

Invisible Lines On The Earth

Longitude and Latitude



Aim

To learn to identify the position and significance of latitude, longitude, Equator, the Northern Hemisphere, the Southern Hemisphere, the Tropics of Cancer and Capricorn, the Arctic and Antarctic Circles, the Prime/Greenwich Meridian and time zones (including day and night).



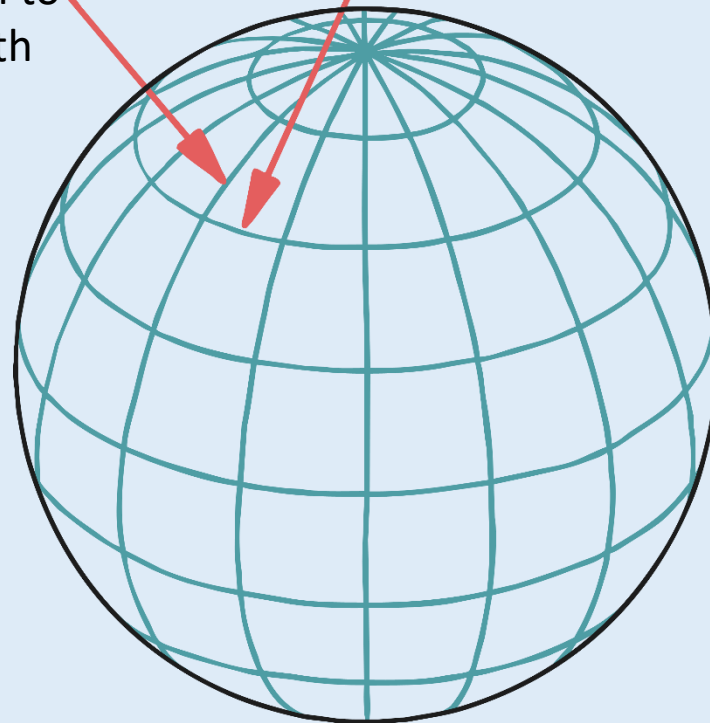
It is possible to find the exact positions of a places on Earth through invisible lines wrapped around the planet that form a grid called

Latitude and Longitude

These help create a co-ordinate to locate a place accurately.

Lines of longitude –
these go from north to
south, south to north

Lines of Latitude -
go east to west, west to east.



Lines of latitude can also be known as parallels (like train tracks). They circle the Earth from East to West. The lines are all the same distance apart. One line to the next is known as 1 degree.

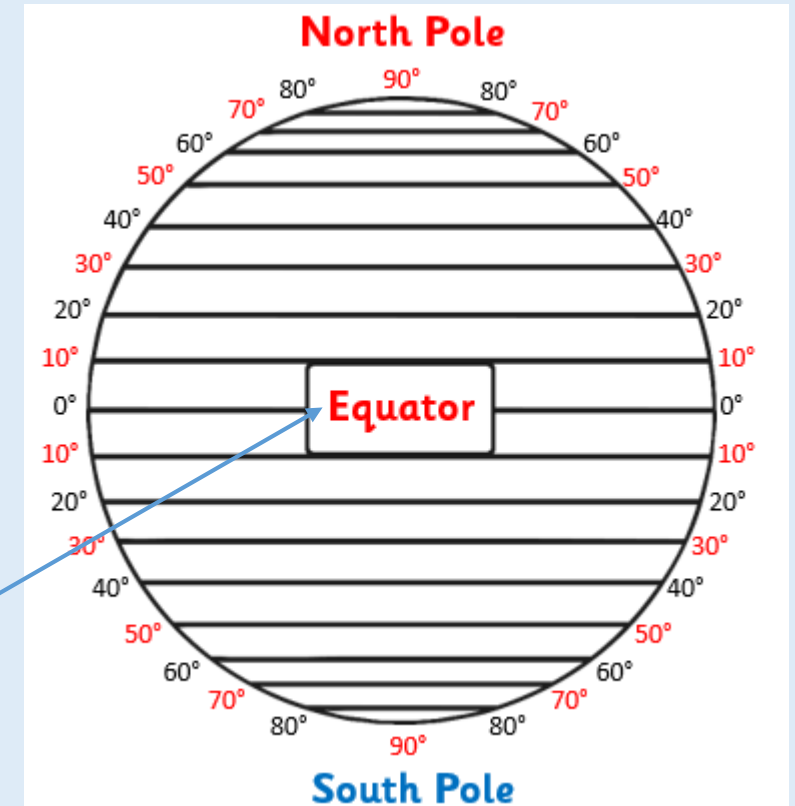
Each degree of latitude is separated into smaller divisions called minutes.



