

# Helping Children To Succeed

Mathematics Parent Workshop – Year 2 & Year 3

Watling Park School

January 2019

## Aims of the Workshop:

- To outline the expectations of the National Curriculum.
- To share activities that will support the development of number, including the four operations addition, subtraction, multiplication and division.
- To provide guidance on how to support your child at home.



What was your own experience of maths education? Does it still affect you today?

**Is your experience having an impact on your own child's opinion of maths?**

# Aims of the National Curriculum:

*How does the National Curriculum influence the way Maths is taught at Watling Park?*

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.
- **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.
- The expectation is that the **majority of pupils** will move through the programmes of study **at broadly the same pace**. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage.
- Pupils who grasp concepts rapidly should be challenged through being offered **rich and sophisticated problems before any acceleration** through new content.
- Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through **additional practice, before moving on**.

All pupils  
develop...

I know  
why...

I know  
that ...

I know  
how ...

# Aims of the School Curriculum:

## To develop mathematicians who:

- Take risks.
- Ask questions.
- Explore alternative solutions without fear of being wrong.
- Enjoy investigating mathematical concepts to solve problems.
- Explain their thinking, and present their solutions in a variety of ways.
- Reason logically and creatively through discussion of mathematical ideas.
- Become fluent, flexible thinkers who are able to see and make connections.

# Developing an Understanding of Number



# Number Sense

*Number sense is the ability to be flexible with numbers and to understand both how our number system works and how numbers relate to each other.*



Children with good number sense enjoy playing with and exploring numbers.

They can:

- Manipulate numbers to make calculations easier, and are flexible in their approach.
- Assess the reasonableness of an answer, and routinely estimate answers before calculating.
- Identify connections and readily spot patterns in numbers.
- Use several approaches to calculating and problem solving, and can use and adapt these for new situations.



Children with poor number sense do not enjoy maths and won't spend time being creative with and exploring numbers.

They:

- Rely upon remembering and applying inefficient procedures, with little understanding of the underlying numerical concepts.
- Fail to spot links and connections that could get them to the answer more quickly.
- Generally accept whatever answer they get, without considering whether it is reasonable or not.

**Number Talk** – Read, recognise & identify numbers.

Activities:

- Discuss important numbers (i.e. house number, birth dates, ages).
- Read storybooks about numbers.
- Sing songs and rhymes containing numbers.
- Identify numbers around them and within the environment (e.g. clock faces, telephone keys, TV remote, bus numbers, number plates, door numbers, calendar dates, book pages, prices, money/coins).



**Counting** – Knowing the number names in order forwards and backwards in ones, and also twos, fives, tens and so on.

Activities:

- Count objects within a storybook/picture.
- Count physical objects (i.e. counters, steps, cars).
- Play games (e.g. Snakes and Ladders, Ludo, Connect 4, Rummikub, Monopoly, Dominos, UNO).
- Count the number of spots on one or more dice/ playing card.
- Count items whilst shopping.
- Count out ingredients whilst cooking.
- Count the number of months/days until their birthday, the weekend etc.

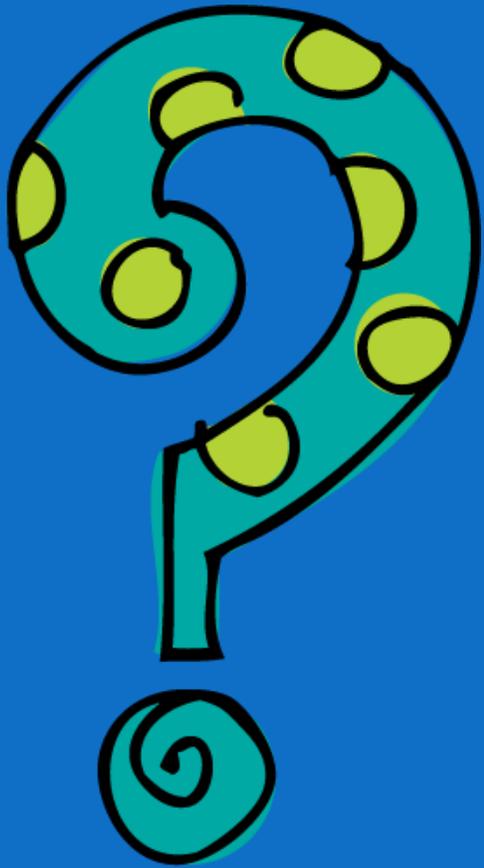
**Estimating** – Roughly calculating or guessing the value, number or quantity of a thing.

