Chapter 1: World Geography: Some Glimpses

Exercise 1.1 — Questions and Activities

Q1 Why do all map projections have some amount of distortion?

The Earth is an oblate spheroid — a curved, three-dimensional shape. When cartographers try to represent it on a flat surface, they face the same problem as trying to peel an orange and lay the skin perfectly flat without tearing it. It is impossible to transfer a curved surface onto a flat one without distorting some features. Some projections preserve the correct shapes of landmasses but distort their sizes, while others show correct sizes but distort shapes. Every map is therefore a compromise, which is why looking at multiple projections gives a fairer understanding of the world.

Q2 What makes the Tibetan Plateau unique?

The Tibetan Plateau is the highest and largest plateau on Earth, with an average height of over 4,500 metres above sea level. It was formed by the collision of the Indo-Australian and Eurasian tectonic plates, the same process that created the Himalayas. It stretches about 2,500 km from east to west and 1,000 km from north to south. Scientists call it the 'Third Pole' because it contains the largest reserves of freshwater outside the polar regions, and it is the source of major rivers like the Indus, Brahmaputra, and Yangtze, making it crucial for Asia's climate and water supply.

Q3 Why are coral reefs called the 'rainforests of the sea'?

Coral reefs are called the 'rainforests of the sea' because they are among the most diverse ecosystems on Earth. Just as tropical rainforests support an extraordinary variety of life on land, coral reefs provide food and shelter for about one-quarter of all ocean species, including fish, crabs, turtles, and sponges. Despite covering only a small area of the ocean floor, they support a richness of marine biodiversity that is unmatched in the rest of the sea. The Great Barrier Reef, for instance, houses hundreds of species of coral and thousands of species of fish and other sea animals.

Q4 How do the oceans help to regulate the Earth's climate?

Oceans help regulate the Earth's climate in several important ways. They absorb heat from the sun, slowly release it, and add moisture to the air, forming clouds and rainfall. Ocean currents — like giant rivers flowing through the sea — redistribute heat around the planet: warm currents carry warm water from the equator toward the poles, while cold currents carry cold water from the poles toward the equator. For example, the Gulf Stream flows from near the Equator through the Atlantic Ocean towards Western Europe, making countries like the United Kingdom much warmer than other places at the same latitude. Additionally, tiny marine organisms called plankton produce almost half the oxygen we breathe.

Q5 What is the main reason for the Great Barrier Reef facing threats today?

The Great Barrier Reef faces serious threats primarily because of human activities. Overfishing, pollution, and climate change are the key causes. Climate change alters the chemical composition of ocean waters, which leads to coral bleaching — a process where corals lose their colour and die, destroying the habitat of the many species that depend on them. Pollution from agricultural run-off and industrial processes also damages the reef's delicate ecosystem. The bleaching and death of coral results in the loss of habitat for a vast range of sea animals, making the conservation of the reef critically important.

Q6 Why is the Amazon Rainforest often called the 'Lungs of the Earth'?

The Amazon Rainforest is called the 'Lungs of the Earth' because it absorbs vast amounts of carbon dioxide from the atmosphere and releases oxygen in return, much like how lungs breathe in and out. Being the world's largest rainforest, it plays a crucial role in regulating the global climate and maintaining the balance of atmospheric gases. The Amazon also supports extraordinary biodiversity — almost 400 indigenous communities live in the forest and help conserve it. However, deforestation and climate change are rapidly shrinking the forest, threatening not just regional ecosystems but also the global climate and oxygen supply.

Q7 Choose two different types of geographical features you have explored in this chapter. Write short paragraphs on how they influence the flora and fauna or human lives in that area. Do they also have an implication for the whole globe?

