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Negative numbers

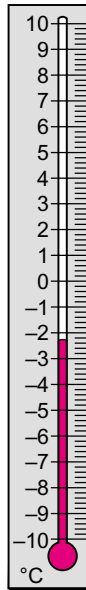
● Temperatures on a thermometer

Temperatures on a thermometer can be positive or negative.

Numbers more than 0 are positive numbers.
e.g. 5, 10, ...

Numbers less than 0 are negative numbers.
e.g. -5, -10, ...

-10°C is less than -5°C, as it is lower down the thermometer.
You can write this as $-10 < -5$.



Numbers getting bigger:
temperatures getting hotter.

Numbers getting smaller:
temperatures getting colder.

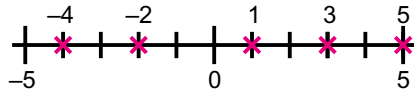


● Ordering negative numbers

You can order these:

-2, 3, 1, -4, 5

on a number line.

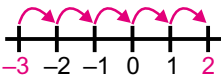


In order, smallest first: -4, -2, 1, 3, 5

● Adding & subtracting negative numbers

Count on when you add.

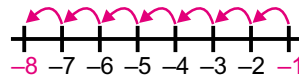
$$-3 + 5 = 2$$



Start at -3 and go on 5.

Count back when you subtract.

$$-1 - 7 = -8$$



Start at -1 and go back 7.

1 Look at the thermometer. Which is smaller, 5 or -10?

2 Put these in order, smallest first: 2, 0, -4, -5, 3

3 Show on a number line: **a** $-8 + 3$ **b** $-2 - 3$

Frequency tables

● Frequency tables

Frequency tables display data that has been counted.

► Q & A

Here are the favourite colours of 20 people.

red, red, blue, green, blue, green, blue, blue, red, green, red, red, blue, green, blue, red, green, blue, red, red

Show the data in a frequency table.

Answer

Use a tally column to help you count.

Colour	Tally	Frequency
Red		8
Blue		7
Green		5
Total		20

Write the tallies as numbers in the frequency column.

Total the numbers in the frequency column. This helps make sure you haven't made a mistake. The question said 20 people so this is correct.

► Tallies



Always use tallies when you are counting items of data. You should group your tallies in fives.

● Grouping data

If you are given a long list of numbers, you can **group** the numbers into intervals such as $20 \leq n < 30$.

For example, this list:

22, 14, 15, 23, 33, 14,
37, 36, 22, 25, 31, 6,
13, 8, 23, 23, 30, 20

is shown in the frequency table.

Number, n	Tally	Frequency
$0 \leq n < 10$		2
$10 \leq n < 20$		4
$20 \leq n < 30$		7
$30 \leq n < 40$		5
Total		18

Note: 20 belongs to $20 \leq n < 30$, not $10 \leq n < 20$.

Show this data in a frequency table (group as in the example above): 20, 12, 3, 45, 32, 9, 12, 5, 23, 25, 32, 31, 40, 32, 12, 33

TEST