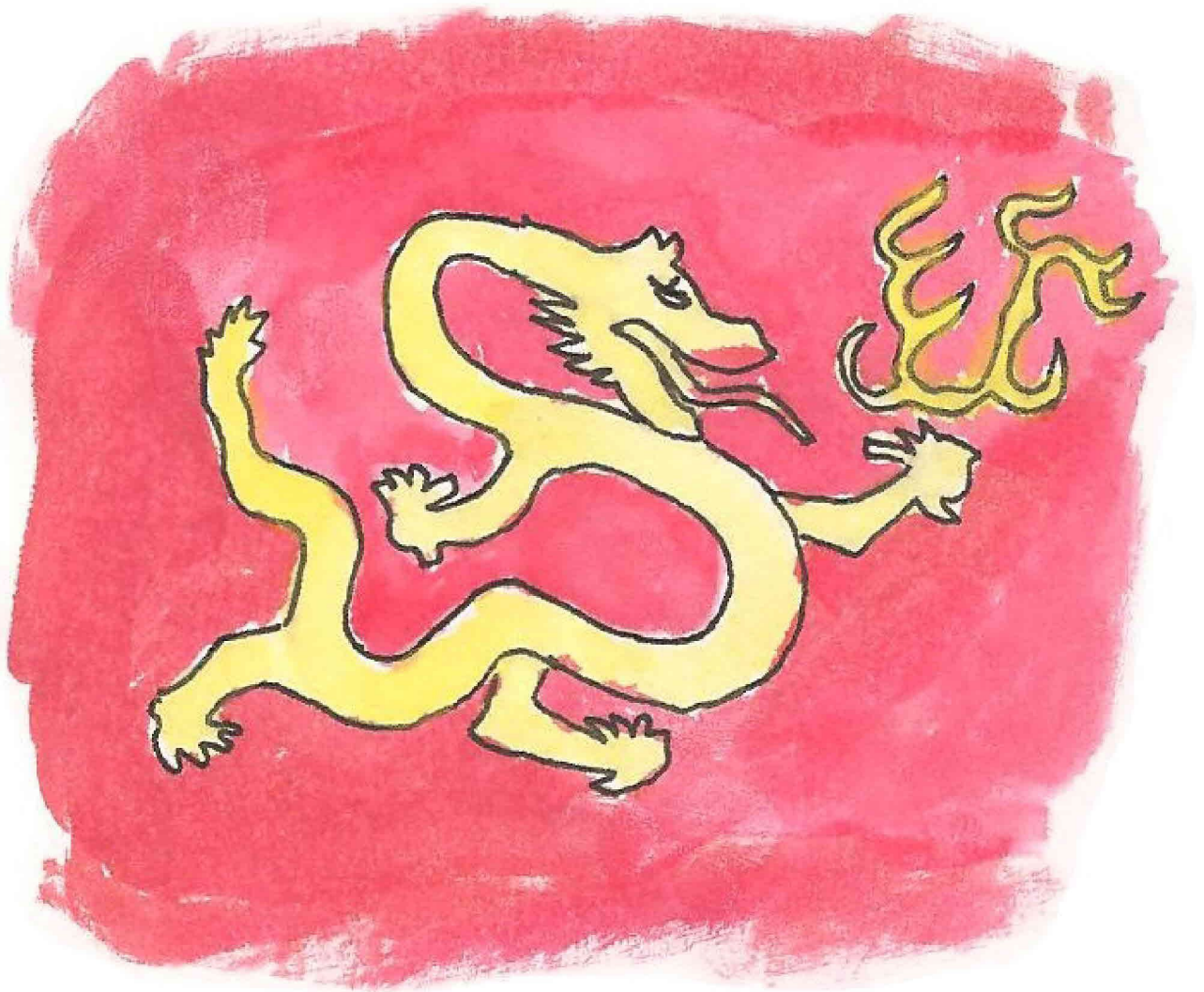


# Layers of Learning

## Year One - Unit Ten

Includes fun, hands-on projects in  
History - Geography - Science - The Arts



### Ancient China - Forests - Machines - Chinese Art

Michelle Copher & Karen Loutzenhiser



# LAYERS OF LEARNING

## YEAR ONE • UNIT TEN

ANCIENT CHINA  
FORESTS  
MACHINES  
CHINESE ART

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# LAYERS OF LEARNING INTRODUCTION

This is part of a series of units in the Layers of Learning homeschool curriculum, including the subjects of history, geography, science, and the arts. Children from 1<sup>st</sup> through 12<sup>th</sup> can participate in the same curriculum at the same time - family school style.

The units are intended to be used in order as the basis of a complete curriculum (once you add in a systematic math, reading, and writing program). You begin with Year 1 Unit 1 no matter what ages your children are. Spend about 2 weeks on each unit. You pick and choose the activities within the unit that appeal to you and read the books from the book list that are available to you or find others on the same topic from your library. We highly recommend that you use the timeline in every history section as the backbone. Then flesh out your learning with reading and activities that highlight the topics you think are the most important.

Alternatively, you can use the units as activity ideas to supplement another curriculum in any order you wish. You can still use them with all ages of children at the same time.

When you've finished with Year One, move on to Year Two, Year Three, and Year Four. Then begin again with Year One and work your way through the years again. Now your children will be older, reading more involved books, and writing more in depth. When you have completed the sequence for the second time, you start again on it for the third and final time. If your student began with Layers of Learning in 1<sup>st</sup> grade and stayed with it all the way through she would go through the four year rotation three times, firmly cementing the information in her mind in ever increasing depth. At each level you should expect increasing amounts of outside reading and writing. High schoolers in particular should be reading extensively, and if possible, participating in discussion groups.

😊 😊 😊 These icons will guide you in spotting activities and books that are appropriate for the age of child you are working with. But if you think an activity is too juvenile or too difficult for your kids, adjust accordingly. The icons are not there as rules, just guides.

😊 GRADES 1-4

😊 GRADES 5-8

😊 GRADES 9-12

Within each unit we share:

- EXPLORATIONS, activities relating to the topic;
- EXPERIMENTS, usually associated with science topics;
- EXPEDITIONS, field trips;
- EXPLANATIONS, teacher helps or educational philosophies.

In the sidebars we also include Additional Layers, Famous Folks, Fabulous Facts, On the Web, and other extra related topics that can take you off on tangents, exploring the world and your interests with a bit more freedom. The curriculum will always be there to pull you back on track when you're ready.

You can learn more about how to use this curriculum at [www.layers-of-learning.com/layers-of-learning-program/](http://www.layers-of-learning.com/layers-of-learning-program/)

## UNIT TEN

### ANCIENT CHINA – FORESTS – MACHINES – CHINESE ART

*By three methods we may learn wisdom: First, by reflection, which is noblest; Second, by imitation, which is easiest; and third, by experience, which is the bitterest.*  
*-Confucius*

	<b>LIBRARY LIST:</b>
HISTORY	<p>Search for: ancient China, Shang Dynasty, Qin (or Chin) Dynasty, Han Dynasty, Great Wall of China, Silk Road, Confucius, Lao Tse, paper invention, fireworks invention</p> <p>👍 🌟 🌟 <u><a href="#">Ancient China</a></u> (DK Eyewitness Books) by Arthur Cotterell and Laura Bulle. We absolutely love this series from DK. Fascinating for all ages because of the amazing images and enlightening captions.</p> <p>👍 <u><a href="#">The Emperor's Silent Army: Terracotta Warriors of Ancient China</a></u> by Jane O'Connor. Talks about the discovery of the terracotta warriors and their creation and significance.</p> <p>👍 <u><a href="#">The Master Swordsman &amp; the Magic Doorway: Two Legends from Ancient China</a></u> by Alice Provensen. Real ancient tales with a moral that includes Chinese philosophy.</p> <p>👍 🌟 <u><a href="#">The Silk Route: 7,000 Miles of History</a></u> by John S. Major. Easy enough for your kindergartener to understand, fascinating and informative for your high schooler.</p> <p>👍 🌟 <u><a href="#">Growing Up In Ancient China</a></u> by Ken Teague. Great information about what a kid's experience in ancient China would have been like.</p> <p>👍 🌟 <u><a href="#">Ancient China</a></u> by Judith Simpson. Great visual layout.</p> <p>👍 🌟 <u><a href="#">Stories From The Silk Road</a></u> by Cherry Gilchrist. Tales from countries along the Silk Road, not just China. Gives a good snapshot of the ancient world in central Asia.</p> <p>👍 🌟 <u><a href="#">The Terracotta Girl: A Story of Ancient China</a></u> by Jessica Gunderson. A chapter book for young readers. Look for more titles about China by the same author.</p> <p>👍 🌟 <u><a href="#">The Gods and Goddesses of Ancient China</a></u> by Leonard Everett Fisher. Deities from several of China's major religions are covered.</p> <p>🌟 <u><a href="#">The Ancient Chinese</a></u> by Virginia Schomp.</p> <p>🌟 🌟 <u><a href="#">The Story of Ancient China</a></u> by Suzanne Strauss Art. Covers from the neolithic times to the end of the Tang Dynasty.</p> <p>🌟 🌟 <u><a href="#">China: Land of Dragons and Emperors</a></u> by Adeline Yen Mah. From an author who knows her subject, this is a comprehensive history of China from ancient times to the modern day; reads like a novel.</p> <p>🌟 <u><a href="#">The Tao of Pooh</a></u> by Benjamin Hoff. A simple, easy to understand introduction to Taoism via Winnie the Pooh. Interesting and enlightening.</p> <p>🌟 <u><a href="#">The Seven Military Classics Of Ancient China</a></u> by Ralph D. Sawyer. Easy to read translation of original Chinese treatises on warfare.</p> <p>🌟 <u><a href="#">Analects</a></u> by Confucius. Choose either the Arthur Waley translation, prosy and easy to understand for the beginner, or the Ezra Pound translation, more poetic and pithy.</p>

# ANCIENT CHINA – FORESTS – MACHINES – CHINESE ART

GEOGRAPHY	<p>Search for: forests, woodland habitat, taiga, boreal forest, rain forests</p> <p>☺ <u>Forest Bright, Forest Night</u> by Jennifer Ward. Depicts forest animals of the day and of the night in beautiful illustrations. Involves counting, searching, and more activities for your young ones.</p> <p>☺ <u>Who Lives Here? Forest Animals</u> by Deborah Hodge. Detailed illustrations and few words.</p> <p>☺ ☺ <u>A Walk in the Boreal Forest</u> by Rebecca L. Johnson. Part of a series that delves into various habitats. See <u>A Walk in the Deciduous Forest</u> and <u>A Walk in the Rain Forest</u> by the same author.</p> <p>☺ ☺ <u>Voyages: Rain Forest</u> by Jinny Johnson and Naklini Nadkarni. Learn about a rain forest scientist and what she finds.</p> <p>☺ ☺ <u>Tropical Rain Forest</u> by Donald Silver. Part of the “One Small Square” series, this book focuses in depth on one square foot of rain forest and the plants and animals that live there. Also look for <u>Woods</u> in this series and by the same author.</p> <p>☺ <u>Rain Forest</u> by Fiona MacDonald. Not only plants and animals, but also people and legends of the rainforest.</p> <p>☺ ☺ <u>Biomes Atlases: Temperate Forests</u> John Woodward. Does a great job explaining why forests grow where they do. Introduces students to forests worldwide with maps.</p>
SCIENCE	<p>Search for: machines, ramps, inclined plane, levers, gears, wheels, pulleys</p> <p>☺ ☺ <u>Car Science</u> by Richard Hammond. From DK, it covers how cars work from gas to handling to the moving parts of the engine.</p> <p>☺ ☺ <u>Teaching Physics With Toys: Hands-on Investigations for Grades 3-9</u> from Terrific Science Press. For the parent to use as a guide in teaching. Comes with a CD ROM of printable worksheets. Relies heavily on K'Nex sets, not included.</p> <p>☺ ☺ <u>Janice VanCleave's Machines: Mind-boggling Experiments You Can Turn Into Science Fair Projects</u> by Janice VanCleave. Our favorite science experiment author.</p> <p>☺ <u>Machines</u> by Clive Gifford. An Usborne book that describes modern machines and how they work.</p> <p>☺ ☺ <u>The New Way Things Work</u> by David Macaulay and Neil Ardley. Humorous and detailed, an excellent introduction to simple machines for older kids. This one is worth purchasing. Also look for <u>The Way Things Work</u> by the same author.</p>
THE ARTS	<p>Search for:</p> <p>☺ ☺ <u>Arts and Crafts of Ancient China</u> by Ting Morris. Includes activities to do with your kids.</p> <p>☺ ☺ ☺ <u>Long Is a Dragon: Chinese Writing for Children</u> by Peggy Goldstein. Introduction to calligraphy, great for all ages.</p> <p>☺ <u>Chinese Art</u> by Mary Tregear. An overview of Chinese art from ancient to modern times.</p> <p>☺ <u>Three Thousand Years of Chinese Painting</u> by Professor Richard Barnhart, Yang Xin, Nie Chongzheng, Professor James Cahill, Lang Shaojun, Hung Wu, Richard M. Barnhart, James Cahill, and Wu Hung. Beautiful reproductions, easy to understand explanations will make you knowledgeable about this subject.</p>

## HISTORY: ANCIENT CHINA

### Famous Folks



King Yu the Great, of the mythical Xia Dynasty, which supposedly came before the Shang Dynasty. Written records of later periods assert that the Xia existed, but there is no hard proof; sorta like King Arthur of western myth. Probably real, but we just can't tell for sure.

