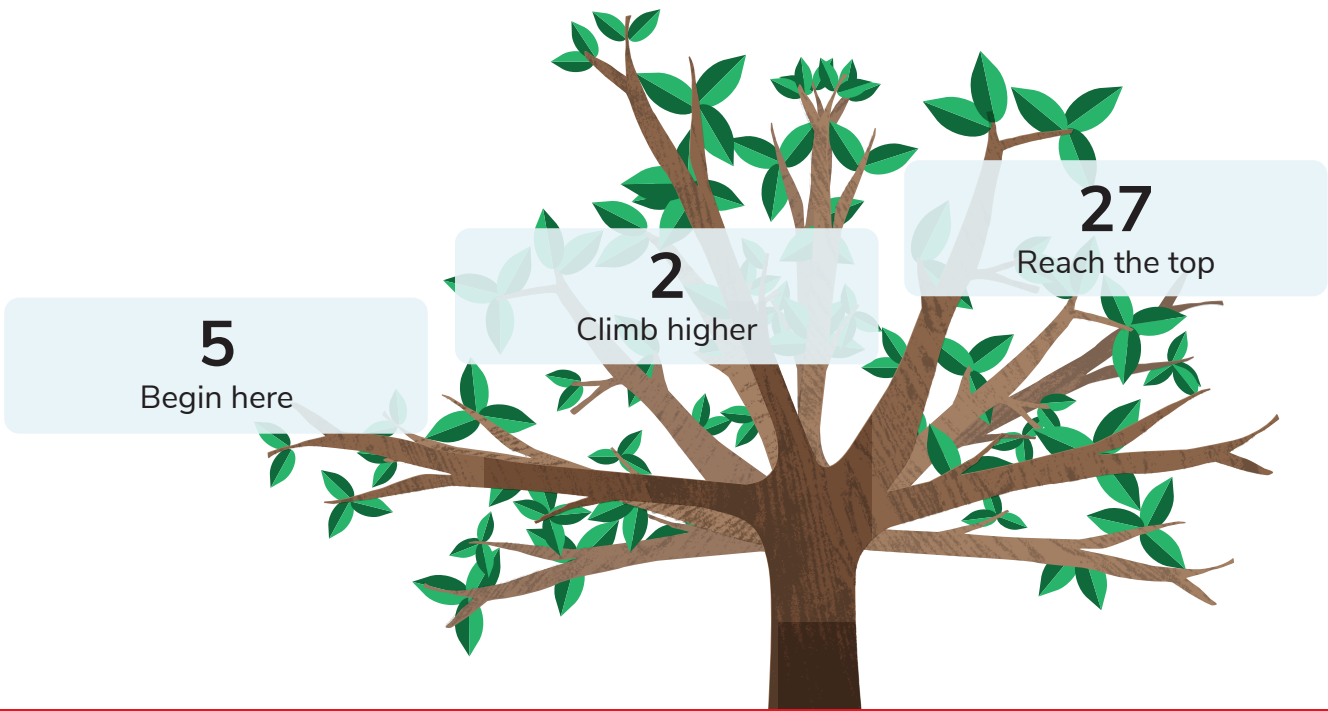
TEACHER GUIDE

Number Day 2027

NSPCC Number Day
5th February 2027

A Treasure Hunt for Ideas

Exploring the numbers **5, 2** and **27** through noticing, explaining and wondering.



At a Glance

Everything you need to run NSPCC Number Day 2027 — in one place.

