

Asia: Physical geography

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Stone forest, a set of Karst Limestone rock formations in Shilin, Yunnan, China. Part of the UNESCO South China Karst World Heritage Site. Photo by: CEphoto, Uwe Aranas.

Asia is the largest of the world's continents, covering approximately 30 percent of the Earth's land area. It is also the world's most populous continent, with roughly 60 percent of the total population.

Asia makes up the eastern portion of the Eurasian supercontinent; Europe occupies the western portion. The border between the two continents is debated. However, most geographers define Asia's western border as an indirect line that follows the Ural Mountains, the Caucasus Mountains, and the Caspian and Black seas. Asia is bordered by the Arctic, Pacific and Indian oceans.

Asia's physical geography, environment and resources, and human geography can be considered separately.

Asia can be divided into five major physical regions: mountain systems; plateaus; plains, steppes and deserts; freshwater environments; and saltwater environments.

Mountain Systems

The Himalaya



mountains extend for about 2,500 kilometers (1,550 miles), separating the Indian subcontinent from the rest of Asia. The Indian subcontinent, once connected to Africa, collided with the Eurasian continent about 50 million to 55 million years ago, forming the Himalayas. The Indian subcontinent is still crashing northward into Asia, and the Himalayas are growing about 5 centimeters (2 inches) every year.

The Himalayas cover more than 612,000 square kilometers (236,000 square miles), passing through the northern states of India and making up most of the terrain of Nepal and Bhutan. The Himalayas are so vast that they are composed of three different mountain belts. The northernmost belt, known as the Great Himalayas, has the highest average elevation at 6,096 meters (20,000 feet). The belt contains nine of the highest peaks in the world, which all reach more than 7,925 meters (26,000 feet) tall. This belt includes the highest mountain summit in the world, Mount Everest, which stands at 8,850 meters (29,035 feet).

The Tien Shan mountain system stretches for about 2,400 kilometers (1,500 miles), straddling the border between Kyrgyzstan and China. The name Tien Shan means "Celestial Mountains" in Chinese. The two highest peaks in the Tien Shan are Victory Peak, which stands at 7,439 meters (24,406 feet), and Khan Tängiri Peak, which stands at 6,995 meters (22,949 feet). Tien Shan also has more than 10,100 square kilometers (3,900 square miles) of glaciers. The largest glacier is Engil'chek Glacier, which is about 60 kilometers (37 miles) long.

The Ural Mountains run for approximately 2,500 kilometers (1,550 miles) in an indirect north-south line from Russia to Kazakhstan. The Ural Mountains are some of the world's oldest, at 250 million to 300 million years old. Millions of years of erosion have lowered the mountains significantly, and today their average elevation is between 914 and 1,220 meters (3,000 to 4,000 feet). The highest peak is Mount Narodnaya at 1,895 meters (6,217 feet).



Plateaus

Asia is home to many plateaus, areas of relatively level high ground. The Iranian plateau covers more than 3.6 million square kilometers (1.4 million square miles), encompassing most of Iran, Afghanistan and Pakistan. The plateau is not uniformly

flat, but contains some high mountains and low river basins. The highest mountain peak is Damavand, at 5,610 meters (18,410 feet). The plateau also has two large deserts, the Dasht-e Kavir and Dasht-e Lut.



The Deccan Plateau makes up most of the southern part of India. The plateau's average elevation is about 600 meters (2,000 feet). It is bordered by three mountain ranges: the Satpura Range in the north, and the Eastern and Western Ghats on either side. The plateau and its main waterways — the Godavari and Krishna rivers — gently slope toward the Eastern Ghats and the Bay of Bengal.

The Tibetan Plateau is usually considered the largest and highest area ever to exist in the history of Earth. Known as the "Rooftop of the World," the plateau covers an area about half the size of the contiguous United States and averages more than 5,000 meters (16,400 feet) above sea level. The Tibetan Plateau is extremely important to the world's water cycle because of its tremendous number of glaciers. These glaciers contain the largest volume of ice outside the poles. The ice and snow from these glaciers feed Asia's largest rivers. Approximately 2 billion people depend on the rivers fed by the plateau's glaciers.

