

# Eleventh Heaven

You need  a classmate

a calculator (optional)

## Activity

1.
  - a. Multiply 15, 25, 35, and 45 by 11. (You can use your calculator for this.)
  - b. With a classmate, look for a pattern in the equations.

Toby worked out the answers to 11 times a two-digit number like this:



Give me a two-digit number to multiply by 11.

OK, try  $26 \times 11$ .



???

Let's see ...  
The 2 becomes the hundreds digit and the 6 becomes the ones digit, so it's 2\_6.

Yes, but what is the tens digit?



2?6



To get the tens digit, I add the 2 and the 6 to get 8. So the answer is 286.

Hey, that's right! How did you know that?

$$\begin{array}{r} 2 + 6 = 8 \\ 286 \end{array}$$

2. Use Toby's method to answer:
  - a.  $36 \times 11$
  - b.  $43 \times 11$
  - c.  $52 \times 11$
3.
  - a. How does this pattern work? Can you explain it?
  - b. Are there two-digit numbers that this pattern will not work for? Discuss this with a classmate.
4. Find ways to remember your "teen times tables". For example, how would you work out your 19 times table?

