



Measurement (Temperature) and Statistics (Mean)

Vocabulary

negative, positive, temperature, data, intervals, integers, decimals, mean, average, median

L.O. Use negative numbers in context.

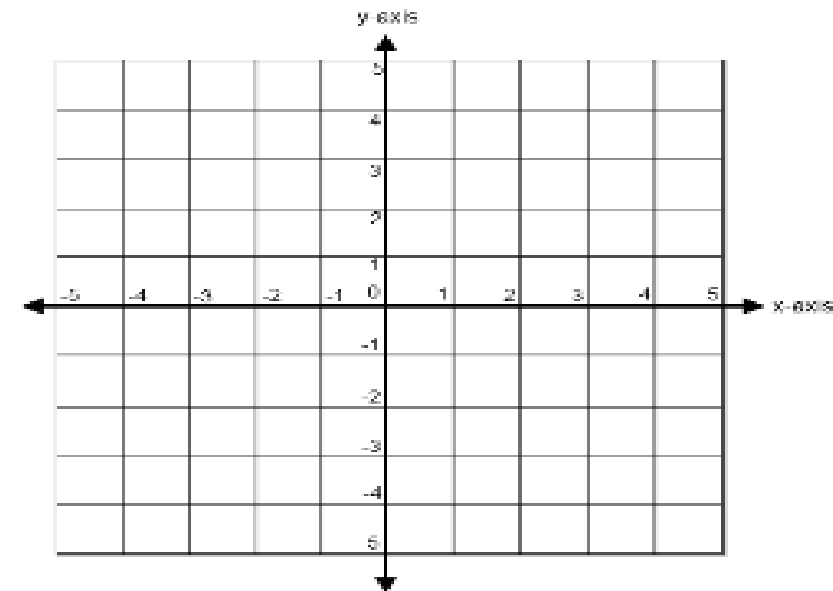
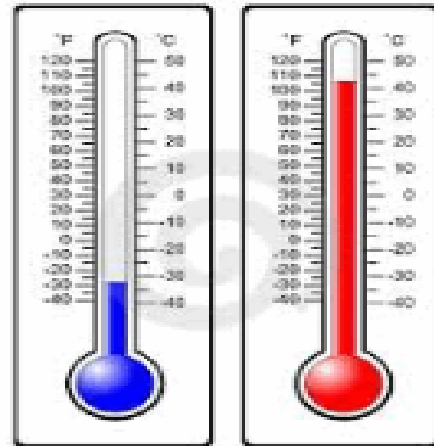
When do we use negative numbers?

Co-ordinates, bank accounts, weather etc...

Bank Statement

Name Ivan Overdraft

Date	Withdrawal	Deposit	Balance
31 Oct		200 . 00	200 . 00
1 Nov	50 . 00		150 . 00
3 Nov	60 . 00	100 . 00	190 . 00
10 Nov	100 . 00		90 . 00
17 Nov	50 . 00		40 . 00
24 Nov	90 . 00		-50 . 00
30 Nov	5.00		-55 . 00



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WEATHER PRESTON

⚠ Weather warnings issued

Further ahead ▶

Mon ⛅ 6°C 0°C 9	Tue ⛅ 5°C -2°C 4	Wed ⛅ 5°C -1°C 8	Thu ⛅ 5°C 3°C 11	Fri ⛅ 10°C 5°C 15
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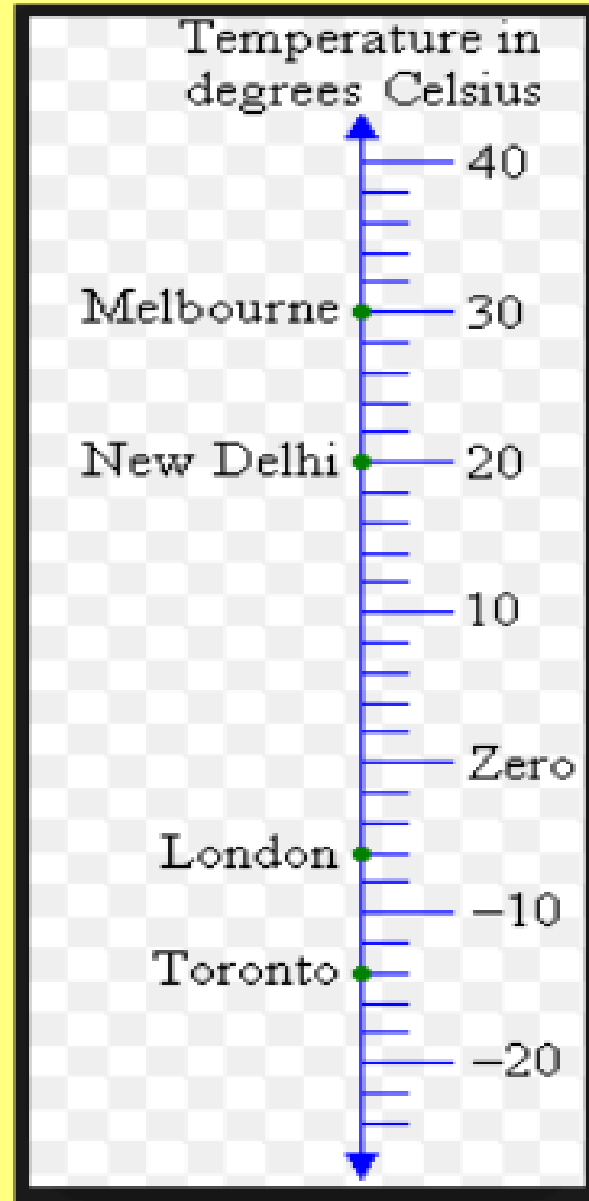
L.O. Use negative numbers in context.

