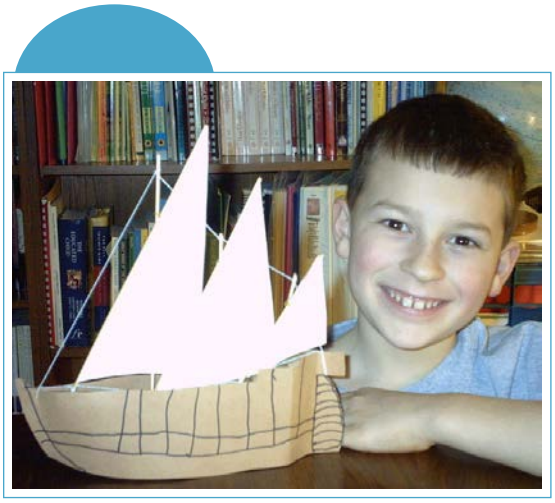
BACKGROUND INFORMATION

This week begins a two-week thread about the Age of Exploration, which will be a secondary one for you. We will start by reviewing accounts of early explorations that occurred before the late 1400's. Remember that, as Europeans returned from the Crusades, they not only brought back books that sparked an interest in reading and in works of antiquity, but they also brought back products of the Far East. As we learned when we studied Marco Polo, most of these products came to Europe via a long overland route called the Silk Road from China and India, via Constantinople, and then by ship to Europe. When Constantinople fell to the Muslims in 1453, the Italian traders of Florence, Venice, and Genoa firmly established trade relationships with these ruling Muslims. Merchants in lands farther away, such as Spain and Portugal, who desired to import the riches and products of the Orient as well found themselves shut out. Their desire to bypass the overland route in favor of a swifter, easier, and more open ocean route gave them the energy and enthusiasm characteristic of the Renaissance. Building on the inspiration of earlier attempts, and full of new zeal for daring exploits, many European monarchs sponsored voyages of discovery.

God used ordinary human beings who had mixed motives—some godly and others very questionable—to introduce Europeans to new lands and peoples. Many wonderful records of these times survive, enabling us to read about the individuals who lived and explored. As usual, there is much to learn from their lives. As you read about Columbus, Queen Isabella, King Ferdinand, and others, keep this Scripture in mind:

> **1 Corinthians 10:11-13**
> These things happened to them as examples and were written down as warnings for us, on whom the fulfillment of the ages has come. So, if you think you are standing firm, be careful that you don't fall! No temptation has seized you except what is common to man. And God is faithful; he will not let you be tempted beyond what you can bear. But when you are tempted, he will also provide a way out so that you can stand up under it.



12 The Southern Renaissance and the Early Explorers

History

Threads

- ❑ Study the history of exploration, beginning with the history of early Portuguese explorations under Prince Henry the Navigator, through Columbus's great voyages, and on to the Portuguese discovery of an ocean route to India.
- ❑ Continue studying the Renaissance, focusing on the lives and works of Florentine artists Botticelli and Leonardo da Vinci, the leadership of Lorenzo de' Medici, and the histories of Pope Alexander VI and the Reformer Savonarola.
- ❑ Discern the broader context of the Age of Exploration, connecting it with our studies of Muslim expansion, increased trade, the Renaissance quest for learning and discovery, and the crusading spirit.
- ❑ Revisit the Inquisition as you read the story of Ferdinand and Isabella of Spain.

Reading

- ❑ *The Story of Europe* (*Yesterday's Classics* version) by H.E. Marshall, p. 233-246, 268-274 (stop at "Julius II")
- ❑ *This Country of Ours* (*Yesterday's Classics* version) by H.E. Marshall, chapters I-IV (p. 1-11 are optional review)
- ❑ *Explorers of the New World*, by Carla Mooney, Introduction - chapter 2 (Week 1 of 3)
- ❑ If you are also studying fine arts with *Tapestry*, your Art reading doubles as History: In-Depth this week.
- ❑ Suggested Read-Aloud: *The Apprentice*, by Pilar Molina Llorente, chapters 5-7 (Week 2 of 3)

Accountability Questions

1. Where did Columbus first go for financial support for his venture? Why did he go there?
2. How long did Columbus have to wait for an answer from the Spanish monarchs? What was the cause of the delay?
3. What technological advances aided the exploration efforts?
4. What was the Spanish Inquisition? What were the long-term consequences of this persecution?
5. What contributions did Sandro Botticelli make to Renaissance painting, and what was he known for?
6. How did Renaissance artists develop landscapes in their paintings?

Thinking Questions

1. What connections can you draw between the Crusades, the Renaissance movement, and the Age of Exploration as inaugurated by Columbus?
2. What do you think were Columbus's greatest strengths? What were his weaknesses?
3. From what you read this week, do you believe Columbus was a Christian? Why, or why not?
4. Why is Leonardo da Vinci called the archetypical Renaissance man? What Renaissance values did he embody?

PEOPLE

- ☐ Prince Henry the Navigator
- ☐ Bartolomeu Dias (Diaz)
- ☐ Vasco da Gama
- ☐ Ferdinand II of Aragon
- ☐ Isabella of Castile
- ☐ Tomas de Torquemada
- ☐ Christopher Columbus
- ☐ Botticelli
- ☐ Leonardo da Vinci
- ☐ Pope Alexander VI
- ☐ Lorenzo de' Medici
- ☐ Girolamo Savonarola
- ☐ Charles VIII of France

TIME LINE

1394-1460	Prince Henry the Navigator
1449-1492	Lorenzo de' Medici
1452-1519	Leonardo da Vinci
1469	Lorenzo de' Medici begins to rule Florence. Spain's King Ferdinand marries Queen Isabella.
1477-1478	Botticelli paints *La Primavera*.
1480's	Da Vinci draws flying machines in his notebook.
1488	Bartolomeu Diaz first rounds the Cape of Storms (later Cape of Good Hope) for Portugal.
1492-1503	Alexander VI (Rodrigo Borgia) is Pope.
1492	Spain conquers Granada and expels Muslims from the Iberian Peninsula.
1492	Columbus sails the ocean for Spain.
1494	King Charles VIII of France invades Italy.
1494-97	Savonarola controls Florence.
1495-1498	Da Vinci paints *The Last Supper*.
1497-98	Vasco da Gama of Portugal successfully sails to India and back, establishing a trade monopoly for his country.
1498	Savonarola is burned at the stake for heresy.

Worldview: Church History

Reading
The Church in History, by B.K. Kuiper, chapter 20, section 8

Exercises
Your recommended resource, *The Church in History*, contains only one question (question 1 on page 154) that applies to your reading in chapter 20, section 8. It includes data from later sections as well, so ask your teacher for specific direction before answering it.

