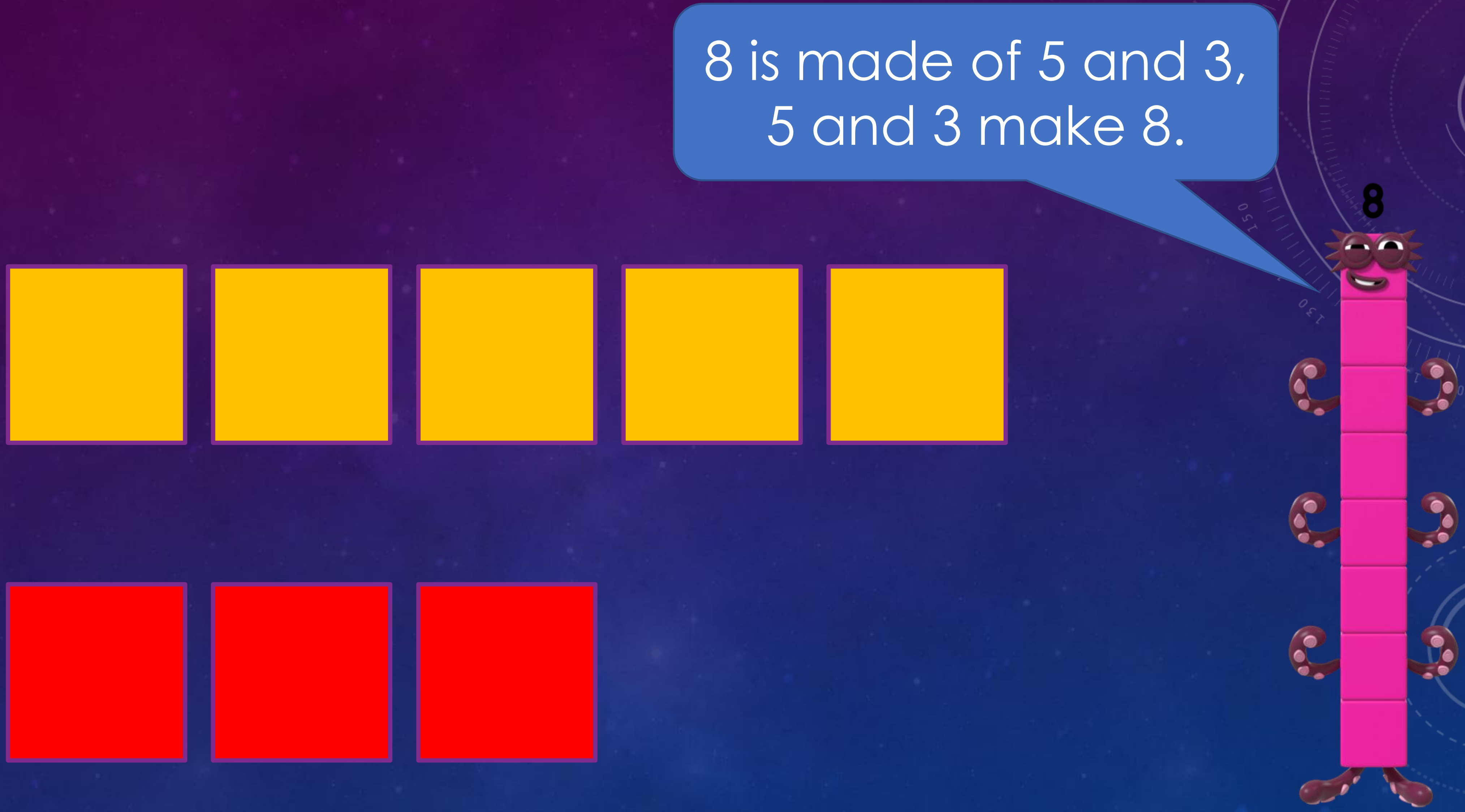


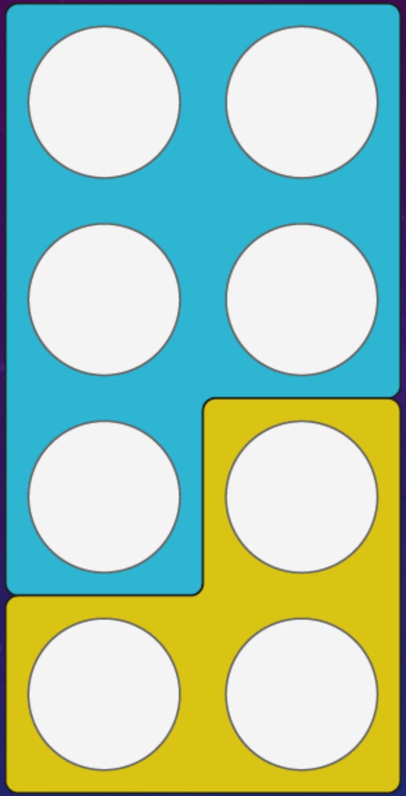




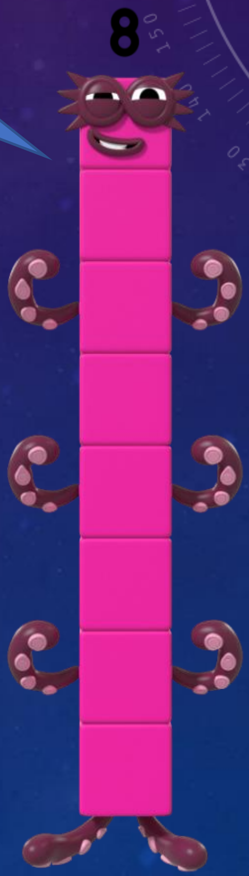
7 is made of 5 and 2,
5 and 2 make 7.

