Autumn 2 - Year 5

Multiplication and Division

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. Multiplication Masterpieces

Create a poster ***proving*** everything you know about one times table.

Include:

- Patterns
- Links
- Facts
- Proof



2. World's Biggest Multiplication

How large can a multiplication become?

Create:

- Large numbers
- Efficient methods
- Explanations

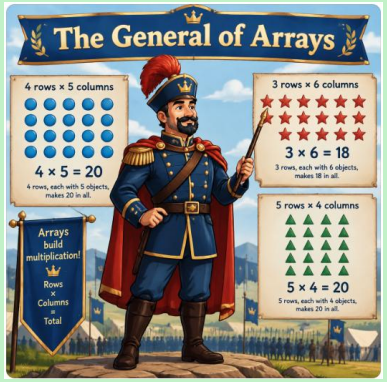


3. The Array General

Investigate arrays.

Can you find:

- All arrays for 24?
- *All arrays for 36?*
- *All arrays for 48?*



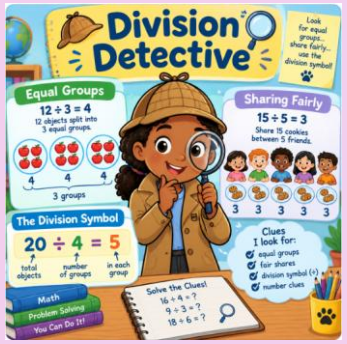
What patterns emerge?

4. Division Detective

Find calculations where division gives:

- Whole numbers
- Decimals
- Patterns

Can you explain why?



5. Number Trick Investigation

Invent a number trick.

Test it on five people.

Can you explain the maths behind it?

6. Multiplication Chains

Create increasingly difficult two-step and three-step multiplication machines.

Can people work backwards?



Year 5 Bonus Challenge

The Fraction Restaurant



You are opening a restaurant.

Every recipe must include fractions.

For example:

- $\frac{3}{4}$ cup flour
- $\frac{2}{3}$ cup milk
- $\frac{1}{2}$ cup sugar

Investigate:

- Equivalent fractions
- Scaling recipes up
- Scaling recipes down

Grand Challenge:

Create recipes for:

- 2 people
- 5 people
- 10 people
- 25 people

and explain how you know your answers are correct.



Ultimate Whole-School Challenge

The Christmas Tree Code Challenge

One morning, a strange pattern appears on a Christmas tree:

★

★ ★

★ ★ ★

★ ★ ★ ★

The first row has 1 star. The second row has 2 stars. The third row has 3 stars.

Bronze Mission

Count:

- How many stars are in a tree with 5 rows?
- How many stars are in a tree with 6 rows?
- How many stars are in a tree with 10 rows?

Can you find a quick way?

Silver Mission

What if the tree had:

- 15 rows?
- 20 rows?
- 50 rows?

Can you find a pattern?

Record your thinking.

Gold Mission

A mathematician says:

"I can work out the number of stars in ANY Christmas tree without drawing it."

Can you discover their method?

Test it.

Convince somebody it works.

Grandmaster Mission

Can you answer:

- How many stars would be in a tree with 100 rows?
- 1,000 rows?
- Could there be a tree with exactly 95 stars?
- Could there be a tree with exactly 183 stars?

How do you know?