5th Feb 2027
Date

5, 2 & 27
The Numbers

KS1 & KS2
Audience

What pupils do

- Explore three numbers (5, 2 and 27) through multiple representations
- Notice, Explain and Wonder (the NEW framework)
- Work individually, in pairs, and as a class
- Find as many ways as possible to show or build each number

What teachers do

- Create conditions for mathematical conversation
- Ask open questions: How do you know? Can you find another way?
- Celebrate all observations — depth and breadth both valued
- No prior preparation required beyond curiosity

1 A Treasure Hunt for Ideas

2 Introduction

3 NEW Thinking

4 Core Task

5 Number 2

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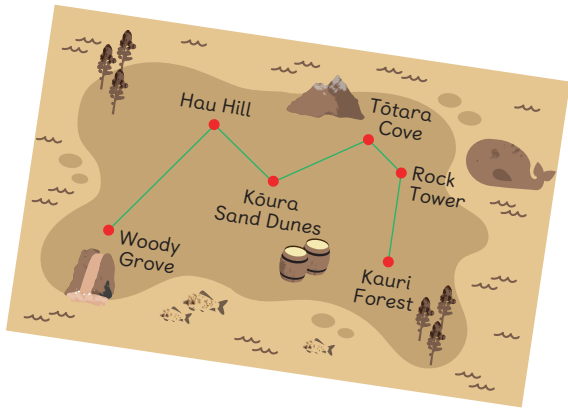
A Treasure Hunt for Ideas



Every great mathematical adventure begins with a single question: *what do you notice?* On Number Day 2027, we invite every pupil — from the very youngest mathematicians in KS1 to the most curious explorers in KS2 — to set off on a treasure hunt. Not for buried gold, but for something far more valuable: **mathematical ideas.**

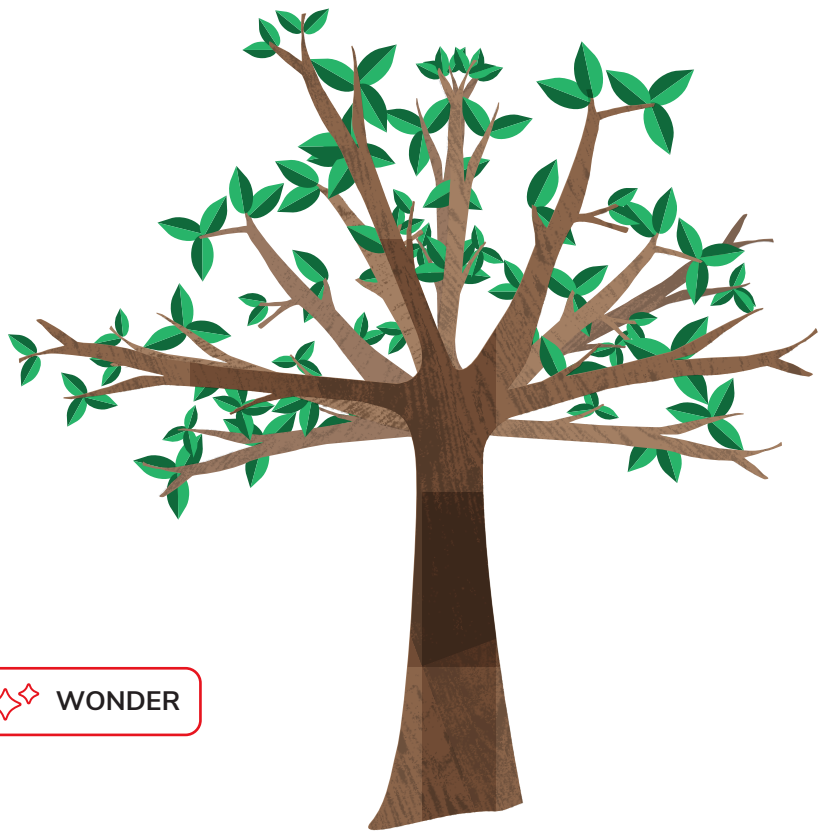
This year's treasure hunt centres on three very special numbers: **5, 2** and **27**. Simple at first glance. Rich with possibility when you look more closely. Like a tree whose roots run deep and whose branches reach wide, these numbers have more to offer than you might expect

As you explore, you will **Notice** things that are already familiar.

You will **Explain** things that help you understand more deeply.

And you will **Wonder** about ideas that take your thinking somewhere new entirely.

There is no single correct path through this treasure hunt — every route is valid, every observation matters.



