

TITLE: *Traveling the Silk Road: Animals and Ecosystems*

Grades: 2–5

TIME REQUIRED: 1 hour plus preparation time

CONCEPT STATEMENT:

As students develop and play this Jeopardy-style answer and question game, they will practice their mapping skills; investigate ecosystems, habitats, and adaptations; and learn about the Silk Road.

OBJECTIVES:

Students will:

1. Learn about the Silk Road;
2. Locate various geographical features of Central and East Asia on a map;
3. Discuss the ecosystems found along the Silk Road trade routes;
4. Research and create A (answer) & Q (question) cards relating to various animals—including the Bactrian Camel—that lived (or live) in these ecosystems; and
5. Test their knowledge by participating in a Jeopardy-style game.

STANDARDS OF LEARNING CORRELATIONS:

Science: 2.5, 3.4, 3.5, 3.6, 4.5

English: 2.7, 2.9, 2.10, 2.12, 3.4, 3.7, 4.6, 5.1, 5.7, 5.9

History: 2.4.a,b

MATERIALS:

Per Group

Animal Description Cards

(The students will make these during the activity.)

These cards are two-sided. The answer is on side 1. The question is on side 2.)

card stock copy paper (for making the cards), pen or pencil

resource materials and/or Internet access

a map of Europe and Asia

VOCABULARY:

adaptation – A characteristic, either in structure or behavior, that helps an organism survive in a particular environment.

ecosystem – A setting, for example a pond, field, or desert, that includes the living plants and animals and nonliving things that make up a habitat. (Nonliving things can include oxygen in water, or minerals in the soil.) A habitat is the space that provides the necessary arrangement of food, water, and shelter that a particular type of living thing needs.

ecological niche – The role into which an organism fits within a particular ecosystem.

predator – An animal that lives by capturing and eating other animals.

prey – An animal hunted or caught for food.

scavenger – An animal, such as a bird or an insect, that feeds on dead or decaying matter.

OVERVIEW:

Begin this activity with a discussion of the Silk Road and the geography of Asia using the information provided below.

Traveling the Silk Road: Out and About in Central Asia

Beginning in the 3rd century BCE, the web of ancient trade routes known as the Silk Road linked China with parts of Central Asia, the Mediterranean, Africa, Europe, and South Asia. Named for one of the major Chinese exports to travel over these routes, the various segments of the Silk Road measured more than four thousand miles, covering territory that included deserts, steppes, marshes, and ice-covered mountains. Westbound camel caravans carried luxury silk, precious tea, and ceramics from Chang'an (present-day Xian) to Central Asia, and then traveled either south to India or farther west to the Mediterranean coasts. East-bound traders brought treasured glass, rare wool, exotic spices, and gold and silver vessels to China.

These children's books will also help with the background information:

Major, John. *The Silk Route: 7,000 Miles of History*. HarperCollins Publishers, 1995. (non-fiction)

Christensen, Bonnie, *A Single Pebble: A Story of the Silk Road*. Macmillan, Roaring Book Press, 2013. (fiction)

Before beginning an exploration of the animals that Silk Road traders might have seen during their journeys, investigate the different ecosystems through which they traveled.

ACTIVITY ONE DIRECTIONS:

Getting Started with Maps! As a class—or individually with older students—sketch in and discuss the geographical features listed below on a blank map or find them on a digital or classroom map. The web addresses below link to on-line maps that will help with this task.

<http://www.asia-atlas.com/asia-physical.htm>

http://www.worldofmaps.net/uploads/pics/karte_topographie_zentralasien_01.png

Central Asia – The geographical area above India, below Russia, and between the Caspian Sea and western China.

Helpful Hint: To locate Central Asia, you must first find the division between Europe and Asia. This divider follows various land forms and bodies of water that create a natural division between the two continents. This line runs through the Ural Mountains, the Ural River, the Caspian Sea, the Caucasus Mountains, the Black Sea, the Bosphorus strait, the Sea of Marmara, and the Dardanelle strait.

