Math magic tricks for kids: five that are arithmetic in a cape

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Five mind-reading magic tricks for kids that are really maths: place value, the nine times table, binary and odd-and-even, with why each one works.

The oldest trick in mind reading is that there is no mind reading. There is arithmetic, wearing a cape, and a magician who knows which bit of it does the work.

That makes this shelf unusual among magic tricks for kids: you can hand the whole secret over and the trick survives. A child who knows why the Magic Number 1089 works can still perform it on a grown-up, and the grown-up is still startled. The Magician's Code says keep the secret, and the shop keeps it — but on this shelf the secret happens to be a maths lesson, so every page carries a "why it works" box for anybody who asks.

I built the Peabody Magic Shop this week: eighty tricks done with things already in the house. Sixteen live in the Mind Reader's Corner, and these five (one borrowed from the Coin Counter) are the ones where the maths is worth as much as the trick. The shop's whole maths table, with a year group for each, is further down.

Five tricks and what is actually happening

- Trick: The Magic Number 1089 · What it looks like: You predict a number they built from their own digits · What it really is: Place value: reversing and subtracting always lands on 1089
- Trick: The Secret Number Cards · What it looks like: Six cards tell you a number they only thought of · What it really is: Binary — the way computers count
- Trick: The Lightning Calendar · What it looks like: You add nine dates faster than anyone can check · What it really is: The nine times table, and a square's middle
- Trick: The Heads or Tails Mind Reader · What it looks like: You name a coin you cannot see · What it really is: Odd and even, and what flipping does to a count
- Trick: The Birthday Mind Reader · What it looks like: You name a birthday from a string of sums · What it really is: Multiplying by a hundred, with a constant left over

The one I would teach first

The Lightning Calendar. Draw a month, let somebody ring any three-by-three block of dates, glance at it, and say the total of all nine before they have added the first row.

The method is: look at the middle number and multiply by nine. That is the whole thing.

Why it works is the good part, and a nine-year-old can see it in about a minute. In any

three-by-three block the numbers sit evenly around the middle one — whatever you take off on one side you add on the other. Pair them across the middle and every pair comes to twice the middle number. Four pairs plus the middle itself is nine middles.

What makes it play so well is that checking it takes the audience a while, adding nine numbers one by one, and every second of that belongs to the magician.

Binary, which nobody calls binary

The Secret Number Cards is six cards covered in numbers. Somebody thinks of a number from 1 to 60, hands back every card it appears on, and you add the first number on each card they gave you.

It works because every number can be built out of 1, 2, 4, 8, 16 and 32 in exactly one way, which is the same fact a computer runs on. Handing back the cards is literally telling you which pieces the number is made of.

Children who have met binary at school recognise it immediately and are slightly annoyed. Children who have not meet it here first, as a trick, which is a much better introduction than a worksheet. The cards are on the printables page to cut out.

Which grade each one fits

The shop keeps this table for teachers. The maths and year group come from it; the level, ages and learning time are each trick's own.

- Trick: The Answer Is Always 3 · The maths in it: Doing and undoing: inverse operations · Year group: Years 2 to 4 · Level: Apprentice · Ages: 6 to 11 · Learn it in: 2 minutes
- Trick: The X-Ray Dice · The maths in it: Opposite faces of a die always add to seven · Year group: Years 2 to 4 · Level: Apprentice · Ages: 5 to 10 · Learn it in: 3 minutes
- Trick: The Countdown Card · The maths in it: Counting on and back to the same place · Year group: Years 2 to 4 · Level: Apprentice · Ages: 6 to 11 · Learn it in: 5 minutes
- Trick: The Knuckle Calendar · The maths in it: Months and days, and a pattern you can feel · Year group: Years 2 to 4 · Level: Apprentice · Ages: 6 to 10 · Learn it in: 5 minutes
- Trick: The Heads or Tails Mind Reader · The maths in it: Odd and even, and what one change does to a count · Year group: Years 2 to 4 · Level: Conjurer · Ages: 7 to 12 · Learn it in: 10 minutes
- Trick: The Nine Times Fingers · The maths in it: The nine times table, and why the digits of 9 × n add to 9 · Year group: Years 3 to 5 · Level: Apprentice · Ages: 7 to 11 · Learn it in: 5 minutes
- Trick: The Magic Clock · The maths in it: Counting round a dial: arithmetic that wraps · Year group: Years 3 to 5 · Level: Conjurer · Ages: 7 to 12 · Learn it in: 10 minutes
- Trick: The Lightning Calendar · The maths in it: The nine times table, and the middle of a square · Year group: Years 3 to 5 · Level: Conjurer · Ages: 8 to 13 · Learn it in: 15

minutes
• Trick: The Magic Number 1089 · The maths in it: Place value, and reversing a three-digit number · Year group: Years 4 to 6 · Level: Apprentice · Ages: 7 to 12 · Learn it in: 5 minutes
• Trick: The Secret Number Cards · The maths in it: Binary: every number built from 1, 2, 4, 8, 16, 32 · Year group: Years 4 to 6 · Level: Apprentice · Ages: 7 to 12 · Learn it in: 10 minutes
• Trick: The Calculator Prediction · The maths in it: Factors, and why 12345679 × 63 does that · Year group: Years 5 to 7 · Level: Apprentice · Ages: 6 to 11 · Learn it in: 3 minutes
• Trick: The Birthday Mind Reader · The maths in it: Multiplying through brackets, and a constant left over · Year group: Years 5 to 7 · Level: Conjurer · Ages: 8 to 13 · Learn it in: 10 minutes
• Trick: The Book Test · The maths in it: Place value again: why every reversal sum lands on 1089 · Year group: Years 6 to 8 · Level: Conjurer · Ages: 10 to 13 · Learn it in: 15 minutes
• Trick: The Instant Magic Square · The maths in it: Adding rows, columns and diagonals; working with an unknown · Year group: Years 6 to 8 · Level: Conjurer · Ages: 10 to 13 · Learn it in: 20 minutes

I have sorted it youngest maths first.

The two age columns measure different things. The year group is the maths: roughly when a class meets that topic. The ages are the performance: who can follow the steps, which is why the Calculator Prediction fits a six-year-old although its why belongs in Years 5 to 7. Performing comes first; the why can wait.

The year groups are rough on purpose: a trick is not a scheme of work. Eleven of the fourteen take ten minutes or less to learn.

The classroom Top 10 takes the first ten rows of the shop's table, and the maths hiding in magic guide has all fourteen.

A note on "why it works"

Every trick on this shelf has a box explaining the maths, and so do the two maths tricks that live elsewhere, the Countdown Card and the Heads or Tails Mind Reader. The box is deliberately not hidden behind the same tap the secret is. The method of a sleight-of-hand trick is a magician's property. The distributive law is not.

A child who asks "but why" about a magic trick is doing the thing we want children to do about everything, and answering "a magician never tells" would be the wrong lesson at exactly the wrong moment.

For a classroom

These need nothing a school does not have: paper, a calculator, a handful of coins, a calendar on the wall. Each takes a few minutes, the explanation is on the page in a child's words, and the performance gives every child in the room a reason to do the arithmetic carefully — which is the part a worksheet cannot buy.

The science magic tricks do the same job for surface tension and air pressure.

Peabody (peabody.kids) is free through the end of 2026, the Magic Shop needs no sign-up, and a child's badges are kept on their own device rather than in an account. If you would rather Flick chose, Pick me a trick asks four three-box questions and hands over one trick.

Free at peabody.kids/blog/math-magic-tricks-for-kids