NOTICE EXPLAIN WONDER

Introduction

This Number Day activity is not a quiz. It is not a race, and it is not about finding the right answer as quickly as possible. Instead, it is built around one rich mathematical idea — the idea that **numbers can be seen in many different ways**, and that noticing those different ways is itself a form of mathematical thinking.

This is not a novel idea — it is well-established. Jerome Bruner's research identified three modes of representation (enactive, iconic, and symbolic — or Concrete, Pictorial and Abstract) through which learners build understanding, and the NCETM states that 'representing ideas and connecting the representations to mathematics lies at the heart of understanding mathematics'. When children encounter the same number through objects, pictures, and symbols, they build a richer, more flexible understanding than any single representation can provide.

This year, every class in the school is invited to explore the numbers **5, 2** and **27**. These three numbers have been chosen because of the date. And each one has something immediate and accessible to offer, and each one has depths that reward patient, curious exploration. Whether you begin with your fingers or end with cube numbers, there is something here for everyone.

1 Low

What can you see or do straight away? Start with what is right in front of you.

2 Reach

What more can you find? Look a little closer. Try a different representation.

3 Climb

Can you explain it or take it further? This is where your thinking grows tallest.

The table below gives a simple guide to the three levels of exploration. Think of them not as stages you must pass through in order, but as branches on the same tree — some days you begin near the top, some days you begin at the roots. Both are equally wonderful places to start.

Level	What it looks like	Example thinking
Low	Counting, recognising, naming, drawing	"I can see two hands. That is the number 2."
Reach	Comparing, grouping, finding patterns	"5 is odd. It has no pairs. The middle finger is left over."
Climb	Explaining, generalising, wondering, proving	"$27 = 3^3$ because three groups of three groups of three gives you 27."

NEW Thinking

Mathematics begins with noticing, grows through explanation and expands through wondering.

The very best mathematical thinking does not arrive fully formed. It grows, slowly and beautifully, from small observations. A pupil who says “I notice that 27 has a pattern” is already doing mathematics — real mathematics — even before they can name what that pattern is. Our role as a school community is to celebrate that noticing, and then to gently invite more.

NOTICE

Noticing is the entry point for every learner. It asks: *what do you see?* There are no wrong answers here. A child who notices that 5 looks like a dice face and a child who notices that 5 is one more than 4 are both doing something mathematically important.

Encourage pupils to share observations freely, without judgement. Every noticed thing is a seed.

EXPLAIN

Explaining is where mathematical language begins to grow. It asks: *why does that happen? How do you know?* When a pupil moves from seeing a pattern to describing it in words, something important has shifted in their understanding.

Explanation does not need to be perfect. Approximate explanations, attempted in earnest, are deeply valuable.

WONDER

Wondering is the highest branch on the tree. It asks: *what if? Does this always work? What would happen if I changed something?* Wondering is where mathematics becomes genuinely creative and open-ended.

Not every pupil will reach the wondering stage in a single session — and that is completely fine. The invitation is always there.

Different representations can lead to different mathematical thinking. A child who sees 27 as blocks thinks differently from a child who sees 27 as an array — and both are right.

The Core Task

CENTRAL ACTIVITY

Show or Build 2, 5 and 27

This activity sits at the heart of Number Day 2027.
Use any materials, drawings, diagrams, words, or methods you like.

What do you Notice?

Look carefully at each number. What jumps out at you straight away? What feels familiar? What feels surprising? There are no wrong observations — write, draw, or say what you see.

Can you Explain it?

Choose one thing you noticed and try to explain it to a partner. Use the words *because* and *so* to help your explanation grow. Can you convince someone else that what you noticed is really true?

What do you Wonder?

Ask a question that starts with *I wonder... or What if...*
You do not need to be able to answer your own question yet. The best wondering questions are the ones that open doors rather than close them.

Which is the odd one out?

Can you find a reason why 2 is the odd one out? Or 5? Or 27? Remember — there is no single correct answer. The most interesting response is one that includes the words because and that other pupils had not considered.