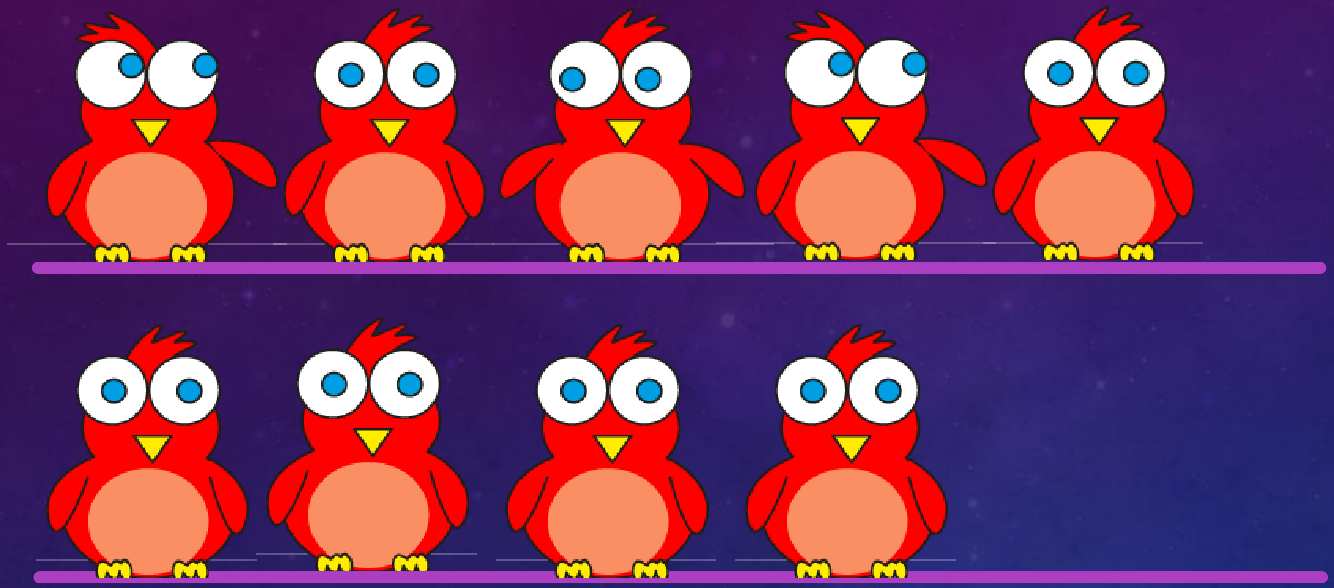
9 is made of 5 and 4,
5 and 4 make 9.


8 is made of 5 and 3,
5 and 3 make 8.
8



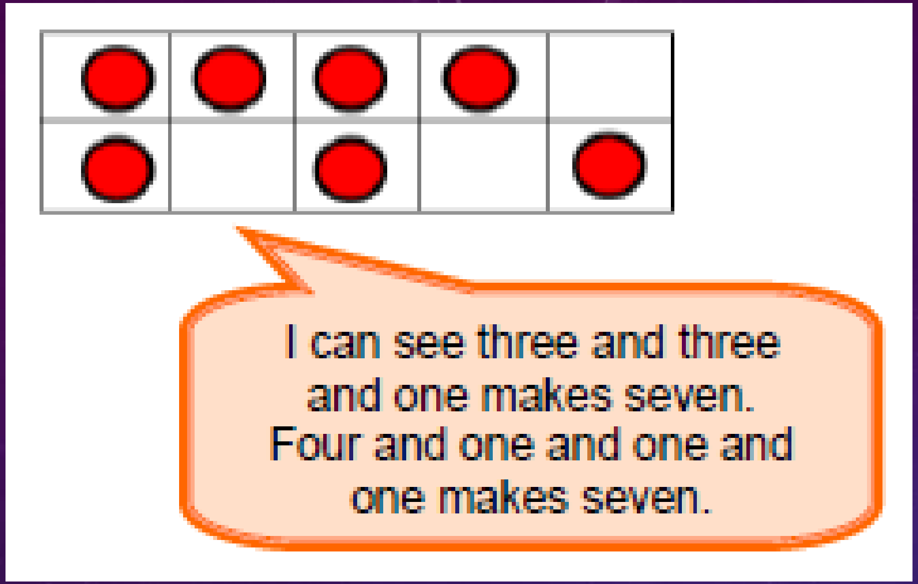
8 is made of 5 and 3,
5 and 3 make 8.

