

Central Asia

Until recently Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan were unfamiliar to many people in other countries. Now these lands are being discovered by investors and tourists and are changing rapidly after decades of Soviet rule.

Silver and gold wolf's head from a battle flag, Kazakhstan

Salam! (Hi!) My name is Leila. I live in Turkmenistan. Here we go to school six days a week and study 18 different subjects. There is no choice of courses. We just switched from writing with the Cyrillic alphabet to writing with the Latin alphabet.

After school we go home and have lunch. Then my sister and I divide the chores. My brothers have outdoor chores, like tending our fruit and vegetable garden or taking the sheep out to graze along the canal. The sheep are kept in a shed in back. Many of our neighbors keep cows. We grow cabbage, spinach, carrots, beets, turnips, parsley, dill, pomegranates, and grapes.

It takes a long time to cook dinner because everything is made from scratch. The oven is outside in the courtyard. For fuel we use the woody stems of cotton plants. The smoke has a wonderful smell. To keep the mosquitoes away, we scatter the seeds of desert plants on a hot dish to create smoke. We wash our hands before dinner and sit on the floor around low tables to eat with our hands, three or four people to one dish.

Every year in October, each student from seventh grade through university goes to the country to pick cotton, because hand-picked cotton is more valuable. We work for eight hours every day and have to pick at least 50 kilograms (110 lbs) a day. We get paid about 10 cents per kilo. This is the only paid job students can have.

Man riding a donkey, Uzbekistan



Section
1

Natural Environments

HOLT
Geography's Impact

Watch the video to understand the impact of irrigation on Central Asia.

READ TO DISCOVER

1. What are the major landforms and rivers of Central Asia?
2. What climates, biomes, and natural resources does the region have?

Reading Strategy

USING PRIOR KNOWLEDGE Draw a line down the center of a sheet of paper to create two columns. Title one column What I Know. Title the other column What I Learned. Before you read, write down what you know about Central Asia's natural environments in the first column. As you read the section, write down the information you learn in the other column. Include key terms and their definitions.

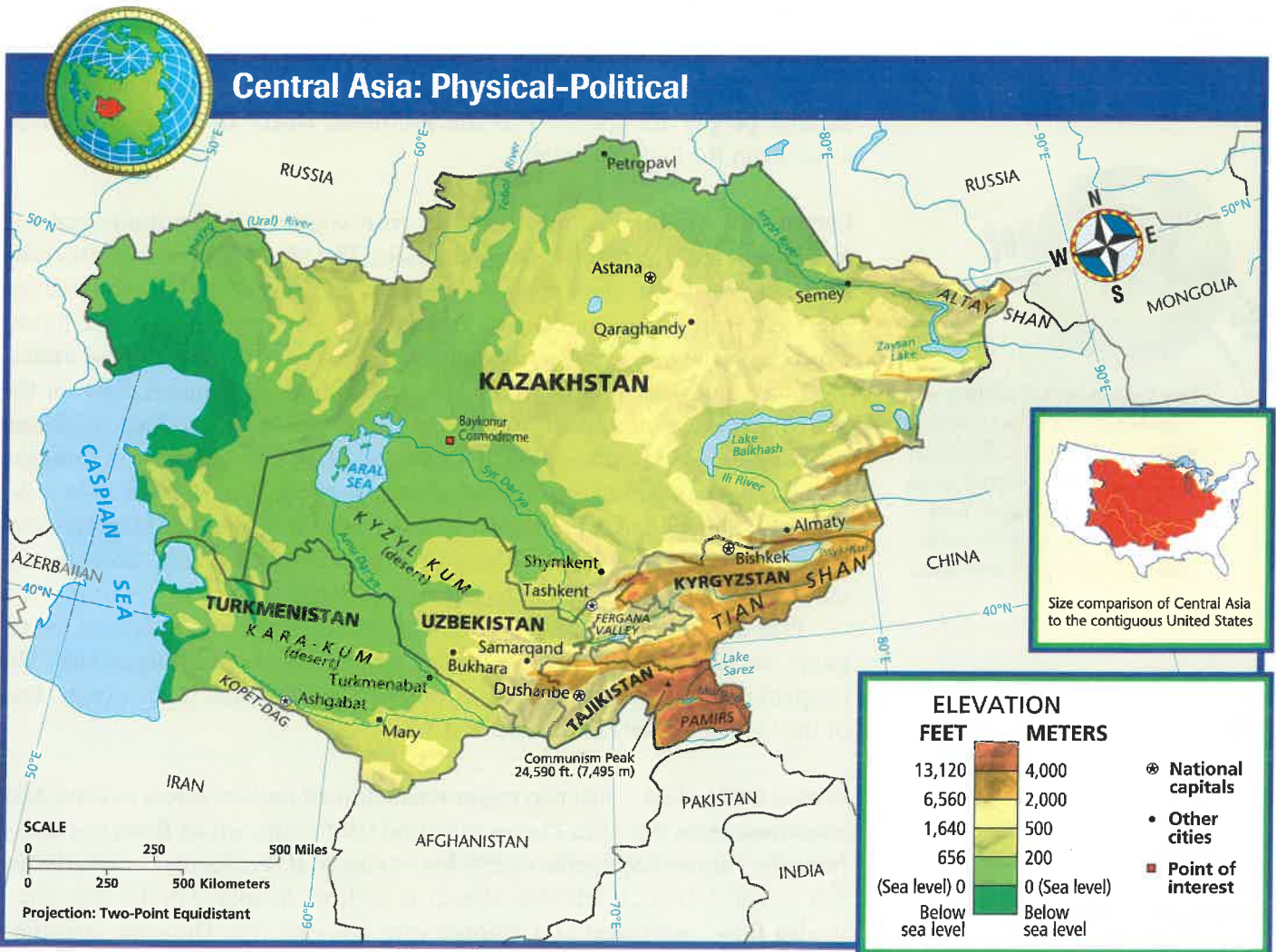
DEFINE

zinc

LOCATE

Altay Shan
Tian Shan
Pamirs
Kopet-Dag
Caspian Sea
Aral Sea
Amu Dar'ya
Syr Dar'ya

Irtysh River
Lake Balkhash
Issyk-Kul
Kara-Kum
Kyzyl Kum





The Tian Shan range contains steep ridges and deep valleys. Glaciers like this one fill many of the valleys.

Landforms, Rivers, and Lakes

The five countries of Central Asia are all landlocked. Semiarid grasslands are found in the north. To the east, plateaus rise above barren deserts. Most of the region's people are clustered in the southeast, where rivers bring precious water from the high mountains.

Landforms Central Asia is a land of great contrasts in elevation—ranging from below sea level to lofty mountain peaks. The Altay Shan (al-TY SHAHN) rise in the far northeast. *Shan* means “mountain” in Chinese. In the southeast are the Tian Shan (TYEN SHAHN) and Pamirs (puh-MIRZ) ranges. Tectonic forces, which push the Indian subcontinent into the rest of Asia, created these mountains. Tectonic activity sometimes causes disastrous earthquakes. Each of the five countries has mountains more than 10,000 feet (3,050 m) high. Tajikistan contains the region's tallest peak at 24,590 feet (7,495 m). Glaciers are common in Central Asia's mountains. Tajikistan's massive Fedchenko Glacier is 44 miles (71 km) long. Along Central Asia's southwestern rim, the Kopet-Dag (koh-PET-DAHG) form a rugged boundary between Turkmenistan and Iran. These mountains are lower and drier than the region's eastern ranges.