Can you find another way?

Once you have shown a number one way, challenge yourself to show it in a completely different way. Then find another. And another. The aim is not to find the right representation — it is to find as many representations as you can. Use objects, drawings, equations, arrays, patterns, words, diagrams — every new way you find is a new connection in your mathematical thinking.

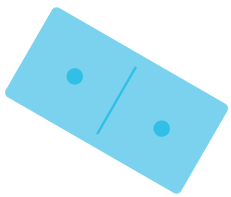
How many ways can you find?

Set yourself a challenge: how many different ways can you represent each number? Five ways? Ten? More? There is no upper limit. Every new representation you discover is evidence of mathematical thinking — and the more ways you find, the richer and more flexible your understanding becomes.

This task is designed for every learner. There is no ceiling and there is no floor.
Begin wherever feels right for you.

Exploring the Number 2

The number 2 is one of the first numbers we meet, and yet it carries an extraordinary amount of mathematical richness. It is the smallest prime number. It is the only even prime. It is the foundation of symmetry. Explore the three representations below and see how much you can discover.



1+1=2

Two Hands

Notice: You have two hands. They look the same — or do they? Look at your left hand and your right hand.

Explain: Your two hands are mirror images of each other. They are symmetrical but not identical — you cannot place one exactly on top of the other.

Wonder: Is there anything in the world that has exactly 2 of something that are not mirror images? What makes two things a pair?

Domino Pattern

Notice: The domino shows one dot and one dot — that is two altogether. The dots are arranged symmetrically.

Explain: Two can be split into 1 + 1. There is only one way to split 2 into two equal groups. Can you think of another way to arrange two dots?

Wonder: What would happen to the domino pattern if you had 3 dots? Could you always arrange any number symmetrically? When does symmetry break down?

1 + 1 = 2

Notice: This is the most famous addition equation. One and one more makes two. You have seen this hundreds of times.

Explain: The equals sign means the same as — not the answer is. So 1 + 1 is the same value as 2. They balance perfectly.

Wonder: How many different ways can you write an equation where the answer is 2? Can you write one that uses multiplication? Or subtraction? How about one that surprises people?

Exploring the Number 5

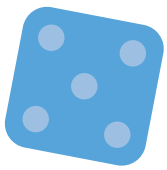
Five has a special place in mathematics and in human experience. We count in fives, we tell the time in fives, and we organise tally marks in groups of five. The number 5 is deeply connected to symmetry, pattern, and the natural world. Explore it through these three rich representations.

Five Fingers

Notice: Hold up one hand. Count your fingers: 1, 2, 3, 4, 5. The middle finger is taller than the others. Notice the pattern of heights.

Explain: Five is an odd number. If you try to make pairs, one finger is always left on its own. Five cannot be split into two equal wholenumber groups.

Wonder: Why do humans have five fingers? Are there animals with different numbers of digits? Does the number of fingers affect how we do mathematics?



Dice Pattern

Notice: The five-face of a dice has one dot in each corner and one dot in the centre. The dots form a cross shape — or perhaps an X shape.

Explain: The five-dot arrangement has lines of symmetry. The centre dot acts as a point of rotation. Five is arranged as 2 + 1 + 2 — pairs either side of a middle.

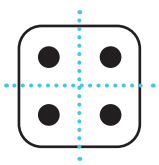
Wonder: Could you arrange five dots in a completely different way that still feels balanced? How many symmetrical arrangements of five dots can you find?

Five-Pointed Star

Notice: A five-pointed star has five points and five sides. It is one of the most recognised shapes in the world. Look at the pentagon hiding in the middle.

Explain: The star has five lines of symmetry. Each line of symmetry passes through a point and the opposite edge.

Wonder: Where in nature do we see 5? How many triangles are in a 5 sided star?



