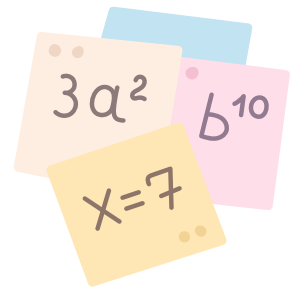


Parent's Guide to Mastering Algebra



Why Children Find Algebra Tricky (And How You Can Help at Home)

If your child has started algebra and suddenly seems confused, you're not alone. Many children struggle at first — and there are clear reasons why.

1. Letters instead of numbers

Algebra introduces symbols like x instead of clear numbers. It takes away the certainty they had and becomes a very abstract concept. Suddenly they are having to bring imagination into a previously very “black and white” subject.

➤ For a child, this feels like:

“How can I solve something if I don't know the number?”

2. Working backwards feels unnatural.

It is like receiving instructions in the wrong order. It can make children second guess their thinking, create doubts and they often give up before they have really given it a go.

Children are used to:

$$3 + 4 = 7$$

But algebra asks:

$$x + 4 = 7$$

➤ This reversal takes time to learn. It is called using the Inverse.

3. It's a new way of thinking

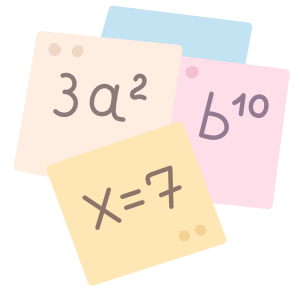
Algebra is less about calculating and more about reasoning:

- spotting patterns
- understanding relationships
- thinking creatively

➤ Children are used to maths being very “black and white” with one answer. It's an unfamiliar way of doing maths.



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4. The idea of balance

Equations must stay equal on both sides.

Children are used to:

- $3 + 4 = 7$

But algebra might involve:

- $x + 4 = 2 + 5$ (x has one value)
- $x + 3 = y + 6$ (x & y have infinite values)

➤ This concept is new and not always obvious. Children are used to seeing the equal symbol at the end of a number sentence, with just one possible answer.

5. Too much at once

Children often face:

- new symbols
- new rules
- multi-step problems

➤ This can feel overwhelming.

6. Confidence drops quickly.

If it doesn't click straight away, children may think:

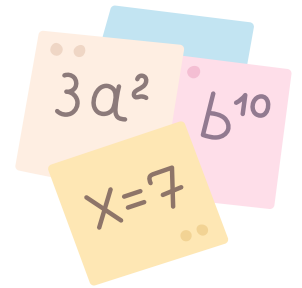
"I'm just not good at maths"

➤ When self-belief dwindles so does the motivation to keep trying.

Algebra is often taught for a very short period in Primary School, so it's easy to forget about it and move on. This is detrimental in the long term- it's a key component in Secondary Maths. There are plenty of ways to make it a simpler concept to understand. With the right tools, Algebra can go from frustrating to exciting.



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My Top Tips are:

- Start slow – simple problems & familiar symbols
- Use Manipulatives- to make the abstract concept feel real
- Make it fun- use visual puzzles so they are motivated to explore and persevere, all whilst building algebraic ways of thinking.
- Keep practice short and focused (10–15 minutes max).
- Focus on progress, not perfection.

How to help:

Start with simple “missing number” problems and familiar symbols:

- $\square + 3 = 7$
- $? + 6 = 10$

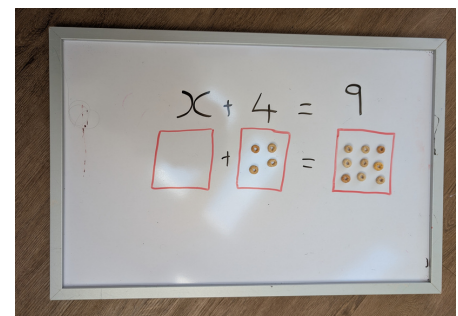
Then **gradually** introduce letters

- $x + 4 = 9$
- $x + 7 = 10$

Encourage questions like:

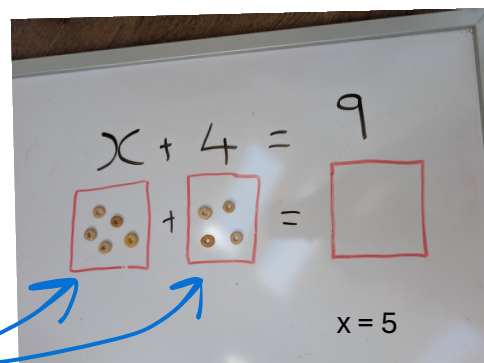
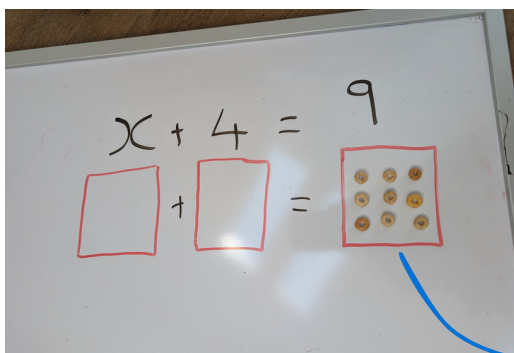
“What number would make this true?”

