Helping Our Children To Achieve

Mathematics Parent Workshop

Watling Park School

November 2017

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Aims of the Workshop:

- To outline the expectations of the (not so new) National Curriculum.
- To share some of the strategies that are used within school.
- To provide ideas on how to support your child at home.

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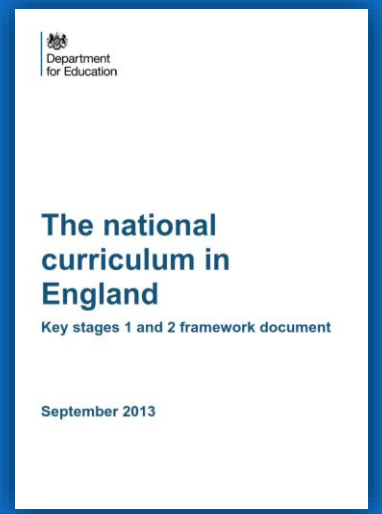
Program of Study:

Why Teach Mathematics?



- Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems.
- It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment.
- A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.

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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?

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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**.

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Aims of the National Curriculum:

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

- 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.

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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.

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Teaching Strategies

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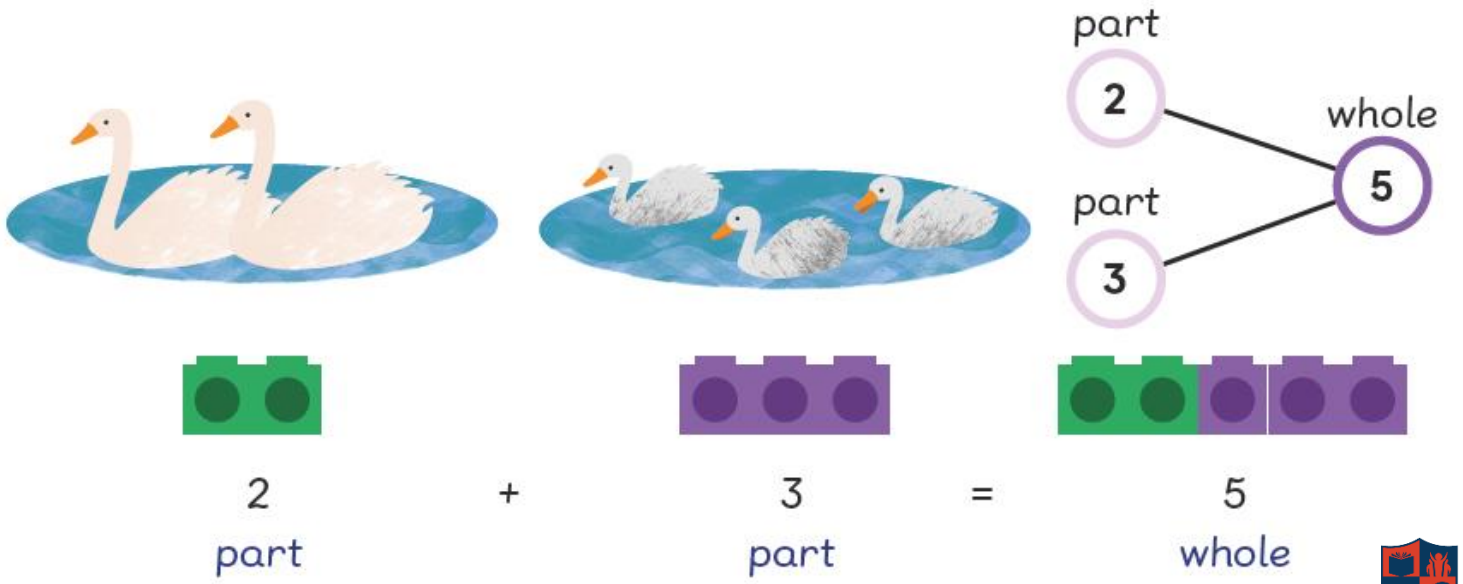
Number Bonds

- Number bonds are a way of showing how numbers can be combined or split up. They are used to reflect the 'part-part-whole' relationship of numbers.
- By mastering number bonds early on, pupils build the foundations they need for subsequent learning and are better equipped to develop mental strategies and mathematical fluency.



