

Number Patterns

You need a classmate

The 11 times table is so cool. I know mine up to 9, straight off.

Activity

1. Giulio and Aimee are investigating number patterns. They talk about the 11 times table.

- What do you think Giulio does to get his answers?
- Aimee made a table up to 31 like the one below. Complete the table.
- What do you think Aimee does to get her answers after 9×11 ?

I know an easy way to get ones like 20×11 and 30×11 .

Number to multiply by 11	Product
10	110
11	121
:	:
30	330
31	341

2. Aimee is trying to work out 40×25 . She knows that double 25 is 50 and double 50 is 100, so there are four 25s in 100.

So if I work out how many 4s in 40, that'll give me the number of hundreds. $40 \div 4 = 10$, so $40 \times 25 = 10$ hundreds. That's 1 000. I'm really dividing by 4 and multiplying by 100.



Then she tried 126×25 .

I'll work out how many 4s in 126 to give me the number of hundreds.
 $12 \div 4 = 3$, so $120 \div 4 = 30$, so $120 \times 25 = 30$ hundreds.
There are six 25s left over; that's 1 more hundred and two 25s.
So $126 \times 25 = 3\ 000 + 100 + 50$
 $= 3\ 150$.

Aimee's method:

$126 \div 4 = 31$ and 2 remainder
So $126 \times 25 = 31$ hundreds and two 25s
 $= 3\ 100 + 50$
 $= 3\ 150$

Use Aimee's method (four 25s = 100) to complete these equations:

- a. $60 \times 25 =$ b. $800 \times 25 =$ c. $84 \times 25 =$
d. $176 \times 25 =$ e. $365 \times 25 =$ f. $647 \times 25 =$
g. $36 \times 250 =$ h. $12 \times 2\ 500 =$ i. $48 \times 2.5 =$
j. $20 \times 0.25 =$

That's great. I wonder if there's a way to do the 125 times table?

- 3.** Giulio doubles 125 until he comes to 1 000.
He finds there are 8 lots of 125 in 1 000.

So $16 \times 125 = 2\ 000$ because $16 \div 8$ is 2
and that gives the number of thousands.

Giulio's method:

42×125 would be $(42 \div 8)$ thousands.
 $(42 \div 8) = 5$ plus 2 remainder,
so $42 \times 125 = 5\ 000 + (2 \times 125)$
 $= 5\ 000 + 250$
 $= 5\ 250$



Use Giulio's method to complete these equations:

- a. $24 \times 125 =$ b. $80 \times 125 =$
c. $44 \times 125 =$ d. $97 \times 125 =$
e. $168 \times 125 =$ f. $346 \times 125 =$



What about the 20 times table?
I bet there's an easy way for that.
And for the 200 times table?



Work out an easy way to do the 20 and 200 times tables and use it to complete these equations:

- a. $23 \times 20 =$ b. $432 \times 20 =$
c. $51 \times 200 =$ d. $36 \times 200 =$
e. $253 \times 20 =$ f. $319 \times 200 =$

That would make the 50 and 500 times tables a breeze too!
But you could also use halving.



- a. Discuss with a classmate what Giulio means and work out an easy strategy for doing the 50 and 500 times tables. (Using a table might help you to see the pattern.)
b. Use your 50 and 500 times strategy to complete these equations:

- i. $26 \times 50 =$ ii. $64 \times 50 =$
iii. $48 \times 500 =$ iv. $120 \times 500 =$
v. $16 \times 49 =$ vi. $24 \times 496 =$



Use your different strategies to complete these equations:

- a. $27 \times 11 =$ b. $124 \times 25 =$
c. $18 \times 125 =$ d. $342 \times 20 =$
e. $816 \times 50 =$ f. $136 \times 25 =$
g. $83 \times 125 =$ h. $432 \times 500 =$