Plateaus and plains stretch north and west from the mountains. At the region's western edge lies the Caspian Sea, which is the world's largest lake. The Caspian is 92 feet (28 m) below sea level and has no outlet to the ocean. East of the Caspian is the landlocked Aral Sea.

Rivers and Lakes Just two major rivers flow all the way across Central Asia. Snowmelt feeds the Amu Dar'ya (AH-moo DAHR-yuh), which flows northwest from the Pamirs 1,578 miles (2,539 km) to the Aral Sea. Farther north, the Syr Dar'ya (sir duhr-YAH) stretches almost as far from its source in the Tian Shan. It also flows northwest and empties into the Aral Sea. However, irrigation



Lake Sarez in eastern Tajikistan was created when a large landslide triggered by an earthquake blocked the Murgab River. If another quake breaks the natural dam, floodwaters could reach as far as the Aral Sea, hundreds of miles away.

internet connect

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FOR: Web sites about Central Asia



drains much of the water from these rivers. For example, a canal flows from the Amu Dar'ya across most of southern Turkmenistan. By the time the rivers reach the Aral Sea they are little more than trickles. (See *Geography for Life: The Shrinking Aral Sea.*) The Syr Dar'ya and its tributaries provide water for the densely populated Fergana Valley.

The Irtysh (ir-TUHSH) River of eastern Kazakhstan flows northward into Russia. There it joins the Ob River, which drains into the Arctic Ocean. The Irtysh also provides water for crops, reservoirs, hydropower stations, and industrial cities.

Central Asia has some interesting lakes. Shallow Lake Balkhash has freshwater where the Ili River and other streams enter it. However, the lake is salty at its eastern end. Issyk-Kul (is-sik-KUHL) never freezes over even though it lies about a mile above sea level in the Tian Shan. The lake's warm water moderates the area's otherwise cold climate. (See *Focus on Geography: Issyk-Kul and Tourism.*)

READING CHECK: *Physical Systems* What is the region's physical environment like? What forces created Central Asia's high mountains?



INTERPRETING THE VISUAL RECORD What are the straight narrow lines in this aerial view of the Amu Dar'ya? How might government planners use this photo?

Climates, Biomes, and Natural Resources

Most places in Central Asia have harsh climates. A location in the heart of Asia means the region is far removed from oceanic influences. Also, high mountains form a barrier to warm moist winds from the Indian Ocean and create a rain shadow. As a result, precipitation totals are low, and there are extreme seasonal temperature ranges. Summer temperatures can rise to 115°F (46°C). Winter lows have dropped to -36°F (-38°C).

Climates As you can see on the unit climate map, Central Asia has mostly semiarid and arid climates. The region has two large deserts—the Kara-Kum (“Black Sand”) and Kyzyl Kum (“Red Sand”). One of the world's greatest tracts of drifting sand dunes is found in the Kara-Kum. Stony ground is more typical of the Kyzyl Kum.

Southern Turkmenistan has a small area with a Mediterranean climate. With its sunny skies and rugged surrounding scenery, the city of Ashgabat was a center of Soviet filmmaking. Some areas in the foothills of the Tian Shan also have mild weather. For example, Almaty, Kazakhstan, gets about 23 inches (58 cm) of rain each year. Spring and fall are pleasant there.

Plant and Animal Life The region's highest peaks are too cold, dry, and windy for vegetation. However,

INTERPRETING THE VISUAL RECORD

A Bactrian camel carries a rider across this desert in Central Asia. How did the domestication of the camel allow people to adapt to desert life?





The number of snow leopards is decreasing quickly. Corruption and the lack of effective government controls make protecting the big cats very difficult.

deciduous forests grow at middle elevations. In fact, Central Asia is known for its many walnut trees. Evergreen trees grow at higher elevations. Many alluvial fans, foothills, and river deltas support grasses and shrubs. Animals that live in the mountains include deer, pheasants, and wild boar. One of the world's most beautiful and endangered big cats, the snow leopard, also finds shelter in the high southeastern ranges.

Like many arid places, southern Central Asia has glorious vegetation in the spring. Desert shrubs and grasses bloom briefly before the searing summer heat begins. A tree unique to Central Asia, the saxaul, is one of the few large plants found in the desert. The tree's dense, heavy wood burns like charcoal. Desert peoples have used it as firewood for thousands of years. Desert wildlife includes antelope, wildcats, and wolves. Domesticated camels, goats, and sheep also graze on desert grasses.

READING CHECK: Physical Systems How is the mountain vegetation of Central Asia different from its desert vegetation?

Natural Resources In this arid region, water is the most precious resource. Although rainfall is low, snowmelt from the eastern ranges flows into rivers. Large dams along these rivers generate hydroelectricity.

Energy and mineral resources abound in Central Asia. Coal deposits are common on Kazakhstan's eastern plateau. The richest oil fields are in the west. The area around the Caspian Sea is a particularly important source of oil. Huge oil reserves there will last for many years. (See Case Study: Pipelines or Pipe Dreams?) Large gas reserves lie below Turkmenistan's desert basin.

Kazakhstan has most of the region's mines, and it exports copper, iron, lead, and nickel. Another export is **zinc**, an element important in metal processing and other industries. Uzbekistan is a major gold producer.

READING CHECK: Physical Systems Where are the region's main energy resources found?



Review

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Define zinc

Working with Sketch Maps

On a map of Central Asia that you draw or that your teacher provides, label the Altay Shan, Tian Shan, Pamirs, Kopet-Dag, Caspian Sea, Aral Sea, Amu Dar'ya, Syr Dar'ya, Irtysh River, Lake Balkhash, Issyk-Kul, Karakum, and Kyzyl Kum. Which body of water is the world's largest lake?

Reading for the Main Idea

- Physical Systems** Where are the region's mountain ranges? How do they affect precipitation patterns in Central Asia?
- Physical Systems** What climates are found in the region? Where would you find a mild climate with reliable precipitation?

Critical Thinking

- Making Generalizations and Predictions** How might the location of resources affect Central Asia's population density in the future?

- Drawing Inferences and Conclusions** How might Central Asia's physical geography limit foreign trade for the region's countries?

Organizing What You Know

- Create a chart like the one below. Use Section 1 and the physical-political map to complete it. Add boxes for the region's remaining countries.

Country	Landforms	Bodies of water
Kazakhstan		

Geography for Life

The Shrinking Aral Sea

People often change the environment in the process of using natural resources. Sometimes when humans alter nature, they bring prosperity to some areas while creating crises in others.

Perhaps nowhere else is this process more visible than at the Aral Sea. The Aral Sea, which is really a salt lake, lies between Kazakhstan and Uzbekistan. The sea has shrunk by about 60 percent since 1960. It once covered about 26,000 square miles (68,000 sq km) and was the world's fourth-largest lake. Today the sea covers only about 11,000 square miles (28,000 sq km). The former port city of Mūynoq now lies 30 miles (48 km) from the Aral Sea's shore. The sea's level has dropped 48 feet (16 m). As a result, the sea has become saltier, and few fish can survive in it. Moreover, some 10,000 square miles (26,000 sq km) of former seafloor have become a desert of sand and salt.