4 LINES OF SYMMETRY (DICE)

5 LINES OF SYMMETRY (STAR)

NUMBER IS ODD: NO MIRROR GROUPING

HEIGHT PATTERN (FINGERS)

THE CLIMB

Exploring the Number 27

Twenty-seven is where our treasure hunt climbs highest. At first glance, 27 might seem like an ordinary number. But look more carefully, and you will find something remarkable: 27 is a **cube number**. It is 3 × 3 × 3. It is built from threes in a way that is genuinely beautiful — and entirely worth the climb to see.

1 Base-10 Blocks

Notice: Use two tens rods and seven unit cubes to build 27. Count them carefully. The two rods represent twenty; the seven cubes represent seven.

Explain: 27 is made of 2 tens and 7 ones. We could also make it with 27 single unit cubes. Both representations show the same quantity in different physical forms.

Wonder: Could you build 27 using only rods — no unit cubes? What would that require? Is there a way to represent 27 using hundreds, tens, and ones that tells you something about our number system?

2 3 × 9 Array

Notice: Draw 3 rows with 9 items in each row. Count all the items: 9, 18, 27. The array is a neat rectangle — 3 rows, 9 columns.

Explain: This array shows that 27 = 3 × 9. But 9 itself is 3 × 3, so the array is also showing us 3 × 3 × 3 — three groups of three groups of three.

Wonder: Can you rearrange 27 items into other arrays? How many different rectangular arrays can you make with 27? What do those arrays tell you about the factors of 27?

3 $27 = 3^3$

Notice: The small ³ above the 3 is called a power or an exponent. 3^3 means 3 × 3 × 3. Read it as “three cubed” or “three to the power of three”.

Explain: A cube number gets its name because you can physically build it as a cube. Three layers of three-by-three squares stacked on top of each other gives you 27 small cubes arranged into one large cube.

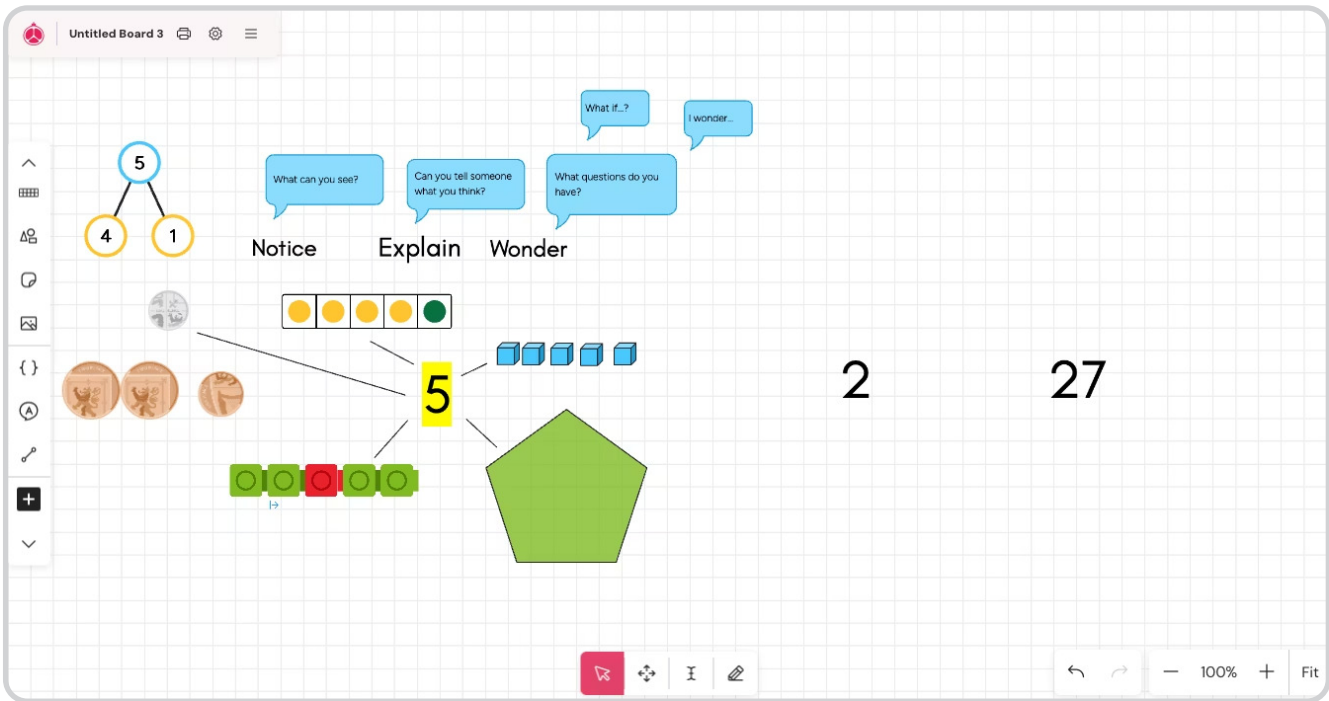
Wonder: What is 2^3? What is 4^3? Is there a pattern in cube numbers? Can you find any connections between the year 2027 and the properties of 27?