“What would happen if x was worth 3? 5? 7?”



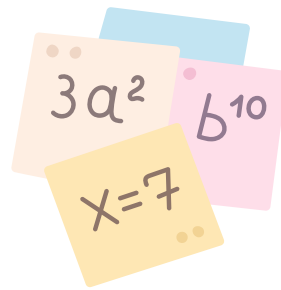
Cheerios to represent a question

Use manipulatives, like Lego, marbles or even cereal to help them make the connections through something concrete.



In this example, we created the “answer” of 9, then shared this out on the left side to help us figure out what the x must be.

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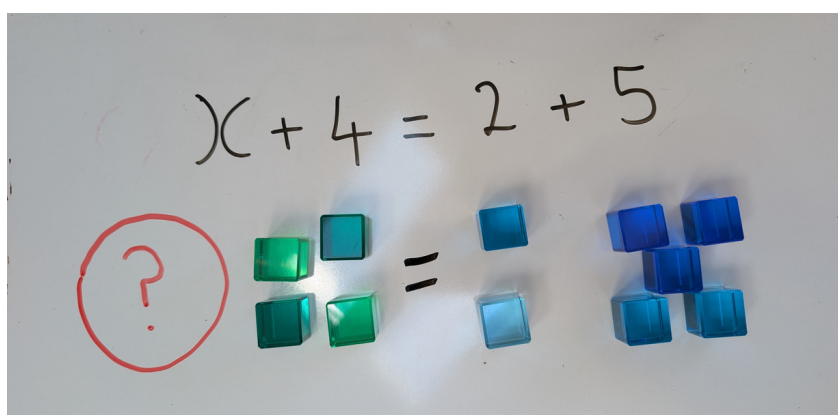


Use simple sequences:

• 2, 4, 6, 8 → “what’s happening each time?” “what are the next 3 numbers in this sequence?” “Do you think the number 15 will be in this sequence?” There are lots of sequences in secondary school maths. This builds the skill of pattern spotting and gets them to start thinking in an algebraic way.

Use a “balance” idea:

- Both sides of an equal sign must be worth the same
- Using manipulatives (something you can hold in your hands) is a great way to bring this concept to life.



Here we represent $2 + 5$ on the right hand side with cubes. We represent 4 on the left with cubes. What must x be to make both sides equal?

We can also just show 7 cubes on the right and then move those over to the left to see what would need to be added to 4 to have the same total.

Using **manipulatives** often allows children to start to see the connections themselves. They will realise that they are just adding and subtracting. It is important that they explore and make these discoveries by themselves, as that is how connections become secure. It is natural for them to find the “shortcuts” once they have really understood what these questions are asking them to do. Exploring with simple calculations now, sets them up for the more complex questions later.

How Algebraic skills progress

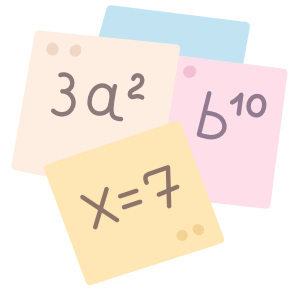
Inverse problems with the use of **?** are actually introduced as early as Year 2 but explicit Algebraic skills are not included in the National Curriculum until Year 6. These are the 5 skills that are taught and tested in the KS2 SATs.

- **use simple formulae**
- **generate and describe linear number sequences**
- **express missing number problems algebraically**
- **find pairs of numbers that satisfy an equation with 2 unknowns**
- **enumerate possibilities of combinations of 2 variables**



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Here are some examples of how those skills are tested in past papers.



2024 Paper 2

4

The numbers in this sequence increase by the same amount each time.

Write the missing numbers.

-11		1	7		19
-----	--	---	---	--	----

1 mark

2024 Paper 2

25

Write the missing numbers so that $3 \times b - a = 2$

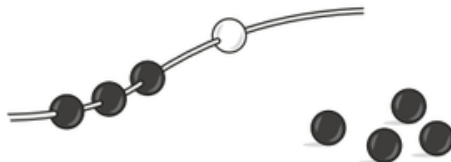
a	b
	2
13	

2 marks

22

Sarah makes jewellery using black and white beads.