The first written records we have of China were from about 1400 BC, when it is thought that writing first developed in China. Like other civilizations, China started out as farmers banding together to create villages for protection from wild animals and bandits. Eventually this grew into kingdoms all warring against each other. Then finally around 480 BC one strong family took control of all the kingdoms and this family became the first dynasty of the first empire of China. Meanwhile, the poor farmers and craftsmen lost more and more freedom, and were subject to the most powerful thug who could claim the kingdom. That is the way of civilization.



### 😊🌱🎨 EXPLORATION: Early Chinese Timeline

Printable timeline squares can be found at the end of this unit.

- 5000 BC Farms and small villages develop along the Yangtze and Yellow Rivers
- 2700 BC First silk production begins
- 1765-1027 BC Many small kingdoms are functioning in China, mostly ruled by the Shang family
- 1400 BC First writing
- 1027 BC The Shang family was conquered by the Zhou, who developed a feudalistic system
- 722-480 BC Zhou lose control and many small warring kingdoms are set up
- 551 BC Confucius is born
- 481-221 BC The Warring States Period
- 221 BC The Qin (pronounced Chin) conquer all other kingdoms, Qin Shi Huangdi becomes first emperor of China.
- 221 BC First wall of China is built, connecting many shorter walls
- 210 BC Shi Huangdi dies and is buried with his terracotta army
- 202 BC–220 AD The Han Dynasty rules
- 1-100 AD Buddhism is brought from India
- 100 AD Paper is invented

### Memorization Station

Xia Dynasty

Shang Dynasty

Zhou Dynasty

Spring and Autumn Period

Warring States Period

Qin Dynasty

Han Dynasty

Wei and Jin Period



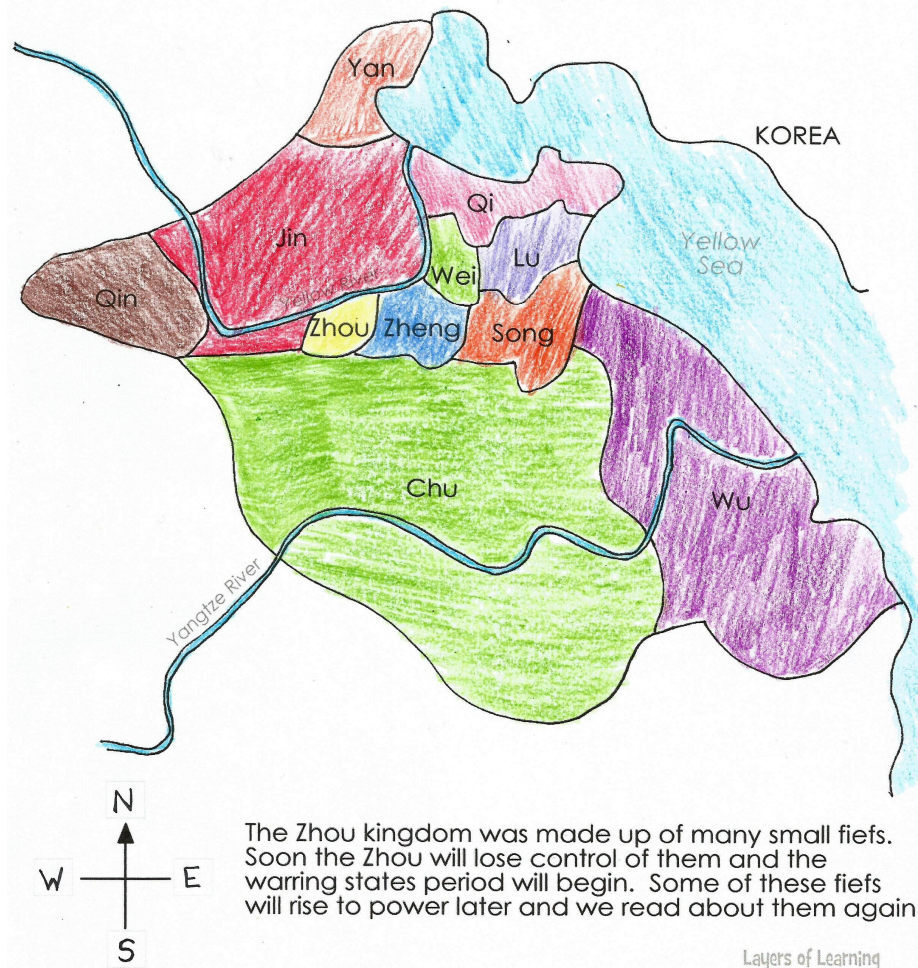
# ANCIENT CHINA – FORESTS – MACHINES – CHINESE ART

## 🌱 🌐 EXPLORATION: Ancient China Map

Make a map of ancient China using the Ancient China Map from the end of this unit.

Color in each of the fiefs of the Zhou kingdom. Later these fiefs grew too powerful for the Zhou to control and they became independent states, constantly at war against each other. This period is known as the Warring States Period. It was during this time that Confucius lived and taught rules of good living that can bring peace.

## Ancient China: Zhou Kingdom



This next map shows the various stages of Chinese kingdoms and empires from about 1800 BC until 500 AD. Color each dynasty including the Shang, Zhou, Qin, Han, Wei, Shu Han, Wu, and Qi. The Wei, Shu Han, and Wu dynasties were three separate kingdoms that existed at the same time. The first emperor of China is considered the Qin emperor.

## Additional Layer

During the Shang Dynasty certain learned men used oracle bones to attempt to tell the future. They would write on bone or turtle shell.



Photograph by Kowloonese and shared on Wikimedia Commons

What other ways did people of the past (or present) use to attempt to divine the future? Does it work? What does your religious tradition teach about knowing the future?

## Fabulous Fact



This is a bronze ax head from the Shang Dynasty. This period is the Bronze Age for China.



# ANCIENT CHINA – FORESTS – MACHINES – CHINESE ART

## Additional Layer

Inside China, along the Li River, are some really interesting mountains shaped like giant steep sided haystacks. They are called karst mountains.



Look up some pictures of them online and find out more about karst mountains – what they are made of, how they are formed, and where else in the world they exist.

## Famous Folks



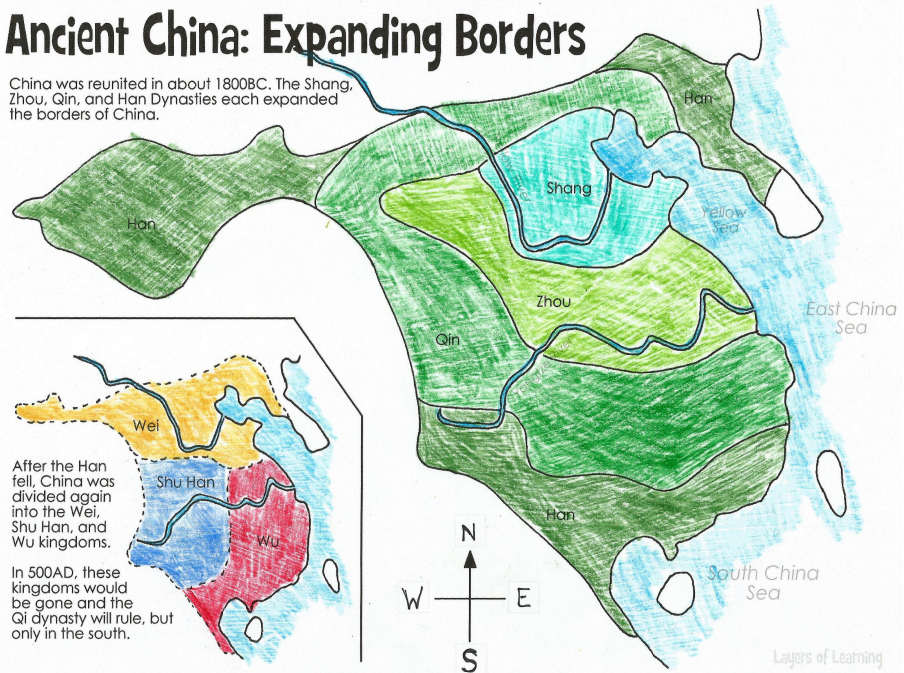
Taisi was a much loved and revered queen of China. She had ten sons, who she raised to be honorable men.

She and her husband are known as the “founding ancestors” of China.

Learn more about her and other ancient leaders of China.

## Ancient China: Expanding Borders

China was reunited in about 1800BC. The Shang, Zhou, Qin, and Han Dynasties each expanded the borders of China.



## EXPLORATION: Shadow Puppets

Legend has it that long ago in Han times the emperor's wife died tragically. The emperor's heart ached for his wife; he missed her so. His people thought that over time he would get over her loss, but alas, his heart just grew heavier and heavier. He couldn't stand to have her gone from him. His people didn't know what to do.

One day one of the emperor's priests passed by some children playing in the court with dolls. The dolls made lovely, dancing shadows on the ground. Aha! The priest had an idea, and set straight to work on his plan. He made a very special puppet from cotton balls. He made it to look just like the emperor's wife. He invited the emperor to dinner and a special puppet show. Although the thought of doing anything as cheerful as a show made the emperor miss his wife even more, he finally agreed to come.

That evening the priest set up a special dinner. At the front, a curtain was draped across the stage. The priest put a light behind the curtain. As he moved the puppet along behind the curtain, it cast a lovely, dancing shadow. The priest told story after story, and memory after memory about the emperor's wife. It was a celebration of her life and all she was. The shadow seemed to come to life and tell the stories.

The emperor clapped! He cheered! He cried beautiful tears of joy

# ANCIENT CHINA – FORESTS – MACHINES – CHINESE ART

at the lovely memories of his wife. Every evening, when he finished the business of being emperor, he came back to the stage and listened again to the shadow stories of his beloved. And he was happy.

And that, dear ones, is how shadow puppets were born.

Set up your own screen using a sheet and a lamp, and tell favorite stories from your own family. You can use your hands as the puppets, or draw outline silhouettes as the ancient Chinese did. You can even give your puppets movement by using brads to connect your arms and legs with. This allows you to move their limbs too.

## ☺ ☻ EXPLORATION: Calligraphy

During the Shang Dynasty a system of writing was invented. The writing was called calligraphy. The words originally evolved from pictures. The word calligraphy means “good writing.” There are many strokes and styles of Chinese calligraphy, and those that study it are considered to be masters. They use special tools and brushes to make the strokes into perfect works of art. They even have to do the strokes in the precise order to make just the right effect.

永和九年歲在癸丑暮春之初會  
于會稽山陰之蘭亭脩禊事  
也羣賢畢至少長咸集此地  
有崇山峻嶺茂林脩竹又有清流  
激湍映帶左右引以為流觴曲水  
列坐其次雖無絲竹管絃之  
盛一觴一詠亦足以暢敘幽情  
是日也天朗氣清惠風和暢仰  
觀宇宙之大俯察品類之盛  
所以遊目騁懷足以極視聽之  
娛信可樂也夫人之相與俯仰

Go visit [www.mandarintool.com/chinesename.html](http://www.mandarintool.com/chinesename.html) to see what your name looks like in Chinese calligraphy. There aren't exact translations, so the translator takes into account the phonetic sound of your name, your gender, your birth date, and the desired essence of your name.

## Fabulous Fact

This symbol means “Zhou.”

周

## Fabulous Fact

It's a long standing myth that the Great Wall of China is so big that it can be seen from the moon. Seeing it from the moon would be comparable to seeing a small hair from two miles away . . . not likely!

Even astronauts in low earth orbit, a mere 100 miles away, can't see the Great Wall of China. But we've captured it on satellite images, which doesn't really impress me since I've seen my house on satellite images as well . . . On second thought, I think I am impressed.

## Additional Layer

Beautiful handwriting is still cool. Try a beginning calligraphy course, like *Calligraphy: A Course in Hand Lettering* by Mayanne Grebenstein.



# ANCIENT CHINA – FORESTS – MACHINES – CHINESE ART

## Fabulous Fact

Dragons are considered good luck in China and were the symbol of emperors. A five toed dragon represents royalty, a four toed dragon represents nobility. There's a dragon coloring sheet in the printables section.



*Photograph by Shizhao and shared on Wikimedia Commons.*

## Fabulous Fact

Because of their height, pagodas attract lightning strikes. Often the finial on top doubles as a lightning rod to protect the building.

## Additional Layer

Buddhism, though originally from India, has been a major influence in China. Learn more about this world religion.



*Photograph by Alex Kwok*

## ☺ ☹ ☹ EXPLORATION: The First Pagoda

An ancient Chinese legend tells about the first pagodas in China and how they came to be. Emperor Ming of the Han Dynasty had a dream. In his dream there was a giant, golden man. The man wore a halo and flew all over his palace, spreading a glowing feeling everywhere he went.

When the emperor awoke he didn't know what to think of his strange dream. He called his best advisers to discuss it. One of his men told him of a strange god in the west called Buddha. He said he thought the man in the dream had been Buddha. Immediately the emperor sent out some men to India in the west to seek out Buddha.



Along their travels they met two Buddhist monks who gave them scriptures and a statue of Buddha for the emperor. Emperor Ming wanted everyone to know about his new-found religion, so he built a pagoda in the style of Indian stupas to honor Buddha. The monks lived there and turned the White Horse Temple, the first pagoda in China, into a house of prayer and worship for Buddha.

Color the picture of the pagoda found at the end of this unit. Older students may want to use it as a reference to draw their own pagoda and then write about what pagodas are used for.

## ☺ ☹ ☹ EXPLORATION: Confucius

Confucius was born around 551 BC during Zhou times. His parents, who had been nobles, became very poor when the empire disintegrated into separate feudal states. When he was a teenager Confucius really wanted to learn and get an education, but only nobles were allowed to do this. He couldn't go to a library or go to school, because those things didn't even exist. He decided to get a job helping a nobleman so he would have the chance to learn and travel.