The Tibetan Plateau and the Amazon Rainforest are two very different geographical features with wide-reaching impacts. The Tibetan Plateau, the world's highest and largest plateau, is the source of major rivers like the Indus and Brahmaputra that provide water to billions of people across Asia. Its vast freshwater reserves — earning it the name 'Third Pole' — make it globally significant, especially as climate change causes glaciers to melt and lakes to expand. The Amazon Rainforest, spanning the South American continent, supports extraordinary biodiversity and shelters about 400 indigenous communities. It absorbs massive quantities of carbon dioxide and produces oxygen for the entire planet. Deforestation here does not merely affect local wildlife; it accelerates global climate change by releasing stored carbon, demonstrating that these geographical features have consequences far beyond their own regions.

Q8 Discuss how oceans influence climate and trade. Use examples from the Indian and Pacific Oceans.

Oceans influence both climate and trade in fundamental ways. Climatically, oceans absorb and redistribute heat through currents, moderate temperatures of coastal regions, and generate rainfall by releasing moisture into the air. The Indian Ocean, for instance, drives the monsoon that delivers rainfall to South Asia, directly shaping agriculture and the lives of hundreds of millions of people. For trade, oceans have historically been the highways of commerce. The Indian Ocean has been central to trade between India, Africa, and the Arabian Peninsula for millennia — the Persian Gulf, connected to the Indian Ocean, was vital for ancient trade routes. The Pacific Ocean, the largest and deepest ocean, is described in the chapter as one of the busiest waterways for trade and transport today, as well as a rich fishing ground. Together, these oceans illustrate how maritime geography shapes both the natural environment and human economic activity.

Q9 Choose one environmental issue (deforestation, reef bleaching, or desertification) and explain its causes, impacts, and possible solutions.

Reef bleaching is a severe environmental issue threatening the world's coral reefs, including the Great Barrier Reef. Causes: Rising ocean temperatures due to climate change alter the chemical composition of seawater. Corals expel the algae living in their tissues, turning white — this is bleaching. Pollution from agricultural run-off and industrial processes further weakens coral health. Overfishing disturbs the balance of reef ecosystems. Impacts: Bleached corals often die, destroying the habitat of about one-quarter of all ocean species. The loss of reefs reduces fish populations, harms coastal communities that depend on them for food and income, and diminishes a key natural barrier that protects coastlines from storms. Solutions: Reducing greenhouse gas emissions to slow ocean warming is the most critical step. Controlling pollution by limiting agricultural and industrial waste entering the sea, enforcing regulations against overfishing, and establishing marine protected areas can all help reefs recover. Supporting scientific efforts to breed heat-resistant corals is also being explored.

Q10 Imagine you are a geographer asked to advise a government about protecting one major landscape in your country. Which one would you choose, and why?

Model answer: As a geographer advising the Indian government, I would recommend prioritising the protection of the Western Ghats. This ancient mountain range runs along the western coast of India and is one of the world's eight biodiversity hotspots. It is the source of many of peninsular India's major rivers, supplying freshwater to millions of people. Its forests regulate the monsoon rainfall that sustains agriculture across a large part of India. However, rapid deforestation, mining, and urban expansion are destroying its ecosystems. Protecting the Western Ghats through strict conservation laws, sustainable land-use policies, and support for indigenous communities who depend on and safeguard these forests would benefit not just local biodiversity, but India's water security and climate stability as a whole. (Any well-reasoned choice of an Indian landscape is acceptable.)

Q11 Imagine that someone is funding a group of you for a road trip across two continents. There are differences of opinion on which two they should be. Make a pitch for the ones you would like everyone to go to. Use a blank map, trace your route and locate the places on it, and try to convince the others to your point of view. You could use a variety of creative ways.

Guidance: This is a creative map-based activity. Choose any two continents studied in the chapter — for example, South America and Africa, or Asia and Europe. On a blank world map, draw a route connecting key geographical features discussed in the chapter: for South America, you could pass through the Andes Mountains, the Amazon Rainforest, and the Atacama Desert; for Africa, the Sahara Desert, the Savannah, and the Nile River. Beside each stop, write two to three reasons why it is worth visiting — its unique landforms, wildlife, cultural significance, or environmental importance. Your pitch should explain what makes these continents special using facts and descriptions from the chapter, and could include drawings, a travel poster, or a short speech to convince your group.