World Geography 2017

Oak Meadow
Coursebook

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Item # b090301
Version: v.0816

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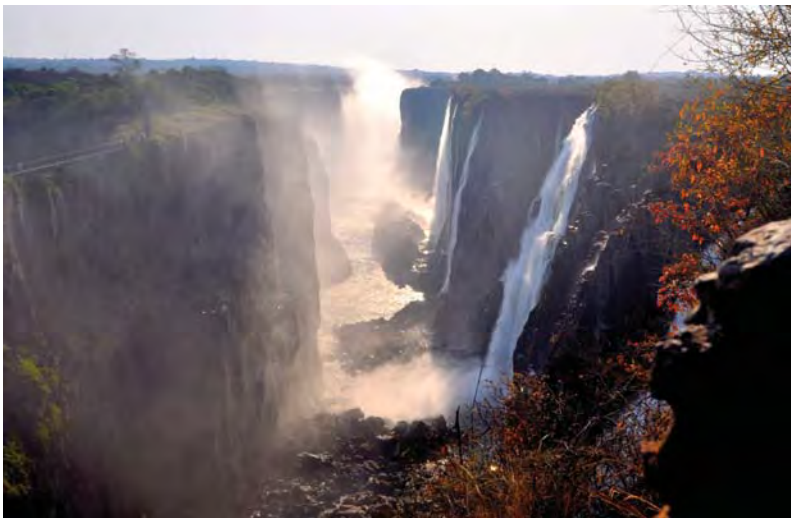
Lesson 3 Planet Earth

Lesson Objectives

- Observe and describe natural forces that have shaped the local environment.
- Identify the characteristics that define the categorization of a planet.
- Compare different obstacles to worldwide access to clean drinking water.

Planet Earth is part of the solar system, which is made up of the sun and the many objects that revolve around it. Earth's structure has been and continues to be shaped by powerful forces within, as well as exterior forces such as sun, wind, and water.

Eight planets revolve around the sun. Earth is the third planet from the sun, one of the four inner planets closest to the sun. Planets are classified as terrestrial planets, such as Earth, or



Victoria Falls, Zambia (Image credit: DoctorJoeE)

ASSIGNMENT CHECKLIST

- ☐ Learn about the forces that shape Earth.
- ☐ Answer comprehension and critical thinking questions.
- ☐ Draw major latitudes and the prime meridian on your world map.
- ☐ Answer the Central Question.
- ☐ Choose an optional activity:
  - Activity A: Earthquakes and Volcanoes
  - Activity B: Chemical Weathering
  - Activity C: Mountain Ranges
  - Activity D: Read, Watch, or Listen
  - Activity E: Water Samples

gas giant planets. Thousands of other smaller objects—asteroids, comets, and meteoroids—also revolve around the sun. Earth is the largest of the inner planets. It orbits the sun at a speed of about 18.5 miles (29.8 km) per second, completing one revolution in 365.25 days. As it revolves around the sun, the Earth spins on its axis and rotates completely once every 23 hours 56 minutes and 4 seconds.

The outward-moving force of Earth's rotation makes the planet bulge at the equator. As a result, Earth's shape is flatter near the Poles than at the equator. The fifth largest planet of the solar system, Earth is small in size compared, for example, with Jupiter. Yet it is the only planet in the solar system that has conditions suitable for life, at least as we know it. The Earth's atmosphere consists of a mixture of gases, including 78% nitrogen and 21% oxygen. The only planet known to have liquid water, Earth has a hydrosphere consisting of seawater, freshwater, and ice. About 70% of the Earth's surface is water, and about 30% of its surface is land. Seven large landmasses called continents feature landforms of varying shapes and elevations.

The Earth is composed of layers: a super-hot, solid inner core surrounded by a liquid outer core, a layer of dense rock called the mantle, and a relatively thin, rocky shell at the surface. Both internal and external forces change the Earth. Continental drift, the movement of surface plates, causes landmasses to move slowly across the Earth's surface. The movement of magma within the Earth may cause this plate movement, resulting in mountains, trenches, folds, and faults that form where plates meet. Earthquakes and volcanoes also occur along plate boundaries, especially around the Ring of Fire. Weathering changes the Earth's surface by physically breaking down rock or by changing the chemical makeup of rock. Land is also eroded by wind, glaciers, and moving water.

