

The AI Way

SMC 2026

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ApplyingMaths.com

Session Aims

- Writing Prompts

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- Lesson Planning

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- Creating Diagrams

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- Reducing Admin

Session Aims

- Writing Prompts
- Lesson Planning
- Creating Diagrams
- Reducing Admin
- Thinking Critically About AI

The AI Way

"The right way, the wrong way and
the AI way."



Generating lessons

Generate a presentation

For a given year group and topic, create visually rich and engaging presentations to use in class

Target year*

7

Topic*

Getting the order right when carrying out calculations

Presentation length*

Short

✓ Medium

Long



Generate learning objectives

Generating lessons

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[↻ Regenerate learning objectives](#)

Suggested learning objectives*

- Students will be able to correctly apply the order of operations (PEMDAS/BODMAS) to simplify numerical expressions involving addition, subtraction, multiplication, and division.
- Students will be able to evaluate multi-step numerical expressions, including those with parentheses or brackets, accurately and efficiently.

Always review and edit learning objectives to be specific and relevant to your class



[✎ Generate presentation outline](#)

Generating lessons

Introducing BIDMAS

To help us remember the correct order, we use the word BIDMAS. This tells us which calculation to do first.

B - Brackets

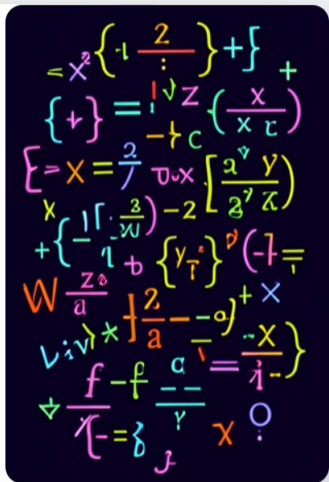
I - Indices (Powers)

D - Division

M - Multiplication

A - Addition

S - Subtraction



Jagged Frontier

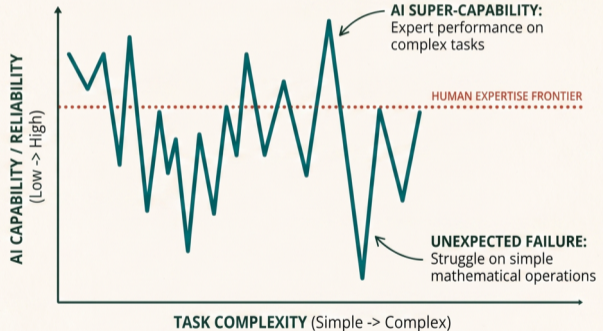
"Don't praise the machine"

AI is good at lots of things, but if you're an expert at something, you're probably stronger than it.

Let AI handle the formatting, you handle the mathematics.

THE JAGGED FRONTIER

Understanding the Uneven Capability of AI on Mathematical Tasks.



Jagged Frontier: Tasks that look similar may be solved effortlessly or fail dramatically by AI, crossing expert human ability unpredictably.

Task: Expanding Brackets

Each group will create an exercise on expanding brackets for a class first exposed to this.

- Group 1: Pre-requisite
- Group 2: Basic
- Group 3: More complex
- Group 4: Wordy
- Group 5: Novel



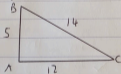
Example Questions

Solve $5x - 3 = 7(x - 4)$ (3)

Expand $5y^2(2y - 4)$ (2)

Factorise $5x^2 - 45$ (2)

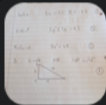
Is triangle ABC right angled? (2)



Example Questions

Hi Bryn

Where should we start?



You are an expert in writing Latex code. Attached is a set of questions, and the marks, for some national 5 maths questions. Write some latex code that would produce a one-page mini exam, featuring these questions. Ensure the marks are visible, and there is a suitable answer box.