He studied and studied and became the smartest man of his day. People heard of his intelligence and began sending their children



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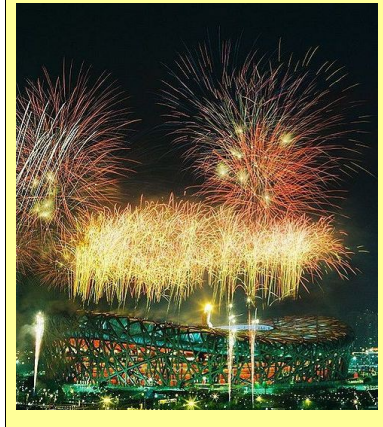
to him, so he became a teacher. He was the very first private teacher in all of China. He taught not only about math and science and the things of this world, but also about responsibility and having good character. Some people think Confucianism is a religion, but really it's just a belief in behaving and being responsible.

Look up some of the tenets of Confucius. Write 5-10 of them down, each on their own page, and then illustrate them. What do the tenets teach you? One of my favorites is: *If you make a mistake and do not correct it, this is called a mistake.*



## Writer's Workshop

The Chinese invented lots of stuff like gunpowder, fireworks, paper, porcelain manufacture, silk production, printing presses, compasses, acupuncture, paper money, and much more. Research one invention and write a report about it.



## EXPLORATION: The Silk Road

Using a map, look at the vast distance between Europe and China in East Asia.



Despite this huge distance, traders, warriors, and pilgrims all made the trip. The Silk Road was the main trading and traveling route between the peoples of the west and east in this region. For many years trade flourished and the cultures combined. Chinese silk was especially desirable for trade, which is the reason the Silk Road got its name. Spices, foods, and inventions were also traded along the route. The trade route between China and the west began during the Han Dynasty, or perhaps even earlier. Much later, Marco Polo gained fame for making the trek all the way along the road to China. Eventually the road disintegrated as

## Writer's Workshop

A significant amount of worldwide goods are traded today. How much cultural exchange happens along with the goods? Is cultural exchange good? Is it harmful in any way? Are there other ways we exchange culture today besides importation and exportation of goods? How has the internet had an impact?

In your writer's notebook you may want to make a comparison between the modern internet and the ancient Silk Road.

# ANCIENT CHINA – FORESTS – MACHINES – CHINESE ART

## Additional Layer

Popular in the west as a T-shirt graphic, the yin and yang is a Taoist concept that symbolizes that everything has a dual nature. It is when the balance is off that bad things occur, like war, disease, and other stresses.



This symbol can be seen in the South Korean Flag.



And in this ancient Roman manuscript.



control of the lands it went through shifted, and warring leaders didn't maintain it.

Cultural exchange was one of the significant trades that happened along the Silk Road. Religion, ideas, inventions, art — all of these things were influenced by contact with other cultures and peoples.

Some of the cities along the Silk Road include: Xi'an, Anxi, Turpan, Smarkand, Baghdad, and Rome.



Pretend to be a merchant traveling the Silk Road in 100 BC. Likely you only travel one section of it, not the whole thing. Choose a city along the route to travel through. Research the city. What was it like in 100 BC? What dangers might a merchant encounter along the route? Make an adventure map of the trip. Mark places on the map where you run into natural dangers and places where you encounter dangerous men or women. Illustrate the map.

Also write down your adventures in journal form. Show off your map and other work to an audience.

## 🌞 🌿 EXPLORATION: The Great Wall of China

Construction of the Great Wall of China began in the Zhou Dynasty. Several of the states built walls for defense. Eventually those walls were joined to create larger, unified sections of wall. It has been renovated several times and added on to, and is now the largest wall in the world by far. It is actually not entirely joined, but is a series of large walls. It spans over 5,500 miles including built portions of the wall, trenches, and natural barriers like hills. Watch towers were built along it at high points so that signals and warnings could be sent from them.

What is the purpose of walls? If you could build a giant wall all the way around your house to protect your family, would you do



# ANCIENT CHINA – FORESTS – MACHINES – CHINESE ART

it? What would be the benefits? The problems? Compare the Great Wall of China with the Berlin Wall, the walls of Jericho, and the Iron Curtain. Do we have any other walls (physical or otherwise) in the world today?



Have each student use anything available to build a portion of a wall. The Great Wall is made of many things—dirt, rocks, clay, bricks-- because the people used whatever they had access to at the time. You could use clay, dirt, mud, wood, cardboard boxes and construction paper, toy blocks, Legos, rocks, or bricks. Connect all of your walls together when the portions are finished.

## ☺ ☺ **EXPEDITION: Chinese Restaurant**

Blindfold the kids. Really. Blindfold them and drive them to a Chinese restaurant. Take them inside and THEN remove the blindfolds. Ask them where there are. What clues tell them? Even with all kinds of Americanization, we can recognize Chinese influences. What specific things make their culture stand out?

## ☺ ☺ **EXPLORATION: Lao-Tse's Beard**

Lao-Tse was a philosopher who lived during the Warring States Period in China, about the same time as Confucius. His teachings eventually became known as Taoism (pronounced dow-ism). Modern scholars doubt that he even existed, but instead is merely legend and the combination of several figures from the past. Lao means “old” or “wise” and Tse means “Sir” or “Master” so rather than an actual name Lao-Tse is a title.

### **Fabulous Fact**

The construction of the Great Wall of China occupied several hundred generations and scores of emperors.

It is estimated that between 100,000 up to perhaps a million people died in the construction of the wall. These were peasants who died in accidents or were literally worked to death. Many of their bodies are buried in the wall itself. It has been called the longest cemetery on Earth.

### **Additional Layers**

Read one of these legends about the Great Wall:

Meng Jiangnu's Story

The Legend of the Jiayuguan Pass

Story of Beacon Tower

You can find them online with a search.

### **Fabulous Fact**

The length of all Chinese defense walls built over the last 2000 years is over 31,000 miles. The circumference of the Earth is 24, 854 miles.

Besides being used for defense the wall created a barrier to smugglers and illegal immigrants.

# ANCIENT CHINA – FORESTS – MACHINES – CHINESE ART

## Famous Folks

Daji was a consort of the last Shang emperor. She was incredibly beautiful and even more cruel. It was she, more than any other influence, that brought down the Shang Dynasty.



Find out more about her.

Like Confucius, Lao-Tse never pretended to be a religious leader or a prophet, but after his death his philosophical teachings on how to have a good life and obtain immortality took on the power of a religion.

Make Lao-Tse's beard. You need a piece of black construction paper. Cut the paper in a large half circle. Cut slits up the paper to make the locks of hair in the beard. On each section of beard write a teaching of Lao-Tse using a white crayon or glitter pen—something that will show up on the dark paper.



Just use words like: peace, contentment, nature, Yin-Yang, balance, and harmony. Tape the beard to your child's chin.

## Famous Folks



Meet the first emperor of China, the one who united all the warring states and crushed all resistance. The ruthless, the powerful, the completely paranoid Shi-Huangdi.

After the flowering of knowledge during the Warring States Period he had the books *and the scholars* burned.





# ANCIENT CHINA – FORESTS – MACHINES – CHINESE ART

## 🌱 🌀 EXPLORATION: Hundred Schools of Thought

The Warring States Period was a time when dozens of small kingdoms in China were all vying for power, one with another. It was also the greatest time of Chinese philosophy, art, scientific scholarship, and religious revival for China. This is when both Confucius and Lao-Tse lived, along with many other great philosophers. The time period is known as the *Hundred Schools of Thought*. This period, when scholars were free to discuss and write and debate without fear, was followed by the first Qin emperor, who killed the scholars and burned the books. Sigh.

The philosophers of this time were mostly itinerant teachers and political advisers. Not only was China a hotbed of thought, it was also a big experimental pool of politics and war. The many small kingdoms were all trying to come up with the perfect way to create a strong lasting state. It was a time of competing ideologies. In the end, the guy with the biggest stick won.

Make a paper garland with a symbol for each of the major schools of thought (you can do the ancient Chinese ones listed below or you can choose modern philosophies instead). Tape each symbol to a long piece of yarn or string and hang it along a wall or in front of a window. As you work, talk about the idea of intellectual freedom, freedom of speech, political debate, and scholarship. Are these things important? Why? What do you believe about competing philosophies? Should people be able to disagree in freedom or does this destroy society? Think of modern day examples.

Confucianism  
Mohism  
Diplomacy

Taoism  
Yin-Yang  
Military

Legalism  
Logicians  
Agriculturalists

## Additional Layer

Thousands of years later, in 1956, Mao Zedong would use the “Hundred Schools of Thought” concept to pretend a desire for real free thinking and competing ideologies.

His slogan was “Let a hundred flowers bloom; let a hundred schools of thought contend.”

Mao was certain that his own brand of socialism would easily be preferred by all. When Mao's supporters began to criticize certain policies and practices, Mao retaliated brutally.

It's like when a woman asks you how she looks in that dress. She doesn't want the truth, she wants a compliment.

Over 500,000 people were rounded up, and most of them were killed.



## GEOGRAPHY: FORESTS

### Definition

Ecosystems are any group of animals, plants, and inorganic objects that interact in a particular time and place. It can be an area as small as a clump of bushes in your backyard or as large as an entire ocean.

### Additional Layer

A lot of people are very concerned over the use of trees for things like building houses and making paper products. Most people think it's fine to log the forests as long as it's done responsibly. Trees are a completely renewable resource. But some people think a tree should never be cut.

There's a lot of rhetoric about the environment flying around out there. Become informed of the real facts before you make up your mind.

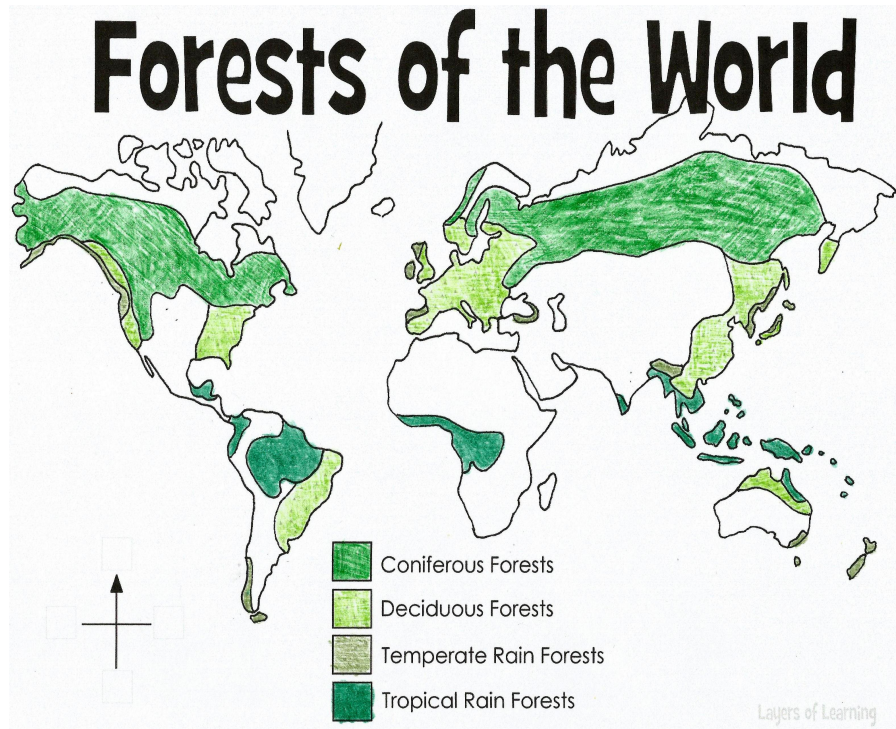


Forests grow wherever there is enough moisture and warmth to support large plant growth. In this unit, we'll learn about deciduous forests, coniferous forests, and rain forests. Millions of the products we use come from forests and many, many people live in forested areas. Trees and their environment are very important to people.

In terms of geography studies, your students should learn where the forests of the world are located, what kinds of conditions are necessary for different types of forests, and how the forests are used by people.

### 😊 🌿 EXPLORATION: Forests of Earth

Color a map of the forested areas of Earth. We'll use different shades of green for different types of forests. Remember to include a key and a compass. Use the world map from the end of this unit.



### 😊 🌿 EXPLORATION: My Forests

Research where forests are located in your state or region. Who owns them? What are they used for? How do the forests affect the economy in your area?

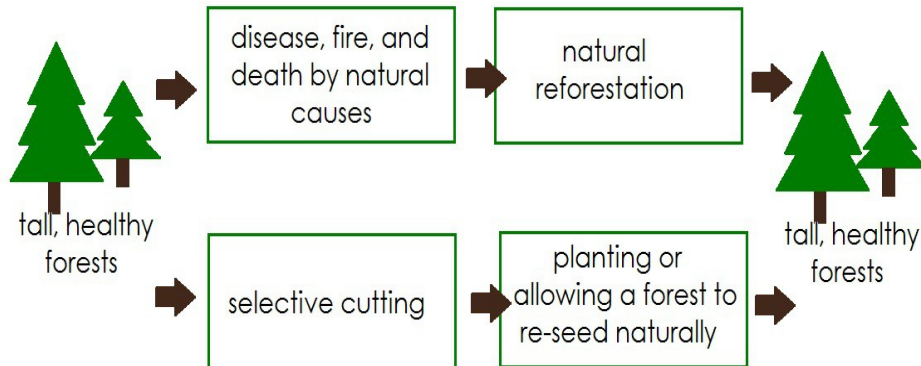
Color a map and label the forests in your state. State maps can be found at [www.layers-of-learning.com/layers-of-learning-printables/](http://www.layers-of-learning.com/layers-of-learning-printables/)



# ANCIENT CHINA – FORESTS – MACHINES – CHINESE ART

## 😊 😊 😊 **EXPLORATION: Harvesting Trees**

What we do with our land and resources is very important to the study of geography. Make a diagram showing how forest land in your area is managed so we can have forest products indefinitely.