The planet is surrounded by a region of strong magnetic forces extending upward from about 90 miles (140 km) in the upper atmosphere. In this region, Earth's magnetic field traps charged particles—most of which come from the sun—and creates a shield that protects life on the planet's surface. Scientists believe that the magnetic field is caused by the flow of electric charges in the fluid molten metal of Earth's interior outer core.

Although the total amount of water on the Earth does not change, water is constantly moving and changing form. This water cycle begins with evaporation and continues with condensation and precipitation. Most of Earth's water is salt water, circling the planet in five great oceans which extend into seas, gulfs, and bays. Only three percent of Earth's water is freshwater, most of which is frozen in glaciers and ice caps. Lakes, streams, rivers, and groundwater all supply human settlements with needed freshwater.

Reading

Learn more about the following topics through independent research:

- Movement of the Earth in space
- Earth's layers
- Earth's hydrosphere, lithosphere, and atmosphere
- Glaciers
- Continental drift
- Plate tectonics
- Earthquakes and volcanoes
- Weathering and erosion
- Earth's magnetic field
- Water cycle

If you need help locating or identifying reputable, relevant sources, ask for help from a parent, teacher, or friend. Often online articles have relevant links to other sites and sources that can be helpful. Looking for good information is like a treasure hunt—you never know where it will lead.

Comprehension and Critical Thinking Questions

Include specific terminology and cite any relevant data in your responses.

1. Walk or ride around the area in which you live to look for evidence of the effects of natural phenomena, such as earthquakes, volcanoes, flooding, and erosion. Take photos, if possible. Explain how these forces changed the landscape, and how these changes to the landscape might have affected the people living in the area.
2. On August 24, 2006, the International Astronomical Union redefined the term *planet* with the result that Pluto, considered our ninth planet since its discovery in 1930, is no longer classified as a planet. This means that our solar system now has only eight, rather than nine, planets. Research this decision and the controversy surrounding it, and write an essay expressing your opinion of the decision. What is the new definition of a planet, and why doesn't Pluto meet it? How was this definition developed? Should Pluto have been left as one of our "planets" anyway? Use at least two different types of graphics (photograph, chart, diagram, table, etc.) to support your response and clearly explain what they show.

Mapping the World

It's time to add some detail to your map. Use your map model to help you place each new element in its correct location.

1. Draw a line for the equator and the prime meridian. Label each 0° and write its name.
2. Add the Tropic of Cancer and the Tropic of Capricorn, labeling each with its name and location (23.5° N and S). Add the Arctic Circle and the Antarctic Circle, labeling them 66.5° N and S.
3. Add as many other lines of latitude and longitude as you like. The more lines you have, the easier it will be to create an accurate map.

Try to show a reasonably precise location for each based on what portions of the continents these lines intersect. You may want to lightly redraw your continent lines if you see that things aren't lining up quite right. Don't worry too much about it, though. This map is for your use, to help you gain a better understanding of geography. No one expects your map to be perfect!

Central Question

Clean drinking water is a global problem and a basic human right. Water scarcity, water pollution, privatization, and mismanagement of water resources all create different kinds of problems. Which of these do you think is the largest obstacle to creating access to clear water for everyone? Why? What is being done to correct the problem?

Your response can be in written, video, or slide show format, or presented and recorded as a speech, debate, or other discussion or audio-based format.

Activities

Choose one of these optional activities to further explore the lesson topics.

Activity A: Earthquakes and Volcanoes

Research the Ring of Fire, or learn about the largest earthquakes or volcanic eruptions in recorded history. Present the information in visual form with descriptive captions.

Activity B: Chemical Weathering

Demonstrate the effects of chemical weathering by immersing a seashell in a container of lemon juice or white vinegar for a period of time. Write a short report on the results.

Activity C: Mountain Ranges

Develop a chart of the physical activity that gave rise to Earth's major mountain ranges. List and identify the locations of ten large mountain ranges, and research the forces that formed the ranges (including the movement of specific plates, if applicable). Prepare a graphic display of the information.

