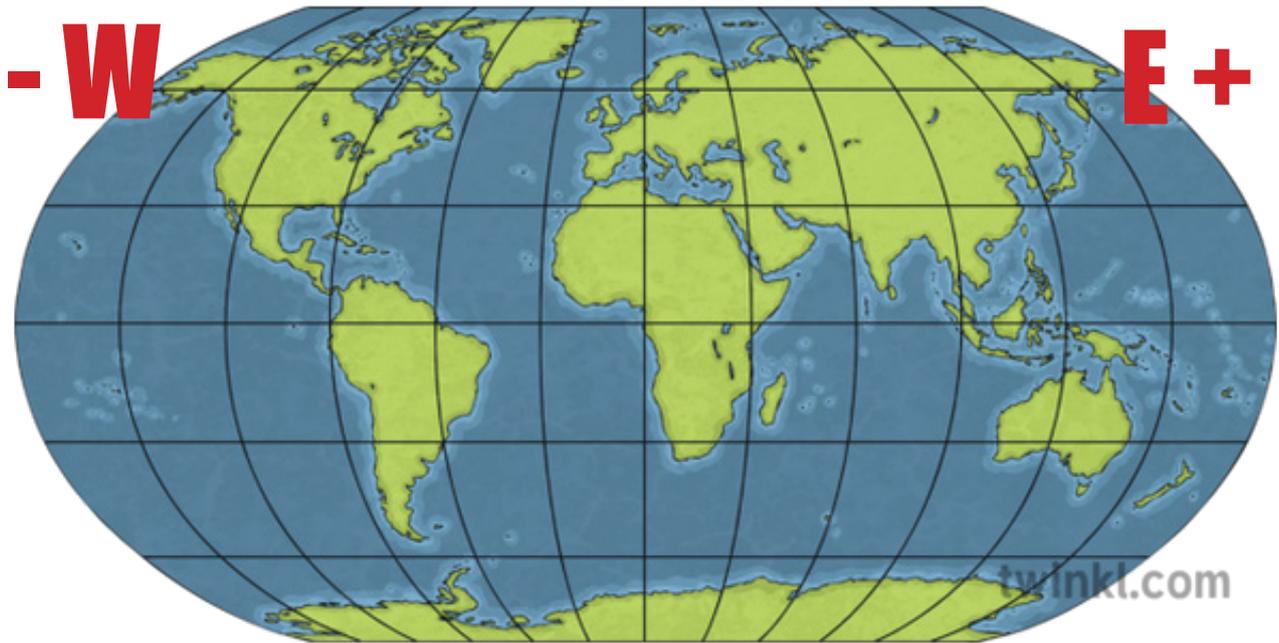




Study notes:

- Quite a lot of questions in Section A on 15° intervals of longitude lines, degree on which the Greenwich is located, time zone differences and the effect of crossing of IDL.
- DST: add one hour and reasons of DST.



Time zones

- World divided into _____ zones.
- _____ lines – determine the _____
- All the longitude lines are _____ ° apart.
- Each longitude line represents = _____
- It is possible for a country to have _____, but most countries only have one time zone.
- SA = 30°E - Calculation to determine the time zone when degrees are given:
 $30 / 15 = 2$. East = + i.e.: South Africa's time zone is +2.





Class activity

Which meridians are represented by the following degrees? Give an example of one country that uses this time zone to calculate their standard time:

- 45°W = _____ Example: _____
- 120°E = _____ Example: _____
- 150°E = _____ Example: _____
- 90°W = _____ Example: _____

UTC (Greenwich)

= _____ (Determines the _____ of a country).

Based on the _____ and runs through _____ in England.