i $27 = 3^3$ means three cubed. Imagine a cube made of smaller cubes: 3 wide × 3 deep × 3 tall = 27 small cubes altogether. This is why 27 is called a perfect cube number.

Mathematical Connections

Mathematics is not a straight line of answers. It is a growing network of connected ideas.

The number 5 sits at the centre of this page — not as a destination, but as a starting point. Each representation below is a branch. Each branch can grow. Follow any one of them and see where it leads.



Schema building: when a child connects the five frame to the partition 4 + 1, they are not doing two separate things — they are growing the same idea. Every connection made is a new branch on the tree.

Mathematical Connections

The richest mathematical learning does not happen in silence. It grows in the space between people — in the questions they ask each other, the explanations they attempt and the moments when one person's thinking sparks something new in another. For this activity, as a teacher, your role on Number Day is less about delivering content and more about **creating conditions for mathematical conversation.**

The prompts below are designed to open up thinking rather than close it down. They work best when asked with genuine curiosity — when the teacher truly does not know what the child will say next. Allow pauses. Honour incomplete answers. Celebrate the question that nobody can answer yet.

Can you find another way?

Invites pupils to move beyond their first response. Particularly powerful for pupils who have found one answer and stopped — this prompt signals that mathematics rewards persistence and creativity.

What is the same? What is different?

One of the most versatile prompts in mathematics. Encourages comparative thinking, deepens vocabulary and reveals how much a pupil has understood about structure.

How do you know?

Shifts the focus from answer to reasoning. Pupils who can say how they know something have genuinely understood it — not merely remembered it. Use this prompt gently and often.

Can you convince someone else?

Encourages pupils to build a mathematical argument. True understanding shows itself when a learner can communicate their thinking clearly enough that another person is persuaded.

What pattern do you notice?

Connects individual observations to the bigger world of mathematics. Patterns are the language of mathematics — helping pupils see them is one of the most valuable things we can do.

Teacher guidance

This is a day for listening more than talking. When a child speaks, resist the urge to evaluate immediately. Instead, ask: "Can you say more about that?" or "Does anyone else see it differently?" Build a classroom where every voice is a contribution to a shared mathematical conversation.

Every Idea Matters

This is a treasure hunt for ideas — not a search for one correct answer.

Mathematics can sometimes feel like a subject with a single right path and a single right answer. Number Day exists to gently challenge that feeling. On this day, we celebrate the richness of mathematical thinking in all its forms — and we do so honestly, by recognising that some observations go deeper than others. But depth is not the only thing that matters. The act of voicing an observation, however small it may seem, is often what opens the door to further thinking.

Every idea you bring to Number Day 2027 has value. The child who says “I notice 27 ends in a 7” is noticing something true and meaningful. The child who says “I wonder if 27 is connected to 3 in some way” is asking a genuinely profound mathematical question. These are not competing ideas — they are consecutive ones. The first observation is often the door through which the second walks in.