Activity D: Read, Watch, or Listen

Read Jules Verne's *Journey to the Center of the Earth* (1864), or watch a film version (a popular one was made in 1959 starring James Mason). Then, write your own fictional account of a journey to the Earth's core based on current scientific knowledge. Or listen to a recording of "Grand Canyon Suite" by Ferde Grofé (1931), and imagine the music as a soundtrack to the forces shaping the Earth's surface. Write about or draw your impressions.

Activity E: Water Samples

Gather and label samples from local water sources: home taps, ponds, rivers or streams, wells, ocean beaches, rain or snow collectors, and so on. (**Safety note:** Avoid contaminated or possibly contaminated sources, wear protective gloves when collecting samples, and never drink water from untreated sources.) Note any visible differences among the samples and speculate on the reasons for the differences. Compile a report including photographs or drawings.

Lesson 22 Geography and Cultures of East Asia

Lesson Objectives

- Identify environmental effects of generating energy.
- Explain the connection between diet and geography.
- Compare the benefits and drawbacks of large-scale environmental projects.

In this lesson, we look at the physical and cultural geography of East Asia, a region that includes China, Mongolia, North Korea, South Korea, Japan, and Taiwan. Although East Asian countries and peoples are extremely diverse in many ways, they have the following features in common:

- Their populations are relatively homogeneous.
- Chinese heritage has profoundly influenced the language, religion, and arts of the region.
- The region's highly refined cultural development was generally isolated from Western influences until the 19th century.

East Asia spreads across more than 4.5 million square miles (11.7 million square kilometers) of territory. East Asia is marked by mountain ranges, plateaus, deserts, and islands where natural resources are unevenly distributed. The same landforms affect climate and vegetation. South Korea, Taiwan, and Japan have few mineral resources, and Japan especially relies heavily on imports of coal and oil. By contrast, China has rich deposits of minerals widely distributed throughout the country. Freshwater and ocean resources are so important to the livelihoods of people in coastal areas that water and fish are East Asia's traditional symbols of prosperity.

ASSIGNMENT CHECKLIST

- ☐ Learn about the geography and cultures of East Asia.
- ☐ Answer comprehension and critical thinking questions.
- ☐ Draw natural and political landmarks of East Asia on your world map.
- ☐ Answer the Central Question.
- ☐ Choose an optional activity:
  - Activity A: Traveling in East Asia
  - Activity B: Nature Haiku
  - Activity C: Ethnic Music
  - Activity D: Made in China
  - Activity E: Pan-Himalayan Railway

The People's Republic of China has the world's largest population and comprises about 80% of East Asia's land area. In eastern China, lowlands and coastal areas are heavily populated and cultivated. Highlands in the west have rugged mountains, scattered human settlements, and extreme climates. This western region also includes Asia's largest desert, the Gobi, and the world's highest mountain, Mount Everest, located on the China-Nepal border. Across northern China stretches the country's most notable landmark and national symbol, the Great Wall, named in 1987 as one of UNESCO's World Heritage sites. China's major rivers—the Yellow, Yangtze, and Xi—begin in the Plateau of Tibet and provide transportation routes, hydroelectric power, and fertile soil in their basins.

Other countries in the region include sparsely-populated Mongolia, North Korea and South Korea on the Korean Peninsula, the island nation of Taiwan, and the archipelago of Japan. A wide range in latitudes gives the region a great variety of climates and vegetation, from tropical rainforests in southern China and Taiwan to the subarctic forests in northern Mongolia. Seasonal weather patterns are dominated by the monsoons, which bring over 80% of the region's annual rainfall during the summer months and cold, arctic air during the winter. Ocean currents influence the climate in coastal areas, and the interaction of ocean currents and monsoons can give rise to typhoons.

Three tectonic plates meet along an arc of islands east of China and cause frequent earthquakes and volcanic eruptions. This volcanic activity and earthquakes along part of the Pacific Ocean's Ring of Fire helped form Taiwan and the Japanese islands. Natural forces continue to affect East Asia. Undersea earthquakes can cause tsunamis.

East Asia is a region with stark contrasts between highly industrialized countries, heavily urbanized areas, poor rural areas, and largely unpopulated mountains and deserts. Most of East Asia's people today live in bustling, crowded, urban settings. Their traditional values and arts, however, stress the serenity and simplicity often associated with rural living.