What happened? Cotton farming is largely responsible for the sea's drying. The Soviet government wanted to establish a profitable cotton industry. To water the cotton fields, the Soviets built a network of irrigation canals. This irrigation system still diverts large amounts of water from the Syr Dar'ya and Amu Dar'ya, the only rivers that flow

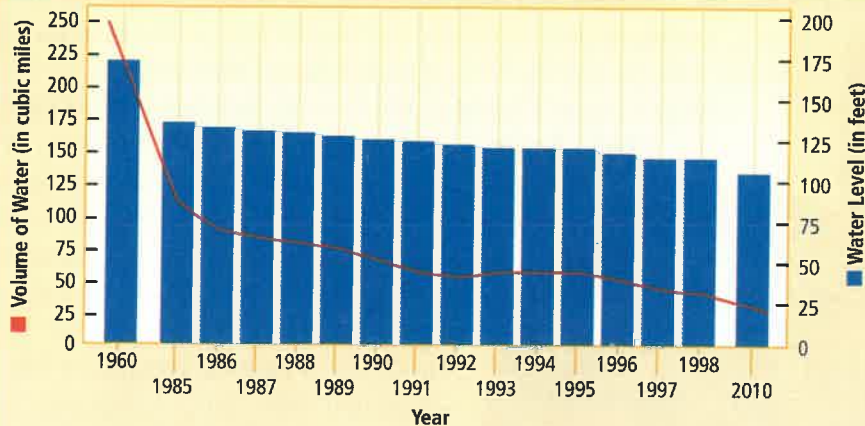
into the Aral Sea. Very little river water reaches the shrinking sea. In fact, more water evaporates from the sea than flows into it. In addition, the sea and the surrounding land are polluted with agricultural chemicals. Wind spreads the chemicals, along with the sand and salt, ruining cropland and damaging the health of area residents.

Experts from many countries are trying to find ways to repair environmental damage in the Aral Sea region. Little hope remains for the sea itself. The Aral Sea will probably soon be just a cluster of small salty lakes.

Applying What You Know

- Evaluating** What geographic and economic impact have past and present water policies had on the Aral Sea and the surrounding area?
- Making Generalizations and Predictions** Use the map, graph, and text to infer how the shrinking of the Aral Sea will affect the surrounding area. How might settlement patterns, population distribution, economic conditions, and political conditions in the area be affected?

Changes in the Aral Sea



Source: German Aerospace Center (DLR)

INTERPRETING THE GRAPH Both this graph and the map beside it demonstrate the drying of the Aral Sea. What relationship can you see between the surface area of the sea and its depth? How

The Aral Sea



might changes in water level affect the rate at which the sea's volume decreases?

Section 2

History and Culture

READ TO DISCOVER

1. How have various cultures and invaders affected the region's history?
2. What are some features of Central Asian cultures?

Reading Strategy

TAKING NOTES Taking notes while you read will help you understand and remember the information in this section. Your notes will be useful for reviewing the material. As you read this section, create an outline using the headings from the section. Beneath each heading write the information you learn. Include key terms and their definitions.

DEFINE

caravans
monoculture
nomads
transhumance
yurts

LOCATE

Samarqand
Fergana Valley



A warrior's armor from Kazakhstan

History

Humans have lived in Central Asia for thousands of years. In fact, many migrant peoples and invaders have left their imprint on the region's history and cultures. For a while, parts of the area belonged to the Persian Empire. Alexander the Great brought Greek influences when he invaded in the 300s B.C. Merchants pursuing profits instead of conquest also came through Central Asia. Great **caravans** passed through as they brought silk and other luxury goods from China along routes called the Silk Road. A caravan is a group of people traveling together for protection. Other traders would eventually sell these products in Europe and the Mediterranean region.

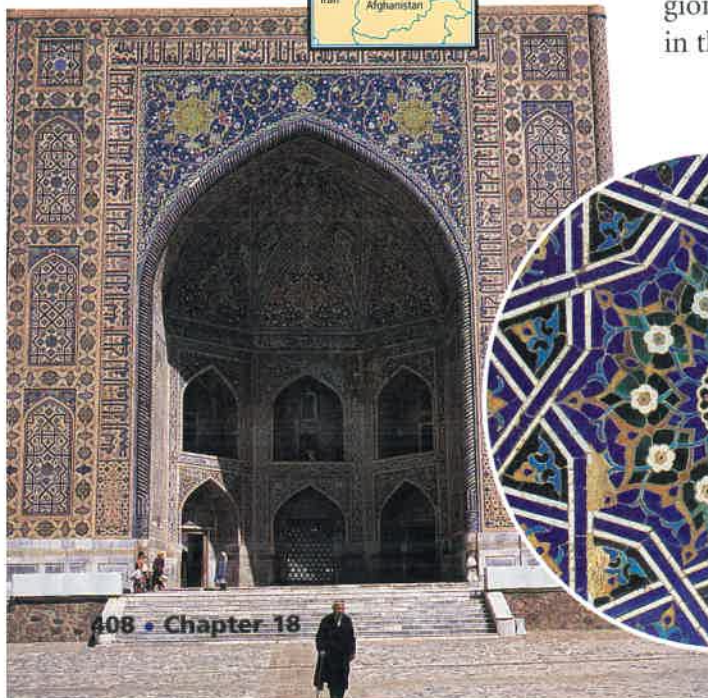
Built in Samarqand in the mid-1600s, the Tilla-Kari served both as a mosque and as a madrasa, or Islamic school. The complex's exterior walls are decorated with geometric designs worked in ceramic tiles, like the detail in the small photo. Some of Samarqand's historic buildings are decorated with gold and marble.



Armies and Empires Turkic-speaking peoples established kingdoms in Central Asia in the A.D. 600s. Not long after, Chinese armies conquered the region. Arabic speakers brought the Islamic faith when they invaded in the 700s. In 751 the Arab armies defeated the Chinese.

Beginning in 1218 Mongols from farther east, led by Genghis Khan, began a 200-year rule of Central Asia. The Mongols destroyed many cities and irrigation systems. A Turkic-speaking Mongol named

Timur (tee-MOOR), also known as Tamerlane, rose to power in the 1300s and built an empire. It lasted from 1370 to 1405. Timur was a ruthless conqueror, but he supported the arts, literature, and science. He ordered the building of beautiful gardens, mosques, and palaces at his capital, Samarqand. After Timur's death, his empire broke up into city-states. In the late 1400s Europeans began



to sail to East Asia, avoiding the Silk Road. As a result, trade through Central Asia declined, and the region became isolated.

Russian and Soviet Rule Under the czars, Russia conquered and colonized Central Asia in the mid-1800s. The conquest began in the north and moved south. Following the soldiers were settlers who irrigated and farmed the desert. The Russians also built railroads throughout the region. Railroads helped the Russians create a stronger military presence between India, which was under British control, and Russia. The railroads also offered better access to the region's resources. Expanded cotton and oil production followed.