In addition, we recommend that you do some in-depth research[1] on the following:
1. Who implemented the Spanish Inquisition? Which non-Christian subjects were persecuted? What was the long-range effect of the Inquisition on Spain?
2. Who was Tomas de Torquemada, and what role did he play in the history of Spain?
3. What was distinctive about the life and reign of Pope Alexander VI?
4. Who was Girolamo Savonarola and what was his core message? Where and how did he die?

Tomás de Torquemada

1 Look for helpful websites linked to the Year 2 Worldview page of the *Tapestry* website. (http://www.tapestryofgrace.com/year2/worldview.php)

GEOGRAPHY

1. What information did Columbus have regarding the size of the globe? What did he believe about the Earth's size? Use supporting links[1] to research and find both what ancient resources Columbus based his estimate on and what the actual size of the Earth is.
2. On a paper map or poster map of the world, trace and label the paths of de Gama and Dias. A legend has been provided for you in the bottom left-hand corner of the map, and you should trace each line in the appropriate color for that expedition according to the legend. You will add to this map next week. (Week 1 of 2)
3. Look at a resource map to learn exactly where Columbus journeyed during his four voyages. What lands did he actually visit? (Add his voyages to the map you began earlier.)
4. What was the Line of Demarcation? Did you read about any practical results of this papal decision?

1 http://www.tapestryofgrace.com/year2/geography.php

Literature

Reading
The Second Mrs. Gioconda, by E.L. Konigsburg (JUV FICTION) (Week 2 of 2)

Worksheet 2
Give at least two examples of how the following categories are used in the second half of this book.

plants or animals

sounds

motion

human relationships

clothing

food

the human body

buildings

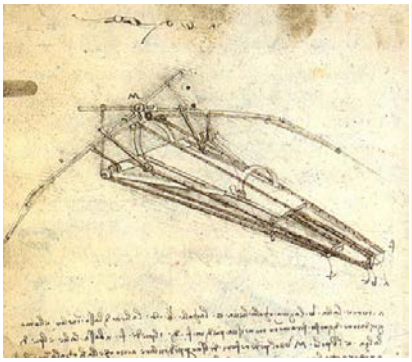
FINE ARTS & ACTIVITIES

Reading

- ❑ *The Art of the Renaissance*, by Lucia Corrain (J 709) p. 18-27
- ❑ *An Eye for Art*, produced by the National Gallery of Art, p. 49-54
- ❑ *Amazing Leonardo da Vinci Inventions You Can Build Yourself*, by Maxine Anderson (J 620) p. 32-48

Exercises

1. Do activities listed in the following supplement to learn more about using a compass.
2. Do (or review) activities listed in the following supplement to learn more about navigation using the stars.
3. Learn how the magnetic field of the earth directs a compass.
4. From your art history book, read about and observe the art of Leonardo da Vinci. You may also choose to complete a project from this book.



Design for a flying machine

After reading the text from *Amazing Leonardo da Vinci Inventions You Can Build Yourself*, choose one of the following projects to complete this week:

4. Make open-faced geometric figures using marshmallows and toothpicks.
5. Learn what a rebus is and find some examples of rebuses online or in books. Or, better yet, make up your own rebus words or sentences and see if your siblings or friends can figure them out!
6. Create an animal face that can float on water. You'll need cardboard, wax paper, and glue.
7. Have fun writing messages with invisible ink made out of juice or milk.
8. Make a "monster shield"—a combination of four or five animals. You'll need a pizza box, papier-mâché, and other items, depending what you'd like to create.

Fine Arts and Activities Supplement

This week, you have the opportunity to learn more about how people find their way across vast oceans and continents, such as how to use a map and other navigational tools. In the days of Columbus, there were two main ways to navigate: by the compass and by the stars. Next week, we will study another important tool used in navigation by explorers who followed Columbus: the imaginary grid of longitude and latitude lines.

World Book on Reading a Map[1]

Using a map requires certain skills. To read a map, it is necessary to understand *map legends*, *scale*, a *north arrow*, *geographic grids* [which we will study in Week 13], and *map indexes*.

Map legends list and explain the symbols and colors used on a map. Some symbols resemble the features they represent. For example, a small tree might stand for a forest, an orchard, or a state park. But many symbols have little resemblance to the features they represent, as when a circle stands for a city. The same symbol may represent different features on different maps. For example, a triangle might represent a mobile home park on one map and an eagle's nest on another. Such differences make it important to read the map legend to find out what each symbol means on a particular map.

Scale shows the mathematical relationship by which distances on a map reduce actual distances on earth. Many maps illustrate scale by marking off distances on a straight line. Each mark shows how distance on the line corresponds to miles, kilometers, or other units of measurement on earth. Other maps state the scale in words and figures. Such a scale might appear as *1 inch: 16 miles*. In this relationship, 1 inch (2.5 centimeters) on the map represents a distance of 16 miles (26 kilometers).

Representative fractions are also used to show scale. Such a fraction indicates the number of distance units on earth represented by one unit on the map. In the example above, where the scale is 1 inch: 16 miles, the representative fraction would be 1:1,000,000 or 1/1,000,000 because there are 1,000,000 inches in 16 miles. The relationship remains the same for inches, centimeters, miles, kilometers, or any other units of measurement.

Scale varies widely, depending on the size of the area a map represents. A *small-scale* map greatly reduces distances on earth to show a large area in limited detail. Each distance unit on a small-scale map represents a large number of units on earth. These maps are called *small-scale* because their representative fractions are small. The large number of distance units represented on earth goes into the denominator, making the value of the fraction small. For example, on a map showing a nation's highway system, the scale might be 1:12,672,000, in which 1 inch represents 200 miles (322 kilometers).

A *large-scale* map shows a small area in great detail. These maps are called *large-scale* because their representative fractions are large. Each distance unit represents a relatively small number of units on earth. The small number of units makes the denominator of the representative fraction relatively small and the fraction's value relatively large. For example, a city street map might have a scale of 1:31,680, in which 1 inch represents ½ mile (0.8 kilometer).

A **north arrow** shows the direction of north on a map. The arrow often has the letter *N* or the word *North* written over it. Maps without a north arrow usually show north at the top of the map or include a geographic grid to orient the user.

Map indexes list the features shown on a map in alphabetical order and provide an aid to locating the features. In many atlases, each index entry lists a feature's latitude, longitude, and map number. People can use the latitude and longitude to find the feature on that map.

Many maps of small areas, such as street maps, are divided into horizontal rows and vertical columns. The rows and columns are labeled with letters and numbers. Each feature in the map index is followed by a letter and number corresponding to one row and one column on the map. That feature can be found in the small section of the map where that row and column cross.

