

Our Changing World

Time zones around the world

The world is split into 24 meridians because there are 24 hours in a day. Each meridian is in the centre of a time zone. The times around the world are calculated from the Prime Meridian. The time at the Prime Meridian is known as Greenwich Mean Time, abbreviated to GMT. If time zones are to the east of the Prime Meridian on a map, the time is ahead of GMT (GMT+). If they are to the west of the Prime Meridian, the time is behind GMT (GMT-).



Prime Meridian, Greenwich

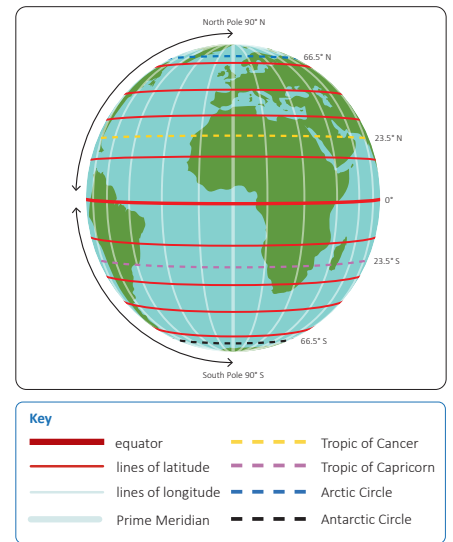
Latitude and longitude

Lines of latitude and longitude are imaginary lines around Earth. They are measured in degrees and help us to pinpoint exact locations. The lines of latitude run horizontally and measure how far north or south a point is from the equator. The equator is the line of latitude at 0°. The lines of longitude run vertically and measure how far east or west a point is from the Prime Meridian. The Prime Meridian is the line of longitude at 0°. The point where a line of latitude and longitude cross can be written as a coordinate. For example, 30°N, 75°E.



Macao in China is 22°N of the equator and 114°E of the Prime Meridian

Features of Earth



The **equator** is the line of latitude around the middle of Earth. It is equidistant from the North Pole and the South Pole.

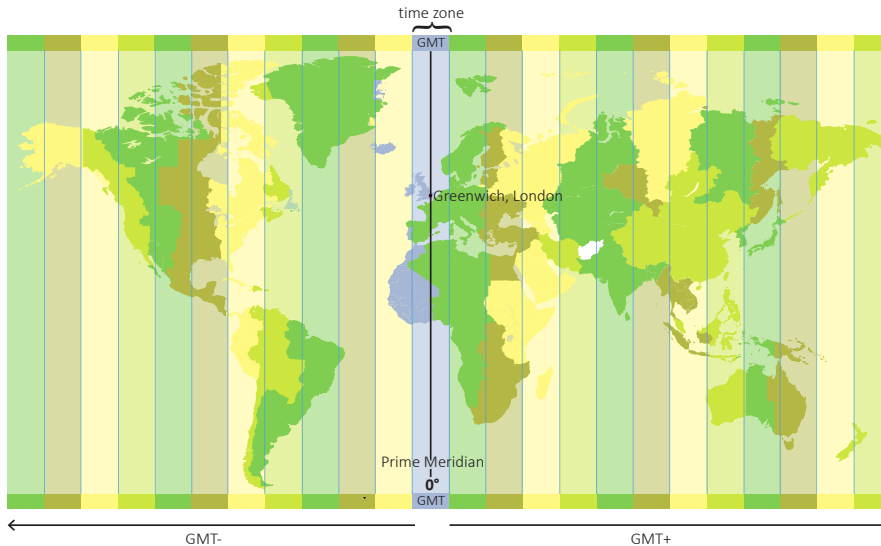
The **Southern Hemisphere** is the half of Earth south of the equator and the **Northern Hemisphere** is the half of Earth north of the equator.

The **Prime Meridian**, or Greenwich Meridian, is a line of longitude that runs through Greenwich, London. All lines of longitude are measured from the Prime Meridian.

The **Tropic of Cancer** is 23.5°N and the **Tropic of Capricorn** is 23.5°S of the equator. The area in between these lines of latitude is called the tropics.