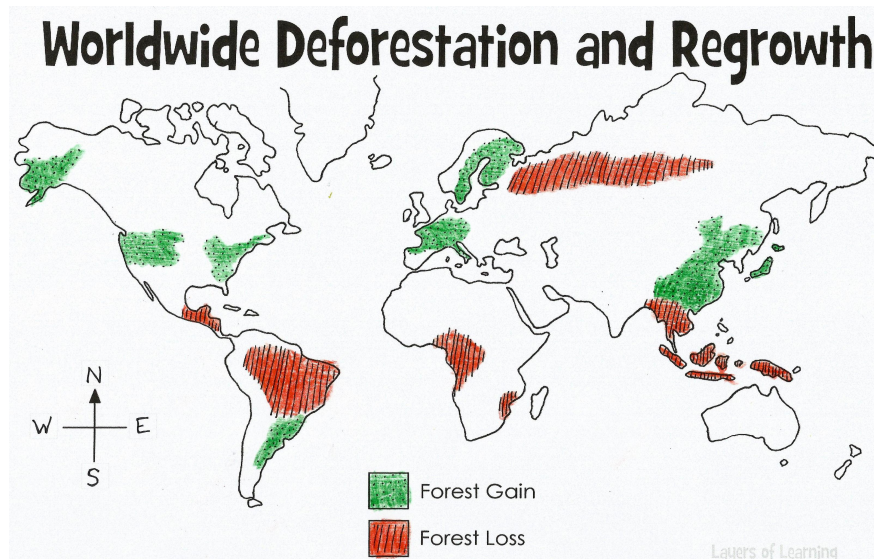


Try looking up the forest management page for your state for more information.

## 😊 😊 😊 **EXPLORATION: Deforestation**

There are many areas of the world that used to have trees, but no longer do. For example, Europe used to be one massive forest, but over many centuries the land was cleared for farms. Sometimes deforestation is natural, as in certain areas of the rainforest where natural drought conditions are causing great areas of trees to die out. Also, the tree line in the arctic used to be at a much higher latitude, but has moved south as the earth has cooled considerably over the last few hundred years.

Often though, deforestation is caused by human harvesting or other activity. Sometimes this activity has long-lasting negative consequences. Other times the clearing of land is positive.



## **Additional Layer**

Paul Bunyan,  
Zero or Hero?



In the American folk tale of Paul Bunyan, the title character is a giant of a man who uses his great strength to clear the forests of the northeast and Great Lakes area for farmland to pave the way for civilization. He is portrayed as a great hero in the tale. Today though, many people, safely secure in food, money, and other luxuries, would call him an environmental criminal. What do you think?

## **Fabulous Fact**

A *dendrologist* is a scientist who studies trees and other woody plants.

Next time someone asks you what you want to be when you grow up, you should say, "A dendrologist," and then watch his face for the blank stare.

# ANCIENT CHINA – FORESTS – MACHINES – CHINESE ART

## On The Web

National Geographic Kids has some cool geography games for your kids to try.

<http://kids.nationalgeographic.com/kids/games/>

## Additional Layer

Choose a story that occurs in a forest like *Little Red Riding Hood*, *Rip Van Winkle*, *Goldilocks and the Three Bears*, or a story about *Mouse Woman* (from the Northwest Indian Tribes).

Read the story together and have your kids draw the forest scene, adding in their characters. You could create a forest setting box using a shoe box.



*The Return of Rip Van Winkle*  
by John Quidor, 1849.

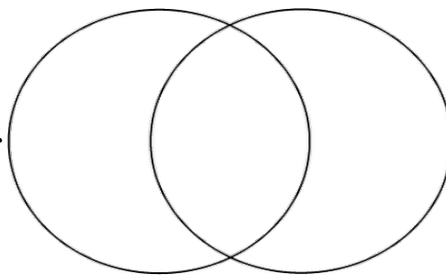
## Fabulous Fact

Trees can't survive in extreme cold because if their core freezes they explode. The sap, being made mostly of water, expands as it turns solid.

Color a map of the world showing the areas where deforestation is now occurring. On the map, areas of deforestation are shown in orange and areas where forests are gaining ground are shown in green. Be careful making judgments about the map. The countries of the world are in very different states of development and population and economic growth. They have different needs and abilities. This is not meant to be a moral statement; it is merely showing places in the world where forests are shrinking or growing. Areas not colored are remaining about the same in forested area. Some of these countries never did have much deforestation. Read more about the changing forests.

## ☺ ☹ ☹ EXPLORATION: Temperate vs. Tropical Rainforests

Make a Venn diagram comparing tropical rain forests to temperate rain forests. Include the types of trees, rainfall, temperature, other plants, animals, soil type and quality, location on Earth, and human uses.



## ☹ ☹ EXPLORATION: “A Tree is a Sensitive Thing”

In 1878, Asa Gray gave a lecture before the Harvard Natural History Society explaining why forests are found where they are and why they are made up of the trees they are made up of. It was one of the first forays into plant distribution studies. He said, among other things:

*It goes without saying that trees are nourished by moisture. They starve with dryness and they starve with cold. A tree is a sensitive thing. With its great spread of foliage, its vast amount of surface which it cannot diminish or change, except by losing that whereby it lives, it is completely and helplessly exposed to every atmospheric change; or at least its resources for adaptation are very limited; and it cannot flee for shelter. But trees are social, and their gregarious habits give a certain mutual support. A tree by itself is doomed, where a forest, once established, is comparatively secure.*

You can read the whole report online by searching for “Asa Gray Forest Geography.”

Look up the average rainfall and temperature in these areas:

Olympic Peninsula  
Chicago  
Buffalo, New York

Spokane, Washington  
Great Basin, Utah  
Bangor, Maine



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Phoenix, Arizona  
Nashville, Tennessee

Prudhoe Bay, Alaska  
Salem, Oregon

Make a table showing your findings and then write on the table which areas support which type of vegetation: deciduous trees, rainforest trees, evergreen trees, grasslands, or deserts. Feel free to add to your graph and findings by looking up more locations.

Location	Average Rain	Average Temp	Biome
Olympic Peninsula	100"+/year	57.3 high 40.0 low	Temperate Rainforest

You can graph the average annual rainfall for these locations as well if you like.

## 😊 🌱 EXPLORATION: The Tree Line



*Photograph by Dolph Kohnstamm and shared under creative commons license*

When looking at a tall mountain from a distance, as in this photo to the left, it appears as though the trees grow up to a certain altitude and then suddenly stop, forming a very definite line. This is called the tree line. When looking up close you can see the trees becoming

smaller and usually more twisted as you near the treeline until they're little more than bushes before they drop off altogether. Tree lines exist on tall mountains, in the far north, and at the edges of deserts or grasslands; wherever the cold or dryness is too much for tree growth.

Make a treeline painting and definition.

You need:

- green and white washable tempera paints
- small pieces of sponge
- blue construction paper
- white paper
- glue

## Additional Layer

There's an arctic treeline in the north, but there is no antarctic treeline in the south. There would be, except there are no land masses in the right places. Look at a globe and check out how most of the world's land is in the north.

## Explanation

The purpose of education is to train a person's belief system. Every education system does this, including the public schools.

If you are teaching your child at home you are doing this as well, whether you mean to or not. Your behaviors, the books you choose, the emphasis you put on certain subjects over others, and your discussions over the dinner table all are sending messages to your kids about what is important, how they are expected to behave, and what they should believe.

In spite of rebellious youth, very few people ever break with the teachings of their childhood. So be deliberate in educating your child's belief system.

*Michelle*

# ANCIENT CHINA – FORESTS – MACHINES – CHINESE ART

## Writer's Workshop

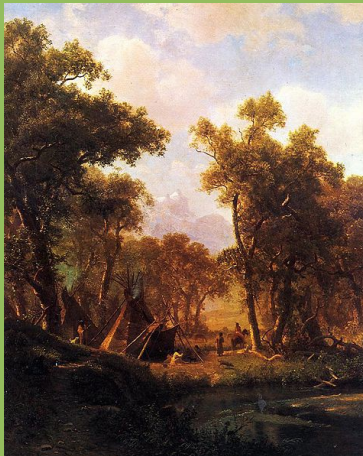
Most likely you've visited a forest before; you know what it's like from your point of view. Have you ever thought what it would be like from another point of view? Write a story from the point of view of a tree. Think it can't be done? Check out Shel Silverstein's *The Giving Tree*.

## Fabulous Fact

Trees are used for much more than just wooden stuff and paper. Over 5,000 items from food to chewing gum to adhesives are made with trees.

## Additional Layer

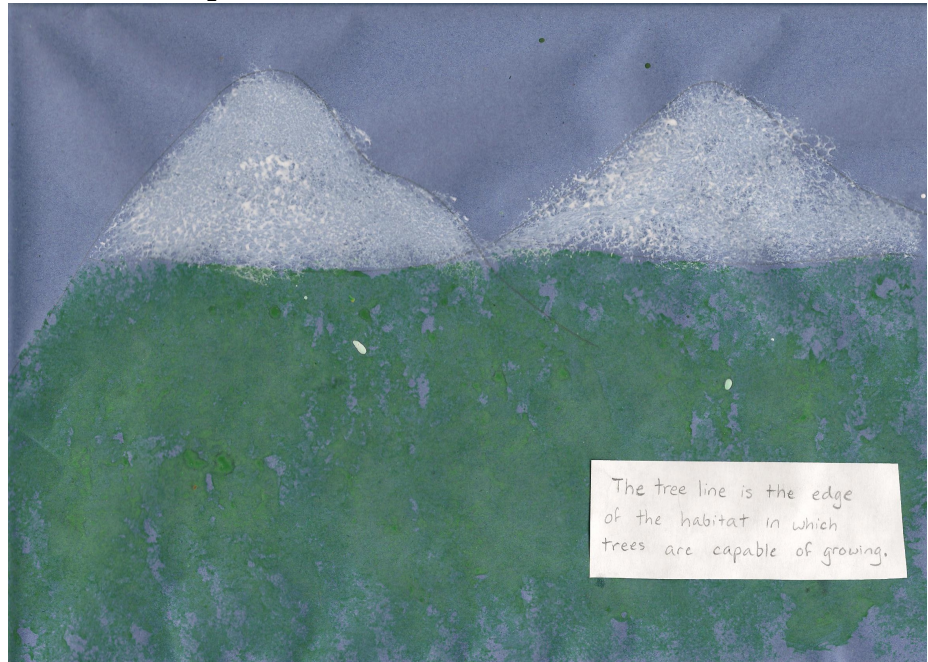
There are thousands of paintings of forest scenery. Very possibly my favorite forest painter is Albert Bierstadt of the American Hudson River School.



*Indian Encampment,  
Shoshone Village, 1860*

First have the kids draw a simple mountain (or mountains) on their blue construction paper. The top of the mountain should fill the whole paper. Now draw a line across the upper 1/3 of the mountain for the treeline.

Next use the green paint and a sponge to paint below the treeline (you may need to show the kids how to press down to paint with a sponge, rather than dragging it across the paper). Above the tree line should be painted with the white.



Have the kids write down the definition for tree line on a small piece of white paper. Once the picture is dry glue your definition to the mountain painting.

Tree line definition:

*The tree line is the edge of the habitat in which trees are capable of growing.*

## ☺ ☺ ☺ EXPEDITION: Visit a Forest Near You

Take a hike or go for a picnic. Spend your time purposely observing. Draw sketches of what you see. Take along a tree identification guide and perhaps some other guides for birds, insects, or rocks.

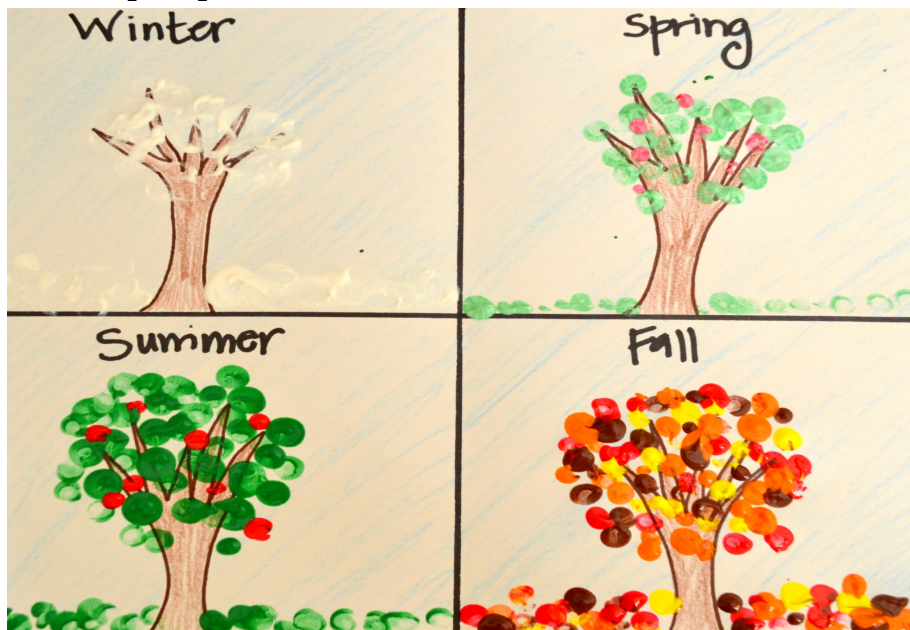
## ☺ ☺ EXPLORATION: Temperate Forest

Temperate forests are found in every continent except Antarctica. They grow in places that have seasonal changes. They can't grow near the equator because of the extreme heat, nor near the poles because of the extreme cold. They grow in places with cold winters and hot summers. Because of these seasonal changes, the



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plants that grow in them have to be adaptable to the seasons. Make a four season tree painting to show the changes in a tree that would be found in a temperate forest. Use a black marker to outline the trees, then add leaves and details using your fingers with tempera paints.