Tools

Pro



Example Questions

Mini Exam: Algebra and Geometry

Name: _____

Date: _____

1. (3 points) Solve the equation:

$$5x - 3 = 7(x - 4)$$

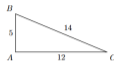
2. (2 points) Expand the brackets:

$$5y^2(2y - 4)$$

3. (2 points) Factorise fully:

$$5x^2 - 45$$

4. (2 points) Is triangle ABC right-angled? You must justify your answer.



Section B: Applications of Mathematics

1. Calculate $\frac{3}{4}$ of £48.

1

2. Calculate $18.3 - 4.91$.

1

3. A train departs Glasgow at 10:35 and arrives in Inverness at 14:15. How long did the journey take?

1

4. Calculate $\frac{1}{4} + \frac{2}{3}$.

2

Unit 8: Knowledge Check

Properties of 2D Shapes & Circles

Part A: Multiple Choice

Write the letter (A, B, C, or D) of the correct answer in your jottor.

1. What is the name for the distance: **all the way around** the outside of a circle?
 - A) Radius
 - B) Diameter
 - C) Circumference
 - D) Diagonal
2. If a circle has a **radius of 6 cm**, what is its diameter?
 - A) 3 cm
 - B) 12 cm
 - C) 6 cm
 - D) 36 cm
3. Which word describes a shape where **all sides and all angles** are the same?
 - A) Irregular
 - B) Polygon
 - C) Diagonal
 - D) Regular

Part B: Short Answer

Q4. Look at the shape below.

- State the name of this polygon.
- How many **diagonals** can you draw from the top vertex (corner)?



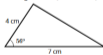
Q5. A circular clock face has a **diameter of 28 cm**.

- What is the **radius** of the clock?
- If a second, smaller clock has a radius of **5.5 cm**, what is its diameter?

Part C: Accurate Drawing

Using only a **ruler** and a **protractor**, draw this triangle accurately in your jottor.

Rough Sketch (Not to scale)



Extension: Scale Challenge

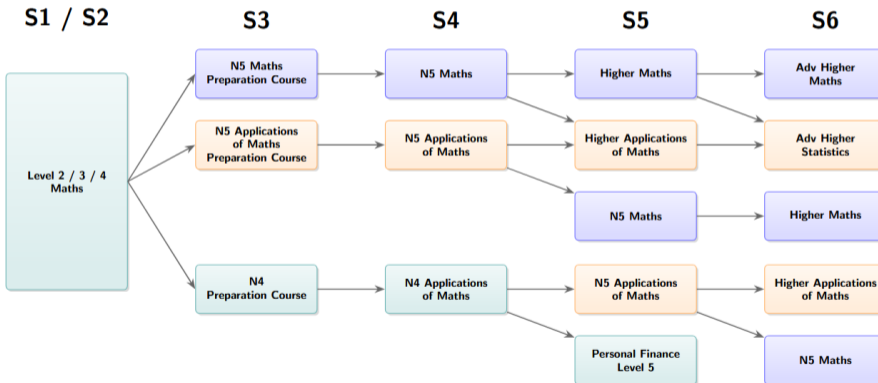
The School Hall Plan

The school hall is a rectangle measuring **20 metres by 10 metres**.

1. Using a scale of **1 cm : 2 m**, calculate the length and width for a scale drawing.
2. Draw the hall accurately in your jottor using these new measurements.
3. **Super Challenge:** If a stage is put in that is 4m wide, how many cm wide would that be on your drawing?

Mathematics Curriculum Pathways

S1 – S6 Progression



Why LaTeX?

- **Works with every program:** OneNote, Smart Notebook, PowerPoint, or just as a stand-alone PDF presentation.

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- **Simple and accessible:** Once you've played around with it a little bit, tweaking latex code is quite straightforward.
- **Free and online:** Can be done easily and free online with Overleaf.

Task: Following a Prompt

"Nothing can possibly go wrong"

- AI is a literalist. It behaves like an incredibly enthusiastic trainee teacher who wants to please you but lacks your classroom context.