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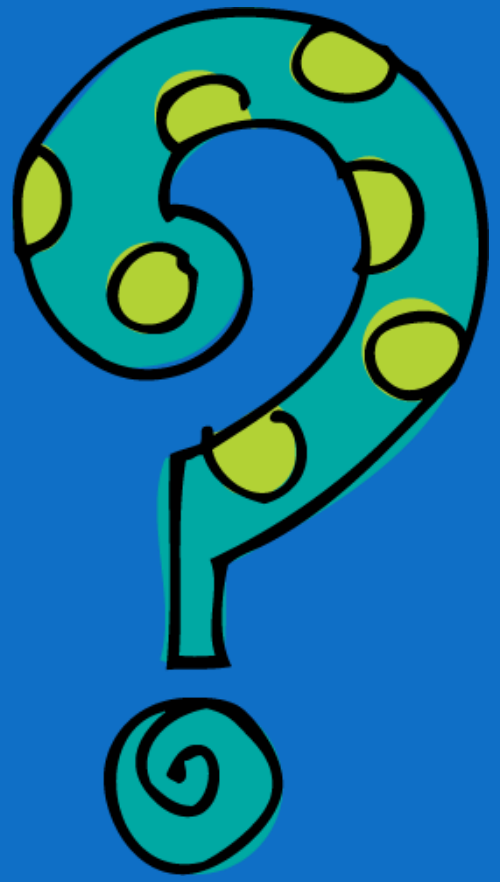
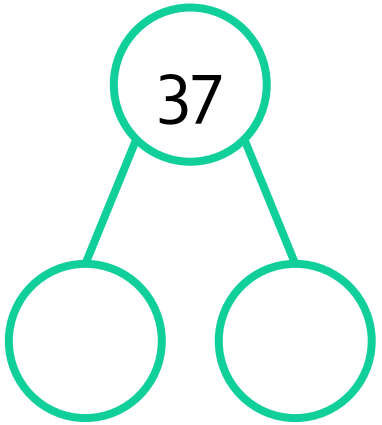
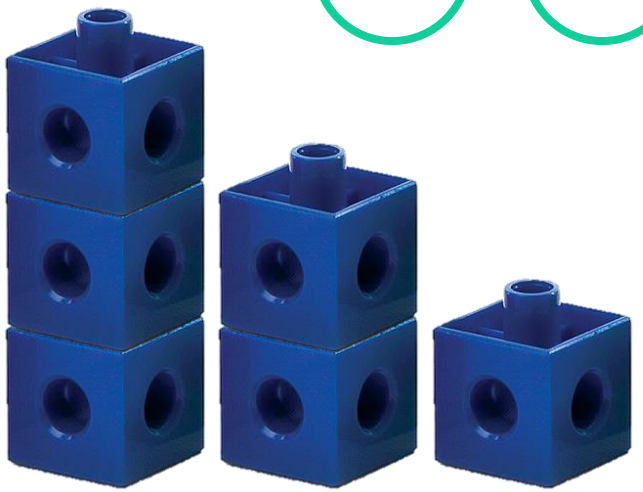
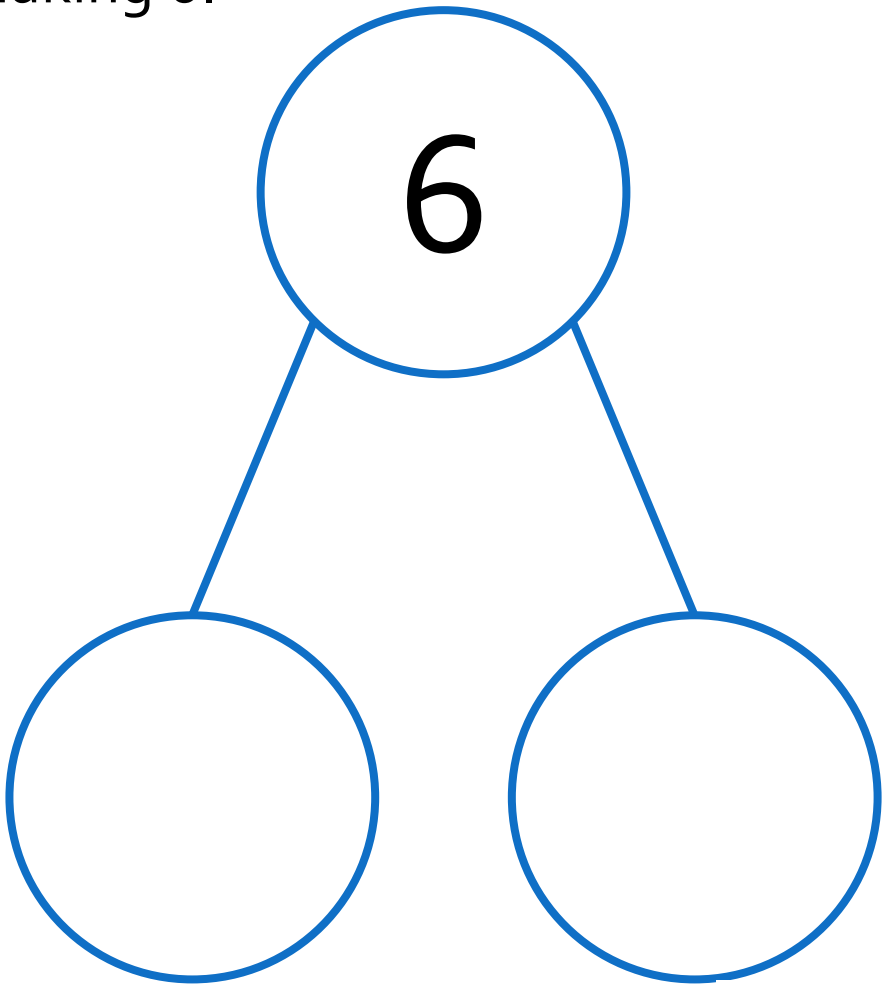