1 Excerpted from a *World Book* article entitled *Map*. Contributor: Judy M. Olson, Ph.D., Professor of Geography, Michigan State University.

***World Book* on the Compass**[1]

[A] **compass** is a device for determining direction. The simplest form of the compass is a **magnetized** needle mounted on a **pivot** so that it can turn freely. The needle **aligns** itself with the earth's **magnetic field** and points toward **magnetic north**. Under the needle is a circular **compass card**, on which evenly spaced points and **degrees** are marked to indicate direction.

The four **cardinal points** of the compass are north, east, south, and west. The **intercardinal points** are northeast, southeast, southwest, and northwest. Large compasses are marked, **clockwise**, with the **360 degrees** of a circle, in addition to cardinal and intercardinal points.

Listed below are the cardinal and intercardinal points and the position on the circle, in terms of degrees, to which each point corresponds.

- ❑ North—0° or 360°
- ❑ Northeast—45°
- ❑ East—90°
- ❑ Southeast—135°
- ❑ South—180°
- ❑ Southwest—225°
- ❑ West—270°
- ❑ Northwest—315°

A simple pocket compass helps people find their way when there are no landmarks to guide them. For example, if a person must walk west to reach the nearest town, he or she lines up the needle so that its ends are over the north and south marks on the compass card. The person then travels in the direction 90° to the left of the north end of the compass needle.

The **mariner's compass** is a magnetic compass used aboard a boat or ship. In most cases, it has several magnets fastened on the underside of a compass card. The card rests on a pivot so it can turn freely inside the compass bowl and can always point toward magnetic north. The compass bowl has a transparent cover and is filled with a nonfreezable liquid mixture of alcohol and water or glycerin and water. This liquid mixture floats the card and at the same time damps (slows) the movement of the card so that it does not constantly swing from side to side with the motion of the ship.

Variation. The compass needle points in the general direction of the earth's north magnetic pole. The earth's magnetic field has a north pole and a south pole, just as the earth as a whole has poles known as the true North and South poles. The **true poles** are the "top" and "bottom" of the earth, where the earth's spin axis penetrates the earth's surface. The **magnetic poles** are not located at the true North and South poles. The north magnetic pole, for example, is a shifting point on the earth's surface, several hundred miles or kilometers from the true North Pole.

The direction in which the compass needle points is slightly different from the direction of the north magnetic pole at almost all places on the earth. The difference arises because the earth's magnetic field is not aligned perfectly in the direction of magnetic north. Rather, the field veers slightly to the east or west at almost all places on the earth.

The angle between the direction of magnetic north and the true North Pole at any location is called **variation** or **declination**. The variation of a compass is different at different places on the earth. The variation of a compass also changes slightly at different times of the year and in different years. Thus, to use a magnetic compass accurately, a person must know the amount of variation at his or her location and what variation correction must be made in reading the compass. This information about the variation appears on all mariners' charts and on many maps.

Deviation. If a magnetic compass is placed close to a metal object that contains iron, it will be drawn toward that object. The angle that is formed between magnetic north and the direction the compass points is known as deviation. When a mariner's compass is installed on a ship, it is mounted in *gimbals* (supporting rings that pivot) often in a stand called a *binnacle*. The binnacle has magnetic devices that correct major errors of deviation in the compass.

After these corrections have been made, the navigator swings the ship. That is, he or she heads the ship in different directions, checking the direction by various landmarks. The navigator notes how many degrees of deviation the compass shows from the exact direction of the ship. For instance, by sighting toward a lighthouse on the east, a navigator can tell that the ship is heading exactly east.

However, after the navigator has corrected the compass reading for variation, the compass may indicate the ship is heading two degrees south of east. To head directly east when the ship is out of sight of land, the navigator will steer a course two degrees south of east on the compass, after correcting for variation. The navigator may also check direction using a **gyrocompass**, which always points toward true north.

1 Excerpted from a *World Book* article entitled *Compass*. Contributor: Debora M. Katz, Ph.D., Associate Professor of Physics, U.S. Naval Academy.

History. Chinese and Mediterranean navigators probably first used magnetic compasses to guide their ships in about the 1000's or 1100's. These compasses were simple pieces of magnetic iron, usually floated on straw or cork in a bowl of water. In about the 1300's, the compass card was marked off into 32 points of direction. During the following years, navigators learned more about deviation or variation of compasses in various parts of the world, and came to use magnetic compasses with greater accuracy.

When iron and steel vessels appeared in the late 1800's, it became more difficult to make accurate magnetic compass readings aboard a ship. The readings were affected by the metal of the ships. As a result, the **gyrocompass** was developed. It is not affected by magnetism and points toward true north.

Large ships today carry both magnetic compasses and gyrocompasses. Ordinary magnetic compasses are not satisfactory in aircraft, and so various gyroscopic and special magnetic compasses have been developed by scientists for use in aviation. Radio has also been used for compasses. In the 1940's and 1950's, scientists developed special gyroscopes for compass use in the polar regions.

You will need a compass and a teacher's help to complete all these activities.

1. Study the article on the compass carefully. Do you understand the meanings of all the bolded words? (Ask your teacher if you should learn anything more about them this week.)
2. Answer the following questions.
   - ❑ What direction does your front door face?
   - ❑ What direction does the street in front of your house point?
3. Take a trip with a compass!
   - ❑ Go for a drive in your car to a nearby park. (If you live in a rural area, open farmland is fine for this activity. If you live in an urban area, you can do this activity in the middle of the city, too, but go to a section of town with which you are unfamiliar.) Keep track of where you go (write directions down if you so desire), and give compass readings aloud to your teacher every time you turn onto another street.
   - ❑ At the park, hold your teacher's hand as you walk away from the car with your eyes closed. Ask your teacher to note the compass direction in which your car is parked, then continue walking until she tells you that you've gone far enough. Open your eyes and ask your teacher the general direction of the car, and then, without her help, guide her back to the car. If you encounter trees or buildings in your path, you will have to go around them and then reorient yourself using your compass.
   - ❑ If you wrote down directions as you came, try to use them to direct your teacher on the drive home.
4. If you want to, do some extra reading on the development and use of the compass.

***World Book* on Navigation by the Stars** [1]

Measuring direction and position. Stars help mapmakers, pilots, and sailors find directions and locations. For example, the North Star serves as a guide to the direction north because this star always appears to be in the same place over the North Pole. The earth's spinning motion makes the sky seem to rotate each night. Observers who are north of the equator see the stars rotate around a point that is above the North Pole. The North Star is near this point in the sky and so seems to move very little.

The North Star also can be used to measure latitude. An observer uses a sextant to measure the angle at which the star appears above the northern horizon. This angle is the same as the observer's latitude. For example, at 45° north latitude, the North Star is at an angle of 45° above the northern horizon.

