



Autumn 1 - Year 5

Working Like a Mathematician

This is your Bingo Card for my half termly 'Maths Missions'!

These challenges should encourage children to **think like mathematicians**: investigating, generalising, proving, spotting patterns, creating systems and explaining reasoning. This is an optional extra for children who want to do further Maths challenges after completing the home learning set by their class teacher. Tick them off as you go! 😊

1. Place Value Powers

Use the digits 0-9.

Create:

- the greatest possible number
- the smallest possible number

Now move one digit.

How much can you change the value?

Investigate systematically.



2. Calculator Challenge

Using only one number and one operation button:

How many numbers can you make?

For example: $7 + 7 + 7$

What is the most efficient strategy?

3. Generalising Investigation

Pick any number.

Double it and add 10.

Try many examples.

Can you find a rule that always works?

Can you prove it?



4. Create a Family Budget

Plan a week's spending for a family.

Include:

- food
- transport
- Entertainment

How can you save money?



5. Maths Photo Hunt

Take or draw photographs showing mathematics in real life.

Explain the mathematics behind each example.

Try to collect at least 20.



6. Number Chain Challenge

Start with 1.

Using any operations, reach exactly 1,000.

Can you find:

- the shortest route?
- the most interesting route?



Year 5 Bonus Challenge

The Birthday Paradox Investigation

Gather birthday information from family and friends.

Research:

How many people need to be in a room before it becomes surprisingly likely that two people share a birthday?

Make predictions.

Collect data.

Test your ideas.

Challenge Question: Can something unlikely actually be quite likely?



Ultimate Whole-School "Impossible" Challenge

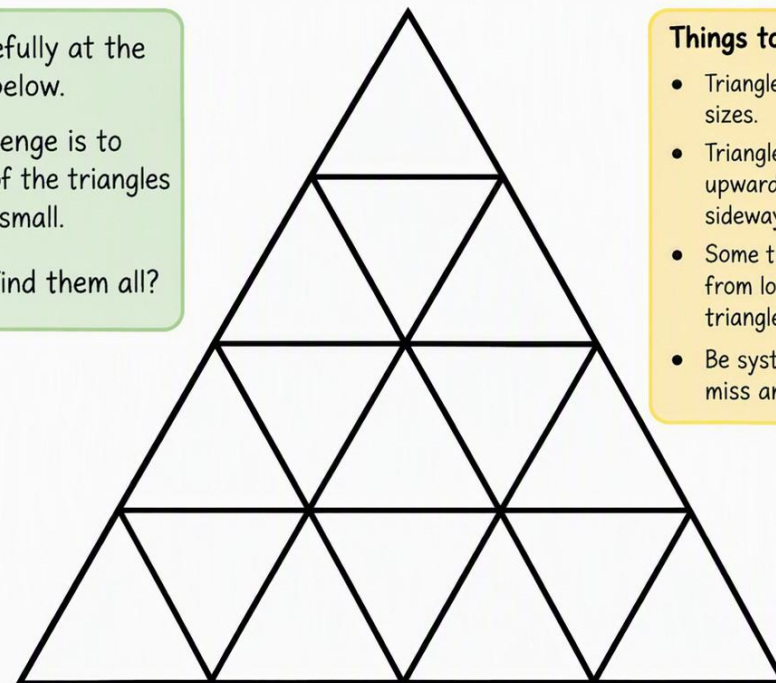
How Many Triangles?

It looks simple... but it's trickier than you think!

Look carefully at the triangle below.

Your challenge is to count all of the triangles – big and small.

Can you find them all?



Things to remember:

- Triangles can be different sizes.
- Triangles can point upwards, downwards or sideways.
- Some triangles are made from lots of smaller triangles.
- Be systematic – don't miss any!

How many triangles can you find?

Can you prove your answer?

Can you find a strategy to make sure you don't miss any?