There are 60 minutes in 1 degree.

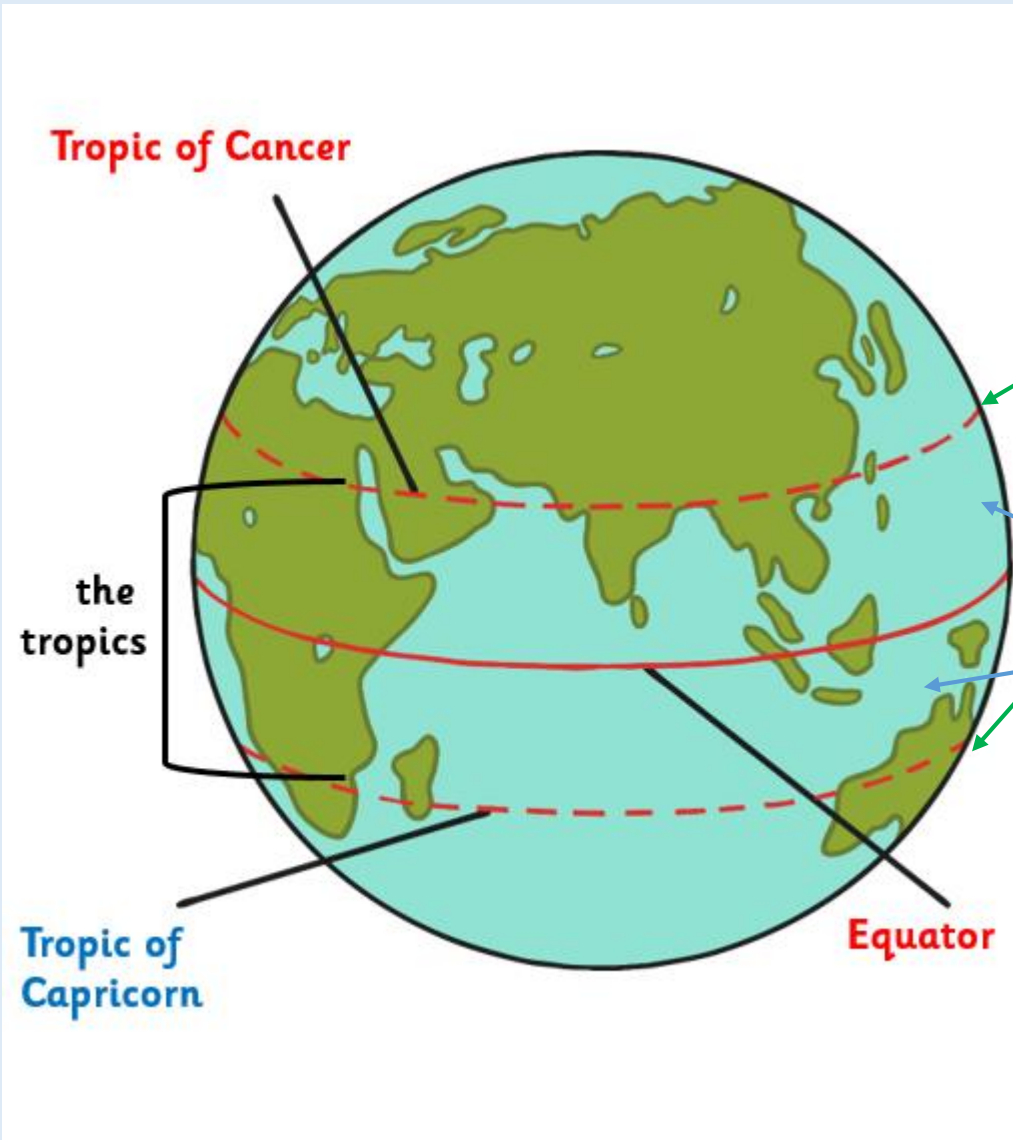
Each minute is divided into 60 seconds, but we do not always include this in a co-ordinate.

As you can see from the diagram, the Equator lies at 0 degrees.