Pilots and sailors measure their position by means of celestial navigation. This method depends on the idea that a star is directly over some point on the earth's surface at a given time. The earthly position of a star changes as the star appears to move from east to west. A book called an **almanac** lists the earthly positions of various stars at different times. To determine their location, observers measure the angle of a star with a sextant and note the exact time of the measurement. They then look up the star's earthly position in an almanac. They use the angle of the star to figure out how far their location is from the star's earthly position. By repeating the process with two more stars, they can find their location.

1 From *World Book* article entitled *Star.* Contributor: Robert P. Kirshner, Ph.D., Professor of Astronomy, Harvard University.

***World Book* on the North Star** [1]

[The] **North Star** is a readily visible star that appears to be located almost directly above the North Pole. The term polestar is sometimes used for North Star. The North Star is presently **Polaris, Minor.** Polaris is located within one degree of the place where the northern extension of the earth's axis pierces the sky. Because of its position, Polaris appears stationary, while other stars seem to revolve around the earth's axis as the earth rotates. As a result, Polaris has served as a guide for navigators through the centuries. Polaris is a star of the second magnitude. The brighter a star is the lower is its magnitude.

Polaris will not always be the North Star because the earth's axis will not always point toward Polaris. The earth's rotational axis changes direction in a circular motion called precession. Each end of the axis traces out a fictitious circle in the sky. One complete trip around the circle takes about 26,000 years. Thus, the brighter stars on or near the precessional circle above the earth's North Pole each become the North Star for a certain period. For example, in about 12,000 years, the earth's axis will point north to a spot near Vega in the constellation Lyra. In about 22,000 years, Thuban in the constellation Draco will become the North Star. About 26,000 years from now, Polaris will return to its present location relative to the earth's axis, and will be the North Star.

***World Book* on the Big and Little Dippers** [2]

[The] **Big and Little Dippers** are the names of two groups of stars that are easy to recognize in the northern sky. They are shaped like long-handled cups, or dippers.

The Big Dipper consists of seven stars that can be used to point to other parts of the sky. For example, an imaginary line extended northward from the two stars at the front of the cup points to Polaris, the North Star. The line points to the constellation Leo when extended southward. An easy way to find Leo is to imagine water leaking from the bottom of the cup and falling on the lion.

The Big Dipper forms part of the constellation of **Ursa Major,** the Great Bear. The cup forms the hindquarters of the bear, the handle forms the tail, and fainter stars outline the head and legs. The star Mizar, at the center of the handle, has a nearby companion star named Alcor. These two stars have been used for hundreds of years as a test for keen eyesight. Viewed through a telescope, Mizar appears as two stars.

The Little Dipper forms almost the entire constellation of **Ursa Minor**, the Little Bear. It consists mostly of faint stars. As a result, it is hard to find unless the sky is very dark. But the Little Dipper has long been important as an indicator of north, because the North Star lies at the end of this dipper's handle.

In Greek mythology, Ursa Major is the nymph Callisto and Ursa Minor is her son Arcas. One myth says Zeus loved Callisto and thus angered his wife, Hera. When Hera tried to kill her, Zeus changed Callisto into a bear. Arcas was unaware that the bear was his mother and tried to kill her. Zeus changed Arcas into a bear and put both bears into the sky to protect them. Writers around the year 1600 said the bears had long tails because Zeus pulled them into the sky by the tail.

On January evenings, the Little Dipper is west of the Big Dipper. The Little Dipper's handle points up and the Big Dipper's, down. On July evenings, the positions are reversed. The dippers' positions also change at night because of the earth's rotation.

1. Here are some questions that might lead you to further research:
   - ❑ What major constellations or stars are used by navigators to find their way?
   - ❑ Did Columbus have a sextant?
   - ❑ What methods of celestial navigation would Columbus have used?
2. One recommended activity is to go out on a clear night and actually view the constellations. You can find star maps in your encyclopedia, or check the Year 2 Arts/Activities page[3] of the *Tapestry* website for links to star maps that you can download and print. Depending on the season in the Northern Hemisphere, look for some of these:
   - ❑ Orion (winter sky)
   - ❑ Big Dipper (Ursa Major) (year round)
   - ❑ Little Dipper (Ursa Minor) (year round)
   - ❑ Cassiopeia (year round)
   - ❑ Leo (winter)
   - ❑ Cygnus (Northern Cross) (summer)
   - ❑ North Star (year round)
   - ❑ Aquila (summer)
   - ❑ Pleiades (in Taurus)

1 From a *World Book* article entitled *North Star.* Contributor: Sumner Starrfield., Prof. of Physics/Astronomy, Arizona State University.
2 From a *World Book* article entitled *Big and Little Dippers*. Contributor: David H. Levy, M.A., Observer, Jarnac Laboratory.
3 http://www.tapestryofgrace.com/year2/artsactivities.php

Background Information

This is our second week studying the fabulous adventures of brave explorers and the third week on the Renaissance. The Age of Exploration represented an explosion of information that fundamentally changed the horizons of Europeans, but did not immediately broaden their spiritual and cultural assumptions and prejudices. You will be reading about explorers who sailed for a variety of monarchs, but because this era of discovery was so fast-paced, we can study only a small fraction of the incremental discoveries made during this age. Literally hundreds of expeditions set forth. We will therefore focus on the highlights, and discuss explorers who led the most important expeditions—those that made discoveries that forever altered history.

Since this age was packed with so many exciting voyages, it is easy to lose sight of how important each discovery was in God's ongoing plan. It's not hard to become confused as to who did what when and for which country. With so much information to be digested, consider using study aids such as charts and maps that organize similar facts. Though it may seem to take longer to stop and fill in a chart or look at a map as you work through your reading assignment, you will actually be making the best possible use of your time! As a student, you are in a season of study and preparation, and your work is to be done wholeheartedly (see Colossians 3:23-24). Study aids may slow you down, but they will increase your long-term retention of the information you are seeking to learn.

You will be surveying the artistic apex of the Italian Renaissance this week, studying the works of Raphael, Michelangelo, and others. Many paintings, drawings, sculptures, and buildings of this period are amazingly beautiful and represent both genius and dedication on the part of the artists. Nevertheless, we must remember to look at the heart of the southern Renaissance and ask for whom these works were really done, thus exploring the height of humanism throughout this age.

Vasco da Gama

13 The Southern Renaissance and the Age of Exploration

History

Threads

- ❑ Continue to study the lives and times of the European explorers and artists.
- ❑ Learn about the motives of the explorers' expeditions.
- ❑ Discuss the ethnocentricity of the European explorers.
- ❑ Learn some terminology often associated with exploration.