East Asia's earliest civilization developed in China thousands of years ago. Other civilizations later arose in Korea and Japan. For centuries nearly impassable mountains, vast deserts, and expanses of ocean often isolated East Asia from the rest of the world. Isolation and other factors led to the development of relatively homogeneous and highly refined cultures in the region.

China became the region's culture hearth, with the earliest civilization developing in the valley of the Wei River. For thousands of years, caravans journeyed on the Silk Road, an extensive network of trading routes that linked China, central parts of Asia, and Southwest Asia. Traders carried with them not only goods but also ideas and religions, especially Buddhism, Islam, and Christianity. By way of the Silk Road, Chinese inventions, such as paper, printing, and fireworks, as well as food products — rice, tea, soybeans, and noodles — eventually reached the West. China

greatly influenced the cultures of Korea and Japan, which went on to develop their own styles in such art forms as ceramics, painting, and calligraphy.

After a long period of political isolation, China and Japan both were forced to open their borders to Western trade and influences. Japan faced the Western challenge by modernizing many of its institutions and building industries. Although Japan's military expansion later brought about its defeat in World War II, Japan quickly rebounded economically under its postwar democratic government. Japan rebuilt its shattered economy and emerged as a global economic power by the late 20th century.

China endured a long civil war that ended in 1949, when communist Mao Zedong set up the People's Republic of China on the Chinese mainland, while rival nationalist Chiang Kai-shek and his followers fled to the island of Taiwan. A period of Cold War tensions followed the rise of communism in China and the division of Korea into communist and non-communist states. Korea is still divided between the American-backed south and the communist-led north.

East Asians hold a variety of religious beliefs and often adopt practices from multiple religions; however, the communist governments of China and North Korea discourage religious practices. Even though China is now allowing some free enterprise, the Chinese lag behind their richer neighbors in their standard of living. Education and health care also are more available in the richer countries and in urban areas. East Asians engage in a variety of leisure activities, and literature, music, and theater play prominent roles in their lives. Traditional art forms include Chinese tai chi and qigong exercises, the Japanese tea ceremony, calligraphy, and landscape painting. Many of these practices derive from East Asia's major religions: Confucianism, Daoism, Buddhism, and Shintoism.

The governments and economies in East Asia are closely related. During the mid- to late 20th century, Japan, South Korea, and Taiwan developed democratic governments and have become modern industrial nations, with a major stake in the global economy. Communist-ruled China has shifted to a mixed economy, with largely agricultural regions inland and industrial areas on the coast. China has been faced with repeated sanctions by other countries because of human rights violations. Democratic Mongolia is still largely rural but has been shifting to a mixed economy. Communist-ruled North Korea is one of the world's few remaining command economies, and many resources go toward its military.

Some East Asian cities, especially in China, have grown tremendously in population as a result of migration from rural areas. A major factor in this population shift is the availability of jobs in new and growing industries. Industrial progress, however, has taken its toll on the environment, mirroring similar worldwide problems: pollution, acid rain, deforestation, and depletion of ocean and land resources. Most countries in East Asia rely on the burning of fossil fuels for their power. This has led to problems with acid precipitation and air pollution. China's unregulated industrial

expansion—with widespread use of coal—has contributed to environmental damage. As a result of industrial and urban growth, many areas of East Asia suffer from air, water, and soil pollution.

The region relies heavily on its ocean resources and has begun aquaculture to solve the problems of overfishing. Countries in the region face such natural disasters as flooding, earthquakes, volcanic eruptions, tsunamis, and typhoons. Severe traffic congestion is a major problem in large urban centers, such as Tokyo, Taipei, and Shanghai. Clear-cutting of forests and careless practices in farming and mining have caused soil erosion, deforestation, and flooding. Added to these environmental issues is the threat of violent natural forces that cause extensive loss of life and damage to property.

East Asian countries recently have become more active in addressing environmental issues. China has begun to solve problems such as lack of sewage treatment facilities, toxic emissions from factories, and deforestation and the resulting erosion. South Korea faces the additional issue of safely disposing of wastes from its nuclear power plants. Japan has become a leader in the region and the world in addressing environmental issues, developing low-emission cars and reducing emissions of chlorofluorocarbons.

