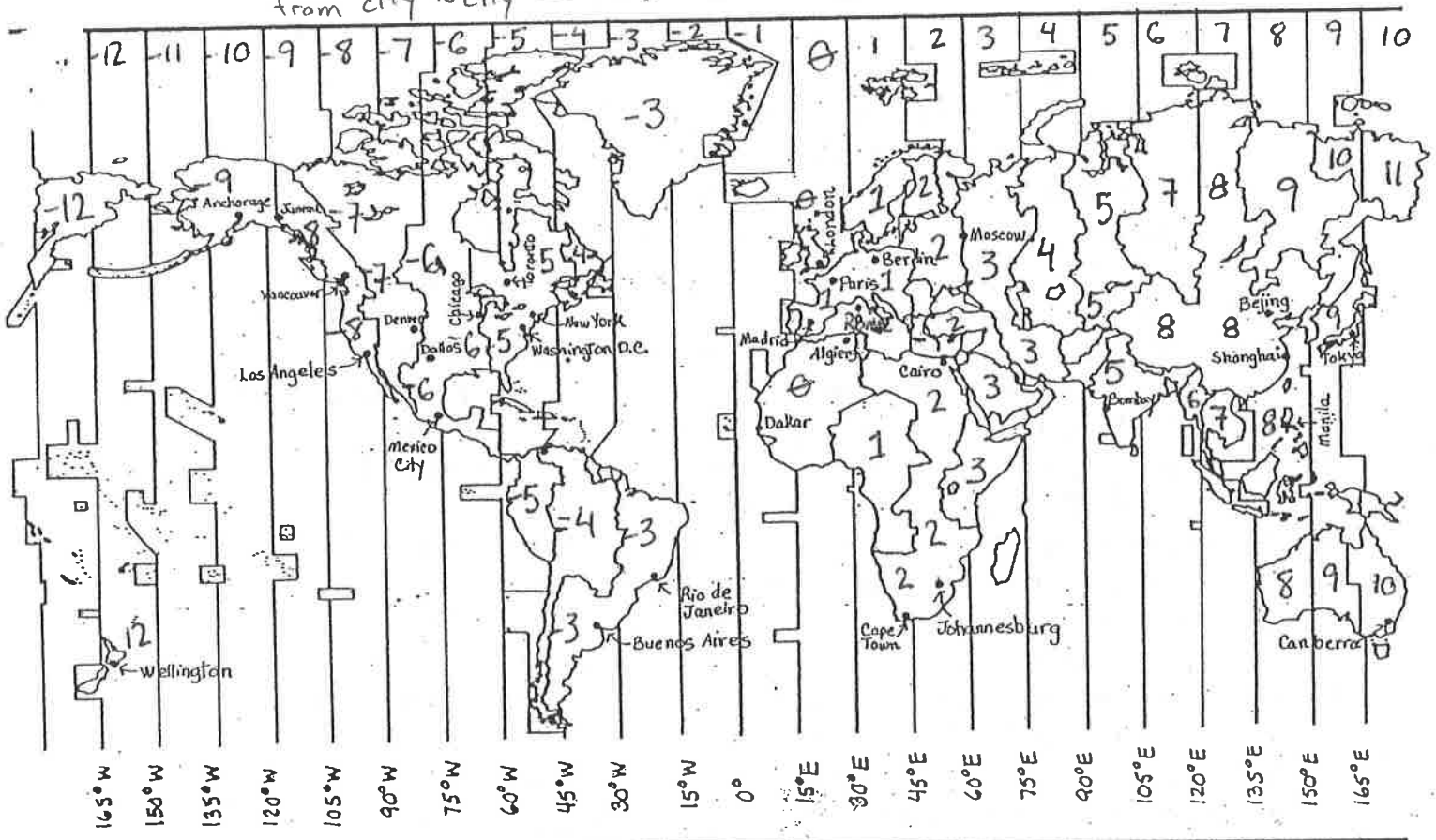


LONGITUDE AND THE TIME OF DAY

Blue

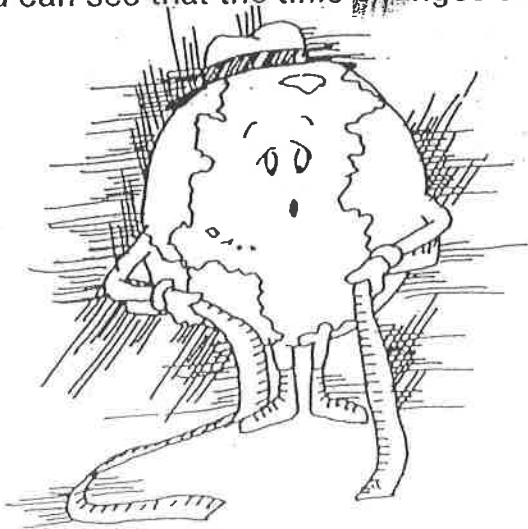
When moving from city to city \rightarrow + Time