Not all trees in temperate forests are deciduous though. Evergreen trees don't lose all of their leaves or become dormant in winter. The waxiness of their needles and their ability to carry out photosynthesis in the winter months allows them to continue to thrive in the cold.

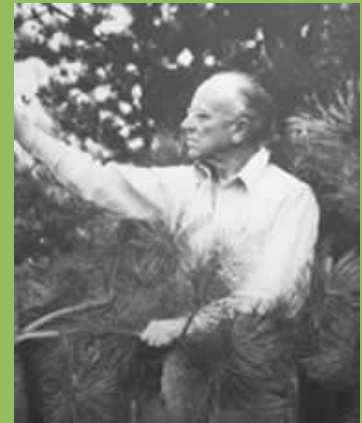
## ☺ ☺ **EXPLORATION: Tropical Rain Forests**

Tropical rain forests are very different from temperate forests. They grow where it's warm and wet, especially in areas near the equator. Also, temperate forests tend to have trees that are all similar in height, but in a rain forest, there are levels of trees. Plants growing at each level get different amounts of sunlight. The tallest trees get a lot of sunlight, but near the forest floor it's very dark.

The lowest level is called the forest floor. On the forest floor you'll find small plants and brush. Some plants on the forest floor have vines that climb up the taller plants, helping them to reach a bit more of that needed sunlight. The next level is the understory, where young, small trees grow. The third level is called the canopy. Tall trees form a canopy over the forest that blocks out much of the sunlight and makes the rain forest a dark place. Finally, the tallest trees are in the emergent level. They rise above the canopy. Make a simple diorama of the levels of a rainforest on separate pieces of stiff poster board. Label each level.

## **Famous Folks**

Aldo Leopold was an American ecologist and forester. He wrote the first conservation plan for the United States Forestry Service and developed the discipline of Wildlife Management.



## **Additional Layer**

We put all the forest habitats of the world into this one section. Usually though they are divided into different biomes, or habitat types as follows:

Taiga (coniferous forests)

Temperate Deciduous forests

Tropical Rainforests

Temperate Rainforests

Plus there are more specialized habitats like mangrove forests, cloud forests, dry tropical forests, thorn forests and many others.

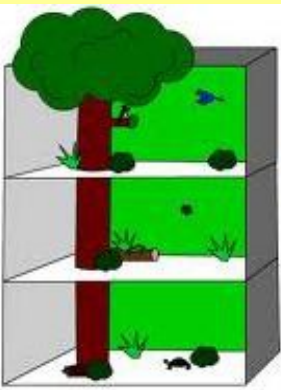
# ANCIENT CHINA – FORESTS – MACHINES – CHINESE ART

## Additional Layer

Forests have been carefully managed in some parts of the world for thousands of years. In medieval Europe the forests generally belonged to the king or the local noble. No one could harvest trees, animals, or anything else from the forest without permission.

Usually the lord allowed some harvesting of trees so the denizens of the land could cook and heat their homes. Often they were allowed to take only dead limbs.

Those still on the tree had to be taken down with a long pole with a crook on it. Hence comes the expression “by hook or by crook.”



Here's another kind of rainforest diorama you could create using 3 shoe boxes and paper towel roll tree trunks. Add in more trees and also wildlife that lives in each level of the forest.



## 😊 😊 😊 **EXPLORATION: Rain Forest Animals**

Rain forests only cover about 6 percent of the earth's surface, but they are home to around half of the world's population of plants and animals. Crowded! Different species of plants and animals live in each level of the rain forest. Write a report or make a tri-fold poster about a rain forest animal species. Find out what level of the trees it lives in, what it eats, and what its habits are. Could this species of animal live in a different habitat?

## 😊 😊 **EXPLORATION: Forest Hangman**

Play hangman with these forest words, then discuss what each word means.

- habitat (A place that is home to plants and animals, such as a forest habitat)
- conifers (evergreen trees that make cones)
- seeds (In a conifer cones are responsible for making these)
- controlled burns (Fires are a natural part of nature, but an uncontrolled forest fire can do a lot of damage. Sometimes we use controlled burns to make sure the forests stay healthy and won't catch fire accidentally.)
- beetles (These pesky insects eat circles around the tree and prevent food and water from reaching all of the tree)
- cambium (The part of the tree with rings, we count the rings to find out how old the tree is.)

## SCIENCE: MACHINES

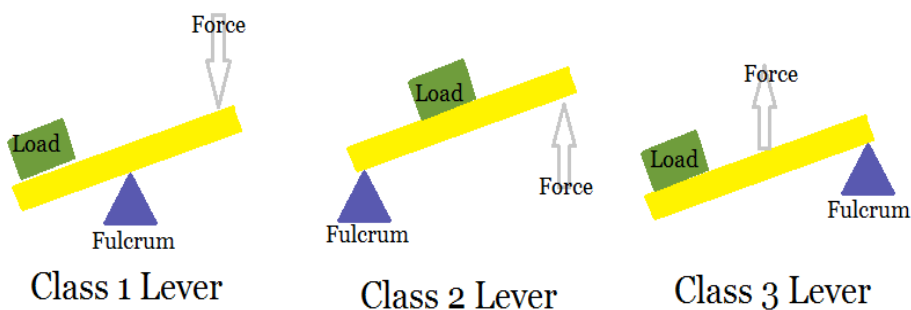
Even large complex machines, like a cars and factory machines, use simple machines to do their work. Machines make jobs easier and require less human energy to accomplish. There are six simple machines:

1. Lever
2. Inclined plane
3. Screw
4. Wedge
5. Pulley
6. Wheel and axle

These simple machines are put together to create more complex machines, like a construction crane.

A lever consists of a long pole and a fulcrum, or place on which to rest the pole. There are three types of levers:

- Class 1: The fulcrum is situated between the load and the force, like a seesaw, a pair of scissors, or a catapult.
- Class 2: The fulcrum is on one end and the force is on the other with the load between the two as in a nutcracker or a wheelbarrow.
- Class 3: The fulcrum is on one end and the load is on the other with the force between the two, like with salad tongs or tweezers.



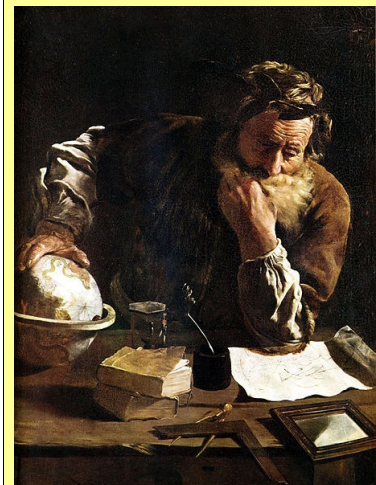
An inclined plane is a just a sloping ramp, but it can take surprising forms, like a playground slide or a winding mountain road. It makes work easier because it distributes the work over a longer distance.

A screw is similar to an inclined plane, but the plane is turned around a circle. It too transfers the energy over a longer distance, making the work easier.

### Explanation

The list of six simple machines is somewhat arbitrary. For example, the screw and the wedge are both different forms of the inclined plane. The wheel and the pulley are also types of levers with the fulcrum being in the center of the wheel. And there is one other type of machine, unknown to ancient people, called hydraulics, which we didn't put on the list.

### Famous Folks



*Painting by Domenico Fetti, 1620*

Archimedes was the earliest scientist to define and understand the mathematical properties of simple machines. He once said, "Give me a lever long enough and a place to stand and I can move the Earth." Technically he was right.



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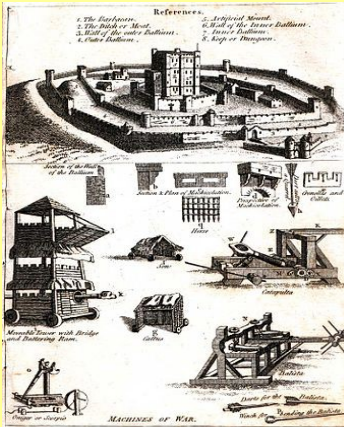
## Additional Layer

If you have broken stuff, let your kids take it apart to see how it works.

## Writer's Workshop

Have your kids draw a complex machine made from many simple machines put together. It can be completely fantastic and imaginary. Then have them describe in words what they have drawn and the things their drawing skills don't allow them to get onto paper. Insist on a detailed description using the five senses.

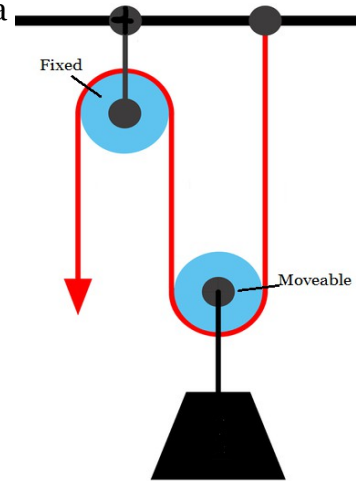
## Additional Layer



Inclined planes, levers and other simple machines have been major factors in war over the centuries. An inclined plane can be built up to the ramparts of a walled city. A catapult, a form of lever, can be used to hurl large boulders. How else are machines used in war?

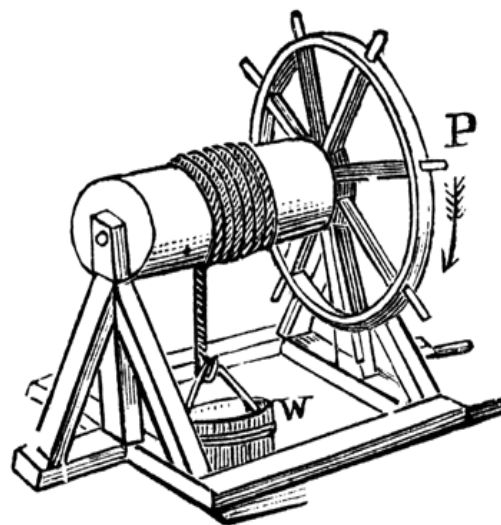
A wedge concentrates (or magnifies) the work into a small surface area, making the work more effective. Think about an ax blade. It is sharp because your downward force, no matter how great, is not enough to split a log with a sledge hammer, the force must be concentrated on a single point. The same is true of knives in the kitchen. A wedge is really an inclined plane that moves.

Pulleys are wheels with axles and a line, a cable or a rope usually, running between them and the load to be lifted. One pulley makes your load lifting capacity double (if we ignore friction). As you add more pulleys the amount of weight that can be lifted with the same amount of energy goes up dramatically.



To the right you see a simple compound pulley. The upper pulley is fixed, perhaps on an overhead beam. The lower pulley is moveable; it goes up and down as the load goes up and down. Pulleys can be of either type.

Finally, a wheel and axle greatly reduce the energy required to move an object. As the wheel is constantly turning, it distributes the force over a larger area, like in a car's wheels. Or a wheel and axle can be used to multiply force, like when you turn a doorknob.



Windlass Mechanism

Some wheels you may not have thought of include a screwdriver where the diameter of the handle gives a mechanical advantage; gears, which are toothed wheels; a fishing reel, which uses a handle to make reeling in the line on the round reel an easy task; and a windlass, which uses bars or handles inserted into a round wheel to make work easier, like sailors hauling up the anchor, a wheel to haul water up from a well, or a horse driven mill.

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## ☺ ☺ **EXPLORATION: Fulcrum and Lever**

To show how a fulcrum and lever work, build a seesaw in your yard. You need a long plank of wood, from 8 to 12 feet long, 2 4"x4" posts 16-20 inches long (depending on how high you want your seesaw), a stainless steel pipe, U clamps, carriage bolts, a used tire, and concrete. In general, the longer your seesaw, the higher from the ground your fulcrum needs to be.

1. Drill holes in the 4"x4" post, two inches down from the top, 1 1/2 inches deep, and wide enough for your steel pipe to fit in.

2. Insert the steel pipe into the two holes.

3. Now attach the long plank to the pipe with the U clamps and some screws.

4. Next, dig a hole with a post hole digger or shovel so that it is large enough for the two posts to fit and is about 2 feet deep. Place the two posts into the hole and pour in enough quick setting concrete to fill the hole.

### **OR**

Fill a tire with concrete and insert the two posts into the concrete. Use a level to make sure the plank is level from side to side.

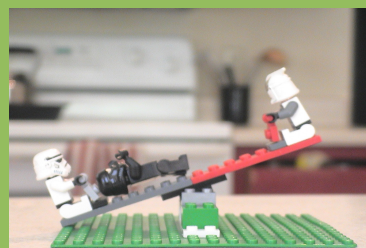
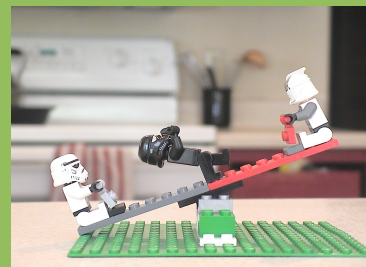
Let the concrete set up for a day or two before use.

The seesaw is a lever and fulcrum. It allows you to lift heavier loads than you would otherwise be able to lift. Try it with a heavy person and a light person. See if the light person can lift the heavy person using the seesaw fulcrum. The closer to the fulcrum



## **Explanations**

You never know what your studies will inspire. Nathan made this series of photos of a frolicking Vader after studying levers.