The Equator is the important line of latitude. It is the imaginary line half way between the North and the South Poles (imagine it as the belt on the globe).

Countries next to the equator are very hot as it is the sun's closest point to Earth.



The other important lines of latitude are:

The Tropic of Cancer – 23.5 degrees North of the Equator.

The Tropic of Capricorn – 23.5 degrees South of the Equator.

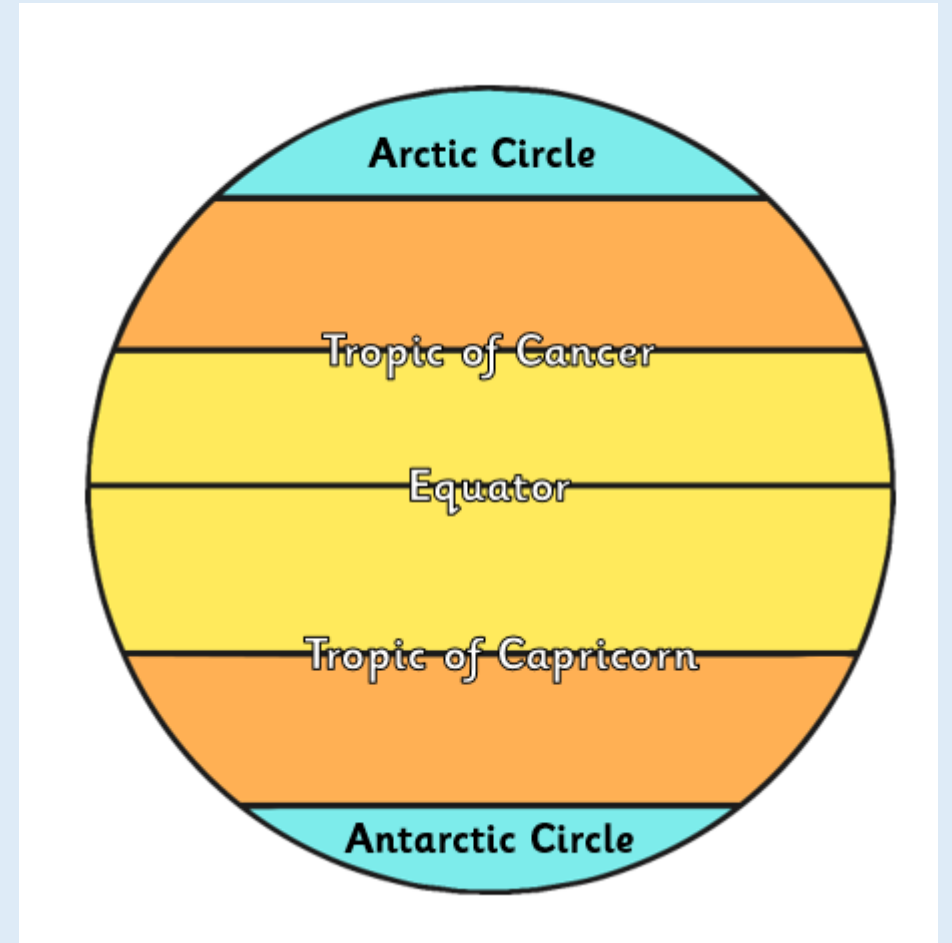
The area between these two lines is known as **the tropics.**

