

Encyclopedic Entry

Asia: Physical Geography

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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 flood plains.

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.

VOCABULARY

Term	Part of Speech	Definition
adapt	<i>verb</i>	to adjust to new surroundings or a new situation.
Akkadian Empire	<i>noun</i>	(~2300-~2150 BCE) civilization in the Fertile Crescent.
ancient	<i>adjective</i>	very old.
aquatic	<i>adjective</i>	having to do with water.
arid	<i>adjective</i>	dry.
array	<i>noun</i>	large group.
basin	<i>noun</i>	a dip or depression in the surface of the land or ocean floor.
bay	<i>noun</i>	body of water partially surrounded by land, usually with a wide mouth to a larger body of water.
beast of burden	<i>noun</i>	animal used for carrying or pulling heavy loads.
biodiversity	<i>noun</i>	all the different kinds of living organisms within a given area.
border	<i>noun</i>	natural or artificial line separating two pieces of land.
brine	<i>noun</i>	water saturated with salt. Brine also refers to oceans and seas, and their water.
caravan	<i>noun</i>	group of people who travel together for safety and companionship through difficult territory.
civilization	<i>noun</i>	complex way of life that developed as humans began to develop urban settlements.
climate	<i>noun</i>	all weather conditions for a given location over a period of time.
concept	<i>noun</i>	idea.

continent	<i>noun</i>	one of the seven main land masses on Earth.
critically endangered	<i>noun</i>	level of conservation between "endangered" and "extinct in the wild."
culture	<i>noun</i>	learned behavior of people, including their languages, belief systems, social structures, institutions, and material goods.
delta	<i>noun</i>	the flat, low-lying plain that sometimes forms at the mouth of a river from deposits of sediments.
desert	<i>noun</i>	area of land that receives no more than 25 centimeters (10 inches) of precipitation a year.
desertification	<i>noun</i>	the spread of desert conditions in arid regions, usually caused by human activity.
domesticate	<i>verb</i>	to tame or adapt for human use.
drought	<i>noun</i>	period of greatly reduced precipitation.
economy	<i>noun</i>	system of production, distribution, and consumption of goods and services.
ecosystem	<i>noun</i>	community and interactions of living and nonliving things in an area.
elevation	<i>noun</i>	height above or below sea level.
endemic	<i>adjective</i>	native to a specific geographic space.
erosion	<i>noun</i>	act in which earth is worn away, often by water, wind, or ice.
evaporation	<i>noun</i>	process by which liquid water becomes water vapor.
evolve	<i>verb</i>	to develop new characteristics based on adaptation and natural selection.
fauna	<i>noun</i>	animals associated with an area or time period.
fiber	<i>noun</i>	threadlike material produced by some animals, such as spider silk or wool.
fishery	<i>noun</i>	industry or occupation of harvesting fish, either in the wild or through aquaculture.
flower	<i>noun</i>	blossom or reproductive organs of a plant.
food web	<i>noun</i>	all related food chains in an ecosystem. Also called a food cycle.
freshwater	<i>noun</i>	water that is not salty.
glacier	<i>noun</i>	mass of ice that moves slowly over land.
gulf	<i>noun</i>	portion of an ocean or sea that penetrates land.
habitat	<i>noun</i>	environment where an organism lives throughout the year or for shorter periods of time.
Himalaya Mountains	<i>noun</i>	mountain range between India and Nepal.
ice floe	<i>noun</i>	large, flat sheet of ice floating on a body of water.
Indian subcontinent	<i>noun</i>	landmass in south-central Asia carried by the Indian tectonic plate, including the peninsula of India.
industrial	<i>adjective</i>	having to do with factories or mechanical production.
isolation	<i>noun</i>	state of being alone or separated from a community.

lake	<i>noun</i>	body of water surrounded by land.
landscape	<i>noun</i>	the geographic features of a region.
legendary	<i>adjective</i>	famous, heroic, or celebrated.
mangrove	<i>noun</i>	type of tree or shrub with long, thick roots that grows in salty water.
marine mammal	<i>noun</i>	an animal that lives most of its life in the ocean but breathes air and gives birth to live young, such as whales and seals.
Mesopotamia	<i>noun</i>	area between the Tigris and Euphrates River in Iraq.
mouth	<i>noun</i>	place where a river empties its water. Usually rivers enter another body of water at their mouths.
navigation	<i>noun</i>	art and science of determining an object's position, course, and distance traveled.
nutrient	<i>noun</i>	substance an organism needs for energy, growth, and life.
oil reserve	<i>noun</i>	petroleum from a specific reservoir that can be successfully brought to the surface.
omul	<i>noun</i>	fish native to Lake Baikal.
originate	<i>verb</i>	to begin or start.
pack animal	<i>noun</i>	domesticated animal used by humans for transporting goods.
physical geography	<i>noun</i>	study of the natural features and processes of the Earth.
plateau	<i>noun</i>	large region that is higher than the surrounding area and relatively flat.
plow	<i>noun, verb</i>	tool used for cutting, lifting, and turning the soil in preparation for planting.
pole	<i>noun</i>	extreme north or south point of the Earth's axis.
populous	<i>adjective</i>	containing a large number of inhabitants.
rain forest	<i>noun</i>	area of tall, mostly evergreen trees and a high amount of rainfall.
reservoir	<i>noun</i>	natural or man-made lake.
river	<i>noun</i>	large stream of flowing fresh water.
root system	<i>noun</i>	all of a plant's roots.
significant	<i>adjective</i>	important or impressive.
Silk Road	<i>noun</i>	ancient trade route through Central Asia linking China and the Mediterranean Sea.
soil	<i>noun</i>	top layer of the Earth's surface where plants can grow.
steppe	<i>noun</i>	dry, flat grassland with no trees and a cool climate.
Sumer	<i>noun</i>	(5000 BCE-2000 BCE) ancient civilization in what is now southern Iraq.
summit	<i>noun</i>	highest point of a mountain.
supercontinent	<i>noun</i>	ancient, giant landmass that split apart to form all the continents we know today.
swamp	<i>noun</i>	land permanently saturated with water and sometimes covered with it.
tide	<i>noun</i>	rise and fall of the ocean's waters, caused by the gravitational pull of the moon and sun.

trade route	<i>noun</i>	path followed by merchants or explorers to exchange goods and services.
tremendous	<i>adjective</i>	very large or important.
tropical	<i>adjective</i>	existing in the tropics, the latitudes between the Tropic of Cancer in the north and the Tropic of Capricorn in the south.
unique	<i>adjective</i>	one of a kind.
vast	<i>adjective</i>	huge and spread out.
water cycle	<i>noun</i>	movement of water between atmosphere, land, and ocean.
watershed	<i>noun</i>	entire river system or an area drained by a river and its tributaries.
wildlife reserve	<i>noun</i>	area set aside and protected by the government or other organization to maintain wildlife habitat. Also called a nature preserve.
yak	<i>noun</i>	Central Asian ox.

For Further Exploration

Articles & Profiles

- National Geographic WildWorld: Central China Loess Plateau
- National Geographic News: India's Monsoons Intensifying

Websites

- National Geographic Travel: Asia
- Columbia University: Asia for Educators
- Boreal Forest: Forest Management in Russia
- Global Volcanism Program: Fuji



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