Countries West of the Greenwich = _____

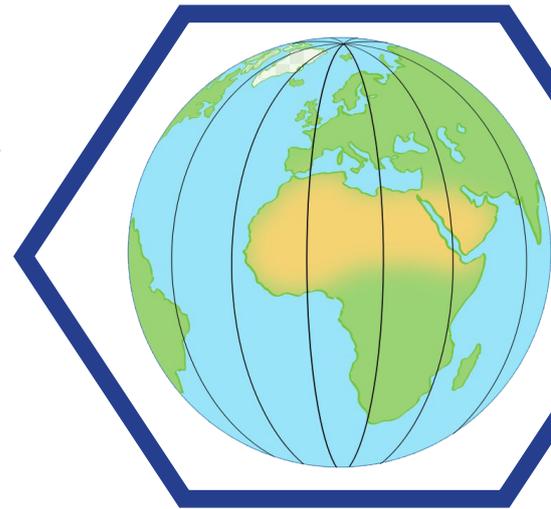
Countries East of Greenwich = _____

Greenwich meridian is also known as the _____ or _____ or _____.

Divides the earth into an _____ and _____ hemisphere.

Lines of longitude

- Also known as meridians.
- From the _____ to the _____
- _____ and _____ of the Greenwich.
- Divide the earth into _____ time zones.



Class activity

- Use the colour green to indicate the Greenwich line in the sketch
- Shade the Eastern hemisphere with yellow.
- Mark the North Pole with pink.
- Mark the South Pole with blue.
- Use orange to indicate the $+6$ -longitude line.
- Indicate with a dotted line where the longitude of 45°W will lie.



Equator

- _____° _____.
- Divides the earth in a _____ and _____ hemisphere.
- Equal distance apart from the _____ and the _____.

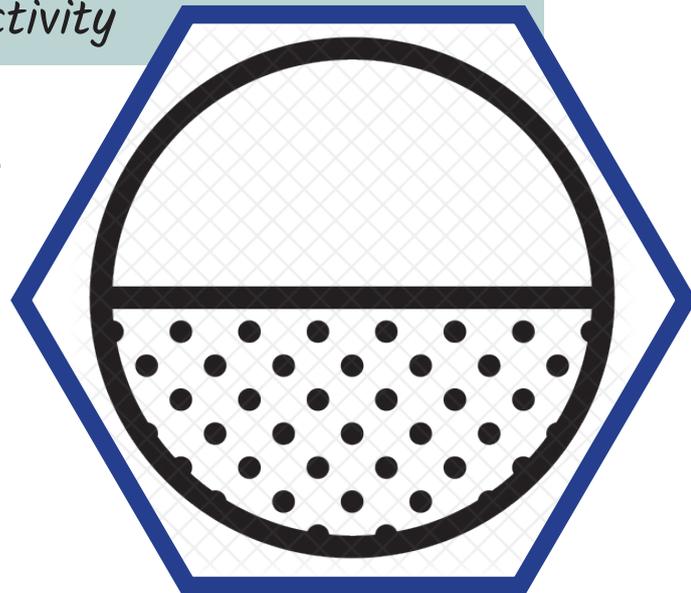
Lines of latitude

- Parallel to the _____.
- Stretching from _____ to _____.



Class activity

- ◇ Use orange to indicate the Equator and write the degree on which this line of latitude is located.
- ◇ Shade the Northern Hemisphere with blue.
- ◇ Indicate the west and east side on the sketch representing the earth.
- ◇ Draw any other line of latitude on the sketch keeping the correct position in mind in terms of how they are spaced regarding the Equator.



Brain fuel

Russia is the largest country in the world and spans over 11 different time zones. Russia is partly located in Europe and partly located in Asia, but it is considered as a European country.