Task: Following a Prompt

"Nothing can possibly go wrong"

- AI is a literalist. It behaves like an incredibly enthusiastic trainee teacher who wants to please you but lacks your classroom context.
- **The Task:** In your groups, look at the upcoming prompts.
- **The Question:** What is the "Enthusiastic Trainee" going to give you?

The Prompts

Prompt 1

"Make a worksheet on fractions for S3."

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Prompt 2

"Write a lesson plan on Pythagoras but make it fun and include a bit about history and 10 questions but not too hard."

The Prompts

Prompt 1

"Make a worksheet on fractions for S3."

Prompt 2

"Write a lesson plan on Pythagoras but make it fun and include a bit about history and 10 questions but not too hard."

Discuss: How would an AI (the trainee) interpret "fun", "not too hard", or "S3"?

Better Prompting

Role + Context

"You are an experienced Scottish Maths teacher. Create a LaTeX worksheet for an S3 class (working towards National 5) on adding and subtracting mixed number fractions. Include 3 scaffolded examples and 10 questions of increasing difficulty."

Structure + Specifics

"Plan a 50-minute lesson on finding the hypotenuse using Pythagoras. Include a 5-minute hook about its history. Generate an 'Example-Problem Pair' and 10 fluency questions involving real-world construction contexts."

Specific instructions prevent the "Enthusiastic Trainee" from guessing your needs.

Task: Writing Prompts

"It's a perfectly cromulent word"

We're going to create a whole lesson together on the order of operations.

- Group 1: Example Problem Pairs
- Group 2: Good hinge questions (4 answers)
- Group 3: Independent practice

Ticktock Maths

Writing Prompts

- Give AI a role.

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Writing Prompts

- Give AI a role.
- Share any documentation it needs.
- Explain what's required.
- **For big tasks, take a project approach.**

Spot the Shark Challenge!

I wanted to see how quickly I could go from idea, to lesson slides. **The**

Idea: A series of graphs where something dramatic happens, to give students practice interpreting graphs.

Spot the Shark Challenge!

I came up with a series of ideas, and jotted them down, increasingly roughly, on paper:

Spot the shark

Swimmers	80	84	87	2	0	20	65
Time	9:00	10:00	11:00	12:00	13:00	14:00	15:00

Spot the lottery win

Weeks since	±300	±340	±280	±6000	±15,000
Month	Jan	Feb	March	April	May

Spot the star player's injury

Possession	60%	55%	62%	40%	35%	70%	70%	65%
Game	1	2	3	4	5	6	7	8

Spot the snow day

Hand-in rate	67%	70%	5%	90%	65%	/	/	/
Day	M	T	W	T	F	/	/	/

Spot the golf

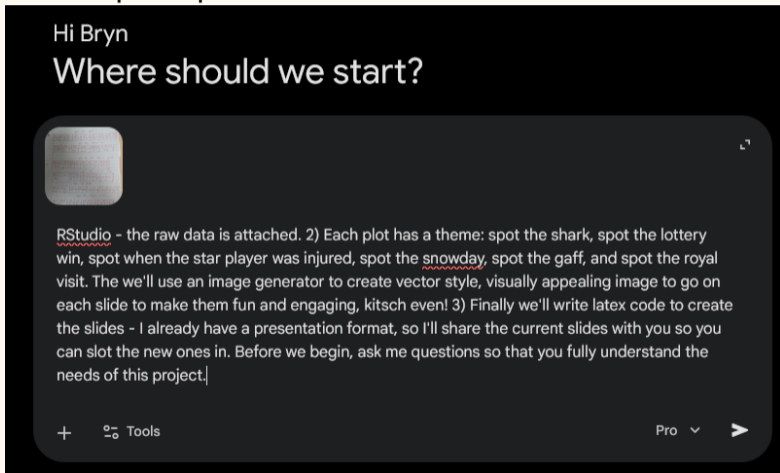
Annual rating	50	49	44	40	38	-12	-15	-20
Week in office!	1	2	3	4	5	6	7	8

Spot the royal visit

Hours worked	300	305	400	600	250	800	270
High Park	J	F	M	T	M	J	J

Spot the Shark Challenge!