Activities:

- Estimate number of objects within a storybook/picture.
- Estimate number of physical objects (i.e. Lego bricks in a tower, steps to school, peas on their plate, sweets in a packet).
- Estimate the number of spots on one or more dice/ playing card.
- Estimate number of items whilst shopping.



# Where is the maths?



# Number Relationships

Learn how numbers are interconnected and how numbers can be used in meaningful ways.

24

'My aunt was 24 last year'

Nearly half of 50

14 + 10

Christmas Eve

Approximate weight in grams of a slice of bread

Where have you seen....?

Can you show me....?

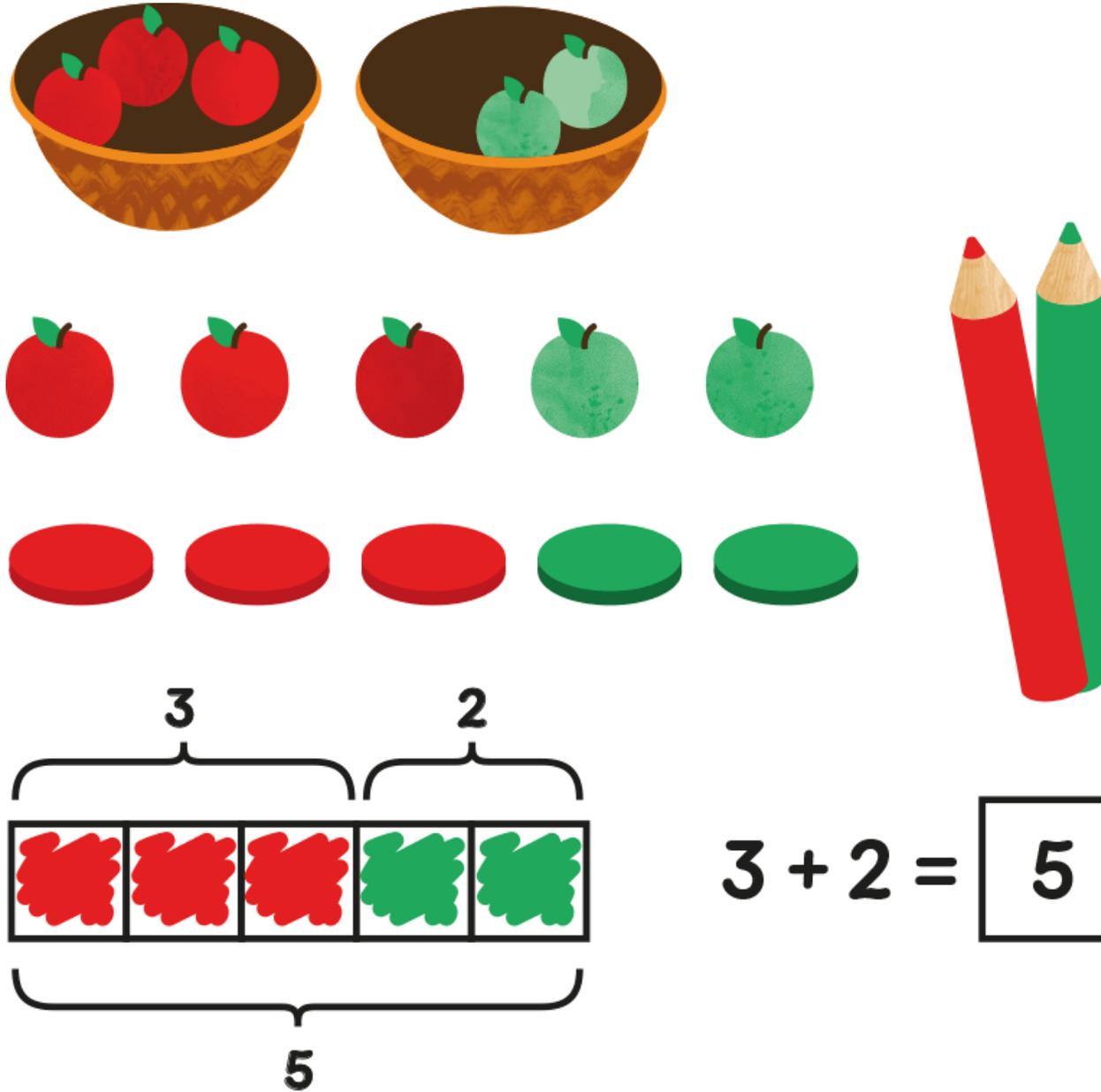
How many different ways can you make....?