Time zones of Russia





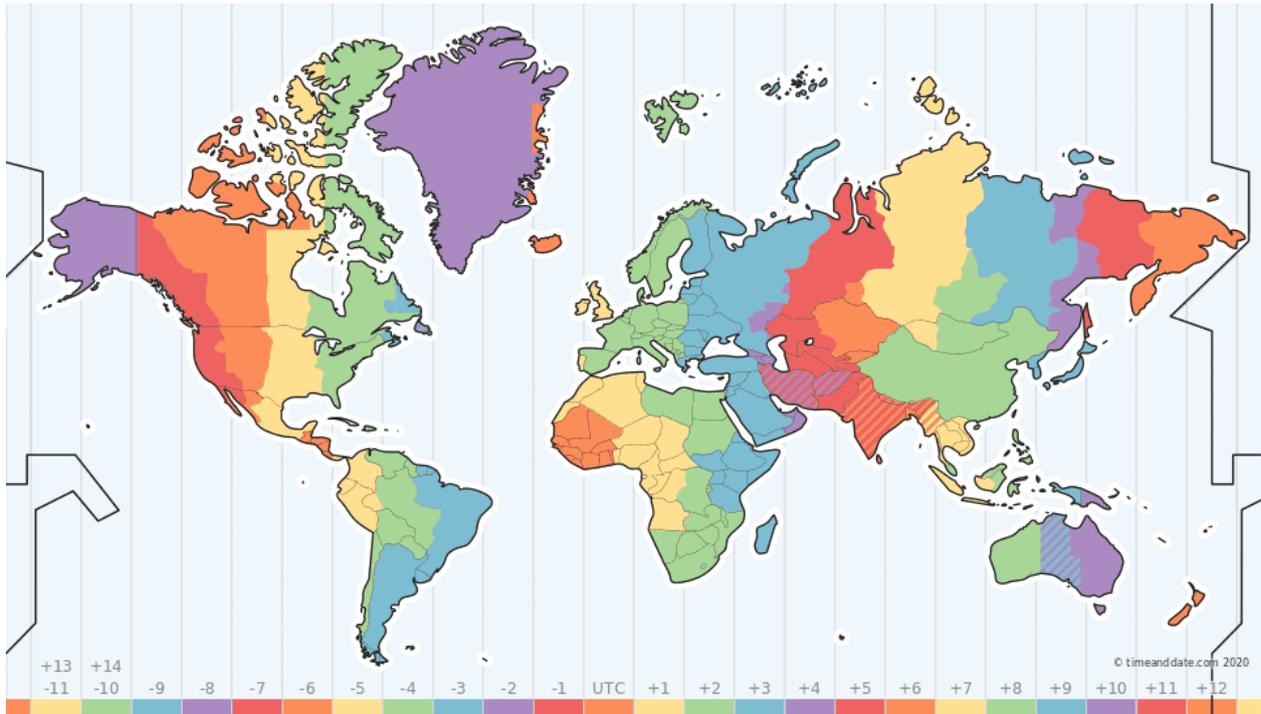
Homework

Practical application of the time zone theory.

Teacher's feedback on the quality of the homework



Mark relevant option: Done / Not done



Case study: Your family lives in Perth - Australia. Your brother wants to phone them, but cannot remember whether it is later or earlier in Perth than in South Africa. He does not want to bother them at an inconvenient time. Explain to your brother how time zones work by using the following sentences as guidance:

1. The line that determines the standard time of all countries: _____
2. Number of time zones of the world = _____.
3. Each longitude's position in comparison to the next one: _____ ° apart.
4. Each longitude line represents one _____.
5. The 0 ° longitude line is also known as: _____
6. South Africa lies on the _____ longitude line, also known as _____ ° _____
7. Perth (Australia) lies on the +8-longitude line, also known as _____ ° _____
8. Following points six and seven, Australia is more _____ than South Africa which will mean that their time is _____ than the time in South Africa.
9. It is currently 18:00 in South Africa, the time in Australia (Perth) will be _____.
10. Explain whether it will be a convenient time to phone your family in Perth. Calculate the time when your family will receive the phone call.

Seasons:

4 different times of the year:

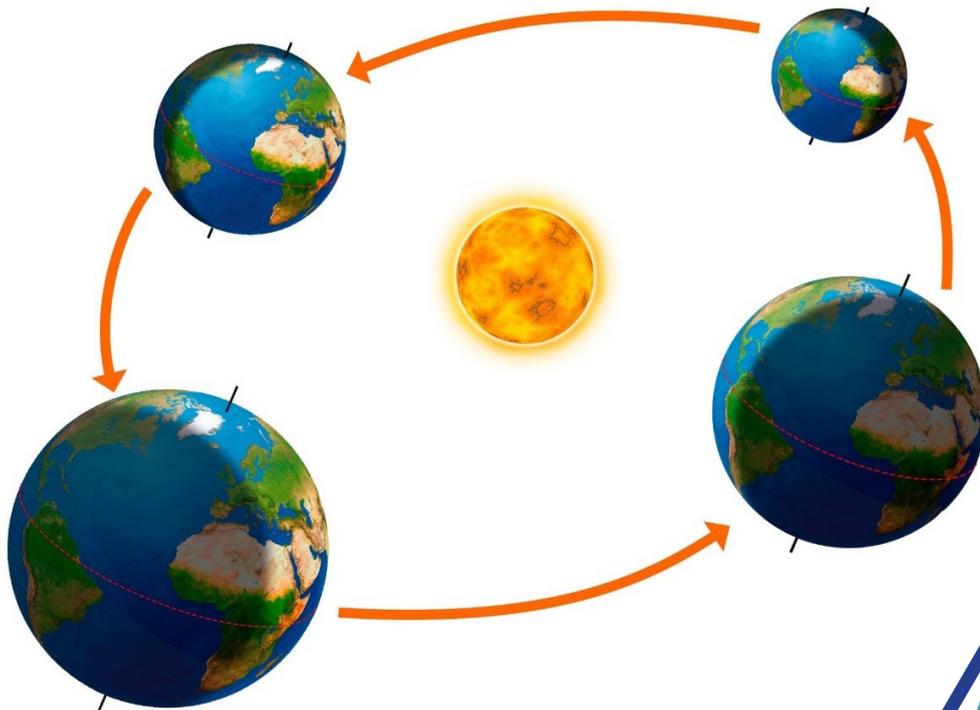


- Due to the _____ position towards the _____.
- The _____ of the earth always have _____ seasons.
- If the Northern Hemisphere has summer, the Southern Hemisphere will experience _____.