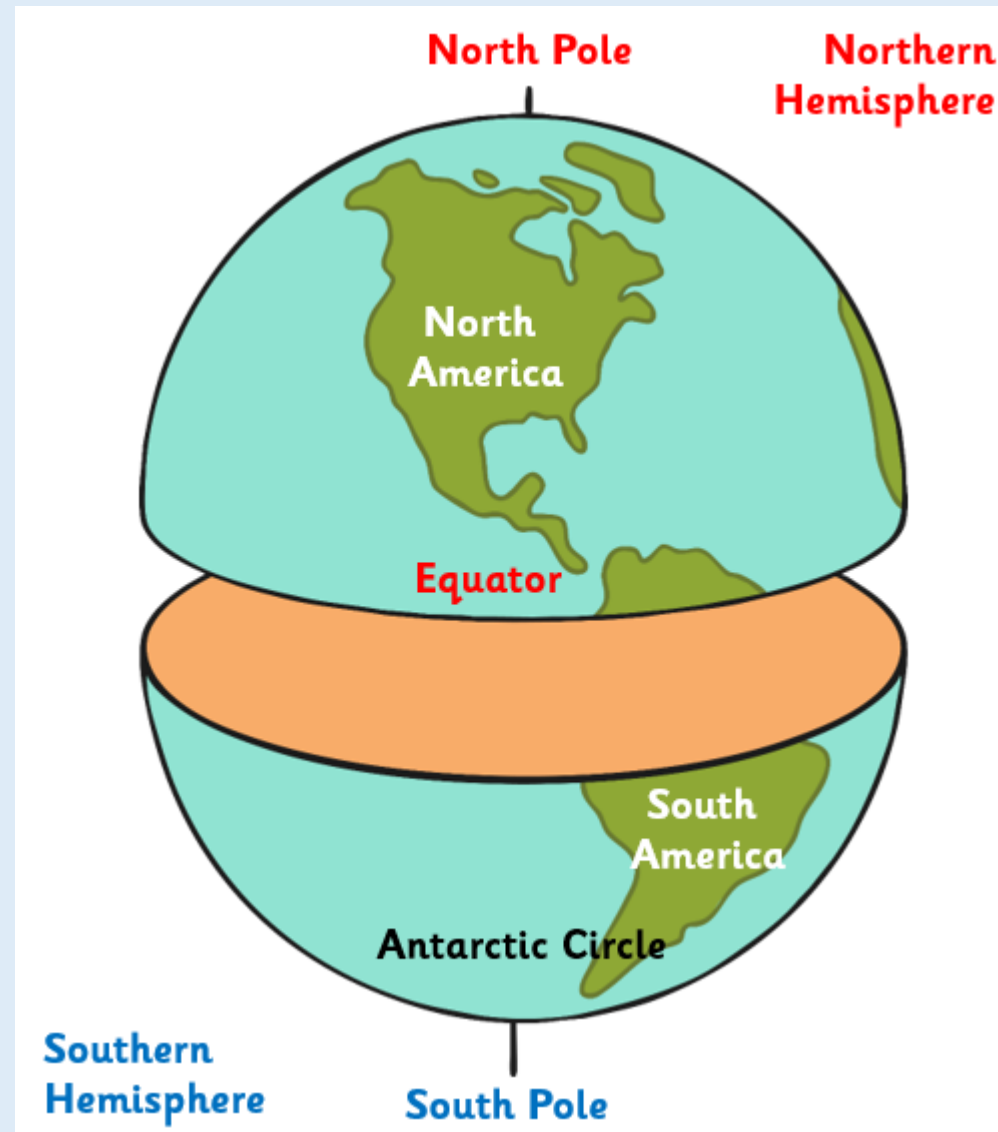


Other important lines of latitude are:

The Arctic Circle 66.5 degrees North of the Equator.

The Antarctic Circle 66.5 degrees South of the Equator.





Imagine the globe cut in half at the Equator.

This gives you the Northern Hemisphere

and the Southern Hemisphere.

Longitude

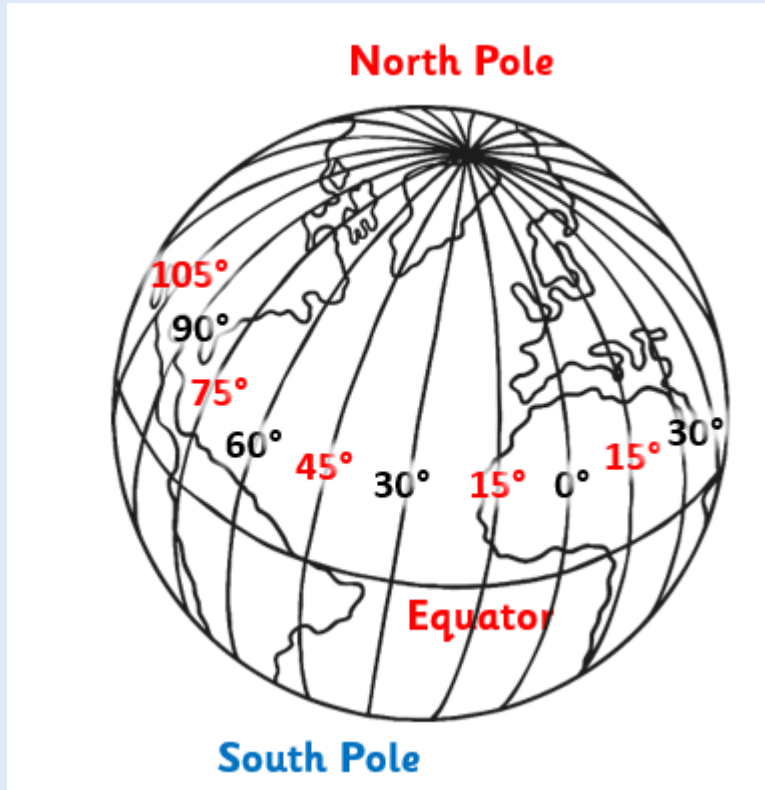
Longitude – Lines that run north and south and are also known as meridians of longitude.

