# Numeracy Entry Level 3 – Positive and Negative Numbers

1 of 20 – Welcome

Welcome to this session on positive and negative numbers.

By the end of the session you will be able to:

* Identify practical situations in which negative numbers are used
* Measure temperatures above and below zero
* Compare positive and negative numbers

2 of 20 – Positive and negative numbers

Do you know what positive and negative numbers are?

A **negative number** is less than zero. When we write negative numbers we put a **negative sign** before the digit. Sometimes negative numbers are called minus numbers – be careful not to confuse these with subtraction. For example: -2, -13 and -18 (these numbers all have a negative sign before the digits).

A **positive number** is more than zero. Unlike negative numbers, you do not need to put a sign in front of positive numbers. For example, 3, 29, 14 (these do not have a negative sign).

3 of 20 – Negative numbers in real life

You probably come across negative numbers every day but may not have noticed!

Here are some examples of negative numbers used in everyday life:

* Lift floors are labelled as negative numbers if they are below floor level
* A bank statement will show money taken from your account as a negative number
* A freezer thermometer will show the temperature as a negative number

4 of 20 – Question 1

Which of the following real life situations could include positive and negative numbers?

Choose all that apply:

1. The outside temperature in Celsius
2. The length of a room in metres
3. The weight of a bag of sugar in kilograms
4. The balance of a current account
5. The length of a meeting in minutes

The correct answers are A and D, the outside temperature in Celsius and the balance of a current account.

5 of 20 – Question 2

Which of the following real life situations only include positive numbers?

Choose all that apply:

1. The floors of a building when using a lift
2. The length of a film in minutes
3. The capacity of a bath in litres
4. The height of a person in centimetres
5. The price of a book

The correct answers are B, C, D and E, the length of a film in minutes, the capacity of a bath in litres, the height of a person in centimetres and the price of a book.

6 of 20 – Using number lines

A number line is a useful tool to help you work with positive and negative numbers.

For example, consider a line marked with numbers all the way across. The numbers range from -5 to 5, so would show the following numbers: -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5.

However, you can draw a number line for any range of numbers. For example from 9 to 18, or from 2 to 11.

7 of 20 – Addition using a number line

You can use a number line to help you add numbers together.

For example, consider a number line marked from -5 to 5. To work out 1 + 3, you would find the number 1 on the number line.

Add the 3 by moving right along the number line 3 places.

The answer is where you end up on the number line: 1 + 3 = 4.

8 of 20 – Subtraction using a number line

You can also use a number line to help you subtract.

For example, consider a number line marked from -5 to 5. To work out 1 minus 3, find number 1 on the number line.

Subtract the 3 by moving left along the number line 3 places.

The answer is where you end up on the number line: 1 minus 3 = -2.

9 of 20 – Question 3

Suzy has £9 in her bank account when a bill comes in for £16. When the bill is paid, what will her balance be?

Use the number line method to help you work out the answer and then check it with the correct answer below.

The correct answer is: **-7**.

10 of 20 – Comparing positive and negative numbers

Comparing numbers means identifying if two numbers are:

* Greater than
* Less than
* Equal to each other

Let’s look at some examples to understand this more.

**Example 1**

4 is greater than 1 is written like this: $4>1$ (the number 4, the greater than sign and the number 1). Notice that the larger number goes to the left of the ‘greater than’ symbol.

**Example 2**

If we swap the numbers round we must use the less than symbol: $1<4$ (the number 4, the less than sign and the number 1). Notice that the smaller number goes to the left of the ‘less than’ symbol.

**Example 3**

3 is equal to 2 + 1 is written like this: 3 = 2 + 1. It does not matter which side of the equals sign the two parts go.

11 of 20 – Using a number line to compare numbers

Number lines can be useful for helping us to compare positive and negative numbers. This is because the numbers on the right of the number line are always bigger than the ones on the left.

For example, consider a number line ranging from -5 to 5, which shows the following numbers: -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5. Using the number line, we can easily see that -3 is bigger than -5, because numbers to the left are smaller than numbers to the right.

12 of 20 – Video

Watch the following video to learn more about how to compare negative numbers:

[Math Antics – Negative Numbers](https://www.youtube.com/embed/OAoLCXpao6s?autoplay=1&rel=0&start=0&modestbranding=1&showinfo=0&theme=light&fs=0&probably_logged_in=0)

13 of 20 – Question 4

Is -3 more or less than 0?

1. More
2. Less

The correct answer is B, less.

14 of 20 – Question 5

Using the following choice of symbols; **less than**, **greater than** or **equal to**, fill in the blanks for the calculations below:

-4 **blank** -1

-7 **blank** -9

The correct calculations should read:

-4 **less than** -1

-7 **greater than** -9

15 of 20 – Temperatures

Temperature is a common example of negative numbers being used in everyday life.

A number line can help us to understand changes in temperature.

For example, consider a number line from -10 to 10. If the overnight temperature fell to −4°C, and by midday it had risen to 7°C, then, counting from −4 up to 7 on the number line, the temperature has gone up by 11°C.

16 of 20 – Question 6

The temperature in Rome is 5°C and the temperature in Paris is -1°C. How much colder is it in Paris than Rome?

Use the number line method to help you choose the correct answer:

1. It is 6°C colder
2. It is 1°C colder
3. It is 5°C colder
4. It is 4°C colder

The correct answer is A, it is 6°C colder.

17 of 20 – Question 7

At 6pm the temperature was 3°C. By midnight it had dropped to -5°C. How great was the fall in temperature?

Use the number line method to help you choose the correct answer:

1. 5°C
2. 6°C
3. 7°C
4. 8°C

The correct answer is D, 8°C.

18 of 20 – Question 8

At 7am, Joe recorded the temperature in his garden as being -4°C. He went back outside at 1pm and found that the temperature had increased by 9°C. What was the temperature at 1pm?

Use the number line method to help you choose the correct answer:

1. 5°C
2. 6°C
3. 7°C
4. 8°C

The correct answer is A, 5°C.

19 of 20 – Task

Download the accompanying **Positive and Negative Numbers PDF** and answer all of the questions.

Remember to complete and save your work on the PDF document.

20 of 20 – End

Well done. You have completed this session on positive and negative numbers.

You should now be able to:

* Identify practical situations in which negative numbers are used
* Measure temperatures above and below zero
* Compare positive and negative numbers

If you have any questions about any of these topics, make a note and speak to your tutor for more help.