Resistance to Russian rule grew during the 1910s. However, the Soviet government, which took power in Russia after the Russian Revolution in 1917, eventually crushed the resistance. In an effort to weaken that resistance, the Soviets drew new political boundaries that separated people and resources. The Central Asian countries were called republics, but they were fully under Soviet control. Russian migration to the region increased, bringing in several million people.

The Soviets built huge irrigation projects, which helped the Soviet Union become a leading cotton producer. In short, the government built a cotton **monoculture**—the cultivation of a single crop—in the region. People who had moved with their herds were forced to settle on large government-owned farms. During World War II, factories and more Russians moved east into Central Asia.

As the Soviet Union collapsed in 1991, the Central Asian republics declared their independence. Troublesome international boundaries remained from the Soviet era. For example, the fertile Fergana Valley had been divided among three countries. Those countries had to share the main rivers and irrigation canals. Today just southwest of the Fergana Valley, Uzbekistan enclaves lie in Kyrgyzstan. Enclaves of Tajikistan lie in Kyrgyzstan and Uzbekistan. The complex boundaries are now difficult to control. As a result, the governments cannot stop smugglers who ship illegal drugs through the area. The problem is most severe for Uzbekistan's government.

✓ **READING CHECK:** **Human Systems** What are some ways that Russian and Soviet rule changed Central Asia?

Culture

The five Central Asian countries lie in a region sometimes called Turkistan. The suffix *-stan* means “place” or “land” in Turkish. Turkic languages and ethnic groups have long dominated the area. As a result, many people once called the whole region Turkistan. Turkic heritage is still strong in the region today.

Irrigated farming was the traditional way of life in the region's southern areas. Herding was traditional in the north. A large segment of the north's population was made up of **nomads**. Nomads are people who move often from place to place. The region's nomads moved herds from mountain pastures in the summer to lowland pastures in the winter. This practice is called **transhumance**.



A teenager skates past a statue of Vladimir Lenin in Bishkek. The statue is left over from Kyrgyzstan's Soviet era. Lenin was a leader of the Russian Revolution.



INTERPRETING THE VISUAL RECORD

Historically, most people of Central Asia have been farmers or nomadic herders like the Tajik man on the left. Many, however, have begun to settle in permanent communities and to seek new occupations. On the right, hungry Kyrgyz travelers can choose from several roadside restaurants housed in yurts. How does this picture suggest a blending of traditional and modern cultures?

Unique homes, called **yurts**, made moving with the herds possible. A yurt is a movable round house of wool felt mats. The mats are placed over a wood frame. Today these homes remain a symbol of the region's nomadic heritage. Even people in cities may put up yurts for weddings and funerals.

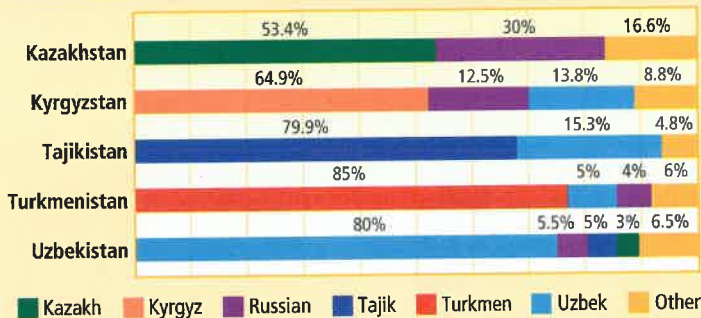
People, Languages, and Religion Almost two thirds of Central Asians speak a Turkic language. Many people identify themselves as Turkic. In fact, about 30 percent of the world's 125 million speakers of Turkic languages live in Central Asia. Four major Turkic languages are represented in the region. However, Tajikistan's language belongs to a different group and is related to the main language of Iran.

Russian is the main language and ethnic identity for a sizable minority of Central Asians. In fact, Russian is still an official language in some of the countries there. However, Russian language and culture in general are losing status. For example, the Latin alphabet is replacing the Cyrillic alphabet, in which Russian is written. In addition, millions of people have returned to Russia since 1991.

Traders and conquerors brought many religions to Central Asia. Islam is the main religion. Most of the region's Christians are ethnic Russians and belong to the Russian Orthodox Church. During the Soviet era, the government tried to get rid of all religions. It closed more than 35,000 mosques, churches, and Islamic schools. Many of these buildings were abandoned or destroyed over time. Since 1991 the remaining buildings have reopened. They are now powerful symbols of ethnic pride. The beautiful mosques and Islamic schools in Samarqand and other cities are major tourist attractions. Exquisite turquoise tile mosaics decorate many of them.



Ethnic Groups in Central Asian Countries



Source: CIA World Factbook 2006

INTERPRETING THE GRAPH Except for the Tajiks, who are more connected to the settled culture of Iran, the region's other major ethnic groups are all Turkic peoples. What role do you think the distribution of ethnic groups played in shaping the borders of Central Asia?

Traditions and Education Textiles are among Central Asia's best-known art forms. Felt yurts, distinctive wool hats, and silk fabrics are examples. Silk textiles are produced in both homes and factories. Mulberry trees growing along roads, fields, and canals provide the leaves on which silkworms feed.

Sheep, goats, and other animals grow long hair that is excellent for weaving into carpets. Central Asian carpets, often made by Turkmen nomads, are famous. Red colors and geometric designs are common on most of the carpets. Factory-made copies from Europe and declining Silk Road trade caused production of carpets to fall. Now the region's traditional weaving crafts are being revived because the tourist trade is growing.

Like other cultural crossroads, Central Asia has varied food traditions. Noodles probably came from China. The region imports tea from China today. Tea is very popular, and teahouses are a common sight in many areas. From the nomad culture came meat dishes and dairy products, some made with soured milk. Grilled meats such as lamb are featured in many meals. The farming way of life provides bread and rice dishes. Fruits and vegetables are plentiful. Apples, apricots, lemons, pumpkins, and watermelons are among the many fruits grown locally.

Communism limited personal freedoms, but the Soviet system did stress education and health care. State-run schools replaced education in Islamic schools. The results of widely available public services have continued in the post-Soviet period. Literacy rates are well above world averages. In addition, life expectancy in most Central Asian countries is longer than the world average, particularly for women.

READING CHECK: *Human Systems* In what ways did education in Central Asia change during the Soviet era?



Distinctive headgear is part of traditional dress in Central Asia. The sheepskin hats of the Turkmen (top) contrast with the embroidered felt caps worn by Uzbeks (bottom).

Section 2 Review

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Define caravans, monoculture, nomads, transhumance, yurts

Working with Sketch Maps On the map you created for Section 1, label the countries of Central Asia, Samarqand, and the Fergana Valley. Which three countries have complex boundaries in the Fergana Valley region?

Reading for the Main Idea

1. *Human Systems* Which invaders

destroyed Central Asian cities and irrigation systems? Which conqueror beautified Samarqand?

2. *Places and Regions* What are some cultural features that make Central Asia distinctive?

Critical Thinking

3. **Drawing Inferences and Conclusions** How might the region's cultural geography be different today if the Arab armies had not defeated the Chinese in A.D. 751?

4. **Analyzing Information** Why might Turkistan be considered a perceptual region?

Organizing What You Know

5. Create a graphic organizer like the one below. Use it to identify the many invasions of Central Asia. Add more boxes if necessary. Then use more arrows or other symbols to describe connections between the groups.