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## Additional Layer

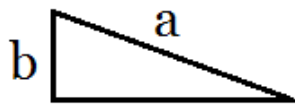
Friction is the enemy of efficiency in machines. What do we do to reduce friction in a wheel? On a slide? Between gears?

But friction can also be useful. You don't want the ramp down from the delivery truck to be too slick . . .

## Fabulous Fact

Mechanical advantage is the mathematical expression of how much the machine aids in accomplishing work.

In an inclined plane, the mechanical advantage is the ratio of the length of the ramp to its height.



$$\text{Mechanical Advantage} = \frac{a}{b}$$

See if you can calculate the mechanical advantage of a ramp near you.

## Memorization Station

Have your kids memorize the six simple machines and their definitions.



the heavy person is, the easier it will be to lift the heavy person.

## ☺ ☺ EXPLORATION: Household Levers

Look around your home and see how many levers you can find in your home. Here are some ideas: nutcrackers, hammers (the end that pulls the nail out of a board), an oar for paddling, salad tongs, pliers, and scissors.

## ☺ ☺ EXPERIMENT: Two Quickie Levers

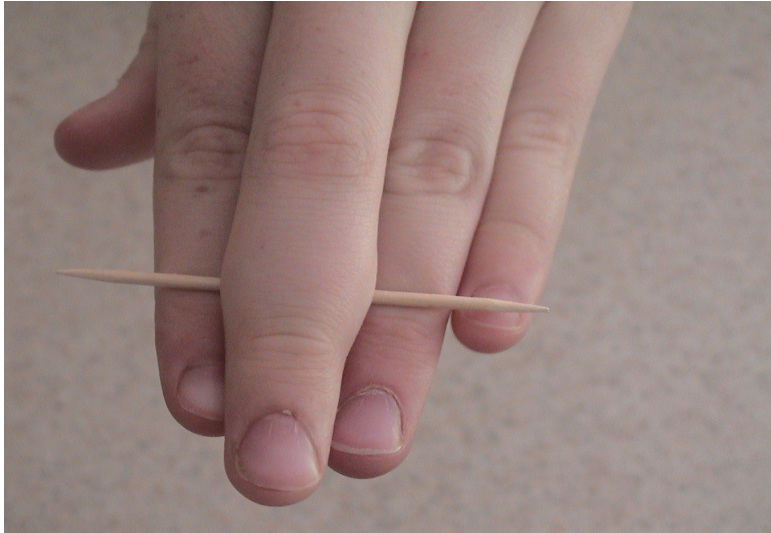
Use two pencils and a stack of books to show how levers can lift heavy loads. Point out the fulcrum (the pencil upon which the upper pencil is resting). Try moving the fulcrum to different positions on the lever. How does the position of the fulcrum affect the difficulty of the work?





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Your fingers can form a lever too. Just place a toothpick under your middle finger and above the fingers on either side. Now break the toothpick using the opposing pressure from your fingers.



## 😊 😊 😊 **EXPLORATION: Class 2 Lever Races**

A wheelbarrow is an example of a class 2 lever. So for these races you just need a wheelbarrow or two. If you can borrow an extra one from a neighbor this will be more fun. Have two teams of two people each. One person rides and the other pushes. Race over a designated course. If you can only get one wheelbarrow, then race for time to see who is fastest.

## 😊 😊 😊 **EXPERIMENT: Pulley Builder**

You can build a simple pulley with some wire from a hanger, a thread spool or bobbin, and string. Unbend the wire hanger and slip a thread spool over the end, until it rests at the straight bottom of the wire. Now, loop a string over the spool and attach one end of the string to something heavy, like a book. Pull on the end of the end of the string to lift the book into the air.

You can make a larger pulley using this same principle to haul stuff up into your tree fort or to a second story



## **On the Web**

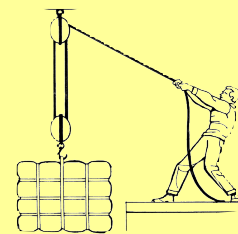
Visit this website

<http://www.edheads.org/activities/simple-machines/>

for definitions and games designed to drill (pun intended) your kids on simple machines.

## **Additional Layer**

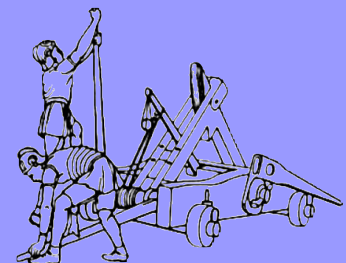
*Mrs. Frisby and the Rats of NIMH* by Robert C. O'Brien is a story of super intelligent rats who learn to use simple machines. They move Mrs. Frisby's house with a block and tackle and levers. Read it.



## **Additional Layer**

You're studying ancient history and simple machines. I can't think of a better time to go and build a catapult.

Our favorite source: *Backyard Ballistics* by William Gurstelle.



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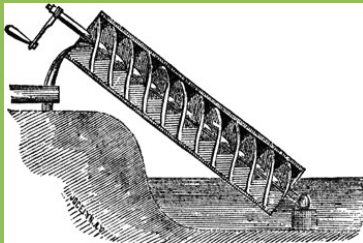
## Fabulous Fact

Almost all screws are tightened in a clockwise direction. But once in a while the torque (circular force) on a screw would undo it if it were tightened that way, so the screw is backward, tightened in a counter-clockwise direction.

The left pedal of a bicycle is always a backward screw for this reason. Go check it out.



## Fabulous Fact



The Archimedes screw is a device used to haul water up from a canal to a field for irrigation.

## On the Web

This little video about gears is a perfect introduction for kids of all ages:

<http://youtu.be/odpsm3ybPsA>

window. Instead of a book attached to the end, attach a pail with a handle.

Challenge the kids to design their own pulley system after they have studied how pulleys work.

## ☺ ☺ ☺ EXPEDITION: Elevators

Elevators use pulleys. Arrange for a tour of an elevator and its working parts. You'll have to contact the mechanical department of a large building for an engineer or maintenance person to show you how it works.

## ☺ ☺ EXPERIMENT: Gear Head

Gears are wheels with teeth to keep them gripping and turning in the right direction. Making gears that work yourself is very difficult; they must be cut just so. We recommend you get a gears kit if you want to experiment with gears. Here are some we like:

- Gears! Gears! Gears! sets
- K'Nex Education: Intro to Simple Machines – Gears (K'Nex has other simple machine sets in this series, check those out as well.)
- Fridgigears

## ☺ ☺ EXPLORATION: Bicycle Gears

Examine the gears on a bicycle wheel to see how they work. How does the energy of your legs get converted into more efficient energy so you can travel much faster on a bicycle with less energy than you can travel running?

You may want to test this principle by having one person ride around the block while another person runs. Who gets back first? Who is more tired and worn out at the end?

Can you find any other gears around your home?

## ☺ ☺ EXPERIMENT: Screwy

How does an inclined plane make work easier? Try this: hammer a nail into a board and then use a self-tapping screw and screwdriver in the same board. Which required more downward force? (What types of machines are the nail and hammer?)

## ☺ ☺ EXPERIMENT: Ramp

A ramp is an inclined plane. Which do you think would be easier – hauling a bike three feet up onto your porch or wheeling it up a ramp? Why? Design an experiment and test your hypothesis.

## THE ARTS: ANCIENT CHINESE ART

Ancient Chinese art is very distinctive. They used the same themes over and over again – nature was an especially strong theme. They were very intent on swirling lines and brush strokes. They also made a lot of painted pottery, lacquered boxes, and bronze jars. Usually all of these were decorated with nature or animal scenes. They also created beautiful silk cloths, porcelain, and were the first to invent paper.

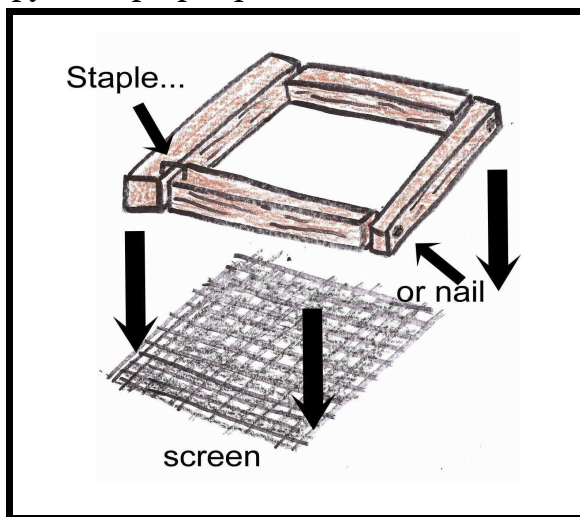
### 🌞 🌱 🌿 EXPEDITION: Porcelain Painting

Most towns have a ceramic shop where they'll not only let you make ceramics, but also teach you the process. You'll see the forming, glazing, decoration, and firing – the four basic steps of porcelain making. Because it requires a kiln, you can't make it at home on your own. It's definitely worthwhile to go make some and watch the process. Even toddlers can help choose and paint the figures, and it's just as fun for adults. There are usually a huge variety of reasonable priced figures available. Small ones like Christmas ornaments are easy to do and inexpensive.

### 🌞 🌱 EXPLORATION: Making Paper

Paper is made from trees, trees that are cut up into such tiny pieces that you can't even tell it's a tree anymore. First, the bark is removed from the outside. The rest of the tree is cut into itty-bitty pieces with a wood chipper. They put those pieces into a big pressurized pot and add some water and chemicals, then cook it until it turns soft and pulpy. The pulp is poured on to a screen where all the water drains out of it. Then it is rolled out flat with big rollers.

You can make your own paper too. Because you probably don't have all the right tools to do it this way, we're going to start with old scraps of paper instead of wood chips. We'll turn the old, used paper into new paper. Tear the old paper up into little bits. Whatever colors



To make your own frame, nail or staple lengths of wood together and then attach a square of window screen material with small nails or staples. The size of your frame will be the size of your finished sheet of paper.

### Additional Layer

One of the trademarks of Chinese art is that it often includes Chinese symbols or writing on it. They wrote poems or thoughts about the artwork. You can add some Chinese symbols to your art. Sometimes friends who viewed the art would add their own thoughts to document who had seen it. Incorporate this idea into the art you create in this unit.

### Fabulous Fact

This painting, detail from *Admonitions of the Instructress to the Palace Ladies*, done by Gu Kaizhi somewhere in the late 4<sup>th</sup> century AD, shows traditional Chinese style. The figures are realistic, though idealized. The form is very graceful and the colors muted, but with splashes of color. You also see calligraphy on Chinese painting.





# ANCIENT CHINA – FORESTS – MACHINES – CHINESE ART

## Zhou Period Art



This is a bronze vessel from the Zhou Period. It has three feet and the head of a goat.

## Fabulous Fact

Chinese painting and calligraphy were done by amateurs of the aristocratic leisure class. No one thought of doing art for a living until many hundreds of years later.

## Famous Folks



Wang Xizhi is the most respected of Chinese calligraphers. He lived during the Jin Dynasty (265-420 AD).

you use will come out in your paper later. Newsprint works really well, but it will give you kind of gray paper, so you may want to use some colored bits of paper too. In a big bucket, mix a gallon of water and a tablespoon of bleach together. Add the water to the paper bits in a bucket until the paper is completely covered with water. Let it soak for 30-40 minutes.

Next, put a cup of paper mush into a blender and add 2 more cups of bleach water to it. Blend it on high until you have a nice, pulp mixture. Pour the pulp on to a screen frame and spread it uniformly. Press out extra water through the screen, then lay it out to dry with something under it to catch the drips. It will take several days for your paper to dry completely.

## 😊 😊 EXPLORATION: Terracotta Warriors

The terracotta army was an army of big soldiers all made from clay. This is art on a BIG scale. The soldier figures were accidentally discovered when some farmers were digging a well. They came up with a shovel full that had a clay head in it! After a few discoveries like this they called the experts in and teams of Chinese archaeologists dug up the site and began studying it.

The terracotta soldiers of Emperor Qin were made of clay that was baked until it became hard. In Latin “terra” means earth and “cotta” means cooked. Their armor was made of leather. They were originally painted in bright colors, but over time most of the paint has worn off.



# ANCIENT CHINA – FORESTS – MACHINES – CHINESE ART

Emperor Qin, the first emperor of China, had the figures made to protect his grave site. He thought that 7,000 life-size soldiers would be the perfect protection for his tomb. His actual tomb has never been opened or explored, but it likely contains wild amounts of jewels, paintings, and other treasures that he would've wanted to take with him into the next life, if it wasn't looted centuries ago anyway. Legend has it that his tomb is also protected by crossbows that will trigger if anyone breaks in. Do you want the excavation job?

You can purchase terracotta warrior kits online that allow you to dig the warrior out of the dirt, restore, and paint it. Alternately, you can find inexpensive figures of the terracotta warriors, bury them, and then let the kids do an archaeological dig and find the artifacts. If you want to try this same thing without buying the figures you could bury some little army men or other toy people.

## 😊 😊 😊 **EXPLORATION: Chinese Scrolls**

The ancient Chinese decorated scrolls of paper with landscape scenes or pictures of animals or people. They had two kinds-- hanging scrolls which were vertical, and hand scrolls, which unrolled horizontally. Often hand scrolls were long, and were only unrolled in segments, each segment revealing the next part, kind of like a comic strip with different frames.



