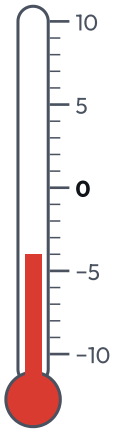
Names (pair) _____ Date _____

Numbers Below Zero

Example



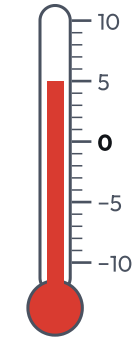
The thermometer shows a temperature **below zero**. We write it with a minus sign: −4 °C. We read it “minus four”.

Temperatures above zero are written without a sign or with a plus: 3 °C or +3 °C.

Zero is neither above nor below.

It is the same with height and depth, floors, a bank balance and points: there are **two directions from zero**.

1 ON YOUR OWN What does each thermometer show?



□ °C



□ °C



□ °C



□ °C

2 IN PAIRS Write as an integer.

a diver is 12 m below the sea surface	
a mountain top is 1,831 m above sea level	
Iva owes 20 euros	
the car park is 2 floors below the ground floor	
the team lost 15 points	
3 seconds before a rocket launch	

Names (pair) _____ Date _____

Remember

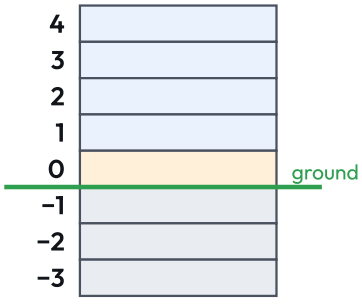
The numbers …, −3, −2, −1, 0, 1, 2, 3, … are **integers**. We write the set of integers as $\mathbb{Z}$. The numbers 1, 2, 3, … are **positive**, and −1, −2, −3, … are **negative**. Zero is neither positive nor negative. Every natural number is also an integer.

3 IN PAIRS The calculation $3 - 5$ has no answer in the natural numbers. In the morning it was 3 °C, and by evening the temperature had fallen by 5 °C. What was it in the evening? Show it on the thermometer.



$3 - 5 =$ ☐ °C

4 IN PAIRS A lift goes from the car park to the roof. Answer using the picture.



a) Ana is on floor 2 and goes down 4 floors. Where is she now? ☐

b) Mark is on floor −3 and goes up 5 floors. Where is he now? ☐

c) How many floors is it from floor −2 to floor 3? ☐

5 ON YOUR OWN True or false?

Zero is a negative number.	**true**	/	**false**
Every natural number is an integer.	**true**	/	**false**
Every integer is a natural number.	**true**	/	**false**

The Number Line app · otooly.com/number-line

Choose the range −10 to 10 and enter the points −4 and 3. Which is to the left of zero, and which to the right?

★ ON YOUR OWN **Exit card.** It was 2 °C, then the temperature fell by 6 °C: ☐ °C