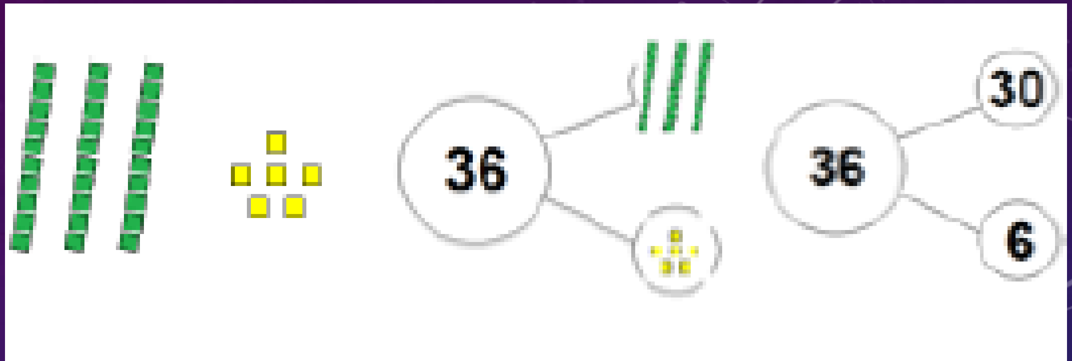


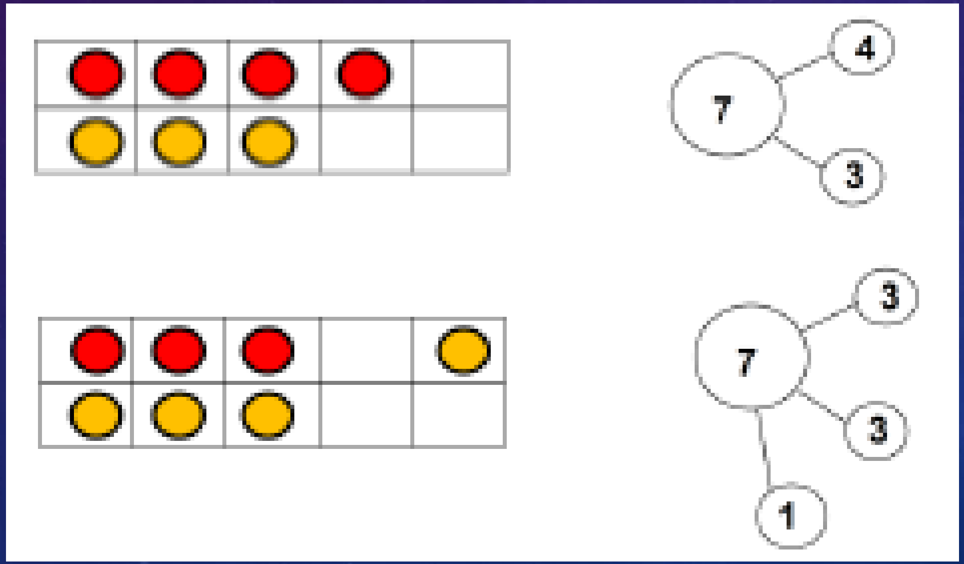


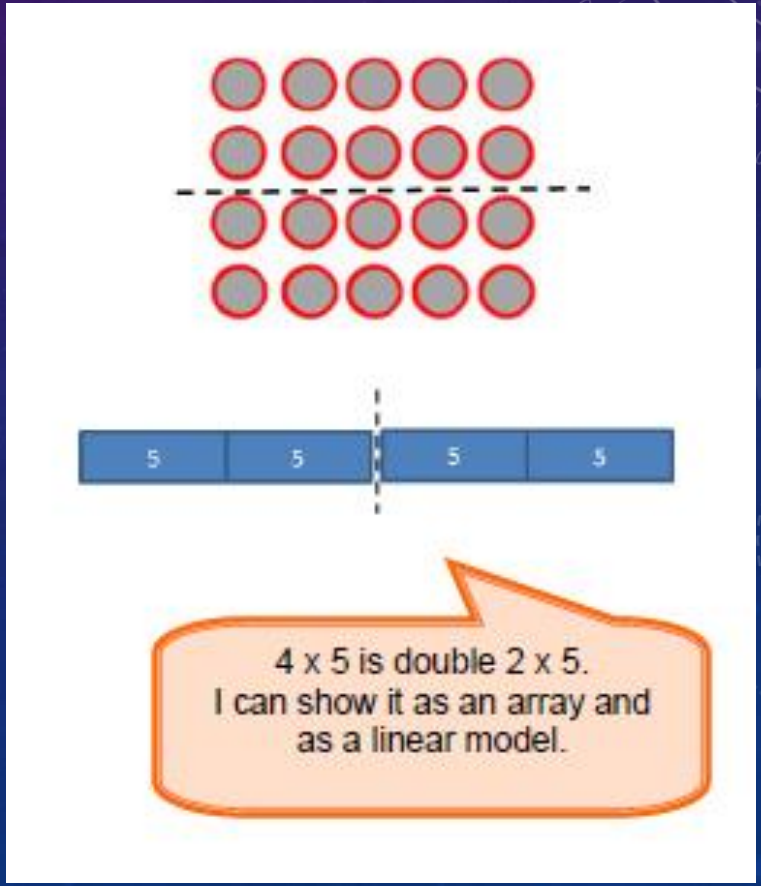
9 is made of 5 and 4,
5 and 4 make 9.