What do you know about....?

## Activities:

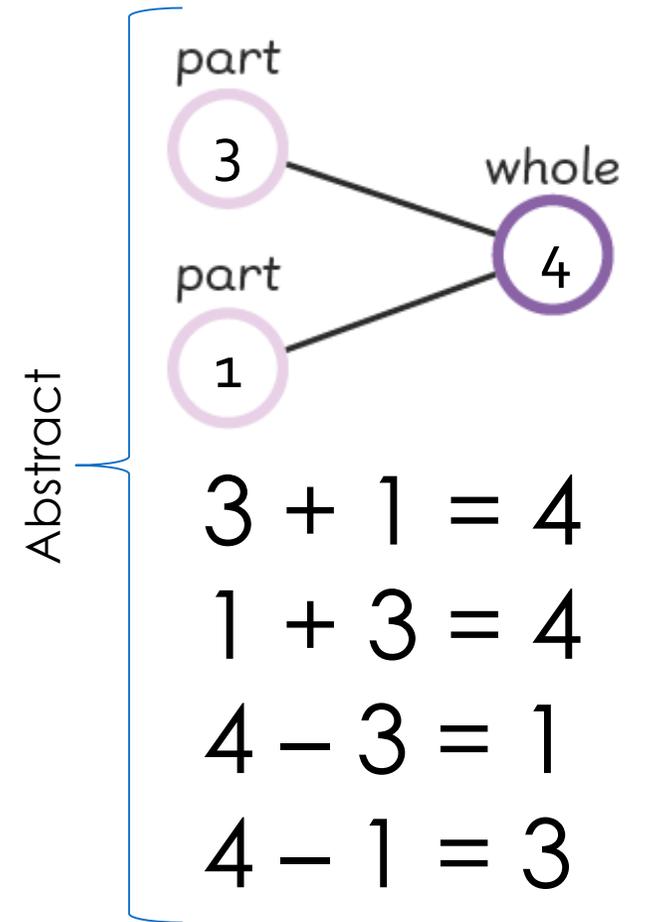
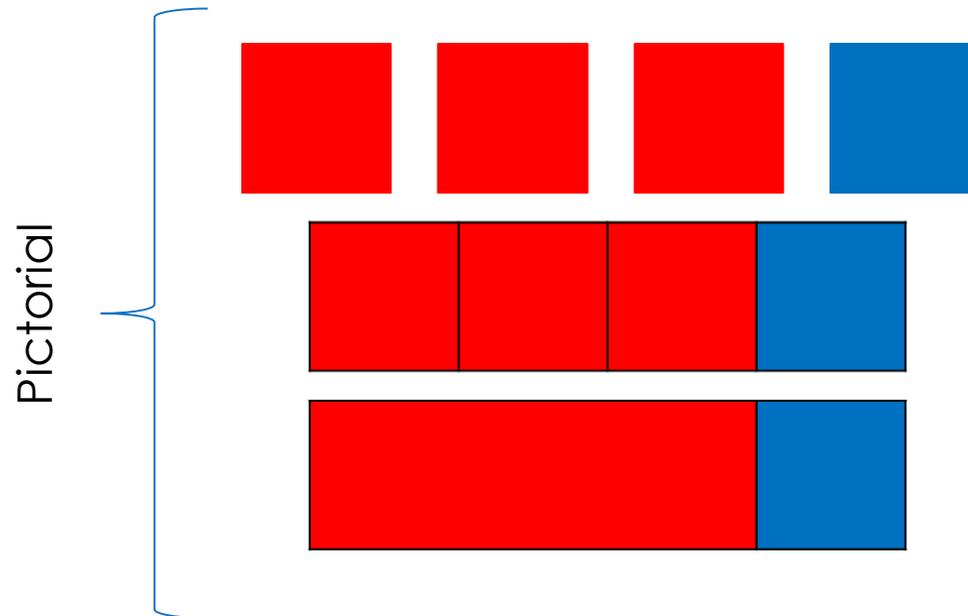
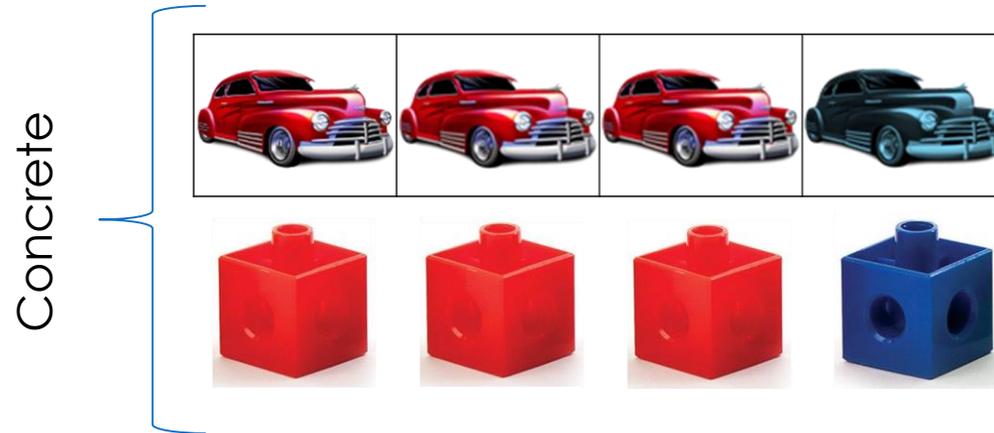
- Use **concrete** objects, **pictorial** images and **abstract** symbols to:
  - Investigate how numbers can be made in different ways (i.e. number bonds to 10, 20, 100 etc.).
  - Make links between numbers, and procedures (i.e. If  $3 + 7 = 10$ , then  $13 + 7 = 20$  and  $30 + 70 = 100$  and  $100 - 30 = 70$  and ...).
  - Compare and order numbers.
  - Explore doubles and halves.
  - Develop mental strategies to add and subtract (i.e. two 1-digit numbers, two 2-digit numbers, three 1-digit numbers).
  - Learn multiplication and division facts.
  - Examine the relationship between addition and subtraction, as well as multiplication and division.
- Play games which involve mental calculations (e.g. Monopoly, UNO).
- Invent card and dice games which involve addition, subtraction, multiplication and division.

