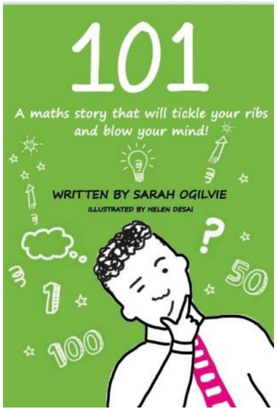

Number flexibility with '101'

101 is based on a true story: Carl Gauss, a young pupil, solved a seemingly enormous maths problem very quickly. As an adult, Carl became one of the world's greatest mathematicians. Ideal for Years 5 and 6, Carl's solution inspires pupils to explore patterns in long number sequences and use them for efficient calculations.

These tried-and-tested ideas are for inspiration and adaptation to your style and pupils' needs.

Before Introducing 101

- Look at a 1–100 grid/number line. How many whole numbers? If you added all 100 numbers, what would the total be? Everyone estimates on post-its for display. *(Discuss estimation benefits so pupils don't see being "wrong" as failure.)*
- In pairs, find the total of 1–10 using any method. Share methods. Highlight those using number bonds.
- Using number cards 1–10, make:
    - 5 pairs with all different totals
    - 2 totals the same, 3 different
    - 3 totals the same, 2 different
    - 4 totals the same, 1 different
    - 5 totals the same (pairs total 11 → 11 × 5 = 55).
    - Discuss efficiency for proving 1–10 totals 55.
- Extend: How to total 1–20? Explore with cards (21 × 10 = 210).
- **Cuisenaire rods:** 1 set of 10 rods. Pair up so all pairs have equal total length (to make a cuboid) Compare to 5 totals the same with number cards.

Introducing the Story

- True story of a 10-year-old pupil in a maths class a bit like yours.

During the Story

- Why are pupils frustrated? How would you feel in Mr B's class? Was the task fair? What would you do first?
- Why does Mr B want Carl's working?

- After 3 + 98, what might Carl's next 3 calculations be? Why? Is Carl's solution convincing? Anything else to know?
- Did Carl keep going until all numbers were used? Why/Why not?
- Pearl asks: How many 101s will there be? (Some may think 100—explore together.)
- In pairs, predict how many 101s and why. (A useful comparison here is to think about pairing socks!)
- Read to end: Are we surprised?

After the Story

- Explore why Carl's method proves correctness without 50+ calculations. Why is it more efficient than adding one by one?
- Compare Carl's solution to 1–10 and 1–20 totals from earlier.

Paired Task

- In pairs, choose a poster heading:
  We can find the total of the whole numbers from [1–10, 1–20, 1–30…1–100, 1–200] and we can prove it!
- Pupils choose sequences for consolidation or challenge. Posters explain how to total a long sequence.

Going Further

- Totals of even numbers (2–20) or odd numbers (1–30). Is it easier with an even or odd count? Why?
- Create your own sequence (e.g., multiples of 3 up to 120). Find and prove the total.
- Collate poster findings into a line graph: What patterns appear? How can the graph prove answers? What happens if a wrong total is added?

101 is a cross-curricular resource - PSHE, maths, history and English (due to the rhyming couplets throughout). If you have any questions on these activities, any feedback or ideas of your own that you'd like to share, do get in touch – I would love to hear from you!

Sarah Ogilvie

101 can be purchased from so-nimble-books.com It is not available on Amazon.

Standard price £5.99
6 pack £33.00 (£5.50 each)
15 pack £75.00 (£5 each)
30 pack £135.00 (£4.50 each)

SO NIMBLE BOOKS