- Using the 'Part-Part-Whole' diagram and cubes, explore the different ways of making 6.







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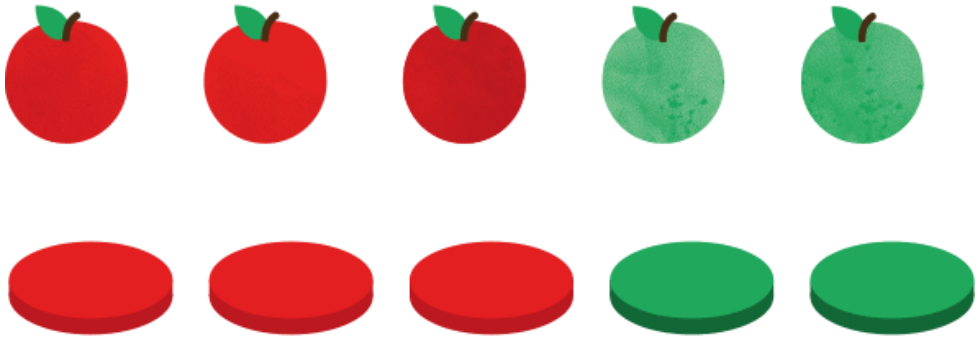
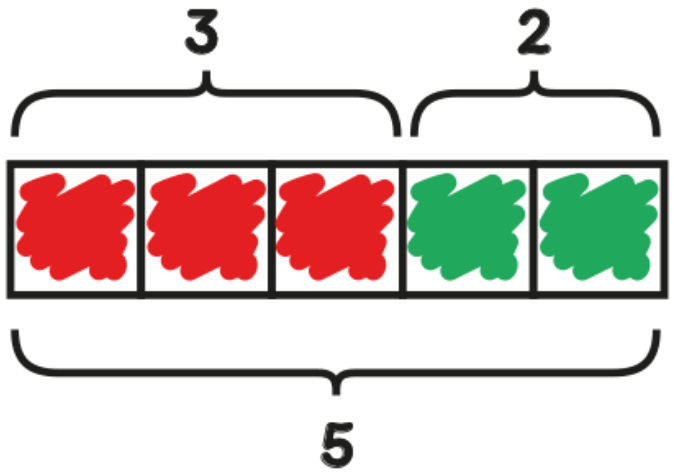
C-P-A Approach
(and Bar Modelling)