2024 Paper 3



She uses this rule to work out how many black beads to use.

$$\text{black} = (\text{white} \times 3) + 4$$

Sarah uses 12 **white** beads to make a necklace.

How many black beads does she use?

1 mark

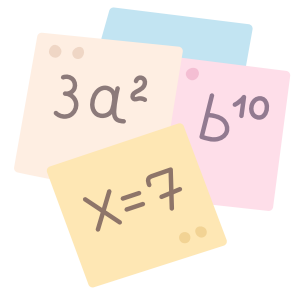
Sarah uses 25 **black** beads to make a bracelet.

How many white beads does she use?

1 mark



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14 Look at this expression.

2025 Paper 3

$$y + 4$$

Tick the value for y that gives a **prime** number value for $y + 4$

$$y = 8$$

$$y = 9$$

$$y = 10$$

1 mark

Tick the value for y that gives a **square** number value for $y + 4$

$$y = 5$$

$$y = 6$$

$$y = 7$$

1 mark

26 This formula is used to estimate the mass (in kilograms) of young children.

2023 Paper 2

$$\text{mass} = 2 \times (\text{age in years} + 5)$$

Stefan's sister is 4 years of age.

Use the formula to estimate her mass.

kg

1 mark

The mass of Megan's brother is 16 kilograms.

Use the formula to estimate his age.

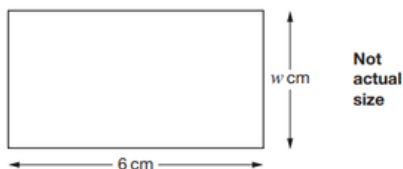
years

1 mark

20 The length of this rectangle is 6 cm.

2023 Paper 3

The width is w cm.



Circle **all** the methods below that can be used to work out the **perimeter** of the rectangle.

$$w \times 6$$

$$w \times 2 + 12$$

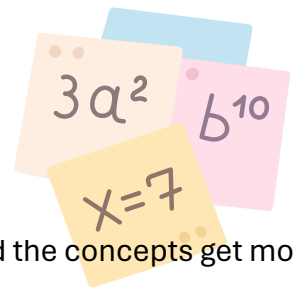
$$2 \times (w + 6)$$

$$6 + w + 6 + w$$

2 marks



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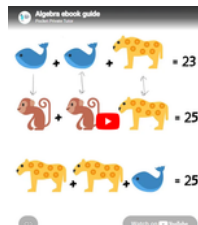
Does Algebra really matter?

Algebra is a significant part of the maths curriculum from Years 7 onwards and the concepts get more complex in the GCSE papers. If your children can start Year 7 already armed with the basics and the motivation to engage with algebra, half the battle is already won. Did you know that children who feel confident about algebra tend to feel more confident about maths (and learning) in general.

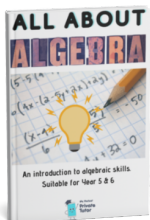
Ways I can help

💡 Check out my blog: **How to Make Algebra Easy to Learn**

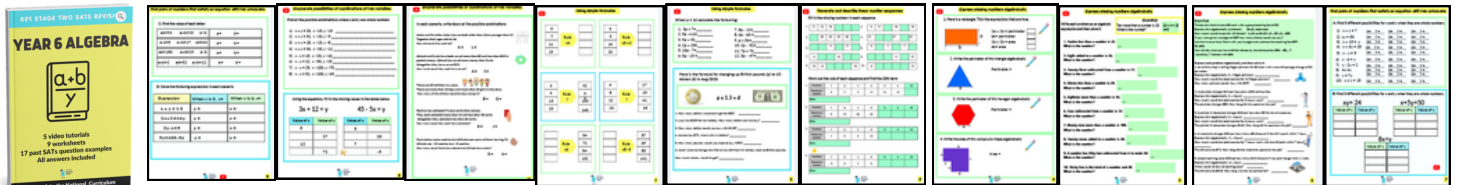
💡 Grab my **Fun book of visual puzzles** which hit all of the Algebra Objectives in the Year 6 National Curriculum. There is an accompanying free video to help guide you through some of the puzzles.



💡 For a quick and easy introduction to the **basics of Algebra**, start here



💡 To cover all of the **Year 6 Algebra** learning objectives in depth- this course is for you. Full lessons that guide your child through printable worksheets. This also includes tons of examples of how algebra has looked in actual past test papers.



I hope this guide has been helpful and you can support your child to have a healthy relationship with maths. Please get in touch if you are looking for any further support.

Moona the Maths Coach - AKA Pocket Private Tutor