Reading

Research topics related to the physical and cultural geography of the nations in East Asia: China, Mongolia, North Korea, South Korea, Japan, and Taiwan. In addition to print resources, seek out videos, photographs, informational graphics, and audio sources. Remember to check the Oak Meadow website for online curriculum links for each lesson in this course.

- Himalayan Mountains
- Plateau of Tibet
- Gobi Desert
- Climate zones of East Asia
- Population demographics of East Asia
- Wildlife and natural landforms
- Pacific's Ring of Fire
- Great Wall of China
- Three Gorges Dam

- Chinese dynasties
- Hong Kong
- Environmental issues
- Traditions and culture

Comprehension and Critical Thinking Questions

1. How do the various countries in East Asia meet their power needs? What effect has this had on the environment? Give specific examples.
2. How can one country use trade to influence the human-rights policy of another country? Give an example where and how this has taken place.
3. How does diet relate to a region's geography and climate? Choose one of the following places or countries: China's eastern highlands, Mongolia, China's Sichuan Basin, the North China Plain, South Korea, Japan, or Taiwan. Research the diet of the people in your chosen area, focusing on locally grown foods rather than imported foods. Explain how climate, physical geography, and other natural factors affect what the people of the area eat.

Mapping the World

It can be easy to lose interest in a long-term project like creating a world map. One way to maintain enthusiasm for the project is to share it with others. Take photos each time you add something new to your map and share them with other students and your teacher.

1. Add the natural features of East Asia, including major mountain ranges, rivers, and deserts.
2. Draw the islands of Taiwan and Japan.
3. Label the region's seas.
4. Using your map model and lines of latitude and longitude, draw the political boundaries for each of the six East Asian nations.
5. Locate and label the capital city for each country.

Semester Reading Project

Have your chosen your book to read for this semester? See the course introduction for a list of suggestions or ask your librarian.

Central Question

The Three Gorges Dam was an ambitious, expensive, and highly controversial project that was designed to halt devastating seasonal flooding while generating power and providing better irrigation and transportation. Opponents say that more problems were created by building the Three Gorges Dam than solved. Using what you know about this project and similar large-scale projects that made significant changes to the environment, reflect on the following question:

How much can we change the environment for the benefit of humankind without causing irreparable damage that will ultimately endanger humankind?

Your response can be in text or multimedia form.

Activities

Choose one or more of the following optional activities to further your knowledge.

Activity A: Traveling in East Asia

East Asia has a rich history and many cultural traditions reaching back thousands of years. Plan a two-week tour of an East Asian country of your choice. Gather information from several sources before setting your itinerary. You may use tour guides, photographic reference books, travel magazines, videos, or interviews with travelers to that area. Create a colorful brochure and descriptive itinerary for your tour. Emphasize cultural or historic events or sites.

Activity B: Nature Haiku

Haiku is a non-rhyming form of Japanese poetry. Traditional haiku has three lines of five, seven, and five syllables, respectively, and often has nature as a subject. Study the following example:

Slender, silver grove

Bamboo, filtering sunlight

Whispers ancient myths

Locate photographs of East Asian scenery, either at the library or on the internet, and then write a few haiku about the photographs, focusing on the climate or vegetation depicted. Create a booklet of your haiku including the photos you used for inspiration.

Activity C: Ethnic Music

Locate recorded examples of East Asian ethnic music. Listen to various examples, identifying how they are similar or different in terms of instruments, rhythms, tone, and so on. Prepare a presentation that summarizes facts about East Asian music. You may discuss different styles, instruments, or performers that are found in each country of the region.

Activity D: Made in China

Do some research on factories in China where iPods and iPhones are made. What are conditions like for the workers? How much money do they make? What cultural factors do you think might make it difficult to hold foreign businesses to American labor standards?

Activity E: Pan-Himalayan Railway

Create a multimedia presentation about the Pan-Himalayan railway line in China, which opened in 2006. This rail line traverses some of the highest-altitude land in the world from Qinghai Province to Lhasa, in Tibet, and required several engineering innovations for its completion. Learn about the technological challenges imposed by the rugged terrain and the potential cultural effects of linking Tibet with central China.

FOR ENROLLED STUDENTS

Submit work from the last two lessons to your Oak Meadow teacher. Communicate any issues, concerns, or questions you have.