Plains, Steppes And Deserts

The West Siberian Plain, located in central Russia, is considered one of the world's largest areas of continuous flatland. It extends from north to south about 2,400 kilometers (1,500 miles) and from west to east about 1,900 kilometers (1,200 miles). With more than 50 percent of its area at less than 100 meters (330 feet) above sea level, the plain contains some of the world's largest swamps and floodplains.

Central Asia is dominated by a steppe landscape, a large area of flat, unforested grassland. Mongolia can be divided into different steppe zones: the mountain forest steppe, the arid steppe, and the desert steppe. These zones transition from the country's mountainous region in the north to the Gobi Desert on the southern border with China.



The Rub' al Khali desert, considered the world's largest sand sea, covers an area larger than France across Saudi Arabia, Oman, the United Arab Emirates, and Yemen. It holds roughly half as much sand as Africa's Sahara desert, even though it is 15 times smaller in size. The desert is known as the Empty Quarter because it is virtually inhospitable to humans except for Bedouin tribes that live on its edges.

Freshwater

Lake Baikal, located in southern Russia, is the deepest lake in the world, reaching a depth of 1,620 meters (5,315 feet). The lake contains 20 percent of the world's unfrozen freshwater, making it the

largest reservoir on Earth. It is also the world's oldest lake, at 25 million years old. The Yangtze is the longest river in Asia and the third longest in the world (behind the Amazon of South America and the Nile of Africa). Reaching 6,300 kilometers (3,915 miles) in length, the Yangtze moves east from the glaciers of the Tibetan Plateau to the river's mouth on the East China Sea. The Yangtze is considered the lifeblood of China. It drains one-fifth of the country's land area, is home to one-third of its population, and contributes greatly to China's economy.



The Tigris and Euphrates rivers begin in the highlands of eastern Turkey and flow through Syria and Iraq, joining in the city of Qurna, Iraq, before emptying into the Persian Gulf. The land between the two rivers, known as Mesopotamia, was the center of the earliest civilizations, including Sumer and the Akkadian Empire. Today, the Tigris-Euphrates river system is under threat from increased agricultural and industrial use. These pressures have caused desertification and increased salts in the soil, severely damaging local watershed habitats.

Saltwater

The Persian Gulf has an area of more than 234,000 square kilometers (90,000 square miles). It borders Iran, Oman, United Arab Emirates, Saudi Arabia, Qatar, Bahrain, Kuwait and Iraq. The Gulf is subject to high rates of evaporation, making it shallow and extremely salty. The seabed beneath the Persian Gulf contains an estimated 50 percent of the world's oil reserves. The countries that border the gulf have engaged in a number of disputes over this rich resource.

The Sea of Okhotsk covers 1.5 million square kilometers (611,000 square miles) between the Russian mainland and the Kamchatka Peninsula. The sea is largely frozen between October and March. Large ice floes make winter navigation almost impossible.

The Bay of Bengal is the largest bay in the world, covering almost 2.2 million square kilometers (839,000 square miles) and bordering Bangladesh, India, Sri Lanka, and Burma. Many large rivers, including the Ganges and Brahmaputra, empty into the bay. The briny wetlands formed by the Ganges-Brahmaputra on the Bay of Bengal is the largest delta in the world.



Terrestrial Flora And Fauna

Botanists nickname China the "Mother of Gardens." It has more flowering plant species than North and South America combined. Because China has such diverse landscapes, from the arid Gobi Desert to the tropical rain forests of Yunnan Province, many flowers can adapt to climates all over the world. From roses to peonies, many familiar flowers most likely originated in northern China. China is the likely origin of such fruit trees as peaches and oranges. China is also home to the dawn redwood, the only redwood tree found outside North America.

Asia's diverse physical and cultural landscape has dictated the way animals have been domesticated. In the Himalayas, communities use yaks as beasts of burden. Yaks are large animals related to cattle, but with a thick fiber coat and the ability to survive in the oxygen-poor high altitude of the mountains. Yaks are not only used for transportation and for pulling plows, but their coats are sources of warm, hardy fiber. Yak milk is used for butter and cheese.

In the Mongolian steppe, the two-humped Bactrian camel is the traditional beast of burden. Bactrian camels are critically endangered in the wild. The camel's humps store nutrient-rich fat, which the animal can use in times of drought, heat, or frost. Its size and ability to adapt to hardship make it an ideal pack animal. Bactrians can actually outrun horses over long distances. These camels were the traditional animals used in caravans on the Silk Road, the legendary trade route linking eastern Asia with India and the Middle East.