China – The East Asian country at the eastern end of the Silk Road trade routes.

Huang He (Yellow) River – An important Chinese river—the sixth longest in the world—that rises in the Kunlun Mountains and flows through northern China to the Gulf of Bohai.

Yangtze River (also called the Chang Jiang) – The longest river in Asia, and the third longest in the world, is formed from melting glaciers on the Tibetan Plateau and then runs eastward across southwest, central, and eastern China to the East China Sea (at the present-day city of Shanghai).

Xi'an – the present-day Chinese city that was called Chang'an until the Ming dynasty. Chang'an was the capital city of the Qin, Zhou, Sui, and Tang dynasties—and was located at the eastern end of the Silk Road.

Taklamakan Desert (also Taklimakan) – A desert of western China between the Tian Shan (Celestial Mountains) and the Kunlun Mountains.

Kunlun Mountains – A mountain range of western China that runs from the Karakorum Range eastward to the northern plateau in Tibet.

Tian Shan – A mountain range of Central Asia that runs east-northeast through Kyrgyzstan, southeast Kazakhstan, and northwest China.

Pamir region – A mountainous region of south-central Asia that lies mainly in Tajikistan, although parts also lie in northern Afghanistan, northern Kashmir, and western China.

Karakoram Mountains – A mountain system of northern Pakistan, India, and southwest China. (These mountains are an extension of the Hindu Kush.)

Blank map:



Public domain map image from: <http://en.wikipedia.org/wiki/File:BlankAsia.png>

Caravans of the Silk Road

Because journeys over the Silk Road trade routes were long and dangerous, travelers on these routes usually joined groups called caravans. Each caravan had its own leaders, camel drivers, baggage handlers, and other workers. Traders who were part of a caravan often hired their own private guards for protection—and Chinese government officials were provided with military escorts for their journeys. Caravans made their way through many different ecological environments, including the rich, grassy farmland near Chang’an; the marshes around the salt lakes of Lop Nor; several mountain ranges, which were often covered with snow and ice; and the harsh dry climate of the Taklamakan Desert. Travelers had to endure the fierce heat of the desert during the day and the bitterly cold temperatures of the night.

Caravans departing from Chang’an usually headed first west and then slightly northwest through the Huang River Valley. After moving along the foothills of the Nan Shan (Southern Mountains) and passing the Great Wall, the caravans arrived at Dunhuang, an oasis town that sits between the rocky Gobi Desert and the treacherous sands of the Taklamakan Desert. The Taklamakan is one of the world’s largest and most desolate deserts. Its name can be translated as “If you come in, you won’t come out.” At Dunhuang, traders had several choices for making it to the far side of the Taklamakan. Some traveled along the southern edge of the Taklamakan through the foothills of the Kunlun Mountains. Some skirted the northern edge of the desert along the foothills of the Tian Shan (Celestial Mountains). Some took a long detour to the north of the Tian Shan range and crossed the Central Asian steppes to the shores of the Caspian Sea.

These routes, except for the northernmost one, came together at Kashgar, a large oasis town in the foothills of the Tian Shan and Pamir Mountain ranges. From here, caravans might head west through the dangerous passes of the Pamir Mountains. Often called “the roof of the world” because they are so high and steep, these mountains were often covered in snow and ice. Once this obstacle was crossed, these caravans headed toward the fertile valley of Ferghana, famous for its horses. Caravans could also travel south from Kashgar to cross the Karakorum Mountains into India.

A few Silk Road traders journeyed from one end of the trade route all the way to the other, but many traveled only parts of the route. For example, silk could be carried by camel caravans from Chang’an to Merv (present-day Turkmenistan), where it might be sold to a Parthian trader, who in turn would sell the silk in Syria. From Syria, it might travel overland to Alexandria and then by ship to Rome.