# C-P-A Approach (and Bar Modelling)

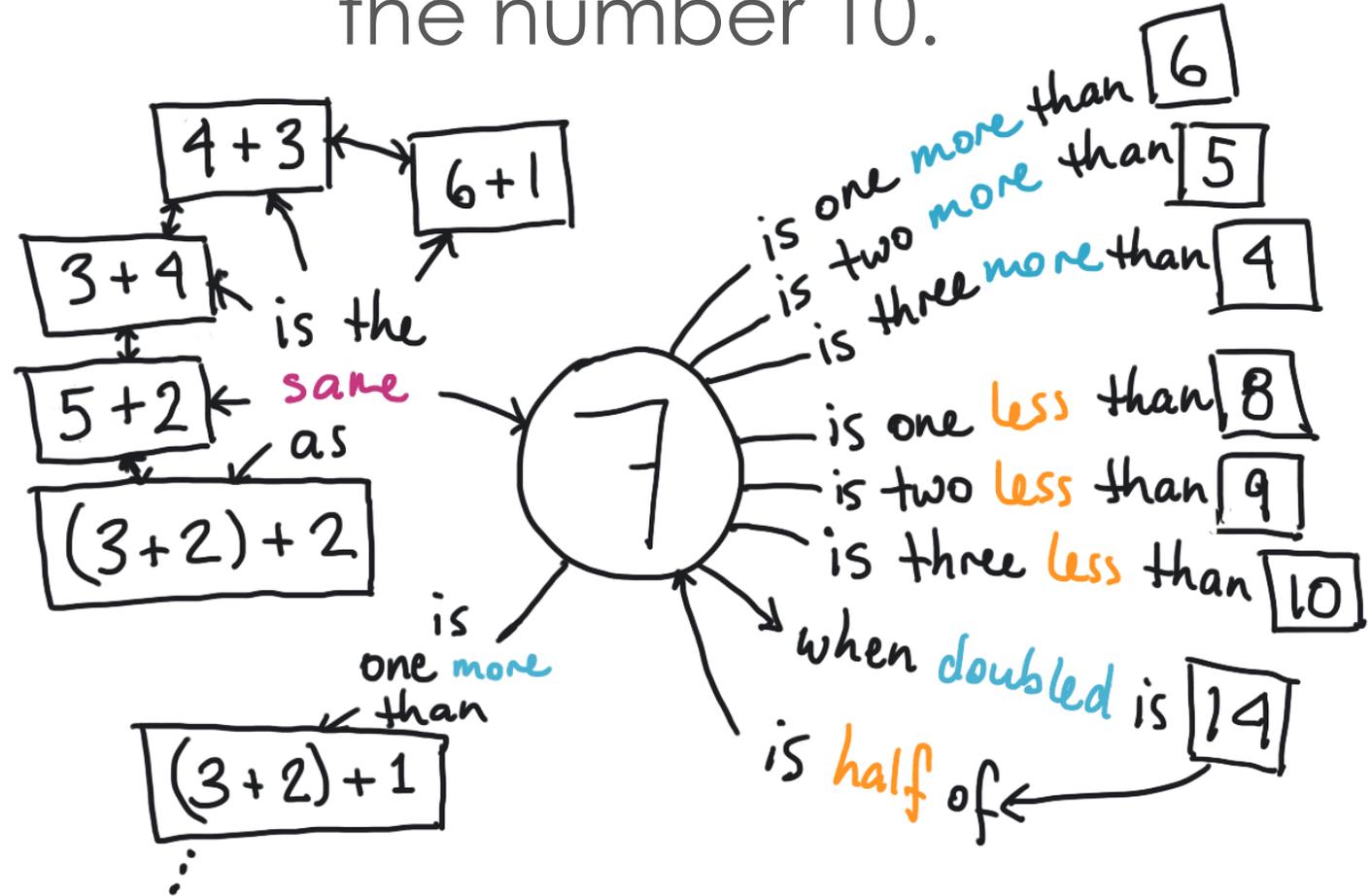
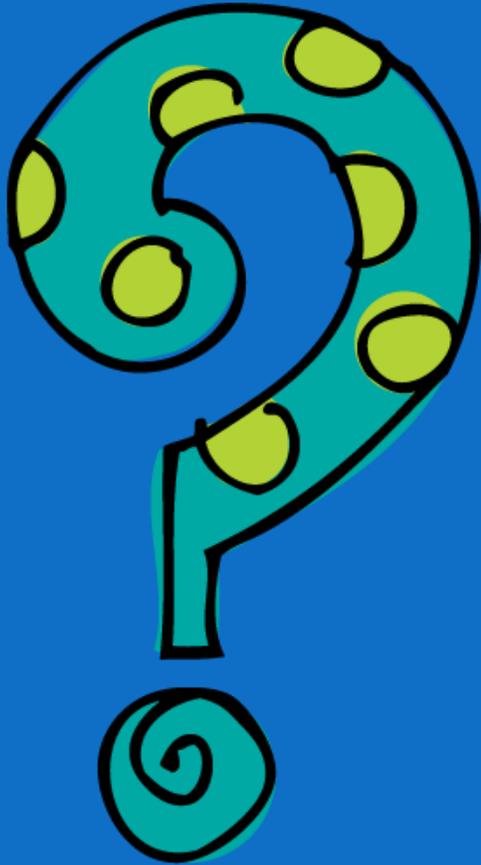


# C-P-A Approach (and Bar Modelling)

Christopher has 3 cars. Charlie gives him 1 more. How many does Christopher have now?



Using the equipment on the table, explore everything you know about the number 10.



$$24 + 32 =$$

Write the family facts.

*(Clue: There are two addition and two subtraction number sentences within each family)*