*Calligraphy scroll, Sunny After Snow, by artist Wang Xizhi*

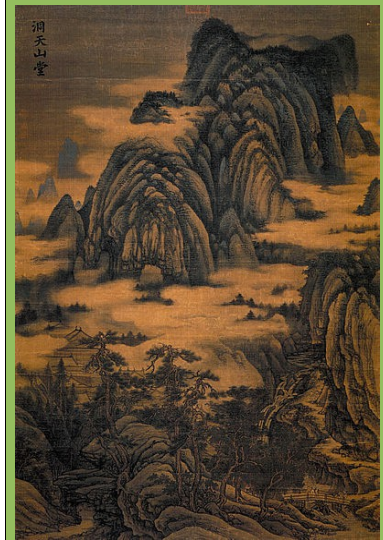
Begin by painting two dowels in a bright color. Next use a long piece of paper or tape pieces together to create a long piece. The dowels should be a bit wider than the paper. Glue the paper to the dowels and let it dry. On the scroll you can draw or paint a landscape picture of something in nature.

## 😊 😊 😊 **EXPLORATION: Chinese Kite**

Kite making is serious stuff in China and has been for thousands of years. The kites were made from lightweight bamboo poles and silk. You can use these materials if you want to be authentic, or you can use balsa wood and plastic trash bags or butcher paper if you're on a budget.

First, create a frame from thin balsa wood rounds in the shape of an A or a diamond. Lash the wood sticks together with some kite string firmly; use a bit of glue if you feel you need to.

## **Fabulous Fact**



Scenery painting was invented in China. This mountain scene by Dong Yuan is intended not to be a realistic painting, but instead to portray a certain feeling. What emotion do you think he was trying to portray? Make your own shaded landscape by using only a single color with varying amounts of black mixed in.

## **On the Web**

Visit [www.Chinakites.org](http://www.Chinakites.org) to see many examples of beautiful Chinese kites.



*Photo by Tholly and shared under CC license.*



# ANCIENT CHINA – FORESTS – MACHINES – CHINESE ART

## Additional Layer

When the communists took over in China they wanted to destroy the old cultural traditions and kite making was declared illegal.

## Fabulous Fact

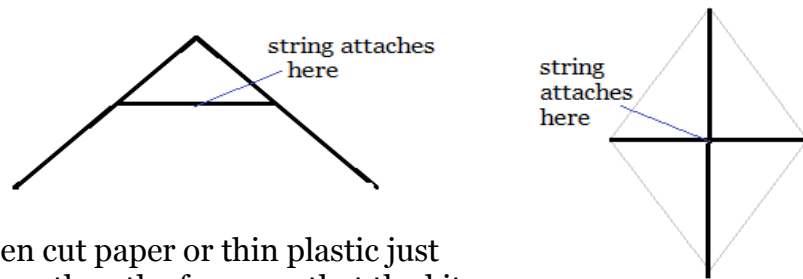
In Afghanistan and other southwest Asian countries kite fighting is popular. Competitors coat their strings in ground glass and glue so they can sever the string of another kite. Last one still flying is the winner.

The Taliban banned kite fighting, among other things, during their rule.

## Additional Layer

Art is a big seller and Chinese art, both ancient and modern, is very desirable and gaining. Go visit Sotheby's online and look for the latest sale of Chinese art. Look under "Chinese Paintings: Records and Results." What did the pieces go for?

Wherever there's big money there are also criminals. China has made laws stating that antique pieces cannot leave the country. To smuggle art out means huge fines and jail time, but people do it anyway.



Then cut paper or thin plastic just larger than the frame so that the kite material can wrap around the frame and glue to itself.

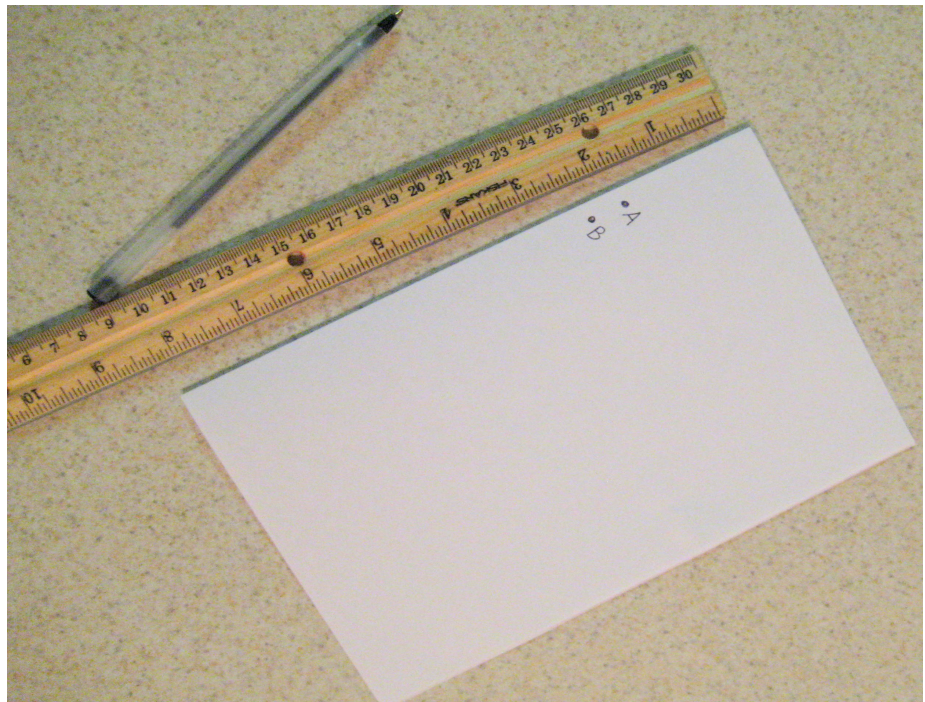
Glue using regular white school glue in a thin layer. Allow to completely dry. Then paint the kite in bright colors, keeping the paint really thin—no heavy blobs.

Attach the string of the kite firmly to the center of the cross piece of the frame. You will need to glue it in place with super glue or something similar so it won't slide.

## 😊 😊 EXPLORATION: Bumblebee Kite

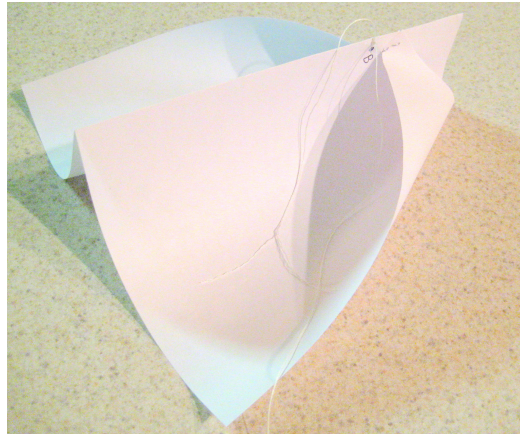
This is a simple kite easy enough for young children. You just need a piece of copy paper, a stapler, some string, and a ruler.

1. Decorate your paper with any design you like.
2. Fold the paper in half the short direction and crease.
3. Along the creased side make a dot 2" from one end and label it "A." Make a dot 2 1/2" from the same end and label it "B."



# ANCIENT CHINA – FORESTS – MACHINES – CHINESE ART

4. Fold down one corner of the paper, nearest to the dot, without creasing it and staple it to the dot at “A.” Now the fold the other corner nearest the dot in the opposite direction to point “A” and staple it.
5. Punch a hole at dot “B” and tie a string through your hole.



Go fly it!

## 😊 😊 **EXPLORATION: How To Draw a Chinese Dragon**

Search online for “how to draw a Chinese dragon” and you’ll find many step-by-step tutorials for this exploration. Depending on the age and ability of your little artist, you can choose one that is very simple, or extremely detailed and ornate.

## 😊 😊 **EXPLORATION: Chinese Lanterns**

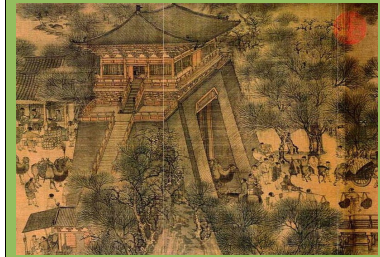
The lantern festival is part of the Chinese New Year celebrations. For thousands of years it has been celebrated in China. Strings of lanterns are hung and candles lit inside them in the evening, bringing everyone into the streets for a night time party. The lanterns range from very simple to cleverly ornate. The festival celebrates and nurtures romantic and family relationships and celebrates a love of nature as well. The festival is so old that no one is really sure how it started, but there are several legends about this.



*One legend says that Taiyi, the God of Heaven, was asked for good fortune on this day. You see, Taiyi had control over the sixteen dragons who brought good or ill upon the people through rain, drought, floods, pestilence, storms, famine, and other events. The emperors, in their wisdom, decreed that on the last day of the new year as the light was returning to the*

## **Fabulous Fact**

Probably the most famous Chinese painting of all is *Along the River During the Qingming Festival* by Zhang Zeduan, (1085–1145).



It is as well known in China as the *Mona Lisa* is to Westerners. As it is a panorama over seventeen feet long, we can only show you a small detail of it here. Look for it online.

## **Additional Layer**

Almost since they invented paper, the Chinese have been making beautiful designs called Jian zhi, or paper cutting. They hang them in their windows, especially during holidays and festivals.





# ANCIENT CHINA – FORESTS – MACHINES – CHINESE ART

## Additional Layer

Architecture is art too. The Giant Wild Goose Pagoda in Xi'an was originally built in 652 AD. It has suffered damage from earthquakes and has been rebuilt and restored several times.



Photo by Alex Kwok and shared under cc license.

## On the Web

Visit the Palace Museum in the Forbidden City, Beijing, China to see 5,000 years of Chinese art:

[http://www.dpm.org.cn/www\\_oldweb/English/default.html](http://www.dpm.org.cn/www_oldweb/English/default.html)

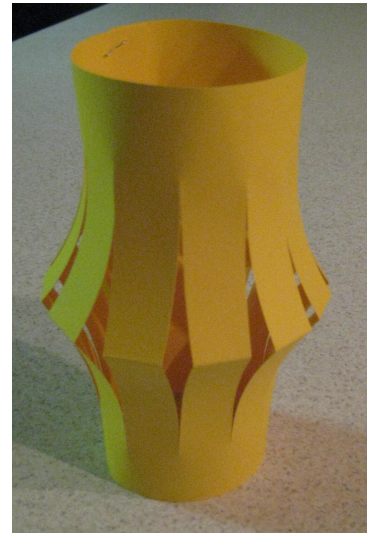
*Earth, the god of Heaven would be supplicated and the people would ask for good favor. And so it is even until this day.*

To make your own lantern, you'll need construction paper (or scrap booking papers in cool designs are awesome for this too), scissors, glue, and yarn, string, or ribbon. Glitter, crayons, markers, paint, and other embellishments are optional.

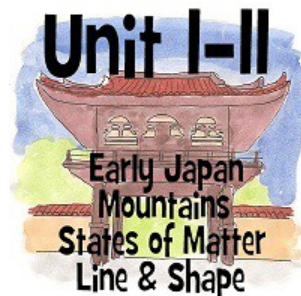
1. Choose your favorite color of construction paper and fold it in half the long way.



2. Now make a series of cuts about 1" apart from the folded side to the edges of the paper, stopping about 1 1/2" from the edge so as not to cut clear through the paper.
3. Unfold the paper and decorate the lantern any way you like.
4. Glue the short ends of the paper so your lantern forms a cylinder.
5. Punch two holes opposite one another on one end of the lantern and thread a string though to make a handle from which to hang your lantern.



**Coming up next . . .**





# ANCIENT CHINA – FORESTS – MACHINES – CHINESE ART

**My Ideas For This Unit:**

**Title:** \_\_\_\_\_ **Topic:** \_\_\_\_\_

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# ANCIENT CHINA – FORESTS – MACHINES – CHINESE ART

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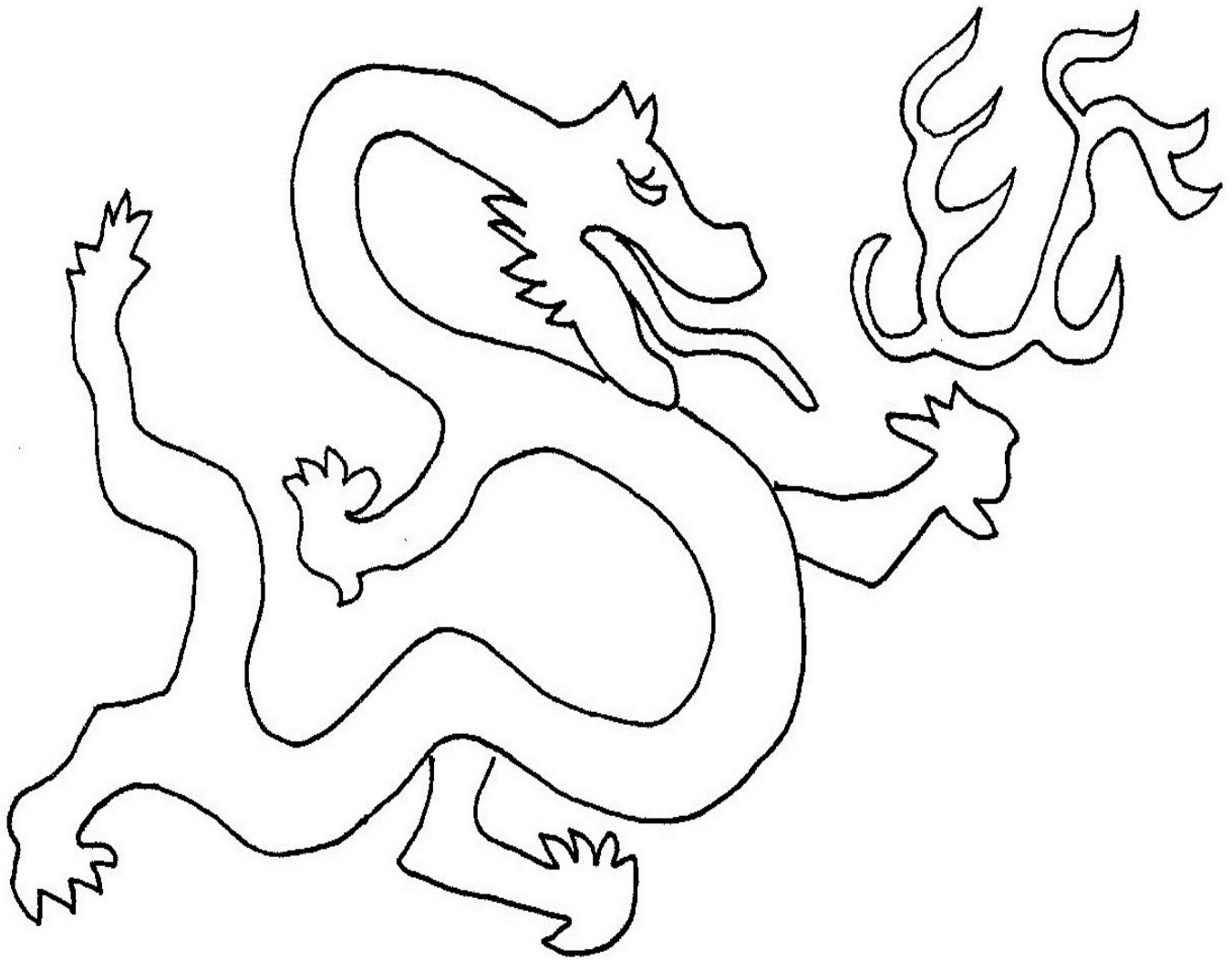
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# Chinese Dragon

Chinese Dragons are seen throughout Chinese myths, artwork, and legends. Unlike European style dragons, Chinese dragons look long and thin, like a serpent. They do not have wings, but can fly magically. They symbolize power, strength, and control. Often Chinese emperors used them as their symbol.