Silk wasn't the only product carried across Central Asia by Silk Road traders. Goods coming from China included tea, ceramics, rhubarb, paper, lacquer, gunpowder, and bamboo. Various locations along the way also had goods that might be traded. For example, Kashgar offered pack animals, dried fruit, herbs, and tea. Merchants in Ferghana, famous for its horses, also dealt in rugs, copper, and dried fruit and nuts. Heading in the other direction, Roman merchants traded gold, glass and various glazes, and grapevines.

As trade goods made their way from east to west and west to east, other less tangible things also traveled the Silk Road. Religious ideas, technologies—and diseases—also traveled the Silk Road routes. The mirror pictured below shows that ideas and subjects for artwork were also exchanged.



Mirror with Grape Design, 8th century

Chinese, Tang dynasty

(618 – 907)

bronze with gold overlay

Gift of the Fabergé Society of the Virginia Museum of Fine Arts, 2000.11

This picture shows the decorative back of a mirror that dates back to the Tang dynasty. It's made of bronze coated with gold and the surface is decorated with five lions surrounded by birds and grapevines.

One lion is crouching in the center of the mirror. The other four are arranged around him in lively poses.

Lions and grapevines, which are not native to China, were introduced into Chinese culture through the Silk Road trade by the 2nd century BCE. They didn't become popular decorations in works of art, however, until after the 5th and 6th centuries when Buddhist influences began to arrive in China.

It took strong and tough pack animals to make the trip across the desert environments and icy mountain passes of the Silk Road. The heavy loads of goods were usually carried over these ecosystems by Bactrian camels. These two-humped camels are well suited for long, dry journeys over rough terrain.

A number of adaptations give Bactrian camels natural advantages. Their long eyelashes protect their eyes from blowing sand and their large feet prevent them from sinking in the sand. They can even close their nostrils during sand storms. They grow thick shaggy coats in winter, which they shed in hotter months.

Their humps store fat, which they use for energy when food is short. The linings of their stomachs are also adapted for water storage. The length of time camels can go without a drink depends on their travel speed and the weight of the load they're carrying. They can last about six to ten days if traveling is slow and easy.



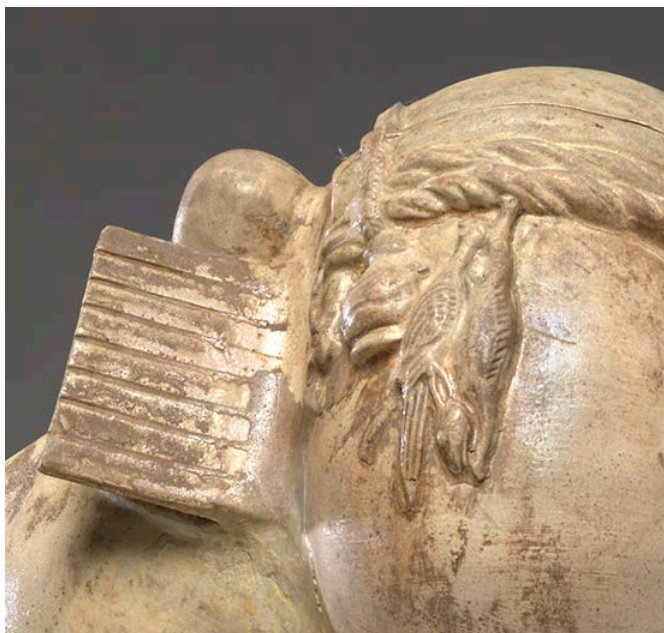
Bactrian Camel, 7th century

Chinese Tang Dynasty (618–906)

Glazed earthenware

Adolph D. and Wilkins C. Williams Fund, 51.12.2

This sculpture from VMFA's East Asian Collection was most likely found in the tomb of a very important person. Can you see the bird and rabbit hanging from the camels' saddle in the picture below? What else do you think this camel might have carried?



What other kinds of animals do you think Silk Road travelers might have seen? Let's find out!