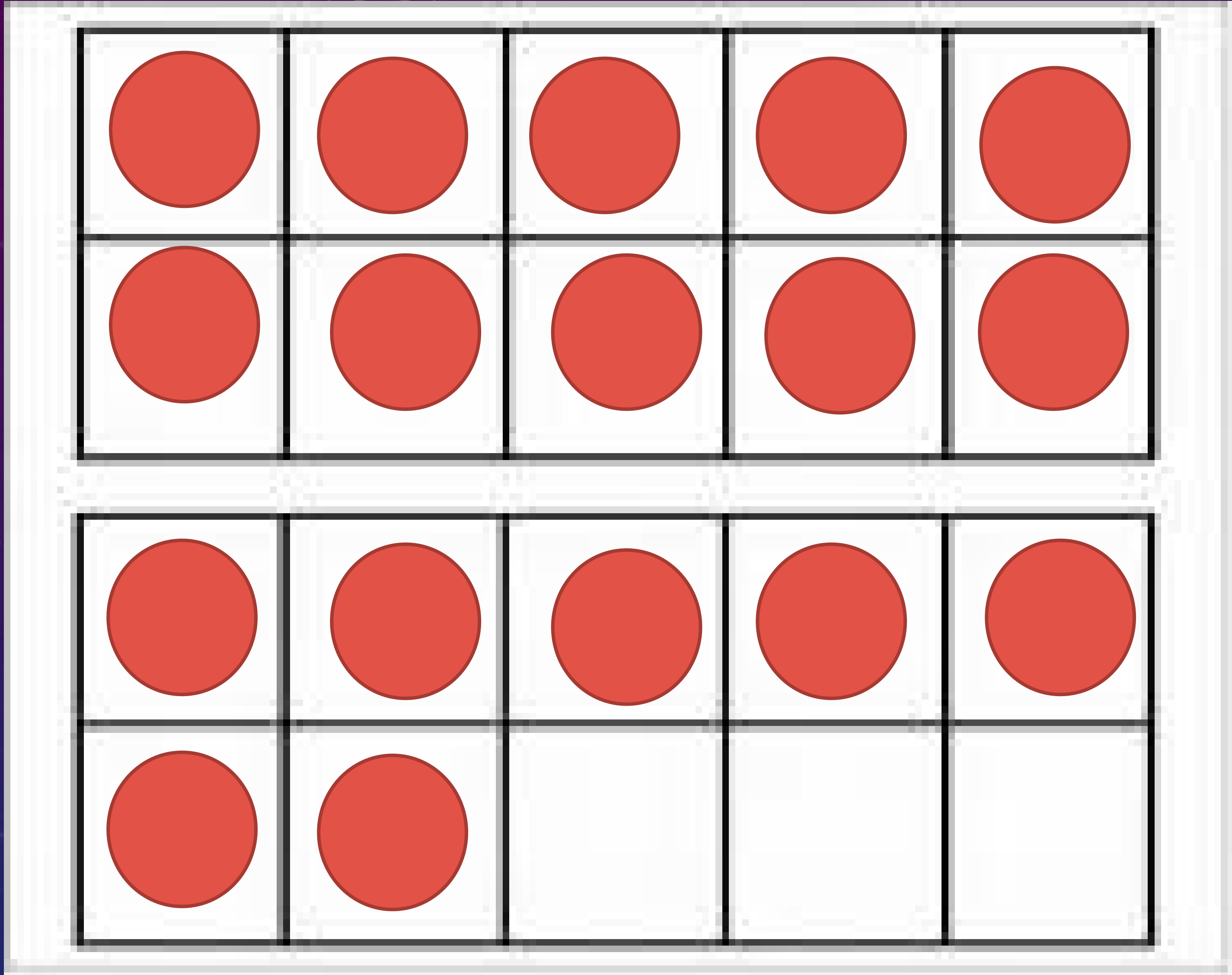
AT KS1


I can see three and three and one makes seven.
Four and one and one and one makes seven.

