



### WHERE CAN WE VISIT?

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25

Choose your number to start and shade it on the grid.

To go to another number you can either MULTIPLY BY 2 or SUBTRACT 5

So if you start on 12, you can either shade  $12 \times 2 = 24$  or  $12 - 5 = 7$

Next choose any shaded number and carry on until you can't get to any numbers except numbers already shaded.

Record your results.

1. Choose another number to start. Which numbers can you visit?
2. Can you find a starting number that takes you to all the numbers in the grid?
3. What happens if you use a grid for 1 to 100?
4. Describe at least one pattern that you notice.
5. This puzzle starts with a  $5 \times 5$  square of numbers and you can either  $\times 2$  or  $-5$ . Invent a new puzzle by slightly changing something in the rules of this puzzle. Tell us about your puzzle.

### Help

You should have no difficulty with doubling or subtracting 5, but may find it more difficult to spot the patterns involved. So use coloured arrows to represent **repeated** subtractions of 5 on some grids (each starting from a different number). It may help you to see the patterns.

### Extension

Try other pairs of operations like  $\times 3 - 5$  or  $\times 4 - 5$  or  $\times 5 - 5$  or  $\times 6 - 5$ .