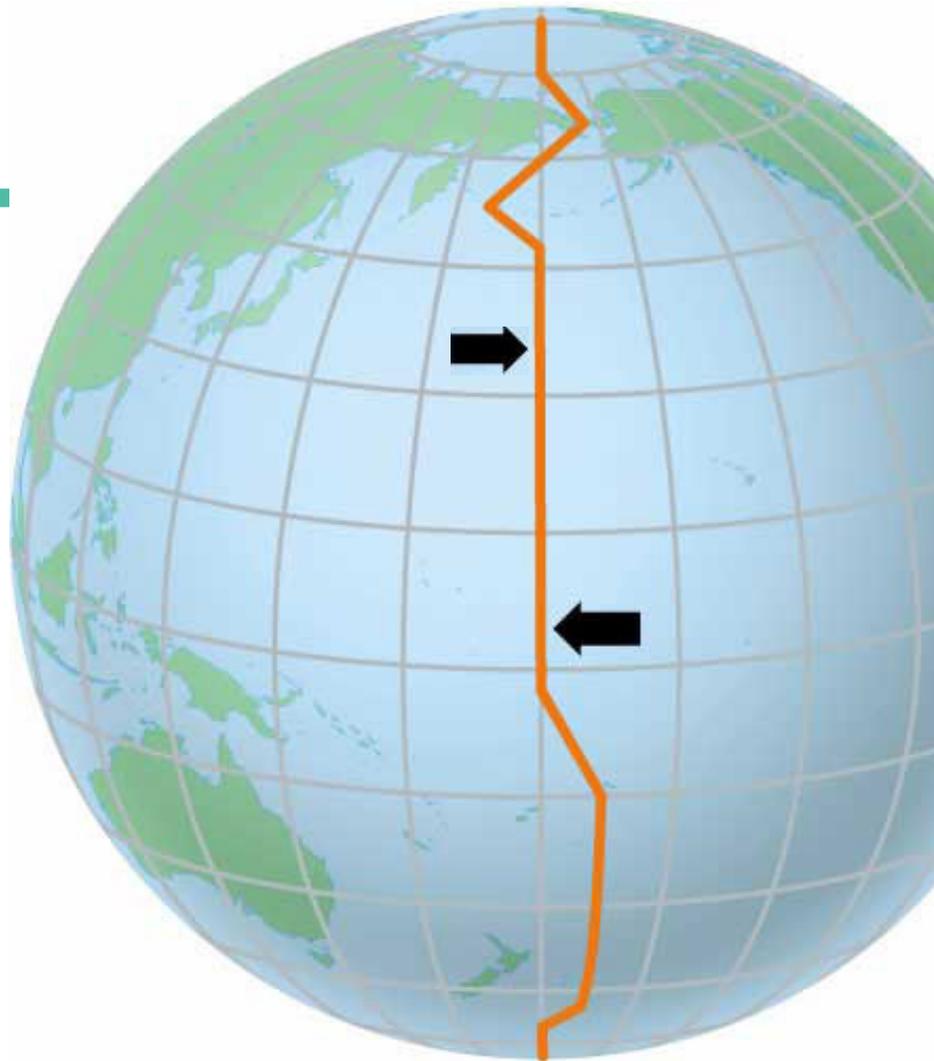
Class activity

Use the following sketch and develop appropriate captions to explain the seasons of the year.



IDL = _____

- _____ line on Earth's surface, located at _____ of longitude.
- This line determines the _____.
- East of IDL = 1 day _____.
- West of IDL = 1 day _____.
- If we travel over the IDL in a western direction, we will have to _____ day.
- If we travel over the IDL in an eastern direction, we will have to _____ day.



Brain fuel

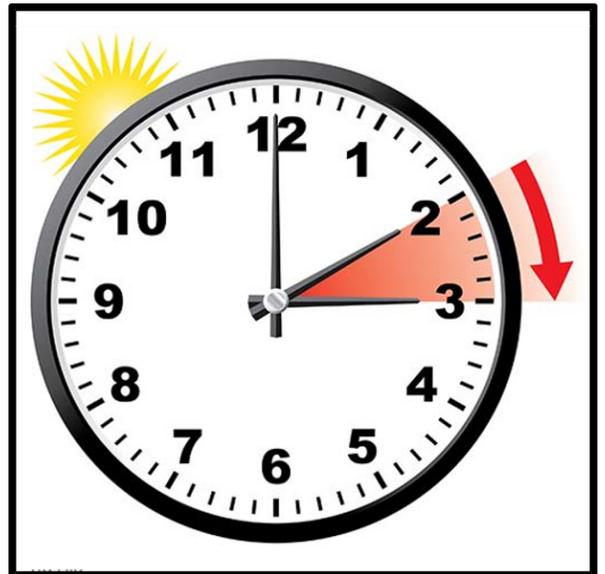
The IDL is an imaginary line winding through the 180° line of longitude in the middle of the Pacific Ocean. It is not a straight line like all the other longitudes, but a winding line to prevent the division of island groups and countries as this will result in two different dates in the same country / island group.

DST

- = _____
- To make _____ of _____ / light from the sun.
- Set clock one hour _____ (set later) during summer months i.e., 'win' one hour.
- Set _____ to the standard time.
- This helps people to have more _____ when most people are _____.

Reasons to apply DST:

- _____
- _____
- _____
- _____
- _____
- _____

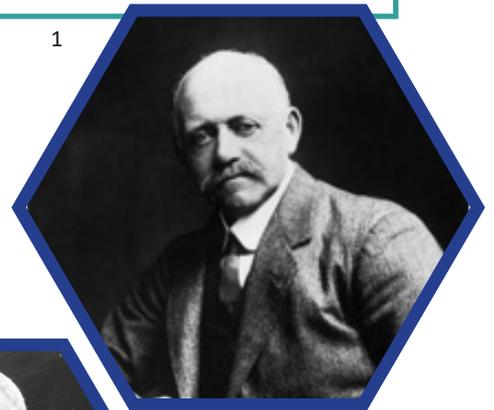


Brain fuel

1

The Origin of DST: An entomologist from New Zealand, George Hudson, proposed DST in 1895 because he wanted more daylight time after a day at work to complete his studies on bugs.

Seven years later William Willett presented this idea to England and submitted it to Parliament where he recommended that daylight time should not be wasted. In 1916, during the First World War, the German Government tried to think of ways to decrease energy consumption and DST was applied for the first time.



2



1 science.howstuffworks.com

2 babycofounder.com