$3 + 2 = \boxed{5}$

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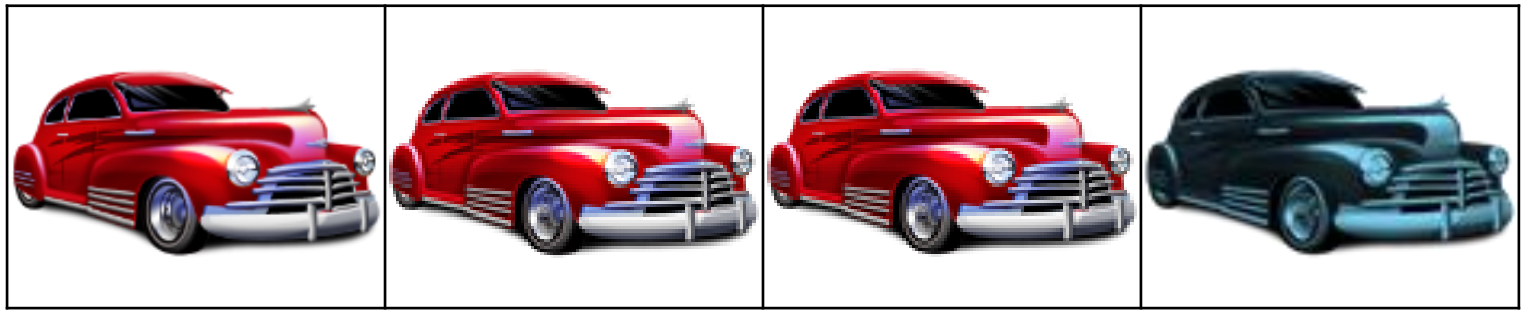
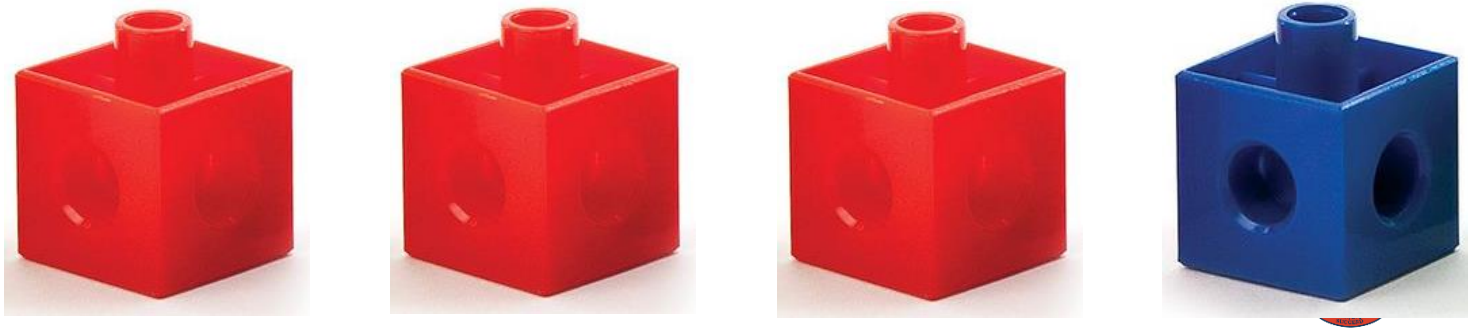
Concrete

- Concrete is the "doing" stage. Children handle physical objects to model problems.

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

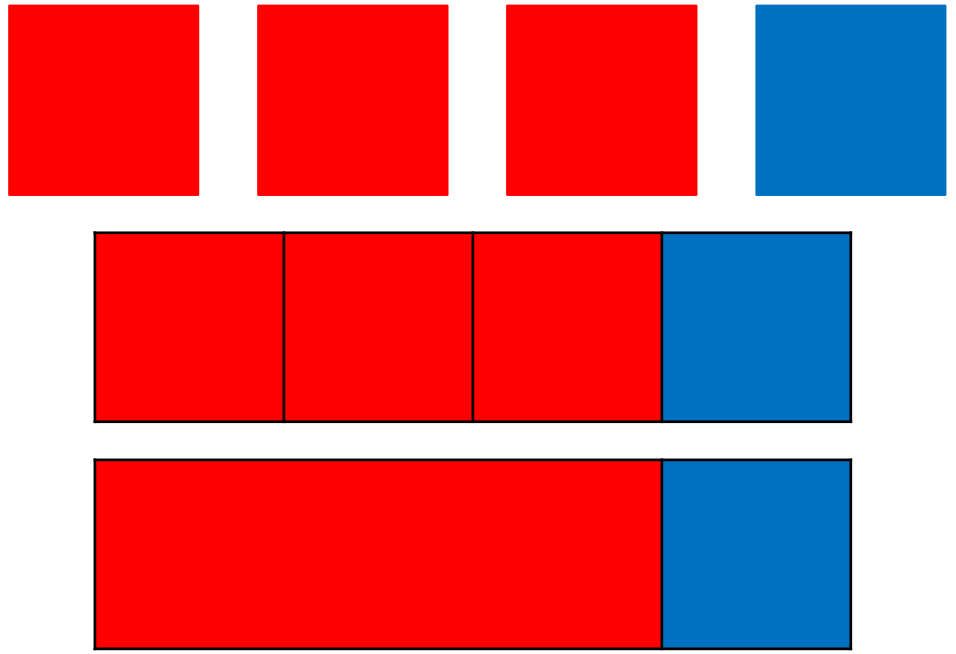




Pictorial

- Pictorial is the "seeing" stage. Children draw or look at pictures, circles, diagrams or models which represent the objects in the problem.