|    |    |
|----|----|
| ?  |    |
| 24 | 32 |

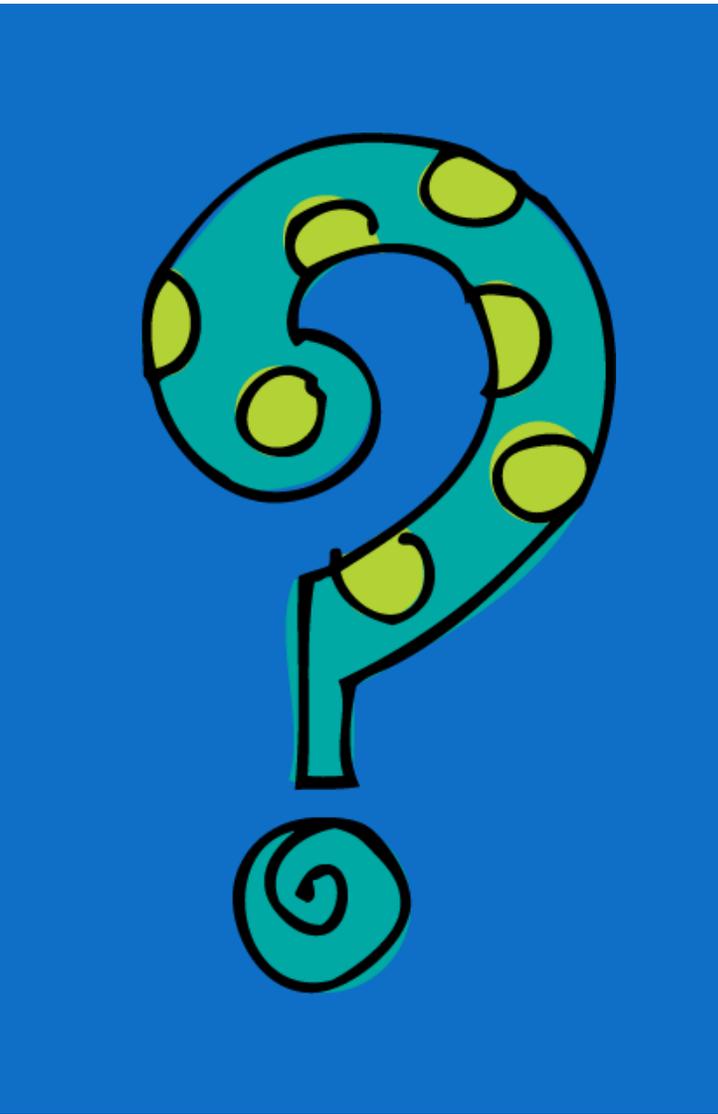


$$24 + 32 = 56$$

$$32 + 24 = 56$$

$$56 - 24 = 32$$

$$56 - 32 = 24$$

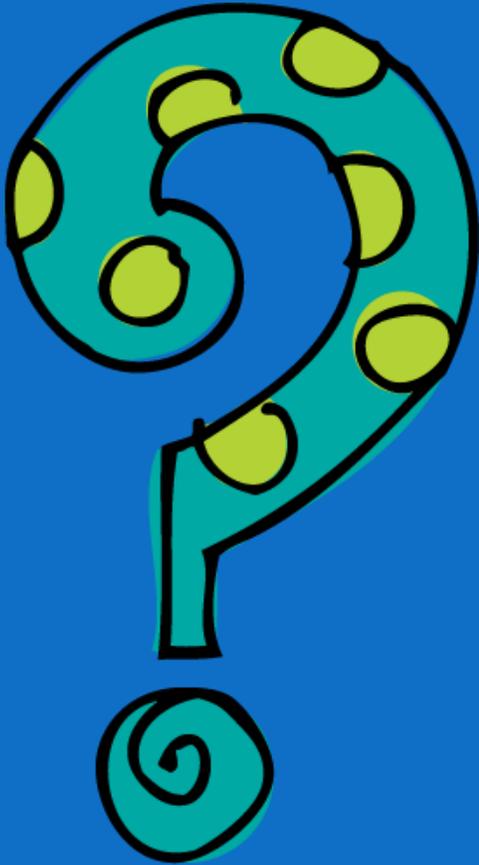


Roll a die twice to generate two one-digit numbers. Write the multiplication and division family facts.

*(Clue: There are two multiplication and two division number sentences within each family)*



Play 'Four in a Row' using the multiplication grid and counters.



## Mixed Facts x2, x5, x10

Recall and use multiplication and division facts for the x2, x5 and x10 multiplication tables.

Say the answer to the calculation, or write it on a sticky note, to win your square.

