

INBETWEENY BITS

From *The Numverse* **by** Andy Day

Do: Put a number line on the floor.

Or you could lay it out on tables and all gather round. Just make sure there are some big spaces between the numbers. Children may have comments before you even start, just from what they have seen so far. Hear them out in case you can use them as a starting point. Before long, though, you are going to ask:

Say:

- ✓ Is there anything in-between the numbers?
- ✓ What are the points in-between the numbers? Are they numbers too?
- ✓ How many are there between each number?
- ✓ What can we call them (to tell them apart from each other)?

After discussing this with each other they might all say that there is nothing between the numbers. If so, move on to the example below. If they do come up with ideas for what is in-between, ask them what kind of thing is between, say, 1 and 2. Is it a number? Or something else?

Do:

Have the numbers represent age, so that someone starts at zero when they are born and moves along the line. Use a toy or similar figure as a counter to show someone moving along and getting older.

Say:

On your fifth birthday you are 5. After that do you go straight from 5 to 6? How old are you in-between? What happens during that year?

Sooner or later someone will come up with 'five and a half' as an in-between point (if they don't, put your counter in the right position to elicit it). Get the child to show on the number line where that is, if you haven't already.

Do:

Bring in another figure to represent another child. Put the two figures in slightly different places on the line, always between two whole numbers.

Say:

How can we say what the difference is in their age?

Someone will probably come up with the idea of splitting the year into months as a way of comparing the gaps between the ages of the two figures (and if no one does, bring in birthdays as a clue). This is perfect because now they are talking about fractions without realising it. At this point (or earlier if you had to), you could bring in the birth dates of the class. If we are comparing their ages, we will need our fractions (i.e. days, weeks, months) to say who is older or younger.

Do:

Write up all the ages of the children in the class in this form:

Lucy – 8 years and 4 months

Laila – 8 years and 7 months

Say:

How can I write these ages using just numbers, without words?

All they need to do is switch to using the word 'twelfth' and writing it: $\frac{1}{12}$. A twelfth is what you get when you divide something by twelve. We can use these to talk about what is in-between the whole numbers.

KEY WORDS: KNOWN TO UNKNOWN

The best piece of advice I ever had on teaching was in Zimbabwe when I was a 19-year-old, enthusiastic but unskilled temporary teacher in a primary school. During breaks the male teachers would stand around in the open air and chat in one group, while the women stood or sat in another circle. One of the women, the headmaster's wife, was often knitting, but I never heard much of what the women were discussing. The men discussed either politics or teaching. One day my colleague, Mr Pfunde, told me, 'Teaching is taking people from the known to the unknown.'

It doesn't sound very profound or earth-shattering. But the bit people forget is that you have to *start with the known*. Learners have to link new ideas to ideas that

are already in place, and too often we start by introducing the unknown and don't give enough thought to the links and comparisons we can make to what is known. Without these the new concept is floating in space, and even if you succeed in teaching children to operate that concept in a particular way, they fail to apply it in other contexts or make it part of their toolkit for solving problems.

The activity in this chapter (and the next one, too) is an example of 'the known to the unknown'. We are digging into their knowledge of time and dates – that is the known. The unknown here is the idea of the fraction.