Section 3

The Region Today

READ TO DISCOVER

1. How has the economy of Central Asia changed over time?
2. What are the region's cities like?
3. What issues must Central Asia face to improve its economy?

Reading Strategy

READING ORGANIZER Before you read this section, draw a concept map (a circle with rays that attach smaller circles). In the large circle write Central Asia Today. As you read, write in the smaller circles the information you learn about the economic changes, urban environments, issues, and challenges in Central Asia. Include key terms and their definitions.

DEFINE

dryland farming

LOCATE

Bukhara

Tashkent

Bishkek

Almaty

Astana

INTERPRETING THE VISUAL RECORD

Workers pick cotton in a field outside Bukhara, Uzbekistan. During the harvest season, students and government workers from across the country are brought in to help with the picking. *Why might farmers be forced to rely on student labor to harvest the cotton crop?*

Economic Changes

Agriculture remains important to Central Asia. Traditional herders raise camels, cattle, goats, horses, and sheep. Crops include cotton, fruits, barley, rice, tobacco, and vegetables. Uzbekistan is the world's third-largest exporter of cotton. To retain the soil's nutrients, farmers are now adding other crops to the region's cotton monoculture. Kyrgyzstan's fertile soils in the Tian Shan foothills allow a mix of **dryland farming** and irrigated crops. Dryland farming relies on rainfall instead of irrigation. Turkmenistan depends on the world's longest irrigation channel to water grain and cotton fields in the country's southern areas.

Mining and industry offer a chance for future wealth. Huge reserves of oil, gas, and minerals await development. However, having to use outdated equipment slows industrial growth. Corruption, poor transportation links, and a lack of cash for investment also hurt development. Moreover, many skilled Russian workers and managers are leaving the region.

The need for more foreign trade is another factor limiting development. Russia is not the reliable customer that the Soviet Union once was. Other markets are far away. Even products for local markets must often cross international borders.

READING CHECK: *Places and Regions* What factors limit the Central Asian countries' ability to develop their mines and industries?

Urban Environments

Central Asia has relatively few big cities because, throughout its history, most of the people have been nomads or farmers. As a result, few of the cities have many



Connecting to TECHNOLOGY

Baykonur Cosmodrome

The space race between the Soviet Union and the United States began in 1957. In that year the Soviets launched the first artificial satellite *Sputnik* into space. *Sputnik* blasted off from the Baykonur Cosmodrome in what is now Kazakhstan. The world's first manned orbital flight and the flight of the first woman in space also began at Baykonur. It is still Russia's most important location for launching space vehicles. However, the noise and activity have not completely changed the surrounding environment. In fact, wild camels and horses roam the site!

For decades, the Soviet Union tried to keep Baykonur's location, and even its existence, a secret. Today a detailed map of the complex is available on the Internet.

Analyzing Maps Study the chapter physical-political map. Why do you think the Soviet Union established the Baykonur Cosmodrome in that location?



In 1963 Valentina Tereshkova became the first woman in space. The letters CCCP on her helmet stand for "Union of Soviet Socialist Republics" in Russian.

old features. Those that lie along ancient trade routes, such as Bukhara and Samarqand, still have colorful markets and blue-tiled mosques. Tashkent, the region's largest city, has an Old Town of mud-brick houses and narrow streets. However, most of Tashkent is a Soviet-era city of plain apartment buildings, factories, and offices. Smaller cities, such as Bishkek, also offer few cultural or historical sites. They do serve as starting points for tourists exploring the mountains and other scenic areas. As tourists discover the Central Asian countries, some new banks, restaurants, and shops are opening in the cities.

In 1997 Kazakhstan moved its capital from Almaty to Astana. Government leaders wanted to rebuild the city into a glorious capital, but funds are not available. On the other hand, the new location is closer to Russia and Europe. This new location might strengthen links between Kazakhstan and Russia and help Kazakhstan keep its Russian population.

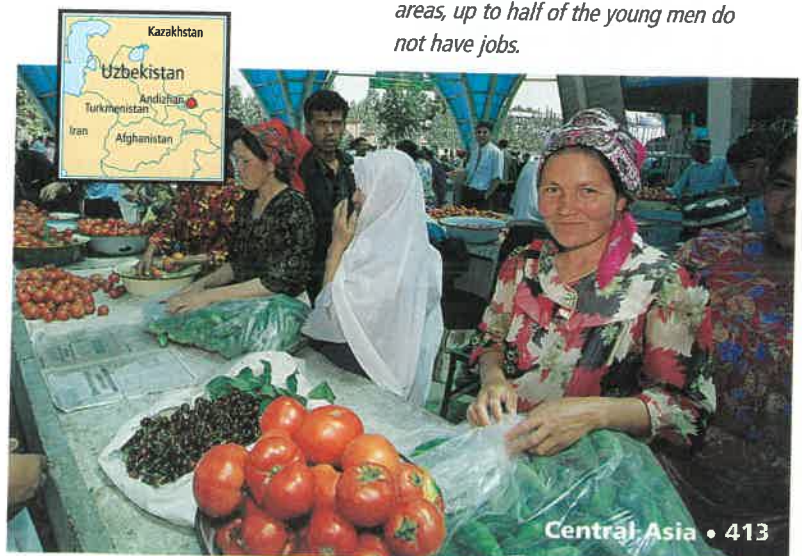
✓ **READING CHECK:** **Human Systems** What caused the old cities of Central Asia to grow? What evidence remains from these earlier times?

Issues and Challenges

The Central Asian countries must overcome tremendous challenges to ensure economic and social progress. Oil and gas deposits may bring in plenty of cash someday, but all the countries still face an uncertain future. Many of the people are poor and have few opportunities to improve their lives.

The region's location creates a basic problem. As you have read, the countries are landlocked. As a result, they are cut off from major

The bazaar in Andizhan, Uzbekistan, recalls the lively trade of the Fergana Valley city's history as a stop on the Silk Road. However, unemployment in the Fergana Valley is high. In some areas, up to half of the young men do not have jobs.





Different types of environmental challenges face Central Asia. Left: A slag heap contrasts with the snowy slope behind it. Slag is a waste product created when metal ores are refined. It is sometimes used to build roads or to make fertilizer. However, much of Central Asia's slag is contaminated with radiation or poisonous substances. Right: Stranded ships provide testimony of the Aral Sea's receding shoreline.

global trade routes. Even the Persian Gulf and the Black Sea are hundreds of miles away. Kazakhstan stretches the width of Central Asia, separating the other countries from their longtime economic partner, Russia. Shipping goods great distances for sale to other countries adds costs. Because they cost more than products from nearby countries, these goods find few buyers.

The need for water in this dry land is at the heart of many problems. The region's major rivers cross international borders. Water sources are in Tajikistan and Kyrgyzstan, while many water consumers are in Uzbekistan and Turkmenistan. Upstream users want to dam the rivers for hydroelectricity. Downstream users want the water for irrigation. Water has also been wasted. For example, Turkmenistan's canal lacks a concrete lining, so leaks are common. These leaks create swamps, high water tables, and salty soils.