You need to be able to work out rises and falls in temperature using negative numbers.



The temperature in Preston is 13°C colder than New Delhi. What is the temperature?

What is the difference in temperature between London and Toronto?



L.O. Use negative numbers in context.

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

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

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 12°C . What was the temperature at 1pm?

At 6pm, the outside temperature was 7°C . By 6am, the temperature had dropped by 13°C . What was the temperature at 6am?

L.O. Use negative numbers in context.

City	Temp
Algiers	16°C
Barcelona	17°C
London	5°C
New York	7°C
Moscow	−9°C
Oslo	−5°C
Paris	12°C
Sydney	23°C

You could be asked to find the difference in temperature between two cities, eg, Moscow and London.

Moscow is -9°C . London is 5°C .



Starting at -9 , we count up 14 to get to 5. So the difference in temperatures is 14°C .

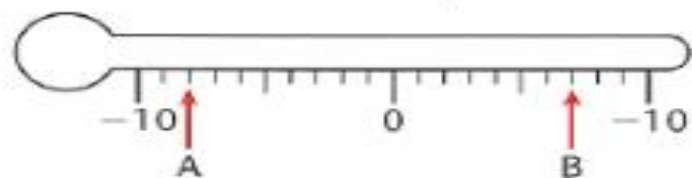
What is the coldest city?

What is the warmest city?

What is the difference in temperature?

L.O. Use negative numbers in context.

Find the difference in temperature between A and B.

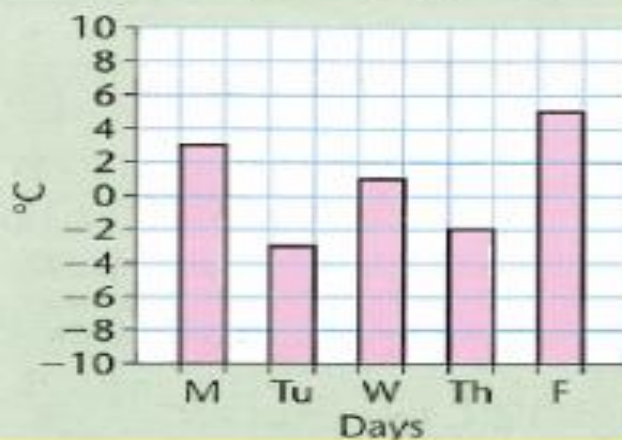
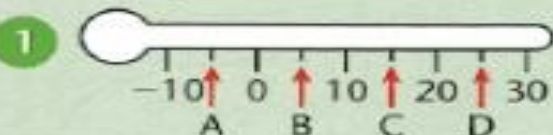


$$\begin{aligned} A &= -8^{\circ}\text{C} & -8^{\circ}\text{C} \rightarrow 0^{\circ}\text{C} &= 8^{\circ}\text{C} \\ B &= 7^{\circ}\text{C} & 0^{\circ}\text{C} \rightarrow 7^{\circ}\text{C} &= 7^{\circ}\text{C} \\ & & -8^{\circ}\text{C} \rightarrow 7^{\circ}\text{C} &= (8 + 7)^{\circ}\text{C} = 15^{\circ}\text{C} \end{aligned}$$

Answer 15°C

A

Write the temperature shown by each letter.