Every observation counts

Observations vary in depth, but each one deserves airtime. Even the simplest noticing can become the starting point for a richer mathematical idea.

Every question matters

The best questions are often the ones nobody can answer straight away. In mathematics, those unanswerable questions are frequently the most productive ones of all.

Every learner belongs

This treasure hunt has no entrance requirement. You do not need to be “good at maths” to participate. You only need to be willing to look, think and share.

At the end of Number Day 2027, we want every pupil to leave with one simple feeling: **I said something today, and it led somewhere**. That feeling is the beginning of a lifelong relationship with mathematics.

NUMBER DAY 2028

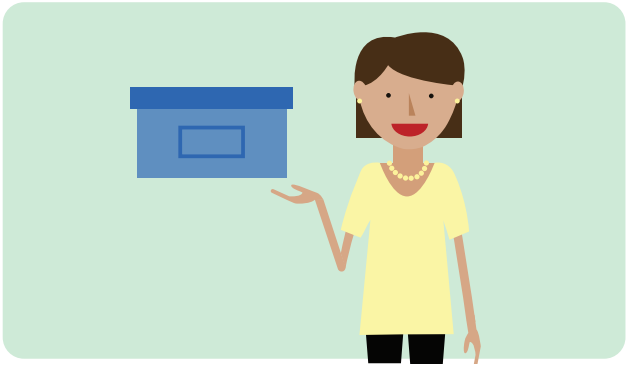
Time Capsule

What is the Time Capsule?

At the end of Number Day 2027, each pupil completes a short Time Capsule — a record of their mathematical thinking today. They seal it up, and it is kept safely by the school. On **Number Day 2028**, they open it again and reflect on how their thinking has grown and changed in twelve months.

The Time Capsule is not a test. It is a letter from today's mathematician to next year's mathematician. It is a way of honouring where you are right now, and of giving future-you a gift: the chance to see how far you have come.

The most important question the Time Capsule asks is: **How have I changed since last Number Day?** Not whether you have got better at arithmetic, but how your *thinking* has changed — how your questions have grown, how your explanations have deepened, how your wondering has expanded.



Final Challenge — Number Day 2028 Preview

To give pupils a small, exciting glimpse ahead, end Number Day 2027 with a preview of next year's numbers. Can you begin exploring now?

4	2
28	

What do you notice?

Look at 4, 2 and 28. What strikes you immediately? What feels familiar from what you have already explored today?

What can you explain?

Choose one connection between these three numbers and explain it as clearly as you can. Write it in your Time Capsule so future-you can see how you thought about it today.

What do you wonder?

Write one question about 4, 2 or 28 that you cannot answer yet. Seal it in your capsule. Return to it in 2028. That question is the first step on next year's treasure hunt.

The treasure was never the answer. The treasure was always the thinking.

A Note for Teachers

This project pack has been designed with a small number of deeply held beliefs about how mathematics should feel for children. It is worth naming them explicitly, so that the design of each activity makes complete sense in context.

1 Exploration over explanation

Every activity in this pack is designed to open up thinking rather than funnel pupils towards a predetermined conclusion. The best mathematical experiences feel like genuine discovery — because they are.

2 Representation as a thinking tool

We deliberately offer multiple representations of each number — physical, visual, symbolic — because different representations unlock different thinking. A child who is stuck with symbols may find immediate fluency with objects.

3 Low floor, high ceiling

Every task in this pack is accessible from the very beginning and has no upper limit on thinking. This is not accidental — it is the central design principle. No pupil should feel the task is beyond them, and no pupil should feel they have exhausted it.

4 Oracy as mathematics

Talking about mathematics is not a supplement to mathematical thinking — it is a form of it.

When pupils explain, argue, and question aloud, they are not preparing to do mathematics — they are thinking mathematically. Create space for this generously and without apology.

5 Beauty and curiosity as goals

We want pupils to leave Number Day 2027 having experienced mathematics as something beautiful, surprising, and genuinely interesting. This is as important as any specific skill or concept.