Reading

- ❑ *The Story of Europe* (*Yesterday's Classics* version) by H.E. Marshall, p. 274-276 (stop at "Francis I and Charles V")
- ❑ *This Country of Ours* (*Yesterday's Classics* version) by H.E. Marshall, chapters V-VI
- ❑ *Explorers of the New World*, by Carla Mooney, chapters 3-4, chapter 6 (p. 95-101 only) (Week 2 of 3)
- ❑ If you are also studying fine arts with *Tapestry*, your Art reading doubles as History: In-Depth this week.
- ❑ Suggested Read-Aloud: *The Apprentice*, by Pilar Molina Llorente, chapters 8-10 (Week 3 of 3)

Accountability Questions

1. Define the following terms associated with exploration. (If your reading doesn't explain them, look them up![1])
   - ❑ What are portolans?
   - ❑ What is ethnocentrism? As you read, note examples of explorers and monarchs displaying ethnocentricity.
   - ❑ What is mutiny?
2. How long after Leonardo pioneered landscape painting was Michelangelo born?
3. What were some similarities and differences between Leonardo and Michelangelo?
4. For what major works and contributions is Michelangelo best remembered?
5. Your reading briefly mentions Raphael, but his works are well worth extra time to view on the Internet or in library books. What differences do you note in his style, as compared to Michelangelo? What is he best remembered for?

Thinking Questions

1. As you read your assignments this week, note the following information for the explorers listed below (or any other major explorers about whom you read): their name, the monarch who sponsored their voyage(s), when they sailed, lands they explored (or discovered), how God prepared them for the missions they attempted, and interesting aspects of their lives or characters. (You may want to do this in chart format.)
   - ❑ John Cabot ❑ Ferdinand Magellan ❑ Jacques Cartier
2. What were the common motives for many explorers?
3. What were the common motives for many monarchs in sponsoring voyages of exploration?
4. In that ways did artists of the High Renaissance seek to glorify God? How did they seek to glorify mankind?

1 See the Year 2 History page of the *Tapestry* website for help. (http://www.tapestryofgrace.com/year2/history.php)

PEOPLE	TIME LINE	
☐ John Cabot ☐ Ferdinand Magellan ☐ Jacques Cartier ☐ Raphael ☐ Michelangelo	**1475-1564**	Michelangelo
	1483-1520	Raphael
	1501-1504	Michelangelo carves the *David*.
	1500	Da Vinci becomes Cesare Borgia's military engineer and chief architect.
	1503	Pope Alexander VI dies; his son Cesare Borgia loses power. Julius II (art patron) becomes pope.
	1506	Da Vinci completes *Mona Lisa*.
	1508-1512	Michelangelo paints the ceiling of the Sistine Chapel.
	1508	Leo X (Giovanni, son of Lorenzo de' Medici) becomes pope.
	1513	Machiavelli writes *The Prince*.
	1528	Castiglione's *The Courtier* is published.
	1535-41	Michelangelo paints *The Last Judgment* in the Sistine Chapel.

Worldview

There is no assignment this week.

GEOGRAPHY

1. According to your teacher's direction, review (or learn more about) map projections, longitude, and latitude from the information in the following supplement.
2. According to your teacher's direction, trace the paths followed by explorers you read about this week on a world map or globe. (Week 2 of 2)

Geography Supplement

World Book on Longitude and Latitude[1]

Geographic grids are networks of imaginary lines that help us find and describe places on earth. These grids are commonly shown on maps. The most common grid is called a *graticule.* This grid divides the globe using lines called **parallels** that show north-south position and lines called **meridians** that show east-west position.

Parallels are circles around the globe that measure **latitude**. Latitude describes position north or south in degrees, a mathematical measurement applied to circles and angles. The **equator** is the parallel that lies at zero degrees (written 0°), exactly halfway between the North Pole and the South Pole. The North Pole has a latitude of 90° north, and the South Pole has a latitude of 90° south. Every point on earth that lies north of the equator has a latitude between 0° and 90° north. Every point south of the equator lies between 0° and 90° south.

Meridians extend from the North Pole to the South Pole, forming half-circles around the globe. Meridians, also measured in degrees, indicate longitude (east-west position). By international agreement, mapmakers place the 0° meridian, also called the **prime meridian**, on a line that passes through **Greenwich**, England, near London. The meridian in the Pacific Ocean that forms the other half of the prime meridian's circle lies at 180°. Longitude measurements range from 0° to 180° east and from 0° to 180° west.

If we know the latitude and longitude of a place, the *graticule* enables us to find that place on a map. Longitude and latitude measurements can be used to pinpoint any place on earth. For example, only one place—New Orleans, Louisiana, in the United States—lies exactly at 30° north and 90° west.

World Book on Longitude and Time[2]

Any point on the earth's surface traces a whole circle—360 degrees—once every 24 hours. It does this because the earth turns once on its axis every 24 hours. All 360 degrees of the earth's circumference also pass beneath the sun once in 24 hours. In one hour, $^1/_{24}$ of 360 degrees, or 15 degrees, passes beneath the sun. Because it seems that the sun is moving instead of the earth, people say that one hour of time equals 15 degrees of longitude.

Each degree of longitude is divided into 60 parts called **minutes**. Each minute is divided into 60 **seconds** of longitude. These minutes and seconds of longitude measure *distance*, not time. But since an hour of time equals 15° of longitude, a minute or second of time equals a certain distance that can be expressed in minutes and seconds of longitude. Below are equivalent distances for five units of time. These units range from a day to a second:

- ❑ 24 hours of time = 360° of longitude
- ❑ 1 hour of time = 15° of longitude
- ❑ 4 minutes of time = 1° of longitude
- ❑ 1 minute of time = 15 minutes of longitude
- ❑ 1 second of time = 15 seconds of longitude

World Book on Latitude and Climate[3]

The latitude of a point is measured in terms of its distance from the equator toward one of the earth's poles. Latitude is measured in degrees. Any point on the equator has a latitude of zero degrees (written 0°). The North Pole has a latitude of 90° north and the South Pole has a latitude of 90° south. These two points are sometimes written +90° and -90°. Degrees of latitude are divided into 60 minutes ('), and the minutes each consist of 60 seconds (").