The **Arctic Circle** is a line of latitude that is 66.5°N of the equator. The land inside the Arctic Circle is some of the coldest and least populated in the world.

The **Antarctic Circle** is a line of latitude that is 66.5°S of the equator. There is no permanent human population within the Antarctic Circle.



* this map is simplified and shows approximate time zones

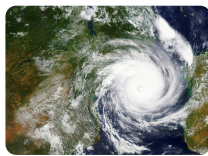
Climate change and global warming

The climate is the usual weather conditions that occur in a place over a long time. The world's climate naturally changes over a long period of time; however, the current rate of change is unprecedented and has been linked to human actions. This large scale change to the climate is called 'climate change'. The main cause of climate change is global warming. The temperature on Earth has increased by about 1°C since 1880. Burning fossil fuels, deforestation and eating meat is likely to have the biggest effect on global warming and climate change.

Extreme weather and people

Climate change is causing extreme weather events worldwide, including severe storms, cyclones, floods, sandstorms, heatwaves and droughts. Millions of people are affected by these extreme weather events every year.

The Global Climate Risk Index ranks the countries that are most affected by the effects of extreme weather related to climate change. The countries most affected in 2019 were Mozambique and Zimbabwe in Africa, and the Bahamas in North America.



Cyclone Idai moving towards Mozambique and Zimbabwe in 2019

Human settlement patterns

A settlement is a place where people live permanently. Settlements can be rural or urban. Rural settlements are small in area and population. They include hamlets and villages. Urban settlements are larger than rural settlements. They include towns and cities.

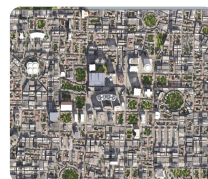
There are different settlement patterns, including linear, circular, Y-shaped, T-shaped and cross-shaped. Settlements can be compact, where many houses are built close to each other, or dispersed, where the houses are scattered across fields or hillsides. Sometimes, settlements grow and change over time. Hamlets become villages, villages become towns, and towns become cities.



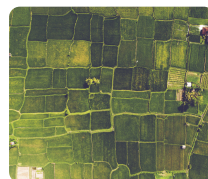
urban settlement



rural, linear settlement



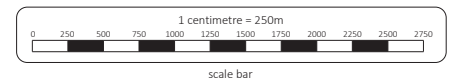
compact settlement



dispersed settlement

Map scales

Maps are much smaller than the places they represent so they are drawn to scale. The scale is written as a ratio, for example, 1cm:250m, which means 1cm on a map is equal to 250m in real life. Maps also include a scale bar. The ratio and scale bar help a map reader measure the distance between features on a map or the length of a feature, such as a footpath.



Maps of different scales

Maps can be drawn to different scales. We describe maps as small scale or large scale. Small scale maps have large numbers in their ratio, such as 1cm:250km. They show continents or large areas of land or sea and contain little detail. Large scale maps have smaller numbers in their ratio, such as 1cm:250m. They show smaller areas of land in more detail and include the location and names of cities, towns and villages, as well as human and physical features.



small scale map



large scale map

Glossary

export	To send goods to another country for selling.
import	To buy goods and bring them into one country from another.
global warming	The increase in world temperatures caused by gases, such as carbon dioxide, being released into the atmosphere.
topography	The physical appearance of an area of land, especially relating to its shape and surface.

Traffic data

Data is information, including facts and statistics, that is collected, analysed and acted upon. Traffic data about road accidents in Great Britain in 2019 show that most fatalities happened on fast, rural roads. Reasons for this could include speeding, blind bends, people walking in the road, lack of cycle lanes, and motorcyclists overtaking or having little knowledge of the roads. Urban roads have more traffic, but are usually wider and have fewer bends. They can also have cycle lanes and more footpaths, so, even though there are more accidents, there are fewer fatalities.

Grid references, contour lines and map symbols

On a map, a grid reference is a set of numbers that describes a position. Contour lines join points of equal height above sea level and show the topography of an area. Map symbols are pictures or icons that represent physical and human features.



contour lines