They are measured in the same way as lines of latitude.

Lines of longitude **ARE NOT EQUAL** distance apart.

The Prime Meridian or Greenwich Meridian line is a line of longitude at 0 degrees.

It passes right through Greenwich in London (We use this as the Time Line for all the clocks in the world).

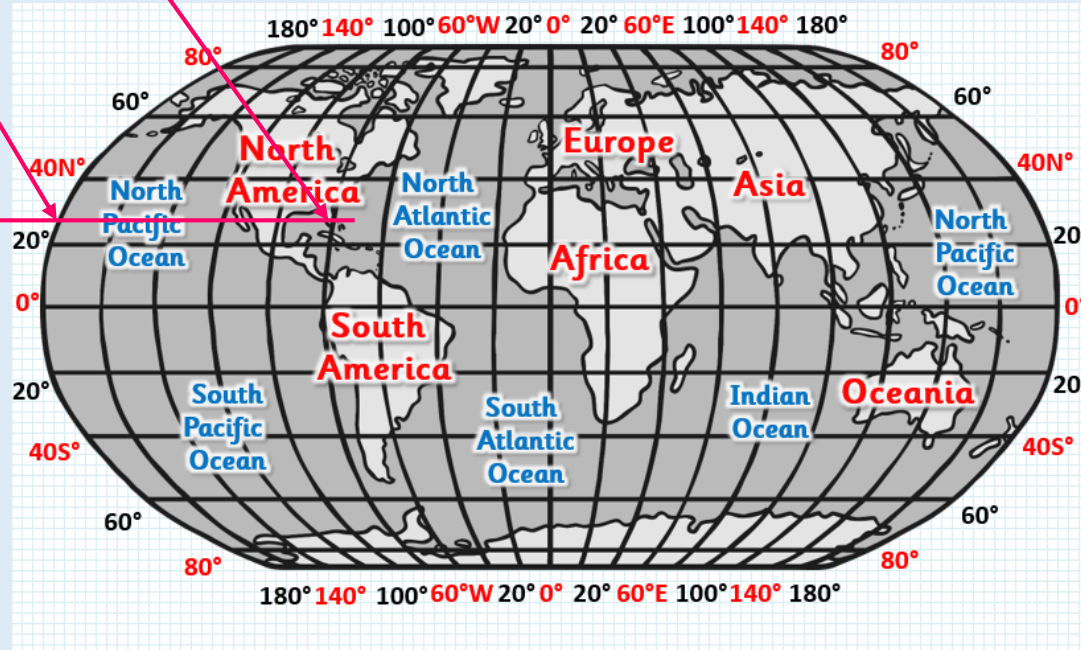


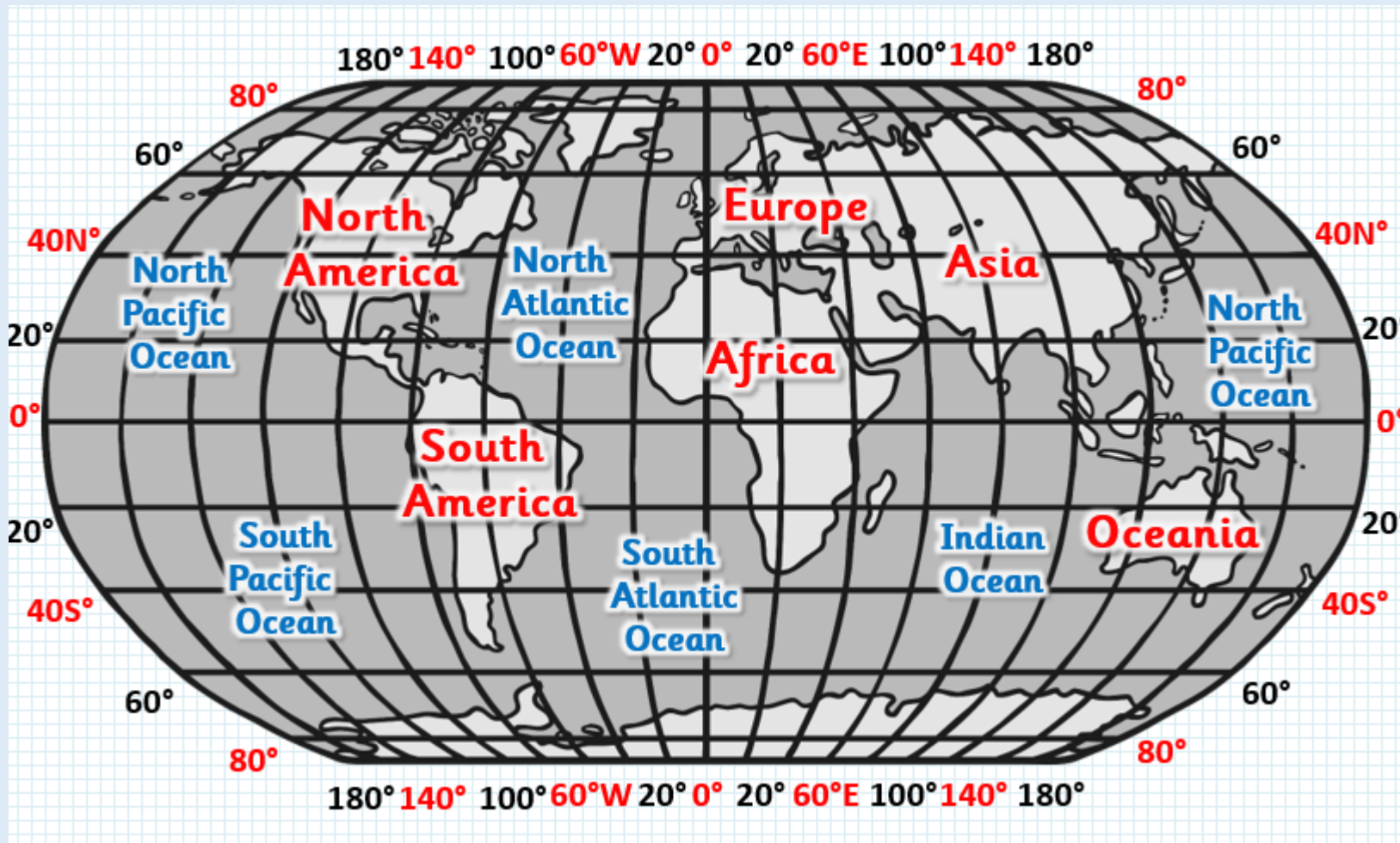
How do we find places with this information?

- We use numbers and letters to create a co-ordinate.
- Within the co-ordinate, the $^{\circ}$ stand for degrees and the ' stands for minutes.
- The letter mean North, South, East or West.
- The latitude is always given first (East to West) – along the corridor if we think about it like maths.
- To locate Florida, USA using this principle we would say it has the following co-ordinates:

28 $^{\circ}$ 00'N 82 $^{\circ}$ 00'W.

If you draw a line between the two points, you should find the place you are looking for.

