

MATH · Y3–Y6

Number Puzzles & Brain Teasers

KS2 maths challenge pack

Magic squares

1. A 3×3 magic square uses numbers 1–9, each exactly once, with every row, column, and diagonal summing to 15. The centre must be 5. Place: 2 in top-middle, 4 in left-middle, and complete the square.
2. What is the magic total for a 3×3 magic square using numbers 2–10? (Answer: 18)
3. Can you make a 4×4 magic square using numbers 1–16? What is the magic total? (Answer: 34)

Number chains

1. Start at 100. Halve it. Add 13. Multiply by 4. Subtract 102. What do you get? (Answer: $100 \rightarrow 50 \rightarrow 63 \rightarrow 252 \rightarrow 150$)
2. I start with a number. I double it, add 10, halve the result, then subtract my original number. The answer is always the same. What is it — and why? (Answer: always 5, because algebra: $n \rightarrow 2n \rightarrow 2n+10 \rightarrow n+5 \rightarrow 5$)
3. What starting number gives a final answer of 24 in: start $\rightarrow \times 3 \rightarrow +6 \rightarrow \div 3 \rightarrow -2 = 24$? (Work backwards: $26 \times 3 = \dots$ solve step by step)

Classic brain teasers



1. If 5 machines make 5 widgets in 5 minutes, how long does it take 100 machines to make 100 widgets? (Answer: 5 minutes — each machine makes 1 widget in 5 minutes)
2. How many months have 28 days? (Answer: all 12 — this is a trick question)
3. A clock shows 3:15. What is the exact angle between the hour and minute hands? (Answer: 7.5° — minute hand at 90° , hour hand at 97.5°)
4. You have 12 identical-looking balls. One is slightly heavier. Using a balance scale exactly 3 times, identify the heavy ball. Describe your strategy. (Classic — work through the logic)
5. If you have a 3-litre and 5-litre container and unlimited water, how do you measure exactly 4 litres? (Fill 5, pour into 3, empty 3, pour remaining 2 into 3, fill 5 again, pour into 3 until full — 4 left in 5)

