

Time Zones

- The Earth rotates around its axis once every 24 hours.
- The Earth rotates 360° in 24 hours.
- Therefore, $360^\circ \div 24 = 15^\circ$. There are 15° of longitude per 1 hour.
- There are 24 time zones.
- The Earth rotates 15° in one hour.
- If you have a friend living one hour east of you, the time there will be one hour later than your time.
- A Canadian engineer, Sir Sanford Fleming proposed a world system of twenty-four one hour time zones.
- Every place within a single time zone sets its clocks to the same time. Countries started using time zones in 1884.
- Ideally, each time zone stretches 15 degrees from east to west and all the way from the North Pole to the South Pole. In reality, most time zones do not match this shape. Many countries shifted the boundaries somewhat so that the time zone boundaries matched their political boundaries (e.g. Newfoundland even has a half hour time zone)
- Canada has 6 time zones – Newfoundland, Atlantic, Eastern (Ottawa), Central, Mountain and Pacific Time
- Canada stretches from 60°W to 135°W. How many degrees of longitude does it cover? $135 - 60 = 75^\circ$. $75^\circ / 15^\circ = 5$ (recall Earth rotates 15° in one hour). Therefore, Canada should have 5 time zones but we have 6 because the island of Newfoundland sits slightly farther east than the other provinces in the Atlantic region. Canada decided to make it a half hour different from the Atlantic region. Thus, Canada has 6 time zones.

Practice

Flight	Departure Time	Flight Duration	Arrival Time	Time zone Difference	Actual Arrival Local Time
Toronto to Vancouver	12:00 pm	5 hours		-3 h	
Winnipeg to Montreal		3 hours			10:00 am
Calgary to Ottawa	3:00 pm		7:00 pm		
Kingston to Victoria	9:00 pm	6 hours			
St. John's to Edmonton	11:00 pm	5.5 hours			

Application

Viewers in Barrie, Ontario were cheering madly when Canada's men's hockey team won the gold medal in Salt Lake City, Utah shortly after 10 pm, on Sunday, 24 February while fans in Brisbane, Australia had already finished their lunch on Monday, 25 February. Same game. Different day!

Why did the gold medal game end in Australia a day after it ended in Ontario?