Chapter 1: Locating Places on the Earth

Questions — Questions, Activities and Projects

Q1 Returning to page 10 and to Fig. 5.2 in Chapter 5 of this textbook, taking the scale to be 2.5 cm = 500 km, calculate the real distance from the estuary of the Narmada River to the estuary of the Ganga river.

SOLUTION

This is a map-measurement activity using the India map (Fig. 5.2 in Chapter 5).

Step 1: Use a ruler to measure the straight-line distance on the map between the Narmada estuary (near Bharuch, Gujarat) and the Ganga estuary (the Sundarbans delta in West Bengal).

Step 2: Round the measurement to a convenient number. For example, if the map distance is about 7 cm, apply the scale: 7 cm ÷ 2.5 cm × 500 km = 1400 km.

Step 3: The actual straight-line distance is approximately 1400–1600 km depending on your measurement.

Formula: Real distance = (map measurement in cm ÷ 2.5) × 500 km.

Answer: Measure the map distance between the two estuaries with a ruler, then apply the scale: real distance = (map cm ÷ 2.5) × 500 km. The answer is approximately 1400–1600 km depending on your measurement.

Q2 Why is it 5:30 pm in India when it is 12 pm or noon in London?

SOLUTION

The Earth rotates 360° in 24 hours, so every 15° of longitude equals 1 hour (or every 1° equals 4 minutes).

India's standard meridian is 82°30'E (82.5°).

Time difference = 82.5° × 4 minutes = 330 minutes = 5 hours 30 minutes ahead of Greenwich.

So when it is 12:00 pm (noon) in London (Greenwich Mean Time), India's IST is 12:00 + 5:30 = 5:30 pm.

Answer: India's standard meridian (82°30'E) is 82.5° east of Greenwich, which works out to exactly 5 hours 30 minutes ahead, making it 5:30 pm in India when it is noon in London.

Q3 Why do we need symbols and colours in the map?

SOLUTION

A map represents a large area on a small sheet of paper.
There is not enough space to draw actual pictures of every building, road, river, or forest.
Symbols are used to represent features — such as a circle for a town, a blue line for a river, or specific signs for a railway station or school — so that many details can be shown in limited space.
Colours help distinguish different features quickly: blue for water bodies, green for forests, brown for highlands, etc.
This makes the map easier to read and understand for a variety of users.

Answer: Symbols and colours allow maps to show many features in a small space. Without them, drawing every building or river in detail would be impossible. They make maps clear and easy to read.

Q4 Find out what you have in the eight directions from your home or school.

SOLUTION

This is a personal observation activity. Face North (use a compass or the rising sun in the East as a guide), then identify what lies in each of the eight directions: North, South, East, West, North-East, North-West, South-East, South-West.
Model answer (for a school in a city): North — park; South — market; East — main road; West — residential houses; North-East — temple; North-West — school ground; South-East — bus stop; South-West — hospital.
Fill in your own observation for your actual home or school.

Answer: Observe from your home or school and note what lies in each of the eight directions: N, S, E, W, NE, NW, SE, SW. Example: North — park, South — market, East — main road, West — houses, and so on.

Q5 What is the difference between local time and standard time? Discuss it in groups, with each group writing an answer in 100 to 150 words. Compare the answers.

SOLUTION

Local time is the time at a specific place based on the position of the Sun above that place's meridian. When the Sun is exactly overhead, it is 12 noon local time for that longitude.

Standard time is the officially adopted time for a whole country or region, based on one chosen meridian. It keeps everyone in the country following the same clock.

If every place used its own local time, timetables for trains, flights, and broadcasts would be impossible to manage — a train starting in Mumbai and arriving in Kolkata would need travellers to keep adjusting their watches.

India uses IST (Indian Standard Time), based on 82°30'E, so that the entire country shares one time. Similarly, the world uses time zones (each 15° wide) to group places under a common standard time.

Summary: local time = Sun's position at your exact location; standard time = the one fixed time all places in a region agree to use.

Answer: Local time is based on the Sun's position at a specific longitude; it differs slightly from place to place. Standard time is one agreed time for a whole country or region, chosen from a central meridian, so that everyone follows the same clock. India's standard time is based on the 82°30'E meridian.

Q6 Delhi's and Bengaluru's latitudes are 29°N and 13°N; their longitudes are almost the same, 77°E. How much will be the difference in local time between the two cities?

SOLUTION

Local time depends only on longitude, not on latitude.

Since Delhi (77°E) and Bengaluru (77°E) have the same longitude, the Sun is at the same position relative to both cities at any given moment.

Therefore, the difference in local time between Delhi and Bengaluru is zero — they share the same local time.

(Their different latitudes only affect the length of the day and the angle of sunlight, not the local time.)

Answer: There is no difference. Since both cities share almost the same longitude (77°E), they have the same local time. Latitude does not affect local time — only longitude does.

Q7 Mark the following statements as true or false; explain your answers with a sentence or two.

SOLUTION

This question asks you to evaluate the T/F statements listed in Question 8 below. Read each statement carefully, decide if it is true or false based on what you have learned about latitudes, longitudes, and time zones, and write one or two sentences explaining your choice.

Answer: See Question 8 for the statements to be marked true or false.

Q8 Mark each statement as True or False and explain:
(a) All parallels of latitude have the same length.
(b) The length of a meridian of longitude is half of that of the Equator.
(c) The South Pole has a latitude of 90°S.
(d) In Assam, the local time and the IST are identical.
(e) Lines separating the time zones are identical with meridians of longitude.
(f) The Equator is also a parallel of latitude.

SOLUTION

(a) FALSE — The Equator is the longest parallel. Parallels of latitude become smaller circles as they move toward the poles, so they do not all have the same length.

(b) TRUE — A meridian runs as a half-circle from the North Pole to the South Pole. The Equator is a full circle. Both have the same radius, so a meridian's length equals half the Equator's length.

(c) TRUE — By convention, the Equator is 0° latitude, and the poles are at 90° each. The South Pole is therefore at 90°S.

(d) FALSE — IST is based on the standard meridian of 82°30'E. Assam lies further east (around 94°E), so its local time is ahead of IST, not identical to it.

(e) FALSE — Although time zones are broadly based on 15° meridians, the dividing lines bend to follow international borders so that a single country does not

end up in two different time zones.

(f) TRUE — The Equator is defined as the parallel of latitude at 0°, so it is itself a parallel of latitude — the longest one.

Answer: (a) False — parallels shrink toward the poles. (b) True — a meridian is a half-circle; the Equator is a full circle. (c) True — 90°S by definition. (d) False — Assam's local time is ahead of IST. (e) False — zone lines follow borders, not exact meridians. (f) True — the Equator is the 0° parallel of latitude.