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



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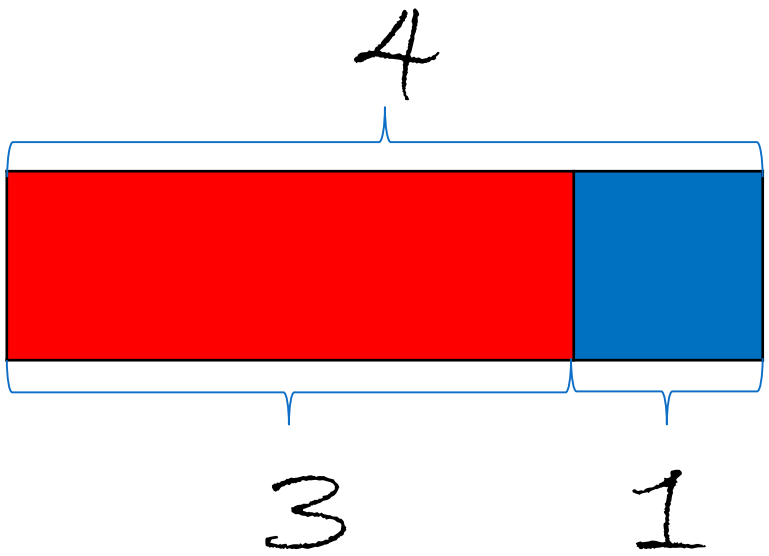
Abstract

- Abstract is the "symbolic" stage. Children are able to use abstract symbols to model problems.

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



$3 + 1 = 4$

$1 + 3 = 4$

$4 - 3 = 1$

$4 - 1 = 3$

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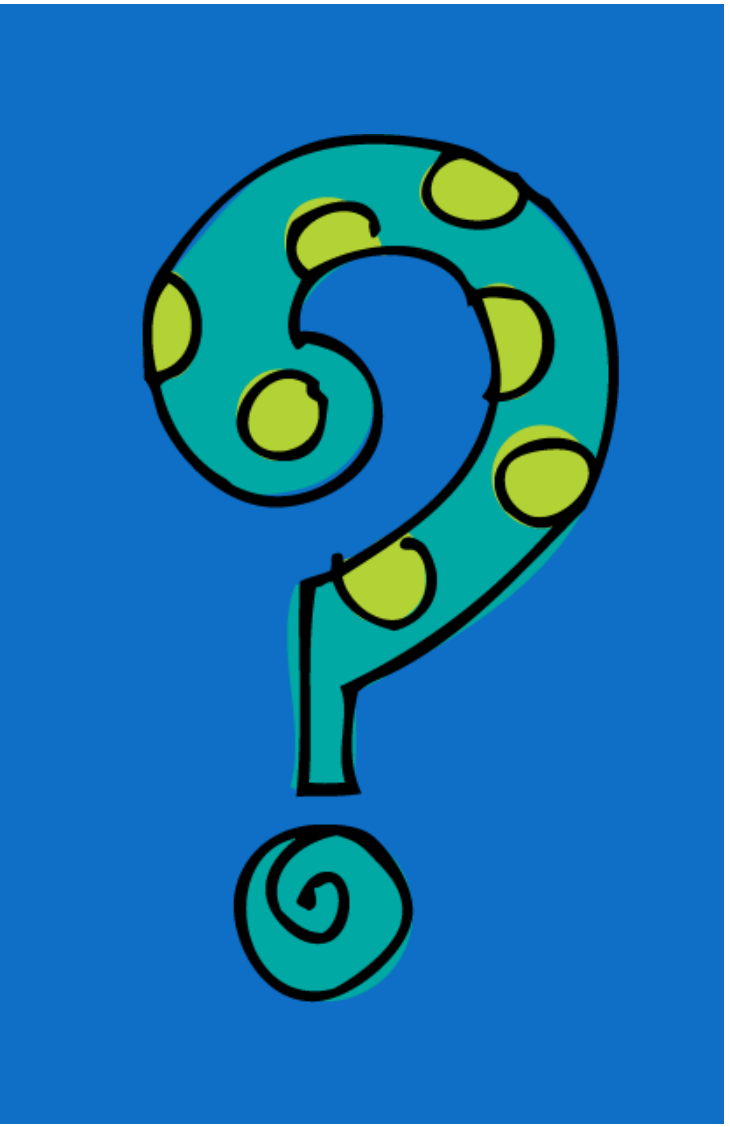

