

Maths Around the World

Temperature Around the World

How does the world measure temperature?

Weather reports, cooking, science and everyday life all use temperature. Different countries may use different temperature scales — but the mathematics connects them all.

Celsius (°C)

Widely used around the world, including India and most countries.

Fahrenheit (°F)

Commonly used for everyday temperatures in the United States.

Quick idea

The same weather can be described as 25°C or 77°F. The temperature has not changed — only the scale used to describe it has changed.

Different scales. Same temperature.

■ Celsius & Fahrenheit

Celsius and Fahrenheit use different numerical scales. We can convert between them using formulas.

Celsius → Fahrenheit

$$^{\circ}\text{F} = (^{\circ}\text{C} \times 9/5) + 32$$

Fahrenheit → Celsius

$$^{\circ}\text{C} = (^{\circ}\text{F} - 32) \times 5/9$$

Examples

$$0^{\circ}\text{C} = 32^{\circ}\text{F}$$

$$20^{\circ}\text{C} = 68^{\circ}\text{F}$$

$$25^{\circ}\text{C} = 77^{\circ}\text{F}$$

$$30^{\circ}\text{C} = 86^{\circ}\text{F}$$

■ Temperature Around the World

Imagine checking the weather in different places. The number may look different even when the actual temperature is the same.

India

25°C

77°F

United States

77°F

25°C

Example cold day

0°C

32°F

Example hot day

40°C

104°F

Think like a traveller

If a weather app in another country says 86°F, you can convert it to 30°C and understand the weather immediately.

■ Temperature in Everyday Life

Weather

A summer afternoon may be around 35°C .

$$35^{\circ}\text{C} = 95^{\circ}\text{F}$$

Cooking

An oven temperature of 180°C is approximately **356°F** .

Science

Water freezes at 0°C , which is **32°F** .

Maths helps us understand information wherever we are.

■ Temperature Detective

Use the formulas to convert the temperatures below.

1. Convert **10°C** to Fahrenheit.

2. Convert **30°C** to Fahrenheit.

3. Convert **68°F** to Celsius.

4. Convert **95°F** to Celsius.

5. **Challenge** A weather report says **104°F**. What is the temperature in Celsius?

Tip: Work step by step and keep the brackets in the formula.

■ Can You Compare?

Use your understanding of the two scales to decide which temperature is warmer or colder.

20°C or 65°F

20°C is warmer.

30°C or 80°F

80°F $\approx$ 26.7°C, so 30°C is warmer.

0°C or 40°F

40°F $\approx$ 4.4°C, so 40°F is warmer.

Remember: Always convert to the same scale before making a careful comparison.

■ Maths Connects Us All

A traveller, scientist, cook or student can understand temperature anywhere in the world by converting between scales.

Celsius

Used in India and most countries around the world.

Fahrenheit

Commonly used for everyday temperatures in the United States.

One temperature can have two numbers.

$$25^{\circ}\text{C} = 77^{\circ}\text{F}$$

Different scales. Different numbers. Same temperature.

Different countries. Different scales. One mathematics.

Answers

1. $10^{\circ}\text{C} = 50^{\circ}\text{F}$

2. $30^{\circ}\text{C} = 86^{\circ}\text{F}$

3. $68^{\circ}\text{F} = 20^{\circ}\text{C}$

4. $95^{\circ}\text{F} = 35^{\circ}\text{C}$

Useful reference points

$$\begin{array}{lcl} 0^{\circ}\text{C} = 32^{\circ}\text{F} & \bullet & 20^{\circ}\text{C} = 68^{\circ}\text{F} \\ 25^{\circ}\text{C} = 77^{\circ}\text{F} & \bullet & 30^{\circ}\text{C} = 86^{\circ}\text{F} \\ & & 40^{\circ}\text{C} = 104^{\circ}\text{F} \end{array}$$

Note: Temperature conversions in this resource use exact formulas.