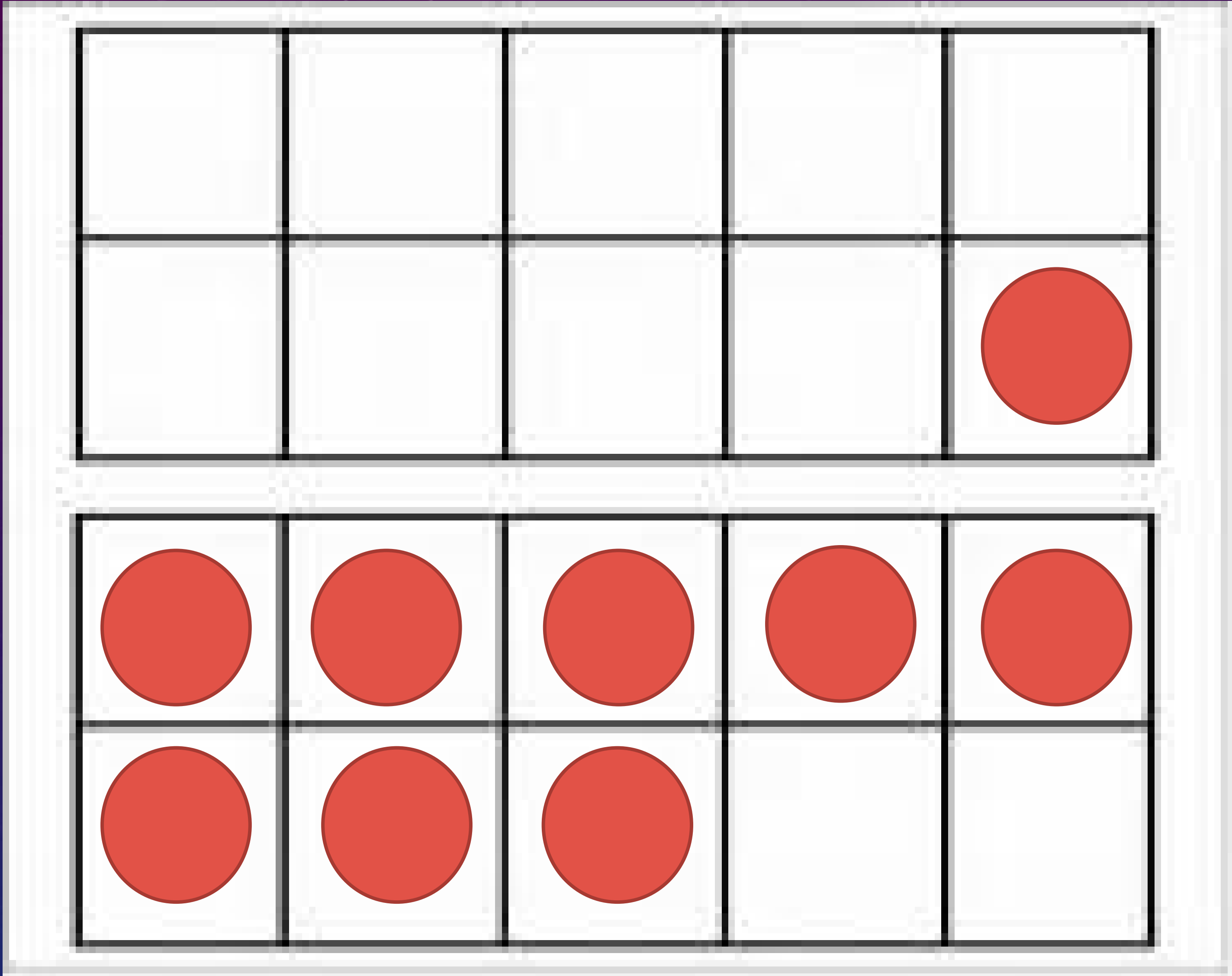

36
30
36
6


7
4
3
7
3
3
1


5
5
5
5
4 x 5 is double 2 x 5.
I can show it as an array and as a linear model.