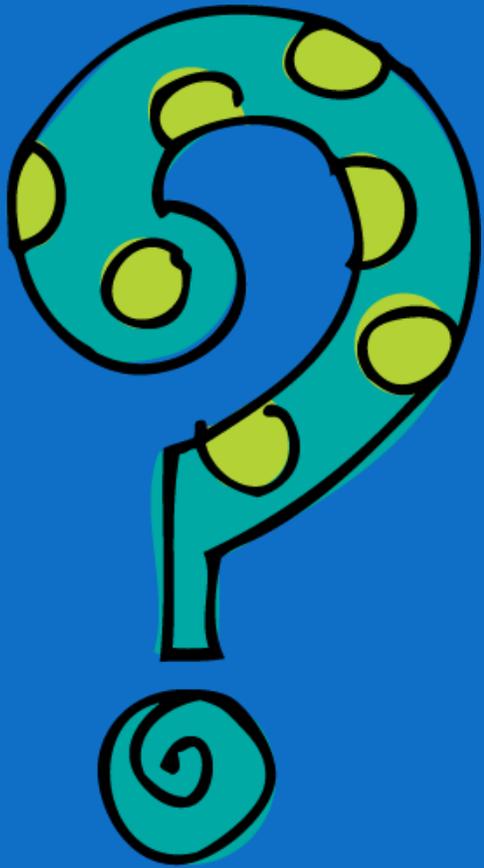
|                      |                    |                     |                    |
|----------------------|--------------------|---------------------|--------------------|
| $2 \times \_ = 12$   | $35 \div 5 = \_$   | $10 \times \_ = 80$ | $14 \div \_ = 7$   |
| $4 \times 10 = \_$   | $4 \times \_ = 8$  | $45 \div 5 = \_$    | $70 \div 10 = \_$  |
| $\_ \div 5 = 6$      | $\_ \times 5 = 40$ | $18 \div 2 = \_$    | $5 \times \_ = 25$ |
| $12 \times \_ = 120$ | $\_ \div 10 = 5$   | $4 \times 5 = \_$   | $\_ \div 2 = 11$   |

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Use the playing cards to design a game to practise the five (5) times table.

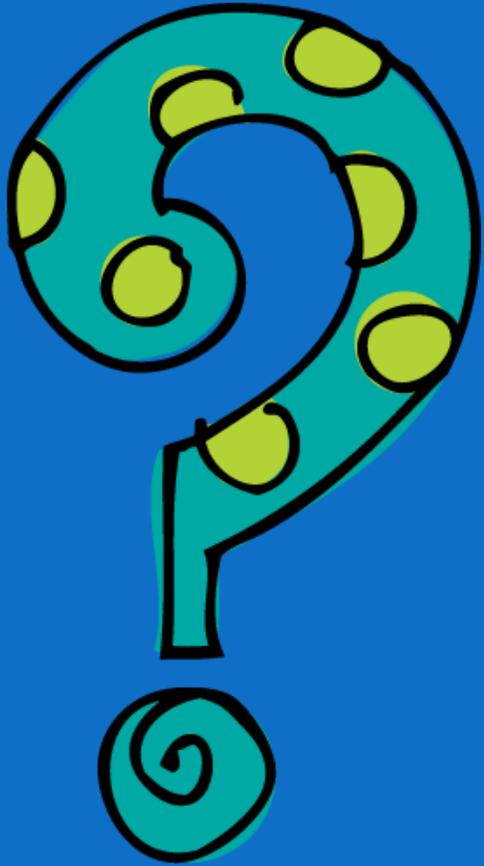


# Questioning



- What is the same? What is different?
- What do you notice? Explain.
- Which is the odd one out? Why?
- If we know..., what else do we know?
- Write everything you know about...?
- If this is the answer, what is the question?
- Would you rather... or...? Why?

If we know  $2 \times 3 = 6$ ,  
what else do we know?



# Time



## Activities:

- Read times - What is the time? How long until...?
- Discuss days and months - What day is it today? Yesterday? Tomorrow? How many days/months until/since...? Who has a birthday this week/month?



# Home Learning Advice



1. **Encourage children to play maths puzzles and games.**
2. **Always be encouraging, and avoid telling them they are wrong.**
3. **Never associate maths with speed.** Just because a child works slowly doesn't mean they are not able to do it!
4. **Never share** with your children the idea **that you were bad at maths at school or dislike it.**
5. **Encourage number sense.**
6. **Encourage a “growth mindset”.** Let them know that they have unlimited maths potential and that being good at maths is all about working hard.

<http://www.watlingparkschool.org.uk/> - For further guidance see Maths Webpage.

Any  
Questions?