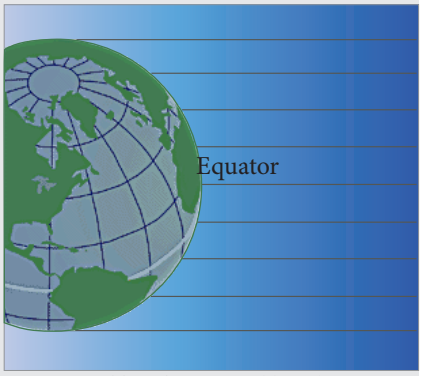
All points on the earth's surface that have the same latitude lie on an imaginary circle called a parallel of latitude. The distance between two parallels that are 1° apart is about 60 nautical (sea or air) miles, or 69 statute (land) miles or 111 kilometers. This length of 1° of latitude varies from 59.7 nautical miles near the equator to 60.3 nautical miles near the poles. The variation results because the earth is not a perfect sphere. A difference in latitude of 1 minute equals about 1 nautical mile.

The sun continually sends electromagnetic radiation into space. Most of the radiation is visible light, and it also includes infrared (heat) rays and ultraviolet rays. About 30 percent of the radiation that reaches the earth's atmosphere is reflected back into space, mostly by clouds. The remaining 70 percent is absorbed by the atmosphere and the earth's surface, heating them.

1 Excerpted from a *World Book* article entitled *Map.* Contributor: Judy M. Olson, Ph.D., Professor of Geography, Michigan State University.
2 Excerpted from a *World Book* article entitled *Longitude.* Contributor: Stephen S. Birdsall, Ph.D., Professor of Geography, University of North Carolina, Chapel Hill.
3 Excerpted from *World Book* articles entitled *Latitude* and *Climate.* Contributors: Stephen S. Birdsall, Ph.D., Professor of Geography, University of North Carolina, Chapel Hill and Joseph M. Moran, Ph.D., Professor of Earth Science, University of Wisconsin, Green Bay.

The intensity of the solar radiation reaching the atmosphere decreases with increasing latitude. The intensity depends on how high in the sky the sun climbs. The closer a place is to the equator, the higher the climb.

At latitudes between 23½° north and 23½° south, the sun is directly overhead at noon twice a year. In these cases, the sun's rays shine directly down toward the surface. The radiation that reaches the atmosphere is therefore at its most intense.



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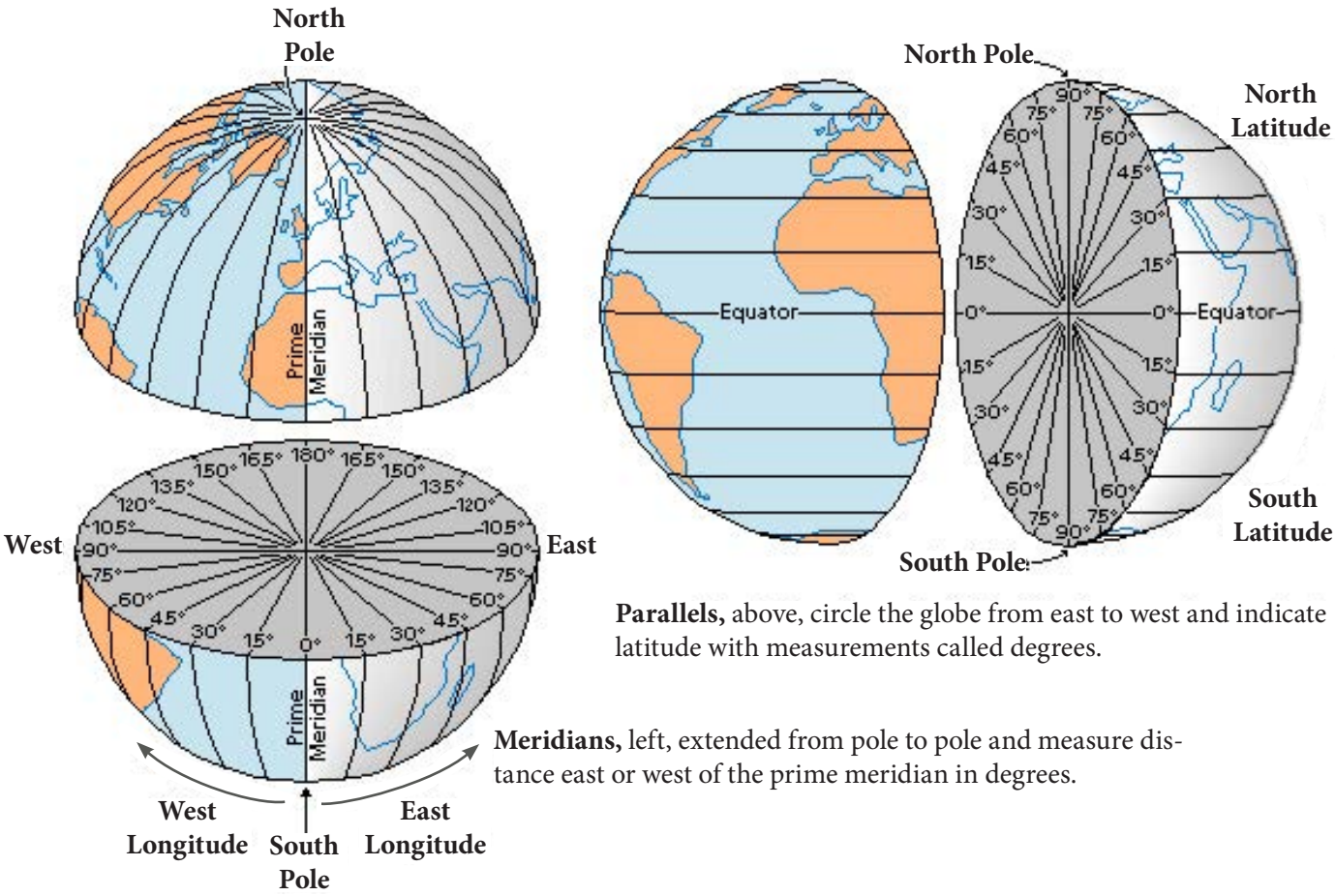
In all other cases, the rays arrive at an angle to the surface and are therefore less intense. The closer a place is to the poles, the smaller the angle and therefore the less intense the radiation. Due to decreases in the intensity of radiation, average temperatures decline from the equator to the poles. Seasonal changes in solar radiation and the number of hours of sunlight also vary with latitude.

In tropical latitudes (those near the equator), there is little difference in the amount of solar heating between summer and winter. Average monthly temperatures therefore do not change much during the year.

In middle latitudes, from the Tropic of Cancer to the Arctic Circle and from the Tropic of Capricorn to the Antarctic Circle, solar heating is considerably greater in summer than in winter. In these latitudes, summers are therefore warmer than winters.

In high latitudes, north of the Arctic Circle and south of the Antarctic Circle, the sun never rises during large portions of the year. Therefore, the contrast in solar heating between summer and winter is extreme. Summers are cool to mild, and winters are bitterly cold.



Parallels, above, circle the globe from east to west and indicate latitude with measurements called degrees.