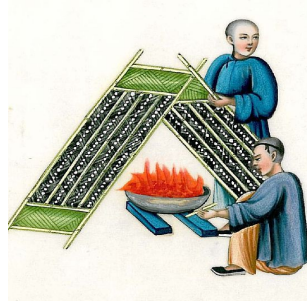
# Ancient China: Unit I-IO

**5000 BC** I-IO



Farms and small villages develop along the Yangtze and Yellow Rivers

**2700 BC** I-IO



First silk production begins

**1765-1027 BC** I-IO



Many small kingdoms are functioning in China, mostly ruled by the Shang family

**1400 BC** I-IO



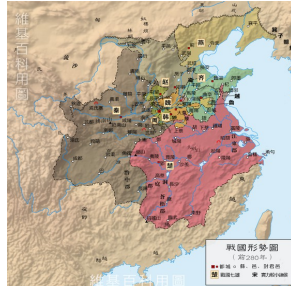
First writing

**1027 BC** I-IO



The Shang family was conquered by the Zhou, who developed a feudalistic system

**722-480 BC** I-IO



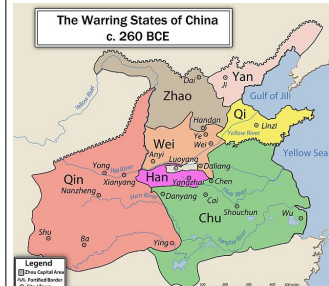
Zhou lose control and many small warring kingdoms are set up

**551 BC** I-IO



Confucius is born

**481-221 BC** I-IO



The Warring States Period

**221 BC** I-IO



The Qin (pronounced Chin) conquer all other kingdoms, Qin Shi Huangdi becomes first emperor of China.

**221 BC** I-IO



First wall of China is built, connecting many shorter walls

**210 BC** I-IO



Shi Huangdi dies and is buried with his terracotta army

**202BC-220AD** I-IO



The Han Dynasty rules

**1-100 AD** I-IO



Buddhism is brought from India

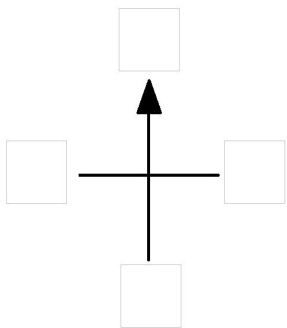
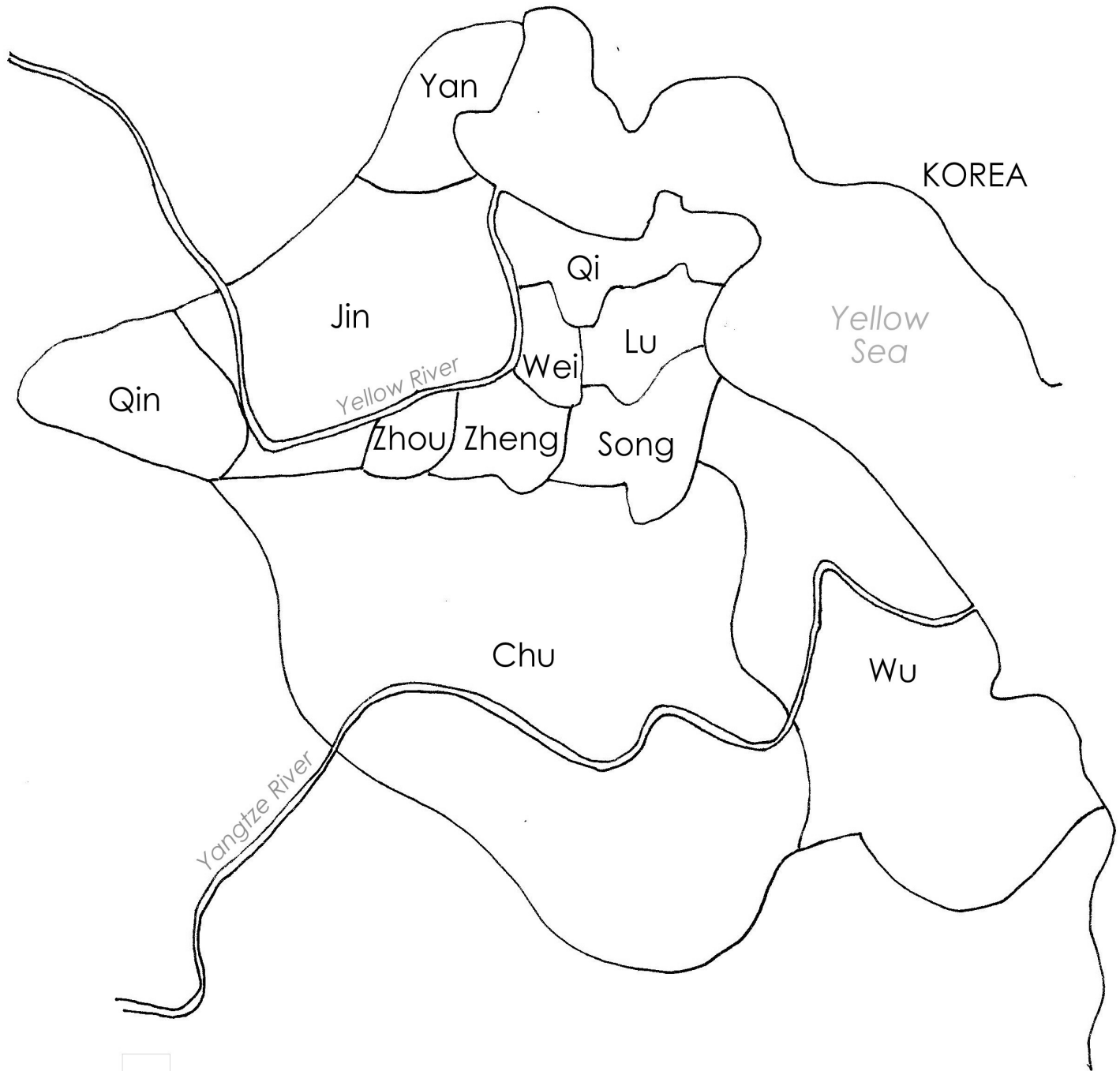
**100 AD** I-IO



Paper is invented



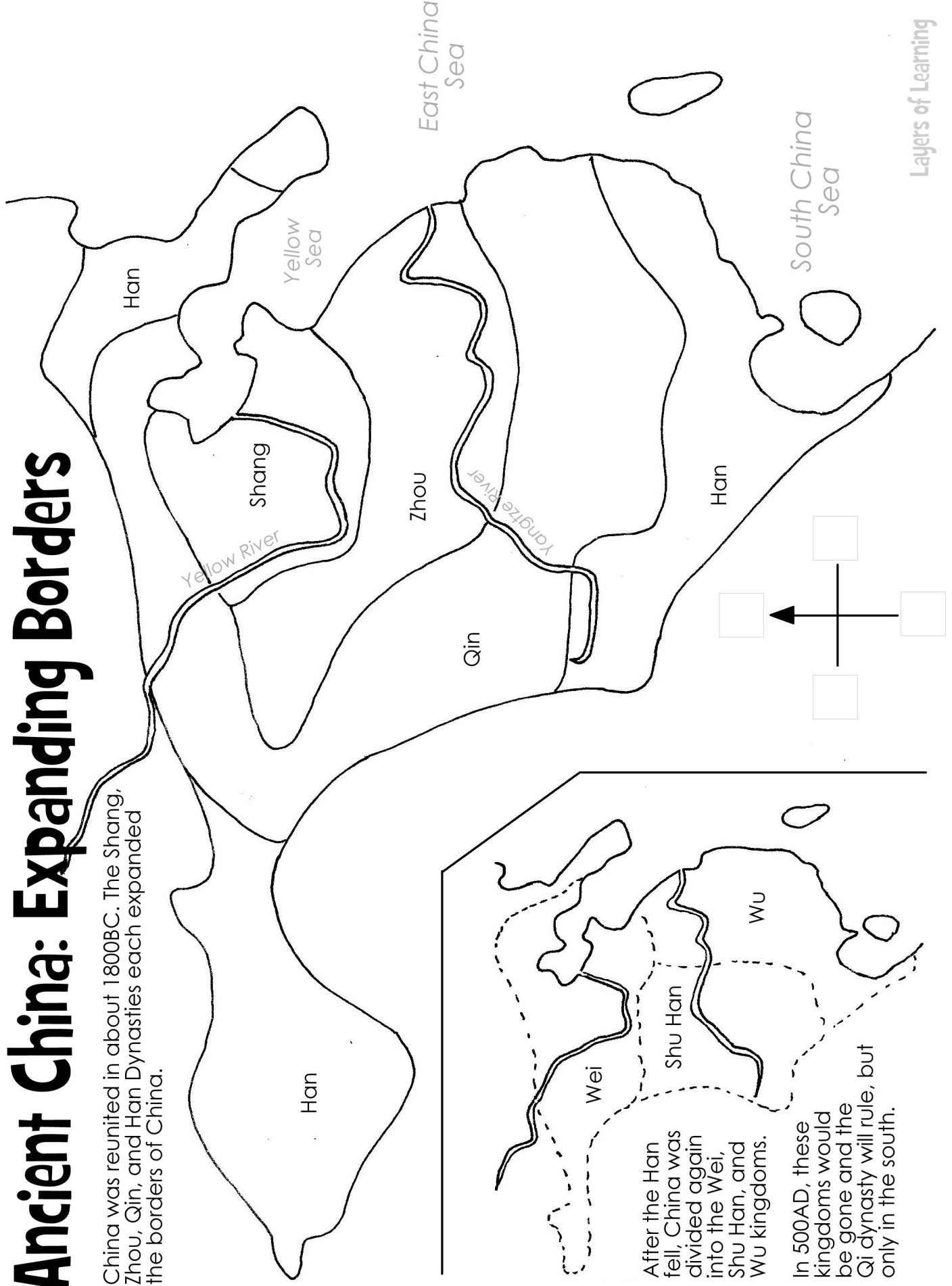
# Ancient China: Zhou Kingdom



The Zhou kingdom was made up of many small fiefs. Soon the Zhou will lose control of them and the warring states period will begin. Some of these fiefs will rise to power later and we read about them again.

# Ancient China: Expanding Borders

China was reunited in about 1800BC. The Shang, Zhou, Qin, and Han Dynasties each expanded the borders of China.



After the Han fell, China was divided again into the Wei, Shu Han, and Wu kingdoms.

In 500AD, these kingdoms would be gone and the Qi dynasty will rule, but only in the south.



# Pagoda



Layers of Learning

# Forests of the World





# Worldwide Deforestation and Regrowth



# ABOUT THE AUTHORS

Karen & Michelle . . .  
Mothers, sisters, teachers, women who are passionate  
about educating kids.  
We are dedicated to lifelong learning.



Karen, a mother of four, who has homeschooled her kids for more than eight years with her husband, Bob, has a bachelor's degree in child development with an emphasis in education. She lives in Utah where she gardens, teaches piano, and plays an excruciating number of board games with her kids. Karen is our resident Arts expert and English guru {most necessary as Michelle regularly and carelessly mangles the English language and occasionally steps over the bounds of polite society}.

Michelle and her husband, Cameron, homeschooling now for over a decade, teach their six boys on their ten acres in beautiful Idaho country. Michelle earned a bachelors in biology, making her the resident Science expert, though she is mocked by her friends for being the *Botanist with the Black Thumb of Death*. She also is the go-to for History and Government. She believes in staying up late, hot chocolate, and a no whining policy. We both pitch in on Geography, in case you were wondering, and are on a continual quest for knowledge.

*Visit our constantly updated blog for tons of free ideas,  
free printables, and more cool stuff for sale:*  
[www.Layers-of-Learning.com](http://www.Layers-of-Learning.com)