Next I wrote the prompt:



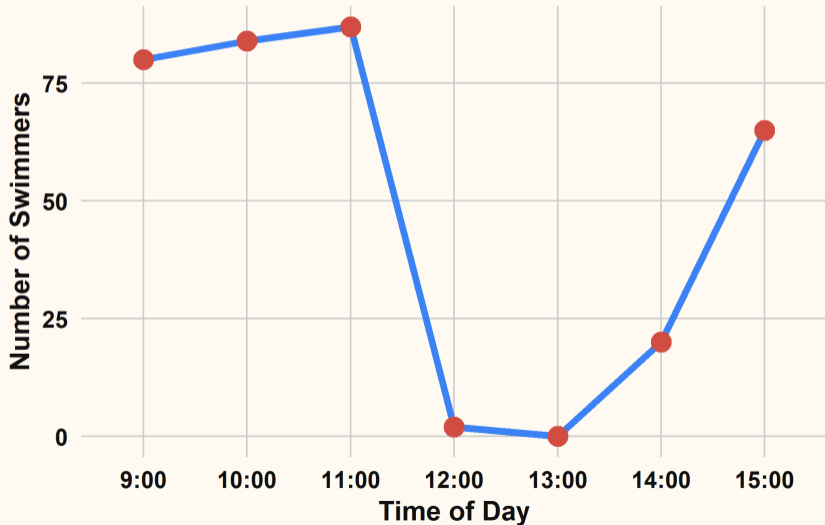
Spot the Shark Challenge!

The AI asked me about what type of charts I wanted, and my aesthetic choices.