Meridians, left, extended from pole to pole and measure distance east or west of the prime meridian in degrees.

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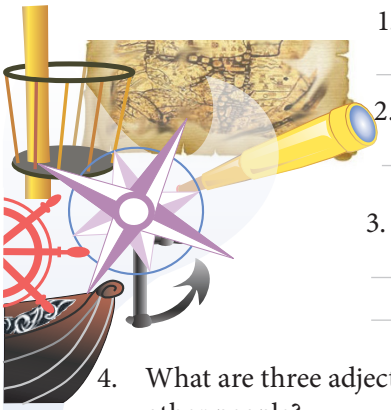
Literature

Reading
By Right of Conquest, by G.A. Henty, chapters 1-7 (Week 1 of 3)

Worksheet 1
Answer the following questions about your reading from chapters I-VII.



1. What one word gives the reader the first description of Master Diggory Beggs?

2. Who are Master Beggs' relatives?

3. Describe the physical appearance of Master Beggs.

4. What are three adjectives that describe Master Beggs in a positive way, based upon his dialogue with other people?

5. Does G.A. Henty provide negative descriptions of Master Beggs? How do you think this will affect the reader's view of this character throughout the book?

6. Describe his relationship with his wife.

7. Describe his relationship with Reuben Hawkshaw.

Fine Arts & Activities

Reading

- ❑ *The Art of the Renaissance*, by Lucia Corrain (J 709) p. 28-35
- ❑ *An Eye for Art*, produced by the National Gallery of Art, p. 68-71, 73-76
- ❑ *Amazing Leonardo da Vinci Inventions You Can Build Yourself*, by Maxine Anderson (J 620) p. 49-59

Exercises

1. Make a poster that illustrates and describes sixteenth-century navigational instruments.
2. Go to a nearby park with which you are unfamiliar, and have your teacher lead you to the center of it. Spend an hour or two attempting to make an accurate map of your surroundings. What data do you need? How hard is it to chart unknown territory?
3. Spices were eagerly sought by traders and explorers during the Age of Exploration. Learn to identify the scents and flavors of spices in your kitchen cupboard. Can you figure out which foods use certain spices?
4. Using these spices, practice a recipe or two in preparation for your Unit Celebration.
5. From your art history book, read about and observe the art of Raphael and Rogier van der Weyden. You may also choose to complete a project from this book.

After reading from *Amazing Leonardo da Vinci Inventions You Can Build Yourself*, choose one of the following projects to complete this week:

6. Choose one of the two options for constructing a *camera obscura*, and make your own.
7. Measure the humidity in the air by creating your own hygrometer.

Background Information

This is our last week studying the Age of Exploration. Our focus will take us back a few years to the time right after Columbus' expeditions, when Spaniards crossed the Atlantic Ocean following the path Columbus had shown them. These men were explorers, but they were also soldiers. Their goals were to find gold and to carve out a new empire for Spain. They hardly cared that other people already called Central and South America home.

This week we will learn details about the peoples and geography of Central and South America as we study the Spanish *conquistadores* in the New World. You will discover strange and wonderful plants and animals as you learn more about these regions. As we follow the course of Spanish explorers and *conquistadores*, you will also learn about the geographical shape and features of Central and South America, along with the surrounding seas and oceans.

The people who once lived in Central and South America practiced many things that God calls "abominations." Ephesians 5:8-12 tells us,

> For you were once darkness, but now you are light in the Lord. Live as children of light (for the fruit of the light consists in all goodness, righteousness and truth) and find out what pleases the Lord. Have nothing to do with the fruitless deeds of darkness, but rather expose them. For it is shameful even to mention what the disobedient do in secret.

Both the people of the Americas and the Spanish *conquistadores* who overthrew them did many wicked and cruel things. Your teacher will direct the amount of detail you learn about these evil practices this week.

We also read in Scriptures like those above that we are to expose these dark deeds and hold them up to the scrutiny of God's Word. John 3:20-21 expresses this further:

> Everyone who does evil hates the light, and will not come into the light for fear that his deeds will be exposed. But whoever lives by the truth comes into the light, so that it may be seen plainly that what he has done has been done through God.

Throughout our study this week, you will try to understand God's perspective on the lives and actions of the Inca and Aztec cultures and the Spanish *conquistadores* in the early 1500's. Though the sin involved was terrible, there are still important lessons to be learned from studying this sad thread of human history.

Machu Picchu, "The Lost City of the Incas"

14 Spanish Dominion and the New World: Aztecs and Incas

History

Threads

- ❑ Learn about the Spanish *conquistadores* and their treatment of the Aztec and Inca peoples.
- ❑ Compare and contrast Aztec and Inca cultures with each other, and both of them with Spain in the area of technology.
- ❑ Optional: Students who have not studied Year 1 topics may also want to cover the Maya civilization briefly.

Reading

- ❑ *The Story of Europe* (*Yesterday's Classics* version) by H.E. Marshall, p. 282-288 (stop at "Galileo")
- ❑ Research the Incan civilization using supporting links or library resources.
- ❑ *Aztec, Inca & Maya*, by Elizabeth Baquedano
- ❑ *Courage and Conviction*, by Mindy and Brandon Withrow, p. 89-91
- ❑ Suggested Read-Aloud: *Tales from Shakespeare*, by Charles and Mary Lamb, "The Winter's Tale," "Two Gentlemen of Verona," "Romeo and Juliet"

Accountability Questions

This week, you will learn about the advanced cultures of the Incas and Aztecs, the two largest civilizations that the Spaniards confronted and conquered in the New World. From your research, fill out the chart on the following page (or an expanded copy of it) and bring it to your discussion time.

Thinking Questions

1. All societies must discover how to survive physically, relate to each other, and worship. As you filled out the chart on the following page, and as you read about the Aztecs and Incas, what struck you about the way these people organized their society? Compare and contrast their practices with your own society. Prepare to share three similarities and three differences during your discussion time.
2. Compare and contrast Spanish culture with that of the Incas or the Aztecs (using a Venn diagram, if you like). What Aztec or Incan customs would have astonished, horrified, or amazed the Spaniards of the early 1500's as they encountered them? What customs or aspects of Spanish culture would have amazed or horrified the Aztecs?
3. Tenochtitlan, the Aztec governmental administration, and the Incan empire were all as advanced in social and governmental form as any culture in Europe. Yet they had almost no knowledge of metallurgy: no metal tools or weapons. What tangible differences does metal make in your life? In light of these differences, what is your impression of the intelligence of the Aztec and Incan peoples? Did their natural abilities make them good? Why, or why not?