17 - 9



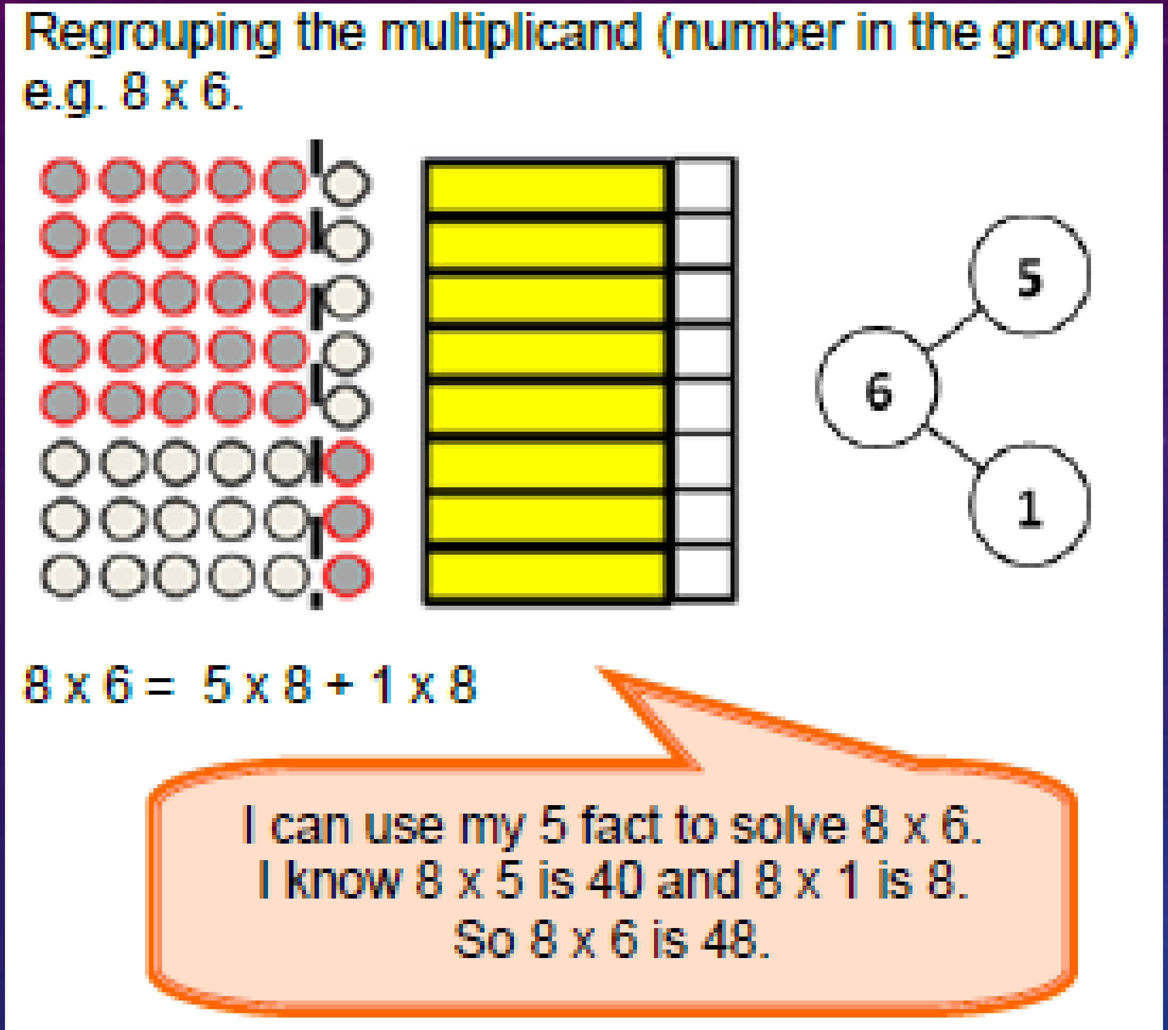
$17 - 9 = 8$

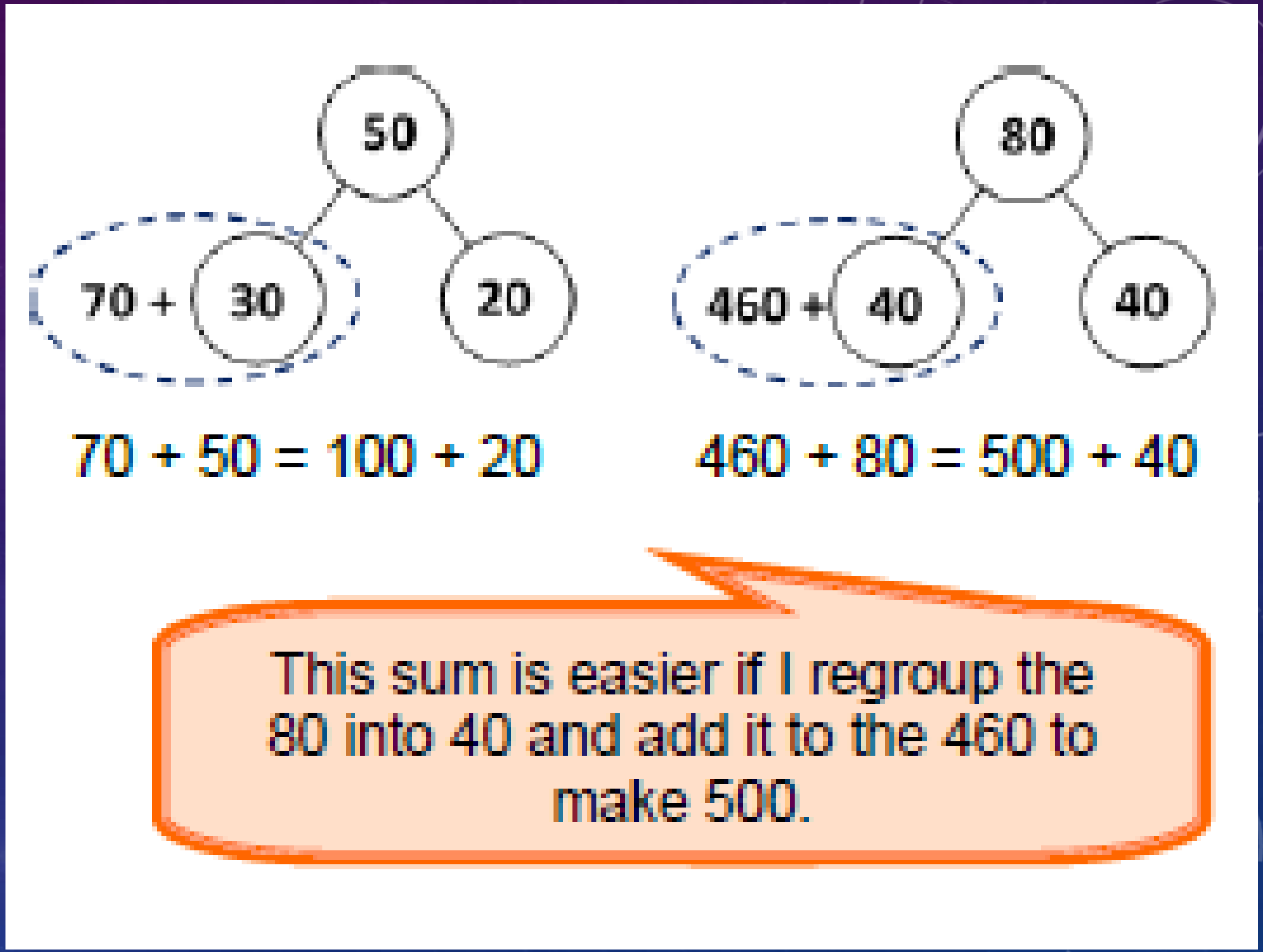
Recall by the end of Year 1:

- **Number bonds within 10 including a + b + c = d, the effect of adding 0 and missing number calculations**
- **Doubles within 10 including subtraction eg: 6 – 3 = 3 and missing numbers**
- **Structured subitisation on tens frame**

Recall by the end of Year 2:

- **Addition and subtraction facts to 20**
- **Multiplication and division facts, 2, 5 and 10 x tables**
- **Multiplication facts for 3 x tables**
- **Number of minutes in an hour; number of hours in a day**
- **Coin recognition up to £2**
- **Doubles to 20**





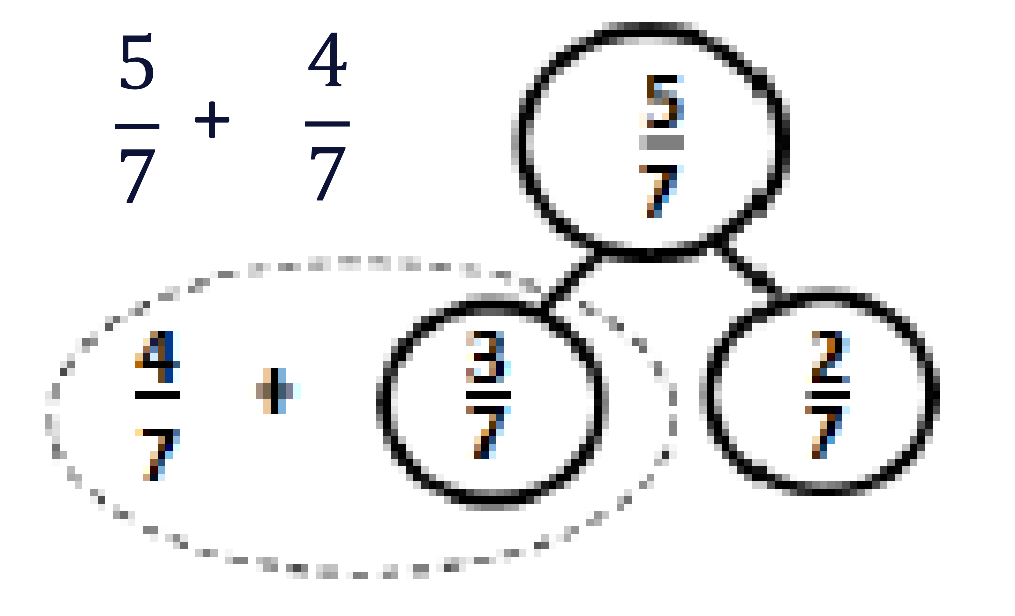
IN YEARS 3 AND 4

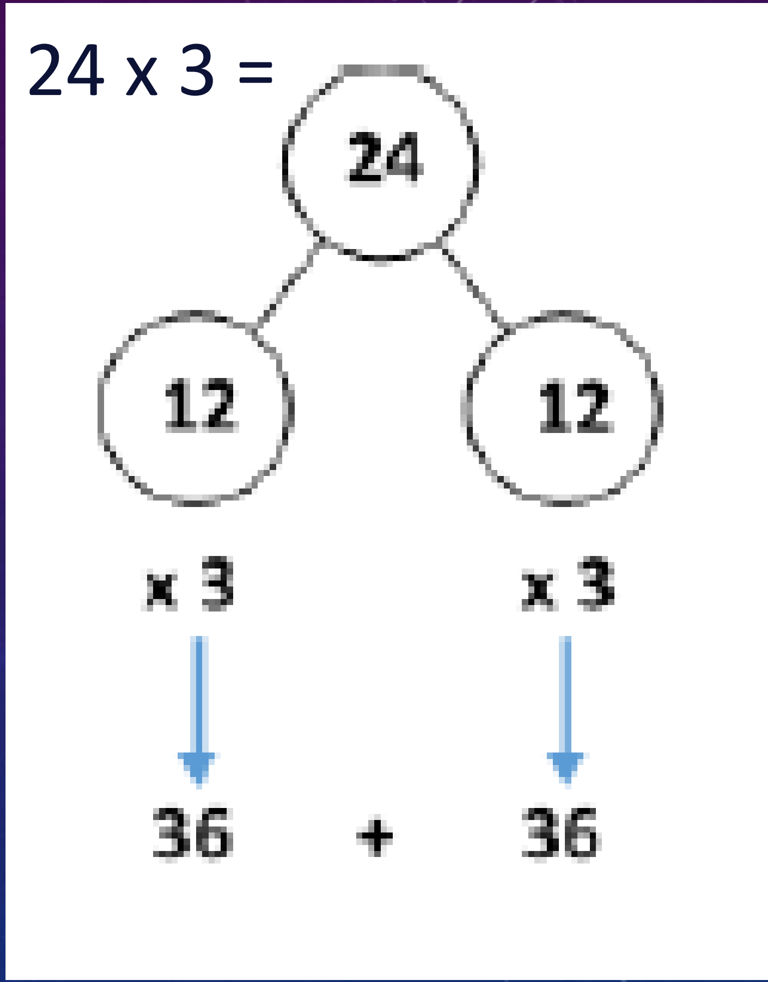
Recall by the end of Year 3:

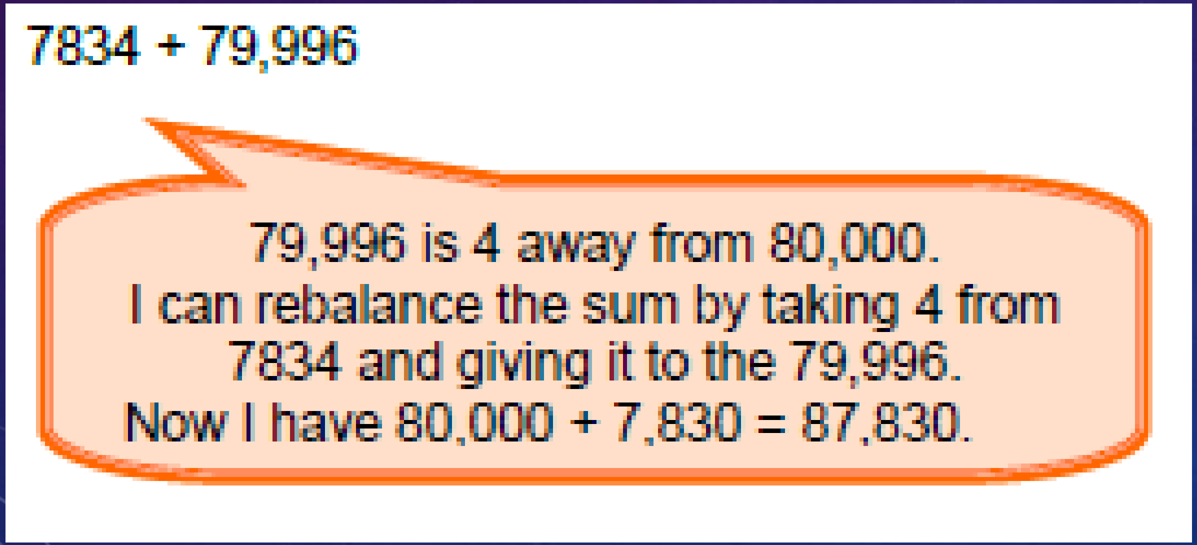
- **Sums and differences between pairs of numbers which are multiples of 10 and 100**
- **Doubles and halves of multiples of 10 or 100**
- **Complements to 100**
- **Complements to 60 (time)**
- **Complements of tenths that make 1**
- **Complements of fractions with the same denominator that make 1**
- **Numbers of seconds in a minute**
- **Numbers of days in a month and in a year**
- **X3, x4, x8 multiplication facts including division facts**

Recall by the end of Year 4:

- **Review addition and subtraction facts within 20 and apply to 10, 100 and 1000 (6 + 3, 60 + 30, 600 + 300)**
- **Doubles and halves of multiples of 10, 100 or 1000 (6 + 6, 60 + 60, 600 + 600)**
- **All multiplication and division facts to 12 x 12**
- **Multiplication and division by zero and one facts**
- **Division and multiplication by 10 and 100**
- **Conversion of Km to m, hours to minutes, years to months, weeks to days**
- **Complements of hundredths that make 1**





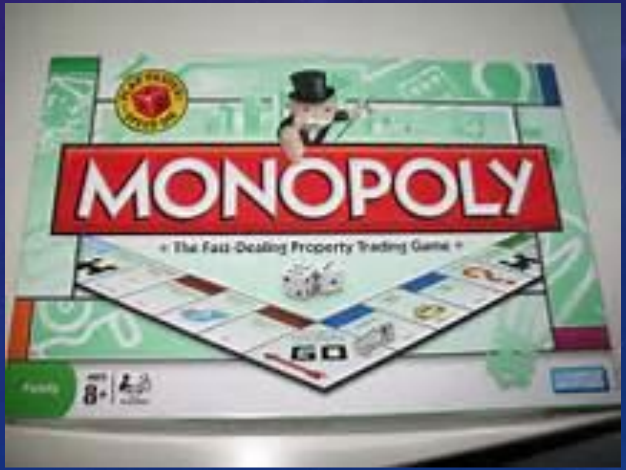


IN YEARS 5 AND 6

HOW CAN I HELP MY CHILD AT HOME?

TIME TO PLAY!


MB SPELLEN
YAHTZEE
Het best verkochte dobbelspel ter wereld


MONOPOLY
The Fast-Dealing Property Trading Game

MANY THANKS!