\leftarrow - Time



You learned earlier that the earth has a circumference of 360° . You are also aware that there are 24 hours in each day. Understanding a few other basic facts will help you to learn just why our clock/time relationship works the way it does. First, the earth rotates on its own axis, and it takes 24 hours for it to make one complete rotation of this cycle. Thus, at whatever time it is precisely as you read this, it will be 24 hours from now before the spot on the earth where you are located will be in the same position in relationship to the sun.

Next, since there are 360° in the circumference of the earth... and since there are 24 equal segments of time (hours) that pass during each rotation of the earth on its axis, it follows that 15° of longitude are spanned by each hour. Thus looking at the map, you can see that the time changes one hour for each 15° .



Finally, the earth rotates on its axis in a west to east direction, moving toward the sun. This makes our day begin with the sun "rising" to the east and "setting" in the west. Look at the map and count the number of time zones there are between New York City and London. If you counted five time zones, you were correct. Thus if it is 1:00 p.m. in New York City, what time is it in London? On the other hand, if it is 3:00 p.m. in London, what time is it in New York City?

COMPARING TIME ZONES

- How many hours are there between New York City and Anchorage, Alaska? $\frac{4hr}{(5) \quad (9)}$
If it is 3:00 p.m. in Anchorage, what time is it in New York City? $\frac{7pm}{(+) \quad (-)} \rightarrow so + 4hr$
- How many hours are there between London and Moscow? $\frac{3hr}{(+) \quad (-)}$
If it is 6:00 p.m. in Moscow, what time is it in London? $\frac{3pm}{(-) \quad (+)} \leftarrow so - 3hr$
- How many hours are there between Manila and Bombay? _____
If it is 11:00 p.m. in Bombay, what time is it in Manila? _____
- How many hours are there between Paris and Tokyo? _____
If it is 1:00 p.m. in Paris, what time is it in Tokyo? _____
- How many hours are there between Chicago and Cairo? _____
If it is 8:30 p.m. in Chicago, what time is it in Cairo? _____
- How many hours are there between Los Angeles and Canberra, Australia? _____
If it is 9:00 p.m. in Canberra, what time is it in Los Angeles? _____
- How many hours are there between Washington, D.C., and Dallas, Texas? _____
If it is 12:15 a.m. in Washington, D.C., what time is it in Dallas? _____
- How many hours are there between Beijing and Johannesburg? _____
If it is noon in Beijing, what time is it in Johannesburg? _____
- How many hours are there between Toronto and Rio de Janeiro? _____
If it is 2:00 a.m. in Rio de Janeiro, what time is it in Toronto? _____
- How many hours are there between Denver and Mexico City? _____
If it is 11:15 p.m. in Mexico City, what time is it in Denver? _____
- How many hours are there between Johannesburg and New York City? _____
If it is 7:00 a.m. in New York City, what time is it in Johannesburg? _____
- How many hours are there between Tokyo and Berlin? _____
If it is midnight in Tokyo, what time is it in Berlin? _____
- How many hours are there between Rome and Mexico City? $\frac{7hr}{(1) \quad (-)}$
If it is 6:30 p.m. in Mexico City, what time is it in Rome? $\frac{1:30am}{(-) \quad (+)} \rightarrow so + 7hr$
- How many hours are there between Vancouver and Rio de Janeiro? _____
If it is 7:00 p.m. in Vancouver, what time is it in Rio de Janeiro? _____
- How many hours are there between Dakar and Bombay? _____
If it is 4:00 a.m. in Bombay, what time is it in Dakar? _____
- How many hours are there between Buenos Aires and Moscow? _____
What time is it in Buenos Aires when it is midnight in Moscow? _____
- How many hours are there between London and Denver? _____
At 3:30 p.m. in London, what is the correct time in Denver? _____
- How many hours difference are there between Madrid and Manila? _____
When it is 8:00 p.m. in Manila, what time is it in Madrid? _____
- How many hours difference are there between Mexico City and Johannesburg? _____
If it is 2:00 p.m. in Johannesburg, what time is it in Mexico City? _____
- How many hours difference are there between New York City and Tokyo? _____
When it is 10:00 p.m. in Tokyo, what time do the clocks read in New York City? _____