People	Time Line	
☐ Hernando Cortez (Cortés) ☐ Montezuma II ☐ Nicolaus Copernicus ☐ Francisco Pizarro ☐ Titian ☐ Tintoretto	**c. 1485-1576**	Titian
	1200's-1500's	Aztec civilization
	1200's-1500's	Inca civilization
	1513	Ponce de Leon explores Florida and the Gulf of Mexico.
	1519-21	Cortez subdues the Aztecs.
	1527-29	Sebastian Cabot explores rivers of South America.
	1532	Pizarro conquers the Incas.
	1539	De Soto explores the (future) southeastern United States.
	1540-1542	Coronado explores the (future) southwestern United States.

Spanish Dominion and the New World: Aztecs and Incas

14

	Aztecs	Incas
Social		
Government		
Religious		
Foods		
Military		
Technology		
Achievements		
Interaction with the Spanish		

Worldview

There is no assignment this week.

Geography

1. Study a resource map of Central and South America. Label the following major landforms on a blank outline map:
   - ❑ Andes Mountains
   - ❑ Selva
   - ❑ Guiana Highlands
   - ❑ Brazilian Highlands
   - ❑ Amazon River and tributaries
   - ❑ Yucatan Peninsula
   - ❑ Gulf of Mexico
   - ❑ Caribbean Sea
   - ❑ Gulf of Darien
   - ❑ Falkland Islands
   - ❑ Galapagos Islands
   - ❑ Marajo
   - ❑ Tierra del Fuego
   - ❑ Patagonian Desert
   - ❑ Atlantic Ocean
   - ❑ Pacific Ocean
2. Look at a resource map to see where the Incan and Aztec territories were, and shade them if your teacher so directs.
3. Each day, do some research (with your teacher's help) and write a paragraph or two about different flora or fauna of Central and South America. (You might want to make a display board about these as well.) Remember as you work that Europeans had probably never seen any of these plants or animals before this time.
   - ❑ capybara
   - ❑ armadillo
   - ❑ anteater
   - ❑ tapir (which can grow as large as ponies!)
   - ❑ anaconda
   - ❑ sloth
   - ❑ yapok
   - ❑ umbú
   - ❑ yellow mombin
   - ❑ biribá

Literature

Reading
By Right of Conquest, by G.A. Henty, chapters 8-15 (Week 2 of 3)

Worksheet 2
In Week 9, you were instructed to take notes about the three main types of settings. If necessary, review that information now. In the spaces below, make observations as to the three types in each chapter. Pay close attention to the setting in which the characters interact, rather than the setting about which they may be speaking.

Chapter VIII: At Tezcuco	
Physical	
Temporal	
Cultural	

Chapter IX: Life in the Palace	
Physical	
Temporal	
Cultural	

Chapter X: News from the Coast	
Physical	
Temporal	
Cultural	

Chapter XI: Cortez	
Physical	
Temporal	
Cultural	

Chapter XII: The Fugitives	
Physical	
Temporal	
Cultural	

Chapter XIII: The Massacre of Cholula	
Physical	
Temporal	
Cultural	

Chapter XIV: In Mexico	
Physical	
Temporal	
Cultural	

Chapter XV: Again at Tezcuco	
Physical	
Temporal	
Cultural	

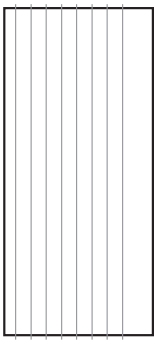
FINE ARTS & ACTIVITIES

Reading

- ❑ *The Art of the Renaissance*, by Lucia Corrain (J 709) p. 36-41, 58-59
- ❑ *Amazing Leonardo da Vinci Inventions You Can Build Yourself*, by Maxine Anderson (J 620) p. 60-65

Reading

1. The peoples who lived in South and Central America when the Spanish explorers and soldiers arrived were what historians call Stone Age people. This means that they had not yet learned to work with metals. However, they developed a very advanced civilization and built some very impressive buildings without using metal tools. They also knew how to weave cloth, an important art back then. Incan natives wove beautifully patterned cloth out of cotton or out of alpaca, llama, and vicuna wool. This week, try weaving in order to appreciate how hard it is and how long it takes.
   - ❑ Your teacher may want you to practice weaving with paper strips this week. If so, choose two colors of construction paper and cut strips of various lengths from them. Your teacher will then teach you how to weave these strips into a basic mat.
   - ❑ If you want to weave with thread or yarn, you will need to start by making a loom.
     - ❑ The Incas would have used wood for their looms. Find two pieces of wood about three feet long and two more about one-and-a-half feet long (Sticks from outside will work if they are reasonably straight. Dowels are also good.). Use twine to lash your loom together at the corners, creating a rectangle (like the diagram at right.)
     - ❑ If wood is not readily available, construct your loom out of a large sheet of poster board or corrugated cardboard.
     - ❑ Use scissors to make notches in the top and bottom of your sticks, paper, or cardboard so that your warp will stay in place.



   - ❑ Thread your loom. For this simple, relatively short project (you will end up with a long, narrow piece of cloth that you can use as a placemat), you can simply wrap the strings tightly around the stick frame (or cardboard) so that they rest in the notches that you cut. These threaded strings are called the *warp.*
   - ❑ Your teacher will help you begin weaving. Thread your yarn over and under and over and under the warp threads. When you've threaded your weaving yarn all the way across the warp, go back across the other way, threading in reverse: under and over and under and over, back to the other side of the loom. Be sure to "block" your weaving by scooting it together tightly on the warp threads so that it all clumps in one solid piece of cloth.
   - ❑ If you want even more of a challenge, try making complex patterns. It's harder and more time consuming than you might think!
   - ❑ Can you think of any labor-saving improvements to your loom? The Europeans came up with shuttles, harnesses, and treadles. After looking these terms up and understanding how they improved weaving, can you think of ways to enhance your simple loom in similar ways? The Incas and Aztecs probably had some of these ideas, but so skilled were the Incas that even the power looms of today cannot improve the quality of Peruvian weaving.
2. If you would like to try a group project, consider creating a book (or display board) of exotic animals and plants from Central and South America. Divide up assignments between co-op members or family members, and have each person research his plant or animal and write a paragraph or two about it. Find pictures of each topic on the Internet to put near each paragraph. Then display your book (or board) at your Unit Celebration!

When you have completed your reading from *Amazing Leonardo da Vinci Inventions You Can Build Yourself*, choose one of the following projects to do this week:

3. Learn the difference between density and viscosity by observing a cup of honey and a cup of water.
4. Build your own hydrometer using a ruler, a marker, straw, clay, nails, and other miscellaneous supplies listed in your resource book.
5. Do you know what a monkey wrench is? Check out your dad's tool box (with permission, of course) and then try to make your own.