Political Problems Changing from command to market economies has not been easy. The change to private enterprise is most advanced in Kazakhstan and Kyrgyzstan. It is slower in Uzbekistan and Turkmenistan. Corruption and the lack of democracy are major obstacles to economic growth. Tajikistan is recovering from years of civil war and still depends heavily on foreign aid from Russia, Uzbekistan, and international agencies.

Ethnic conflict also threatens the region. Various groups have committed violent acts. For example, in 1989 riots erupted among Uzbeks and others in the Fergana Valley. In 1999 an Islamic rebel group kidnapped foreign travelers. The region remains tense.

Environmental Issues Soviet agricultural, industrial, and military practices damaged Central Asia's land and water. For example, testing of biological weapons contaminated the Aral Sea region. In addition, beginning in 1949, the Soviet Union tested hundreds of nuclear bombs in an isolated area of northeastern Kazakhstan. Officials did not tell residents of the dangers from radiation. In fact, the testing exposed about 1.5 million people to radiation. Now birth defects, cancer, and other ailments plague the area's people.

Overuse of chemicals to increase crop yields has made some farmlands useless. In addition, places where uranium was mined and processed are now toxic. Money to clean up these sites is lacking. Many of the Russian experts and workers who know how to do the job are leaving the area.

✓ **READING CHECK:** **Environment and Society** How did various Soviet practices affect the region's environment?



About 90 percent of the world's caviar—salted fish eggs—comes from sturgeon in the Caspian Sea. Sturgeon can grow up to 14 feet (4 m) long, weigh 1,300 pounds (590 kg), and carry 200 pounds (91 kg) of eggs worth up to \$250,000 in the United States.



FOCUS ON GEOGRAPHY

Issyk-Kul and Tourism Although some areas in Central Asia have been polluted, others are clean and beautiful. For example, Kyrgyzstan's Issyk-Kul is an environmental and cultural treasure.

A gorgeous mountain setting surrounds the big lake, which covers 2,355 square miles (6,099 sq km). The lake is quite deep, at 2,303 feet (702 m), and it has a surface elevation of 5,279 feet (1,609 m). The lake never freezes, partly because of underwater hot springs. In fact, *Issyk-Kul* means "Hot Lake." Many streams tumble down to Issyk-Kul and its beaches. The clear blue water is slightly salty but pleasant for swimming. Fish are abundant. Because the lake's warmth moderates the climate, the surrounding area is a productive agricultural region. Apples are a local specialty.

Early civilizations and later conquerors seem to have valued the lake region. They left burial mounds, carvings in rock faces, and other artifacts. Some of these artifacts are up to 2,500 years old.

The Soviets built more than 100 resorts, spas, and similar establishments along the lake's shores. Most visitors were government officials because the Soviet navy tested torpedoes and other weapons in the area. Today tourists can rent converted navy boats for short trips. Local tourism prospers, as Kyrgyzstan's major cities are not far away. Hotels and travel facilities are springing up at the lake's east end. Many tour organizers now arrange hikes to the nearby mountains. A preserve the size of Switzerland has been proposed to protect Issyk-Kul's unique qualities.

✓ **READING CHECK:** *Environment and Society* How has the development of tourism affected the character of Issyk-Kul?



INTERPRETING THE VISUAL RECORD A rider explores a rocky area of Issyk-Kul's shoreline. The area's temperate climate provides a habitat for a wide range of wildlife. Some 40 mammal species and 200 bird species live there. **How do you think Issyk-Kul's wildlife compares to animal populations farther from the lake?**



Review

Define
dryland farming

Working with Sketch Maps

On the map you created for Section 2, label Bukhara, Tashkent, Bishkek, Almaty, and Astana. Where is the world's longest irrigation channel?

Reading for the Main Idea

1. *Environment and Society* How are farmers in Uzbekistan improving the soil?
2. *Places and Regions* What advantages does the new location for Kazakhstan's capital present? What problem remains?

Critical Thinking

3. *Solving Problems* How might international cooperation help the region's countries overcome the obstacles to trade that are posed by their location?
4. *Comparing Points of View* How do different countries in the region want to use water from rivers that cross their borders? How do you think these differing points of view make it difficult for countries in the region to develop policies regarding water use?

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Keyword: SW3 HP18

Organizing What You Know

5. Create an idea web to describe the geographic, political, and environmental challenges facing Central Asia.

CASE STUDY

Pipelines or Pipe Dreams?

Environment and Society Azerbaijan, Kazakhstan, and Turkmenistan sit astride some of the largest oil reserves in the world. Countries inside and out of the region are working to unlock the potential of this rich natural resource. However, they have faced a number of geographic and political hurdles.

Estimates of Caspian oil reserves vary widely, from 40 billion barrels to 200 billion barrels. Even the lower amount is more than the proven oil reserves in the United States and the North Sea combined. The higher amount could be double that of Kuwait's proven oil reserves of some 100 billion barrels. Kuwait is one of Southwest Asia's richest oil-producing countries. The Caspian region might also hold huge amounts of natural gas, another valuable energy resource.

Outside powers have long tried to control the oil along the Caspian. For example, German armies tried but failed to overrun the oil fields of the nearby Caucasus during World War II. Since the collapse of the Soviet Union, oil exploration in the region has expanded. In addition, the contest to further develop the oil resources there has heated up.



An employee walks near an oil-pumping station south of Turkmenbashi, Turkmenistan. Oil fields in this area produce some 7,500 barrels of oil per day.

The main problem in developing these fields has not been how to drill for the oil. The problem has more to do with getting the oil to global markets. Remember that the Caspian Sea is really a lake and has no natural outlet to the world's oceans. The only

way to get the oil out of the region is to use overland routes to seaports in other countries. Oil companies and interested countries have proposed a variety of routes, including pipeline routes, that could transport the oil to these ports. Routes through Iran, Russia, and across Georgia and Turkey have been among the proposals. Even pipelines to China and Pakistan have been suggested, but they probably would be very expensive to build. However, the main factor is not cost but who will control the pipeline, and thus the oil.

On the surface, one would think that choosing a route should not pose a problem. Simply build a pipeline across the shortest distance to the nearest port, right? Things are rarely that easy, though, particularly in this part of the world. Many proposed routes cross through the Caucasus region, a shatter belt. As you



INTERPRETING THE MAP Turkey is concerned about proposed pipeline routes. Because it lies between Central Asia and the Mediterranean Sea, Turkey will be involved with oil transport along either of the routes shown. How would the choice of each port affect the movement of capital, goods, and people through Turkey? Which route does the Turkish government favor?



Tankers carry about 1.7 million barrels of oil through the Bosphorus every day. Turkey's government fears a major accident in the strait and favors an alternate oil-transport route.

have read, a shatter belt is a zone of frequent boundary changes and conflicts. Often these changes are caused by the area's position between major powers. In fact, Iran, Russia, and Turkey have long competed for influence in the Caucasus and Central Asia. Some Russians see it as an area over which they have had, and should still have, influence.

The struggle for influence in the region has been particularly important in the debate over pipelines. Many of the companies that want to develop the Caspian oil fields are American or European. For political reasons, these companies and Western governments do not want to build oil pipelines across Iran or Russia. On the other hand, Russian leaders worry that Western countries—particularly the United States—already have too much influence in the region. They think moving the oil through Russian pipelines would limit those outside influences.

