

### As outcomes, Year 5 pupils should, for example:

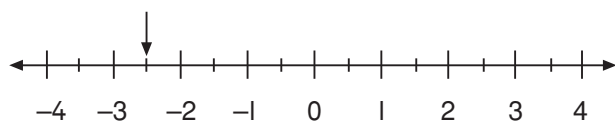
Use, read and write, spelling correctly:  
*integer, positive, negative, minus, above/below zero...*

Recognise negative numbers on a calculator.  
Use the constant function to generate sequences of negative numbers.

Count back through zero, for example:  
*seven, three, negative one, negative five...*

Respond to questions such as:

- Put these numbers in order, least first:  
-2, -8, -1, -6, -4.
- What number is the arrow pointing to?



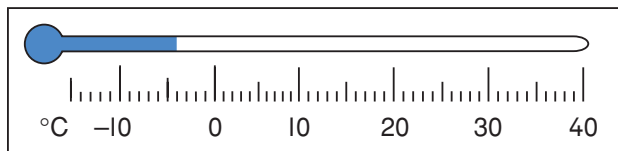
- Here is a row of six cards. Three cards are blank. Write a whole number on each blank card so that the six numbers are in order.



- If  $-7 < \square < -4$ , what integer could  $\square$  be?

Use negative numbers in the context of temperature.  
For example:

- What temperature does this thermometer show?



- The temperature rises by 15 degrees. Mark the new temperature reading on the thermometer.
- The temperature falls from 11 °C to -2 °C. How many degrees does the temperature fall?
- The temperature is 6 °C. It falls by 8 degrees. What is the temperature now?
- The temperature is -3 °C. How much must it rise to reach 5 °C?
- What is the difference in temperature between -4 °C and 14 °C?

Use negative numbers in other contexts such as:

- A diver is below the surface of the water at -30 m. He goes up 12 metres, then down 4 metres. Where is he now?

### As outcomes, Year 6 pupils should, for example:

Use, read and write, spelling correctly:  
*integer, positive, negative, minus, above/below zero...*

Respond to questions such as:

- Put these integers in order, least first:  
-37, 4, 29, -4, -28.
- In this equation,  $\square$  and  $\triangle$  represent whole numbers.

$$\square + \triangle = 17$$

Make a table of their possible values.  
Is there a pattern?

- Plot these points on a co-ordinate grid:  
(5, 4) (5, 8) (-3, 4) (-3, 8)  
What shape do they make?  
What is the length of its perimeter?

See also plotting co-ordinates (page 109).

Use negative numbers in the context of temperature.  
For example:

- The temperature is -5 °C. It falls by 6 degrees. What is the temperature now?
- The temperature is -11 °C. It rises by 2 degrees. What is the temperature now?
- The temperature at the North Pole is -20 °C. How much must it rise to reach -5 °C?
- Draw a line graph to show these temperatures at 9:00 am each day for a week:  
-2 °C, +3 °C, -1 °C...

Use negative numbers in other contexts such as:

- Lena set herself a target of 1 metre for her high jump. She recorded each attempt in centimetres above and below her target.

+2	-3	+2	-2	0	-1
----	----	----	----	---	----

What was her highest (best) jump?  
What was her lowest jump?  
What was her average jump?

## NUMBERS AND THE NUMBER SYSTEM

### Pupils should be taught to:

Recognise and extend number sequences formed by counting on and back in steps of any size, extending beyond zero when counting back

### As outcomes, Year 4 pupils should, for example:

Use, read and write:

*next, consecutive, sequence, predict, continue, rule, relationship... sort, classify, property...*

Count on and back. For example:

- From any number, count on in 2s, 3s, 4s, 5s to about 100, and then back.
- Count back in 4s from 40.  
What happens when you get to zero? Can you go on?  
What happens if you start at 39?
- Count in 25s to 500, then back.

Describe, extend and explain number sequences and patterns. For example, respond to questions like:

- What are the next three numbers in each sequence?  
38, 47, 56, 65...                      135, 137, 139, 141...  
48, 41, 34, 27...                      268, 266, 264...  
Explain the rule.

- Fill in the missing numbers in this sequence.  
Explain the rule.  
□, □, 45, 49, □, 57, 61, □

- Take a  $6 \times 6$  number grid.  
Count on in 4s from 0.  
Shade the numbers you land on.  
What do you notice?

If you went on, would 44 be in your sequence? Or 52?  
How do you know?

What happens if you start at 2?  
Is the pattern the same?

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	26	27	28	29	30
31	32	33	34	35	36

Now try a  $5 \times 5$  or a  $10 \times 10$  number grid.

- What do you notice when you count from zero in:

twos	fours	eights
2	4	8
4	8	16
6	12	24
8	16	32

(4s are double 2s; 8s are double 4s.)

- Count on or back from any number in steps of any single-digit number. Predict what will come next each time.  
What do you notice?

Now try steps of 11.

**See also negative numbers (page 14) and adding or subtracting 10, 100 or 1000 (page 4).**