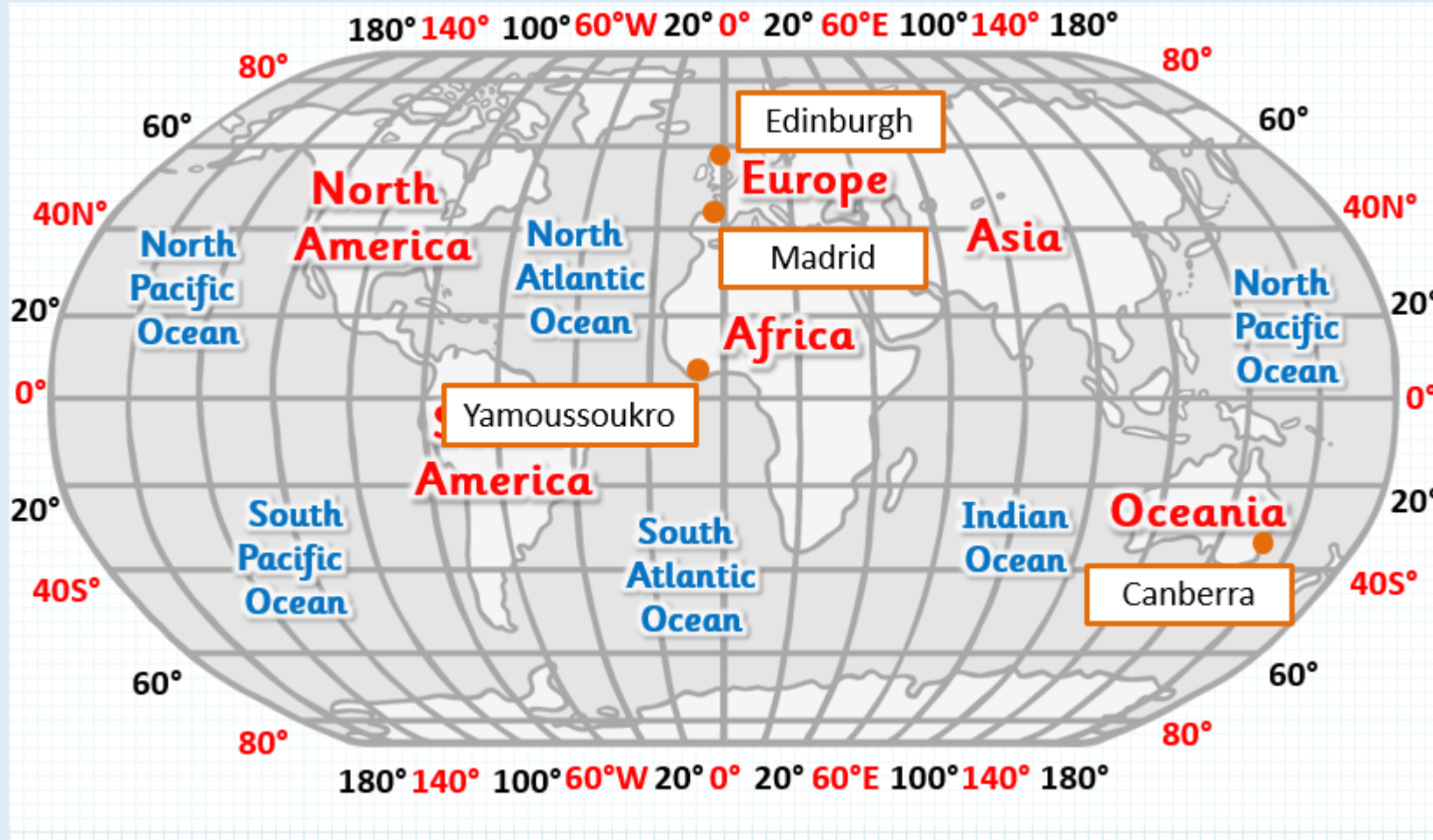




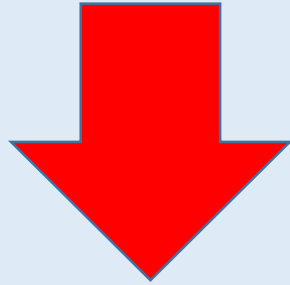
See if you can find these places...

- Edinburgh - $55^{\circ} 57' N$ $03^{\circ} 17' W$
- Canberra - $35^{\circ} 15' S$ $149^{\circ} 8' E$
- Yamoussoukro - $6^{\circ} 49' N$ $5^{\circ} 17' W$
- Madrid - $40^{\circ} 25' N$ $03^{\circ} 45' W$

Answers



Click here to watch a short video as a reminder about day and night.