These competing fears and desires have led to competing pipeline plans. For example, Russia wanted oil companies to use a new pipeline across southern Russia. The pipeline could transport the oil to tankers at a Russian seaport on the Black Sea. (See the map.) The Russian plan faced opposition, however. Critics worried the Russians might use the pipeline to influence the region's affairs. They also worried about the route tankers would have to take from the Russian port. Tankers on that route would pass through the narrow Bosphorus, the strait that connects the Black Sea to the Mediterranean Sea. This fact worried Turkey, which straddles the Bosphorus. The Turks pointed out that the amount of maritime traffic through the narrow strait would more than double. This situation could create long traffic jams on the sea lane. Safety was also a concern because millions of people live on or near the Bosphorus. An

explosion or oil spill could be devastating in this densely populated area.

Turkey, its NATO ally the United States, and some oil companies campaigned for another route. Under their plan, tankers would ship the oil across the Caspian Sea to Baku in Azerbaijan. A new pipeline would then carry the oil across Georgia to a Turkish port on the Mediterranean Sea. (See the map.) However, this plan also presented challenges. One was the cost—it would be the most expensive route. Another challenge was that the pipeline would go through a territory that has experienced ethnic and religious conflict in recent years. War or other political violence could stop the movement of oil along the route. Most important, Russia, which still holds the most power in the region and is able to influence Georgia, opposed the route.

For Azerbaijan, Kazakhstan, and Turkmenistan to market their product, compromises will have to be made on many levels with the Russians, the oil companies, and regional neighbors. Economic and political cooperation among the parties involved will be necessary for the Central Asian republics to benefit from their oil resources.

Applying What You Know

- 1. Summarizing** What are two of the pipeline routes that have been proposed for transporting Central Asian oil? How would each of these routes affect the ability of neighboring countries to influence Central Asian affairs?
- 2. Analyzing Information** What are the drawbacks associated with each of the two pipeline routes discussed at length here?

Review the video to answer the closing question: *What actions could people take to save the Aral Sea, and what effect might this have on the cotton fields?*

Building Vocabulary

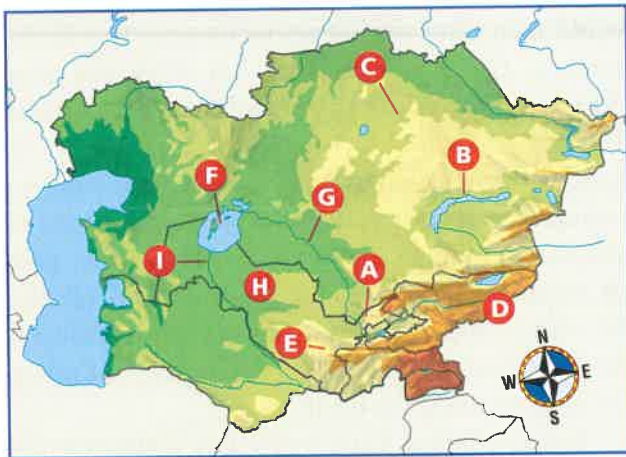
On a separate sheet of paper, explain the following terms by using them correctly in sentences.

zinc	nomads	yurts
caravans	transhumance	dryland farming
monoculture		

Locating Key Places

On a separate sheet of paper, match the letters on the map with their correct labels.

Tian Shan	Syr Dar'ya	Samarqand
Aral Sea	Lake Balkhash	Tashkent
Amu Dar'ya	Kyzyl Kum	Astana



Understanding the Main Ideas

Section 1

- Human Systems** Why is herding common in the region's northern areas and farming more common in the south?

Section 2

- The World in Spatial Terms** How did boundary changes during the Soviet era affect the control that Central Asian governments have over their territory?
- Human Systems** What are the main languages and religions in Central Asia? Which language is losing status?

Section 3

- Environment and Society** What resources of Central Asia offer the possibility of wealth in the future?
- Places and Regions** How does Issyk-Kul contrast with some other areas in Central Asia?

Thinking Critically

- Problem Solving** If you were in charge of developing tourism in Central Asia, how would you go about doing your job?
- Identifying Points of View** How do you think Central Asia's indigenous peoples might view Russian culture and ethnic Russians who live in their countries today?
- Analyzing Information** In what ways can traditional ways of life still be seen in the region?

Using the Geographer's Tools

- Using Statistics** Use the unit Fast Facts and Comparing Standard of Living tables to rank the countries of Russia and Northern Eurasia by economic development and standard of living. What political features might help or hurt the region's development?
- Using Databases** Examine the graph of ethnic groups in Section 2. Then use the Internet or library resources to find databases that provide similar figures for a year or years before 1991. In what ways have the percentages changed? What do you suppose accounts for the changes?
- Creating Graphs** Use the unit atlas to create bar graphs of the workforce structure and per capita GDPs of the Central Asian countries. How does the workforce structure of these countries seem to affect wealth?

Writing about Geography

Imagine that you are a Russian teen living in Kazakhstan. Your parents are thinking about moving the family back to Russia. Write a diary entry in which you discuss reasons why you want to stay in Kazakhstan or why you want to leave. In your entry, analyze the economic and social effects on your family of each possibility. When you are finished with your entry, proofread it to make sure you have used standard grammar, spelling, sentence structure, and punctuation.

SKILL BUILDING

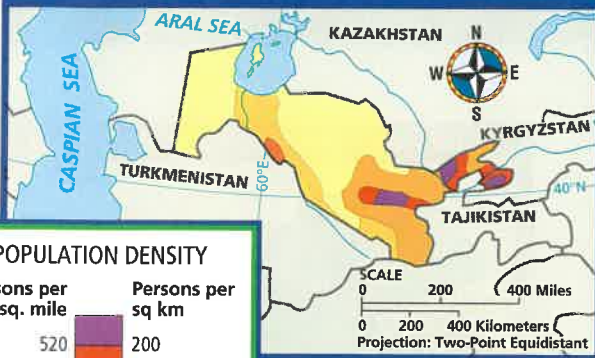


Geography for Life

Analyzing Statistics

Environment and Society Review the statistical and other data in *Geography for Life: The Shrinking Aral Sea*. How have physical processes and human activity affected settlement patterns and population distribution in the Aral Sea region? How have economic conditions suffered? What political changes might occur? How has the area's resource base lost value?

Uzbekistan: Population Density



Interpreting Maps

Study the population density map above. Then use the information from the map to help you answer the questions that follow. Mark your answers on a separate sheet of paper.

answer the questions that follow. Mark your answers on a separate sheet of paper.

- Uzbekistan's population
 - is least dense in the west and in central areas.
 - is most dense in the far west.
 - is evenly scattered across the country.
 - is so small that few areas are densely populated.

- Where would you expect to find Uzbekistan's largest cities? Why?

Using Language

The following passage contains mistakes in capitalization, grammar, and punctuation. Read the passage. Then answer the following questions. Mark your answers on a separate sheet of paper.

- (1) About a third of Kazakhstan's people are Ethnic Russians. (2) Kazakh and Russian—both official languages. (3) Many ethnic Kazakh's grow up speaking Russian at home and they have to learn Kazakh in school today.
- Rewrite line 2 to make it a complete sentence.
 - Which sentence contains incorrect capitalization?
 - 1
 - 2
 - 3
 - None of them
 - One sentence contains an error in the use of an apostrophe. It also has a missing comma. Rewrite the sentence correctly.