Spot the Shark

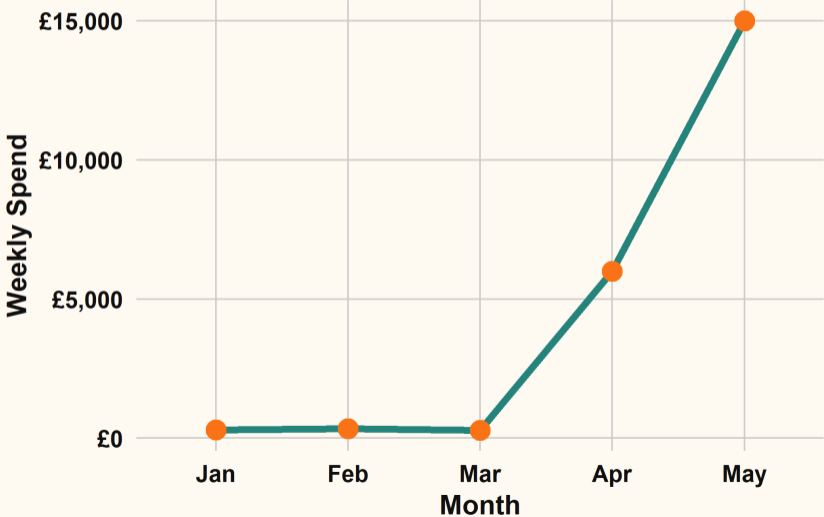


Swimmers at the Beach



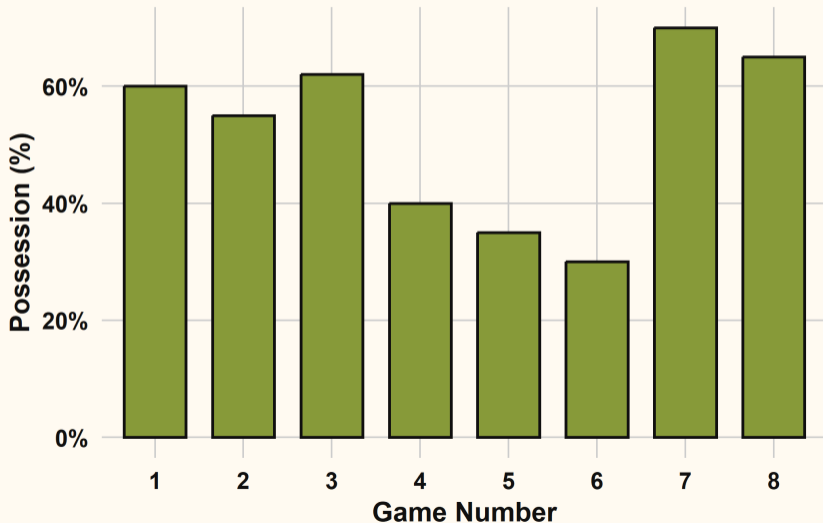
Spot the Lottery Win

Weekly Spending over 5 Months



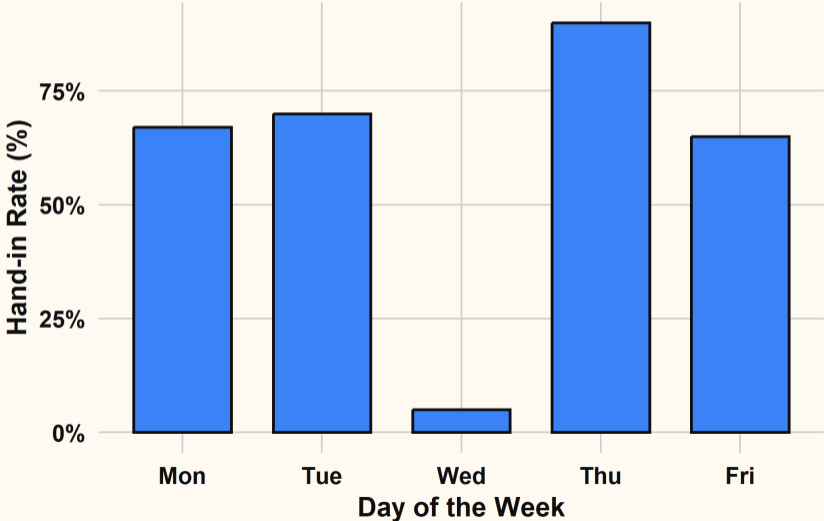
Spot the Star Player's Injury

Team Possession per Game



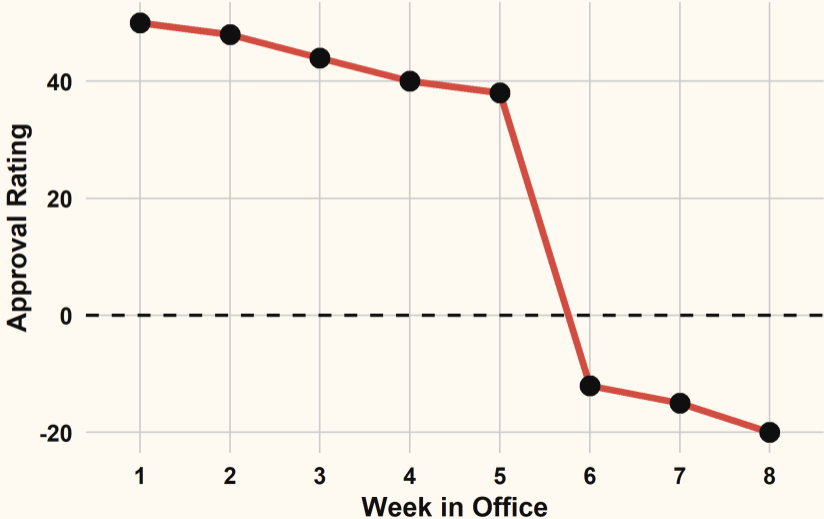
Spot the Snow Day

Homework Hand-in Rate



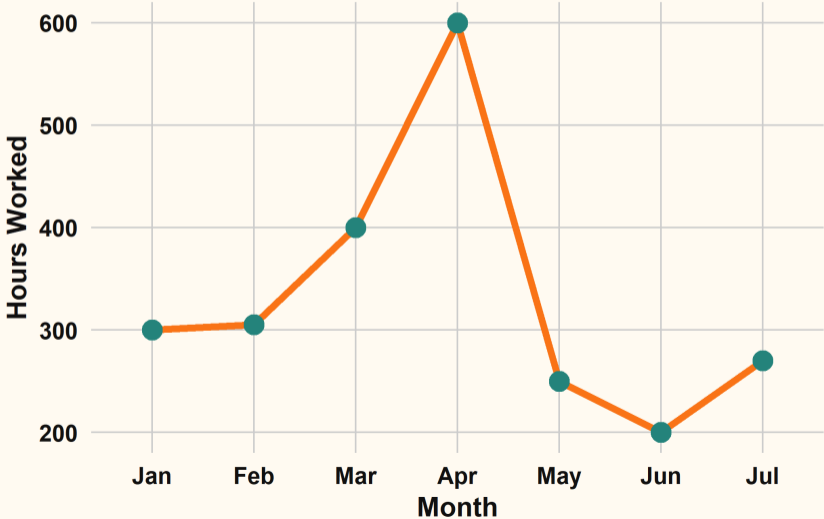
Spot the Gaffe

Politician's Net Approval Rating



Spot the Royal Visit

Council Road Maintenance Hours



The Need for Speed

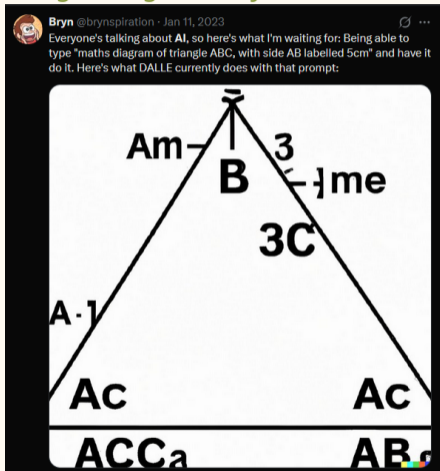
- AI should help you speed up how you work.

The Need for Speed

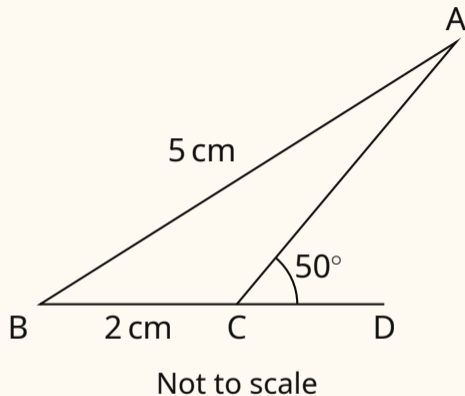
- AI should help you speed up how you work.
- If it is taking you longer to do something with AI, you should probably just do it yourself.

Creating Diagrams

"That's a fine looking triangle... why doesn't mine look like that?!"



Creating Diagrams



Prompt: Triangle ABC, with AB labelled as 5 cm. Line segment BC is extended to point D. Acute angle DCA is labelled 50 degrees. BC labelled 2 cm.

Task: National 5 Bearings

- In your group, hand draw just one sensible bearings question.
- Or, write in words what the diagram should look like.

Together we'll make a decent worksheet!

Advanced Uses

- You can create mini-apps to aid learning and visualization.
- <https://applyingmaths.com/2025/09/12/interactive-gantt-charts>

Advanced Uses

Area of a Triangle

| Any triangle is half of a parallelogram.



Really?



| It's true. If you start with a triangle and double it, you can always create a parallelogram. See:

1.



2.



Summary

"To AI: The cause of, and solution to, all of life's problems"

- Don't rely on AI to plan a lesson. If you have strong subject knowledge of a topic, you'll be disappointed. If you don't have strong subject knowledge of a topic, you'd be much better served acquiring it.
- Use AI to do small, easily checked things about which you have good knowledge.
- AI helps you do what you're doing much faster. Whether what you're doing is right or wrong, well, that's on you.

Any Questions?



Thanks!

Bryn Jones

SMC 2026

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