Year 1

1. Ebony has 5p and Daniel has 8p. How much do they have altogether?
2. A lolly costs 6p. Lisa paid with 10p. How much change does she get?
3. Michael says that 16 + 5 = 21. Is he correct?
4. How many gloves are there altogether in 6 pairs of gloves?

Year 2

1. Dylan has 37 coloured pencils and he buys 30 more. How many does he have now?
2. Janie has 40 beads. She loses 25 of them. How many does she have left?
3. What is the difference between seventy-six and thirty-five?
4. A tub contains 24 coins. Saj takes 5 coins. Joss takes 10 coins. How many coins are left in the tub?

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Home Learning

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Home Learning Advice

1. **Encourage children to play maths puzzles and games**. This will help children enjoy maths, and develop number sense, which is critically important.
2. **Always be encouraging, and never tell children they are wrong** when they are working on maths problems. Instead find the logic in their thinking – there is always some logic to what they say.
3. **Never associate maths with speed**. It is not important for children to work quickly, as it can trigger maths anxiety. 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**.

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Home Learning Advice

5. **Encourage number sense**. What separates high and low achievers is number sense – having an idea of the size of numbers and being able to separate and combine numbers flexibly.
6. **Encourage a "growth mindset"**. Let students know that they have unlimited maths potential and that being good at maths is all about working hard. When children have a growth mindset, they do well with challenges and do better in school overall. When children have a fixed mindset and they encounter difficult work, they often conclude that they are not "a math person". When they tell you something is hard for them, or they have made a mistake, tell them: "That's wonderful, your brain is growing!"

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Number Sense

Nearly half of 50

'My aunt was 24 last year'

24

14 + 10

Approximate weight in grams of a slice of bread

Where have you seen....?

Christmas Eve

What do you know about....?

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

Can you show me....?

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Home Learning Focus

- Counting forwards and backwards (e.g. 1s, 2s, 5s and 10s).
- Estimating.
- Doubles and halves.
- Number Bonds of 10, 20 and 100 – making links (i.e. 3 + 7 = 10, so 13 + 7 = 20 and 30 + 70 = 100).
- Addition and subtraction (e.g. two 1-digit numbers, two 2-digit numbers (below 50), three 1-digit numbers).
- Multiplication tables, and related division facts.
- Time.

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Games & Activities

- **Dice** - Counting, Number Bonds, Addition, Multiplication… etc.
- **Playing Cards** - Number Bonds Snap, Doubles Memory, Beat the Clock Multiplication… etc.
- **Card Games** - UNO, Rummy, Solitaire, 21… etc.
- **Board Games** - Snakes and Ladders, Ludo, Monopoly, Connect 4… etc.
- **Cooking** - Measuring/Weighing Ingredients.
- **Identify Numbers within the Environment** (e.g. telephone keys, TV remote, number plates, door numbers, book pages, prices…etc.)
- **Shopping** - How much does it cost? What coins could I use? What coins do I have? Do I have enough money? How much change will I get?
- **Clocks** - What is the time? How long until…?
- **Wall Calendar** - What day is it today? Yesterday? Tomorrow? How many days/months until/since…? Who has a birthday this week/month?