Alternative Assessment

PORTFOLIO ACTIVITY

Learning about Your Local Geography

Group Project: Research

You have read about the importance of the Baykonur Cosmodrome in Kazakhstan. Plan, organize, and complete a group research project about a major scientific facility in your state or area. Contact officials there to create a list of some of the projects being completed at the facility. Then have group members research the national or international significance of the projects. Use the information you find to create a brochure about the facility.

Internet connect

Internet Activity: go.hrw.com
KEYWORD: SW3 GT18

Choose a topic on Central Asia to:

- create a poster that analyzes the increasing use of technology in agriculture and its consequences for the Aral Sea.
- research the Silk Road and its history in global trade.
- follow nomads in Kazakhstan.

Geography

Skill-Building Workshop

WORKSHOP 1

Using Graphs

Graphs paint a clear picture of numerical data and the relationships among the data. Bar and line graphs are common graphs. Bar graphs can show how the value of a certain item changes over time, or they can compare the values of different items. For example, the bar graph on this page shows the changing water level in the Aral Sea over time. A line graph can also show changes over time. The example shows changes in the volume of water in the Aral Sea over time.

A third type of graph, a pie graph, is particularly useful when considering parts of a whole. Such a graph looks like a pie cut into slices. The complete pie, or circle, represents the whole, and each wedge represents a share of the whole. These shares are expressed in percentages. The pie graph on this page shows the world's largest rye producers. The wedges are drawn in proportion to each country's share of world rye production.

Developing the Skill Creating graphs is relatively easy. First, determine which kind of graph is best for showing the information you want to communicate. Second, give the graph a descriptive title. Third, identify the values, or numbers, you want to show.

World's Major Rye Producers (1994–1996)

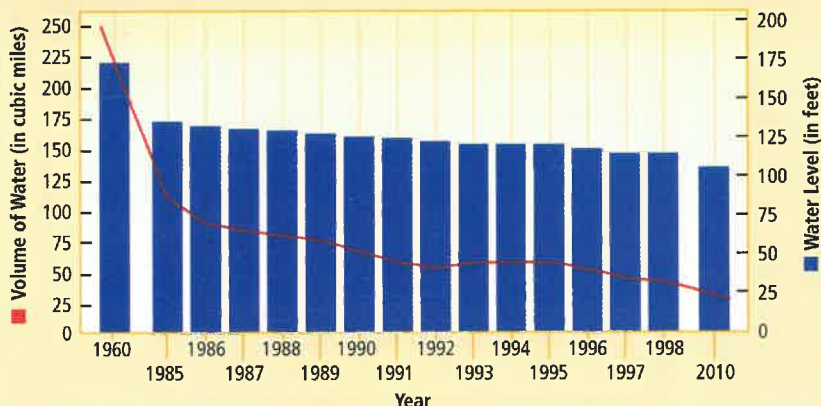


Source: Goode's World Atlas, 20th Edition

Bar graphs and line graphs include a side axis and a bottom axis. As you can see in the example below, values are labeled along the side axis. The years studied for volume and water level are placed along the bottom axis. The bars are then drawn so that their tops are aligned with the appropriate value along the side axis. The line graph identifies visible or invisible points that are also aligned to values along the side axis. You can also label values at the top of each bar or at dots along a line graph.

Pie graphs include a circle that represents the whole value of something. To create an effective pie graph, determine how many wedges will clearly fit into the circle. You can also include labels showing the percentage that each wedge represents. A legend, like the one above, can match colors to wedges they represent—in this case, particular countries that grow rye.

Changes in the Aral Sea

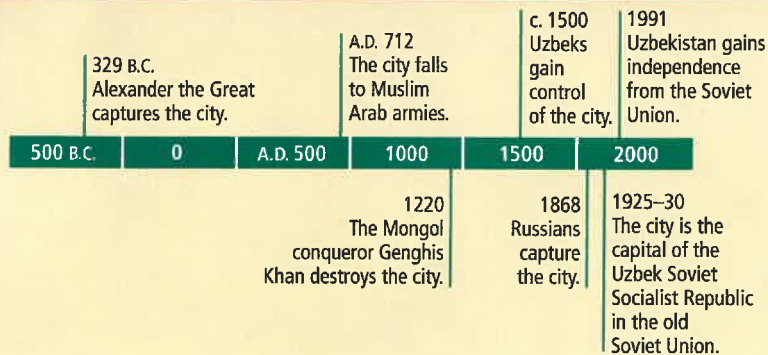


Source: German Aerospace Center (DLR)

Practicing the Skill

1. Create a pie graph showing the combined populations of Belarus, Russia, and Ukraine. Each wedge in the graph should represent one country.
2. Create a line graph showing the population of Russia from 1992 to the present.
3. Create a bar graph that compares the per capita GDP of each country you have studied throughout this unit.

Samarqand: A Time Line



WORKSHOP 2

Using Time Lines

Time lines are visual tools that trace a chronology of events over a period of time. Time lines have a variety of uses. They can show family histories, town histories, and dates of important inventions. Time lines can also serve as records of important events in the history of a place or region. For example, the time line above shows important events in the history of Samarqand, an ancient city in Uzbekistan. Some time lines, such as those at the beginning of each regional unit in this textbook, are horizontal. However, time lines may also be vertical. The key point to remember is that a time line must progress from one point in time to another. Dates along a time line, such as the one on this page, identify key points and events.

Developing the Skill A variety of resources can help you create a time line. Newspapers, almanacs, the Internet, and encyclopedias are great resources for identifying dates and events. For example, those resources could help you create a time line of events in your state's history. You can also use biographical sources to create simple birth-to-death time lines for important historical figures. Newspapers allow you to follow events of local, national, and world news stories as they have unfolded. From this information you can create a time line for both recent and past events.

Time lines are usually read from left to right, but they can be drawn in any direction. Some time lines, for

example, may read from top to bottom or bottom to top. In any case, be sure to label the events with their dates so the reader can follow the time line you create. Your labels might also include brief descriptions and illustrations. Also, space the dates and their events in proportion to the amount of real time between them. For example, if you identify important events in 1950, 1960, and 2000, you should place more space between 1960 and 2000. The extra space represents the longer elapsed time between those dates.

Remember that the years B.C. are counted backward to 1 B.C. In other words, an event that happened in 50 B.C. occurred more recently than an event in 100 B.C. Years A.D. are counted from 1 forward. If a particular date is approximated, you may place the abbreviation *c.* before it. That abbreviation stands for the Latin word *circa*, meaning "approximately." You might also include beginning and ending dates in your descriptions of events that stretch over a period of two or more years. For example, the time line on this page shows the years in which the city of Samarqand served as Uzbekistan's capital. Other examples include wars, important eras, and events that occurred repeatedly over a series of years.

Practicing the Skill

1. Study the time line above. Which dates are B.C.? Which dates are A.D.?
2. Create a time line of your life. Begin with your birth and include important events along the way. If you like, predict important events that may happen later in your life. You might include the year you graduate from high school, the year you graduate from college, and the year you hope to have reached a certain career goal.
3. Create a time line for your home state. What are the most important historical events in your state's history? You can illustrate your time line with sketches and pictures.