<http://www.bbc.co.uk/learningzone/clips/the-sun-day-and-night-pt-2-3/8954.html>



Time Zones

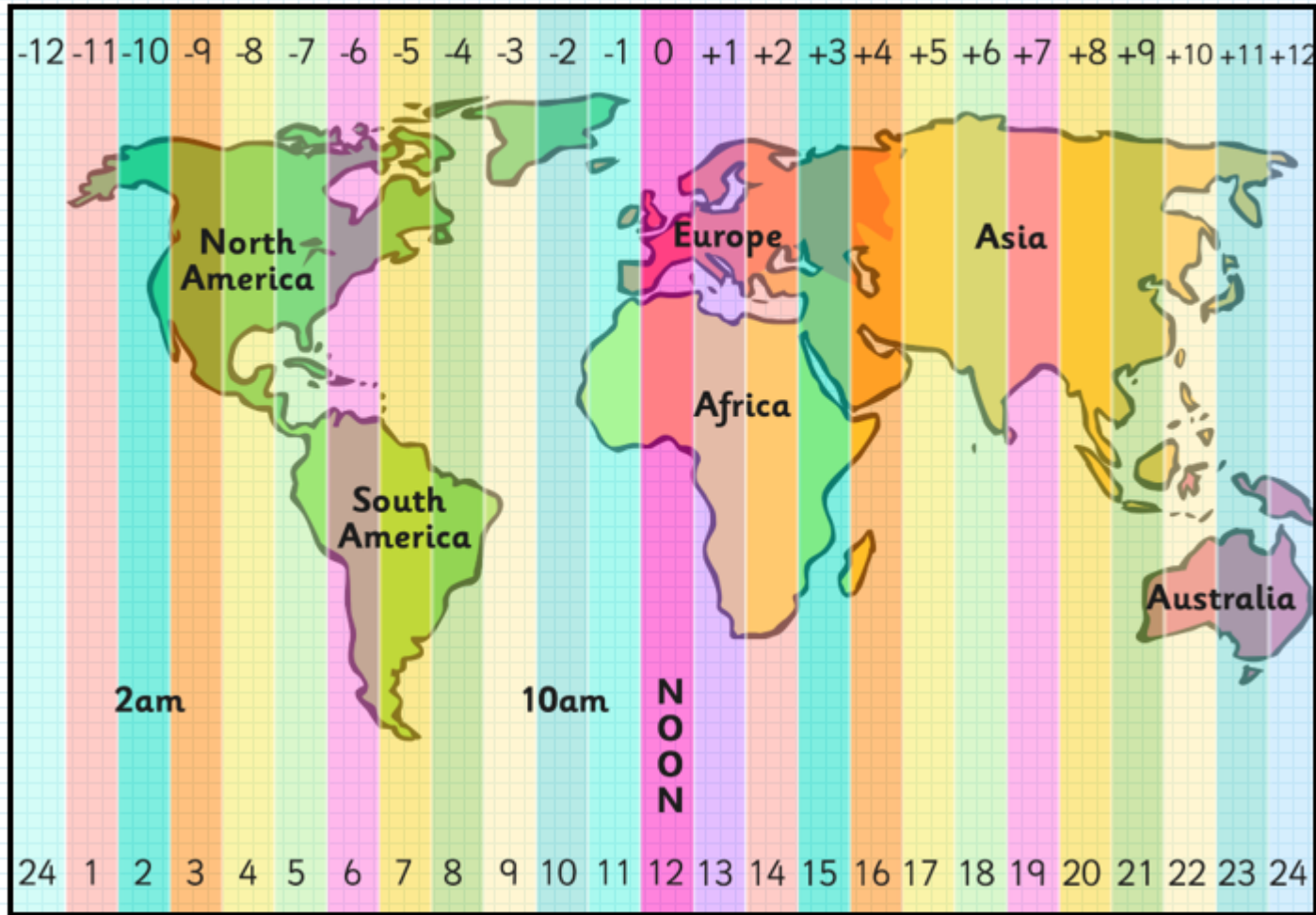


Time is different depending on where you are in the world. If it is daytime in the UK, it will be nighttime in Australia.

How do time zones work?

- Midday (12 noon) is the time when the sun is highest in the sky. The sun is highest in the sky at different times in different places in the world. So for every place in the world to have midday when the sun is highest, we have to divide the world into time zones.
- The Earth is a sphere divided into 360 degrees. The Earth turns 360 degrees in 24 hours. 360 divided by 24 is 15 degrees so the Earth turns 15 degrees each hour.
- The Earth has 24 different time zones and local time depends on which time zone you are in – this is why we have to check the time when we go on holiday, it may go forward, back or stay the same.
- All time zones are measured from Greenwich Observatory in England.

World Time Zones: How it Works



24 hour time.