Aquatic Flora And Fauna

The freshwater and marine habitats of Asia offer incredible biodiversity.

Lake Baikal's age and isolation make it a unique biological site. Aquatic life has been able to evolve for millions of years relatively undisturbed, producing a rich variety of flora and fauna. The lake is known as the "Galápagos of Russia" because of its importance to the study of evolutionary science. It has 1,340 species of animals and 570 species of plants.

Hundreds of Lake Baikal's species are endemic, meaning they are found nowhere else on Earth. The Baikal seal, for instance, is one of the few freshwater seal species in the world. The Baikal seal feeds primarily on the Baikal oil fish and the omul. Both fishes are similar to salmon, and provide fisheries for the communities on the lake.



The Bay of Bengal, on the Indian Ocean, is one of the world's largest tropical marine ecosystems. The bay is home to dozens of marine mammals, including the bottlenose dolphin, spinner dolphin, spotted dolphin and Bryde's whale. The bay also supports healthy tuna, jack, and marlin fisheries.

Some of the bay's most diverse array of organisms exist along its coasts and wetlands. Many wildlife reserves in and around the bay aim to protect its biological diversity.

The Sundarbans is a wetland area that forms at the delta of the Ganges and Brahmaputra rivers. The Sundarbans is a huge mangrove forest. Mangroves are hardy trees that are able to withstand the powerful, salty tides of the Bay of Bengal as well as the freshwater flows from the Ganges and Brahmaputra. In addition to mangroves, the Sundarbans is forested by palm trees and swamp grasses.

The swampy jungle of the Sundarbans supports a rich animal community. Hundreds of species of fish, shrimp, crabs, and snails live in the exposed root system of the mangrove trees. The

Sundarbans supports more than 200 species of aquatic and wading birds. These small animals are part of a food web that includes wild boar, macaque monkeys, monitor lizards, and a healthy population of Bengal tigers.



Quiz

- 1 How is the article organized? What is the MOST likely reason why the author chose this organizational structure?
- (A) The article is organized by geographical feature; the author likely wanted to highlight the key details of the different components of Asia's physical landscape.
 - (B) The article is organized by order of importance; the author likely wanted to emphasize which geographical features are the most influential across Asia.
 - (C) The article is organized by cause and effect; the author likely wanted to identify the environmental factors that led to the development of Asia's geography and resources.
 - (D) The article is organized in chronological order; the author likely wanted to examine the geographical features of Asia in the same order in which they developed.
- 2 Which answer choice provides the BEST analysis of the introduction [paragraphs 1-4]?
- (A) After clearly establishing that Asia is a very large continent, the author identifies five key physical regions that the article will address, making sure readers know that mountains are most important.
 - (B) The author details Asia's size and population, then goes on to describe why understanding mountains is imperative to understanding the region.
 - (C) After describing how many people live in Asia, the author explains how the continents of Asia and Europe are separated before going on to state that human geography will not be addressed in this article.
 - (D) The author provides a brief overview of Asia's landmass and population before identifying five key physical regions that will be addressed in this article.
- 3 How do the images and article address the question of the interaction between humans and the environment?
- (A) The author explains the environment and its resources in each section of the article, leaving readers to infer how the land affects humans; however, many of the accompanying images illustrate how people in Asia have learned to utilize environmental resources.
 - (B) The author dedicates slightly more time to detailing environmental resources, but makes sure to include a small section on human impact; many of the accompanying images illustrate the degree to which humans have affected the environment and its resources.
 - (C) The author describes the environment and its resources in-depth while briefly addressing human interaction with the land; some of the accompanying images illustrate humans interacting with the environment and its resources.
 - (D) The author chooses to focus on the environment and its resources in order to provide an unbiased portrait of Asian geography; however, many of the accompanying images illustrate how humans are manipulating the environmental resources to create towns, cities and roads.
- 4 Which of the following images BEST depicts how some areas of Asia are inhospitable?
- (A) the image next to "Plateaus"
 - (B) the image next to "Plains, Steppes And Deserts"
 - (C) the image next to "Freshwater"
 - (D) the image next to "Saltwater"

Answer Key

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