In one move

Time 15–20 minutes

Is not confident in making reasonable estimates for multiplication or division calculations

Resources

- Children in pairs (or use with the whole class)
- Calculator for each child

Check: does the child use key vocabulary?

number pattern   more than

less than

How to play

1. Set a task, for example:

   'Key in 200. In one move (one operation, either × or ÷ , a number and the = key) make your display read 20.'

   Children can press cancel at any time if they want to – but not so that they can just key in 20!

2. Ask children what they did. You can record for them.

   > If you multiply 200 by 2 the answer is 400 so the answer is bigger than the 200 we started with.
   >
   > But, if you multiply the 200 by a number less than 1, for example 0.5, you end up with an answer (100) that is less than the 200 you started with.
   >
   > So using the × key doesn't always make the answer larger.

3. Repeat with the ÷ key.

4. Once children are used to the game, you can introduce a scoring method, maybe 0.1 for each time a player does the task 'in one move'.

5. Encourage children to look for patterns.

$10 \times 0.1 =$	$100 \div 0.2 =$
$100 \times 0.1 =$	$10 \div 0.2 =$
$1000 \times 0.1 =$	$1 \div 0.2 =$

Variations

- Encourage children to make up challenges for each other, for example, start with 10 on the screen and just use the division key. Can you in one move make the screen read 100?
- Challenge children to make a long pattern using similar numbers, for example:
  If you start with 3000×0.3, can you make patterns using 300, 30 and 3? What if you start with 300 again but this time × by 0.1?

Learning outcomes

By the end of a set of related activities children should be able to:

- tackle related learning tasks with increased motivation and confidence;
- use and understand connected mathematical vocabulary;
- understand the effects of multiplying and dividing by numbers less than one.