ACTIVITY DIRECTIONS:

1. Divide the class into five groups, one for each of the sections listed on the Student Assignments Sheet on the next page. Number the groups from 1 to 5 and ask each group to research one of the topic areas.
2. Each group should create five Animal Description Cards using the card stock sheets. After researching the animals that have lived in their topic area, they should write "answers" about five animals on the "Side 1's" of their five cards, and corresponding "questions" on the Side 2's. (There's an example at the bottom of the activity sheet.)
3. Once all the groups have finished, one student from each group should gather the cards into a stack and take them to the front of the room. A second student from each group should keep score for that group.
4. Starting with group 1, each "card holder" should hold up an "answer" card and read it to the class. Any student who is not a part of the group that created the card may answer after being called on by the teacher, or moderator. (The teacher will call on the first hand raised and will be the arbiter of ties.)
5. Each correct answer is worth 10 points. The team with the most points wins. The team with the coolest questions and answers, however, should be the most admired.

This Website may help with this assignment. <http://www.wildcamels.com>

The Wild Camel Protection Foundation was established in 1997 with Jane Goodall as its patron. The sole aim of the Wild Camel Protection Foundation is to protect the critically endangered wild camel (*Camelus ferus*) and its habitat in the fragile and unique desert ecosystems in the Gobi and Gashun Gobi deserts in northwest China and southwest Mongolia.

[This activity was adapted—with permission—from a study guide called *No Bad Camels*, which was produced in conjunction with the Science Museum of Virginia's Carpenter Science Theatre play, *One Bad Camel* by Douglas Jones.]

Student Activity Sheet

Research the animals that lived in your assigned topic area. Write “answers” about five of the animals on the “Side 1’s” of your five cards, and corresponding “questions” on the Side 2’s. Be sure to notice how many of these animals are endangered!

Mountain areas: Rushing streams were home to the trout and other fish. Near the craggy tops of the ranges, marmots and pikas were hunted by eagles and hawks, while snow leopards preyed on ibex. On the slopes of the mountains, spruce, larch, and juniper trees provided good habitats for lynxes, wolves, wild boars, and brown bears.

Grassy plains or steppes: The grasslands supported roe deer, wolves, foxes, badgers, saiga (a species of antelope), wild horses and asses, ring-necked pheasants, partridges, black grouse, bustards, falcons, jackals, hawks, tortoises, and hedgehogs.

Rivers, lakeshores, and marshlands: In these areas, elm and poplar trees, and a variety of reeds and shrubs, provided cover and habitat for wild boars, jackals, Argali sheep, and deer. Geese, ducks, white and black cranes, swans, black storks, and Palla’s sea-eagles lived in the marshy areas.

In the Taklamakan: Even in this harsh environment, there was life, including goitered gazelles (also called jeiran, djeran, or jeran), gophers, sand rats, and jerboas (small jumping rodents with long hind legs), which provided food for foxes and lizards. There were also plate-tailed geckos, Gobi geckos, sand boas, and various kinds of snakes.

Domesticated animals: Many of animals that Silk Road travelers encountered were domesticated, including Bactrian camels, Marco Polo sheep, and yaks. Turkic horses, with thick bands of muscle on both side of the spine that made them easier to ride, were used throughout the region, as were the Tarpan, or steppe ponies.

Card Example:

Side 1: Answer

This two-humped mammal is known as the ship of the desert because of its swaying side-to-side motion. It can eat almost anything and can go for long periods without water. The few wild specimens left are endangered.

Side 2: Question

What is a Bactrian Camel?

These websites may help with this project:

Biological diversity in the mountains of Central Asia:

<http://www.eoearth.org/view/article/150653/>

Frostburg Science Discovery Center:

<http://www.frostburg.edu/fsdc/animal-profiles/>

Mountain Ungulates Project in Tajikistan:

<http://www.wildlife-tajikistan.org/>

Find this and other resources online at www.vmfa-resources.org

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