3 What was the coldest temperature recorded?

4 On which days was the temperature below 0°C ?

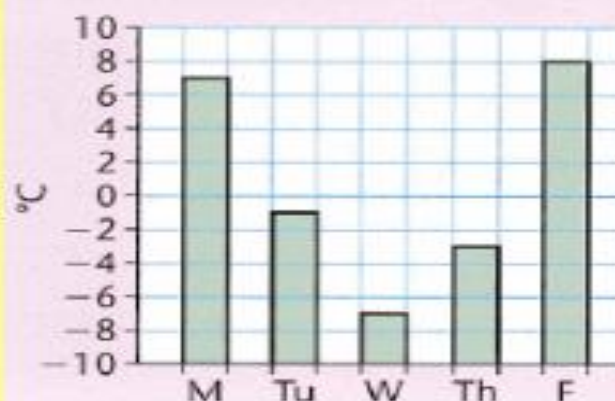
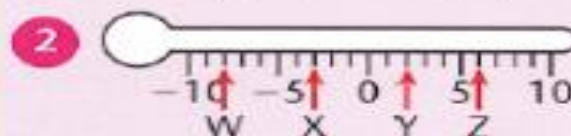
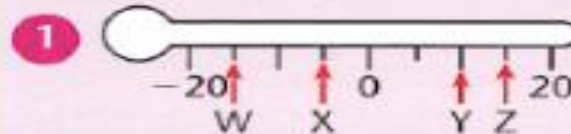
5 What was the fall in temperature from:
a) Monday to Tuesday
b) Wednesday to Thursday?

6 What was the rise in temperature from:
a) Tuesday to Wednesday
b) Thursday to Friday?

B

For each thermometer, find the difference between:

- a) X and Z
- b) W and Y
- c) X and Y
- d) W and Z.



3 What was the fall in temperature from:
a) Monday to Tuesday
b) Tuesday to Wednesday?

4 What was the rise in temperature from:
a) Wednesday to Thursday
b) Thursday to Friday?

L.O. Use negative numbers in context.

C

- 1** Copy and complete this table showing the maximum and minimum temperatures for different places.

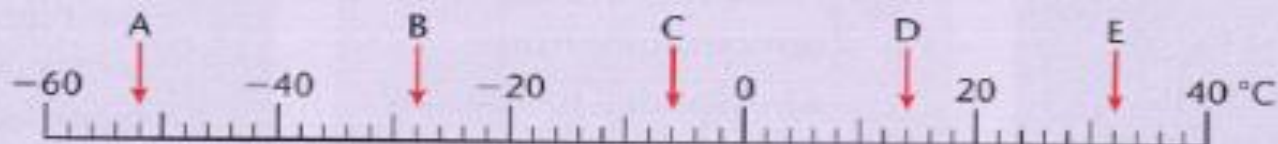
Max.	Range	Min.
17°C	22°C	-5°C
28°C	46°C	
11°C	54°C	
-4°C	23°C	
46°C	52°C	
2°C		-37°C
35°C		-16°C
53°C		-7°C
-9°C		-23°C
	66°C	-35°C
	47°C	-54°C
	53°C	-28°C
	28°C	-41°C

2

- Find the range between the highest and lowest temperature ever recorded in each UK country.

Country	High	Low
England	38.5°C	-26.1°C
Scotland	32.9°C	-27.2°C
Wales	35.2°C	-23.3°C
N.I.	30.8°C	-18.7°C

C



1

- What temperatures are shown by the letters?

2

- Give the difference in temperature between:

a) C and D

b) B and C

c) A and E

d) B and D

3

- What would the temperature be if it was:

a) at A and rose 24°C

c) at C and fell 18°C

b) at D and fell 30°C

d) at B and rose 32°C?

L.O. Use negative numbers in context.

In the morning the temperature was -5°C and in the afternoon it was 5°C . Describe the change in temperature.

How many pairs of temperatures can you think of that cross zero and have the same difference? What if both of the temperatures were negative?

The temperature drops 3 degrees per day over a week. If the temperature on one Monday is 8 degrees, what will the temperature be on the following Monday?

A submarine is submerging at a rate of 4m per second. How far below the surface is it after 5 seconds, 10 seconds and 20 seconds?

A

1 A -5°C
 B 5°C
 C 15°C
 D 25°C

2 E -7°C
 F -1°C
 G 3°C
 H 9°C

3 -3°C
 4 Tuesday, Thursday
 5 a) 6°C b) 3°C
 6 a) 4°C b) 7°C

B

1 a) 20°C
 b) 25°C
 c) 15°C
 d) 30°C

2 a) 9°C
 b) 10°C
 c) 5°C
 d) 14°C

3 a) 8°C
 b) 6°C
 4 a) 4°C
 b) 11°C

C

1	Max.	Range	Min
	17°C	22°C	-5°C
	28°C	46°C	-18°C
	11°C	54°C	-43°C
	-4°C	23°C	-27°C
	46°C	52°C	-6°C
	2°C	39°C	-37°C
	35°C	51°C	-16°C
	53°C	60°C	-7°C
	-9°C	14°C	-23°C
	31°C	66°C	-35°C
	-7°C	47°C	-54°C
	25°C	53°C	-28°C
	-13°C	28°C	-41°C

2 England 64.6°C
 Scotland 60.1°C
 Wales 58.5°C
 N. Ireland 49.5°C

ANSWERS