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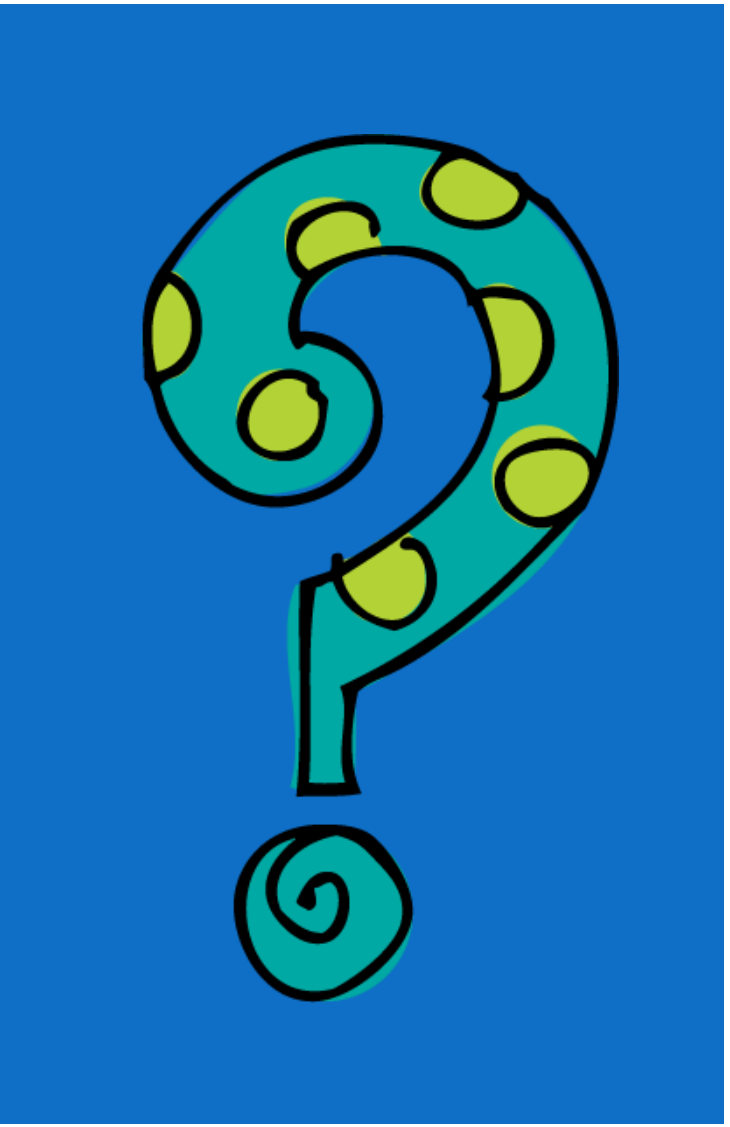

- A game for two players.
- Each player chooses ten items each.
- They take it in turns to throw a 1-6 dice, and choose that number of items from their opponent.
- The winner is the first to get all items.

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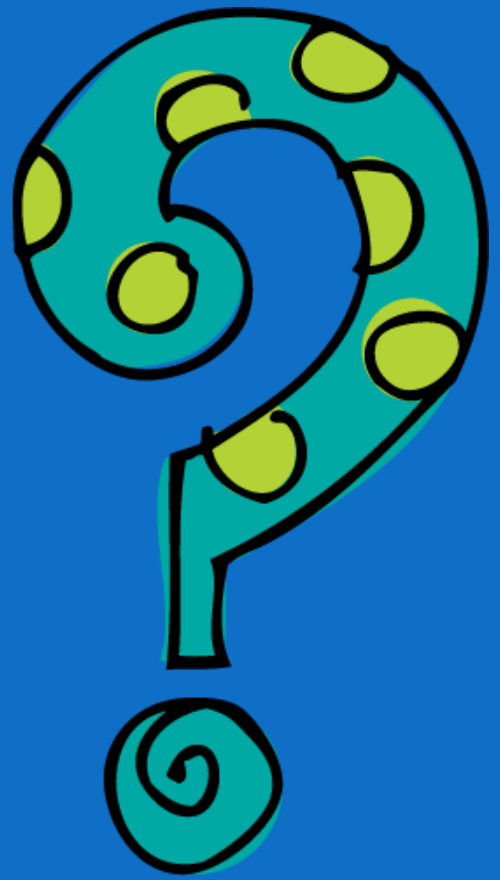

Use the Playing Cards to design a game to help you learn your 10 times table.

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Useful Websites

- http://www.maths4mumsanddads.co.uk
- http://www.familymathstoolkit.org.uk/
- http://www.oxfordowl.co.uk/welcome/for-home/maths-owl/maths
- https://nrich.maths.org/primary-lower
- https://www.youcubed.org/tasks/
- http://www.twinkl.co.uk/resources/parents (Some free resources otherwise a subscription is required)
- www.amathsdictionaryforkids.com

- http://www.watlingparkschool.org.uk/ - Maths Webpage COMING SOON

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