Galileo first used the telescope to search the night sky. His discoveries changed the way people thought about the universe.

Learning Objectives
- Explain what the word Renaissance means.
- Tell how the invention of movable type helped in the spread of knowledge.
- Name four important people of the Renaissance.
- Explain what the Reformation was.
- Name two leaders of the Reformation.
# Words to Know

<table>
<thead>
<tr>
<th>Word</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Renaissance</td>
<td>the revival of art, literature, and learning in Europe in the fourteenth through sixteenth centuries</td>
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<tr>
<td>Scholar</td>
<td>a person who has learned much through study</td>
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<td>Humanism</td>
<td>a concern with the needs and interests of human beings rather than religious ideas</td>
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<tr>
<td>Patron</td>
<td>a wealthy person who supports artists</td>
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<tr>
<td>Sculptor</td>
<td>a person who makes statues out of wood, stone, marble, or other material</td>
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<tr>
<td>Astronomy</td>
<td>the study of stars, planets, and other heavenly bodies</td>
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<tr>
<td>Pendulum</td>
<td>a weight hung so that it swings freely back and forth; often used to control a clock's movement</td>
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<tr>
<td>Theory</td>
<td>an explanation of how and why something happens, usually based on scientific study</td>
</tr>
<tr>
<td>Reform</td>
<td>to change for the better</td>
</tr>
<tr>
<td>Protest</td>
<td>to speak out against or act against something</td>
</tr>
<tr>
<td>Heretic</td>
<td>a person who is against the teachings of a church</td>
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During the Middle Ages the culture and learning of Greeks and Romans were all but forgotten. For people it was as if Greece and Rome had never For this reason the Middle Ages, especially the art, is sometimes called the Dark Ages. Following the Middle Ages, Christianity united the of Western Europe. This was not, however, a e. Great universities were founded. Immense
The Humanists

The Humanists were scholars whose main interest was in art, in science, in literature, and in philosophy.

Humanism: The study of humanism sparked new ideas about the importance of human beings. Before 1500, life on Earth was divided into two parts: above and below. Now, they thought, there must be a place for all people and for all things. The study of humanism began to focus on human beings. They began to question the church and its leaders. A Dutch scholar, Erasmus, wrote books that questioned the church and its leaders. More people became concerned with wealth and power than with

Erasmus, who lived in a society that was filled with more people who were concerned with wealth and power than with questions about the church and its leaders. A Dutch scholar, Erasmus, wrote books that questioned the church and its leaders. More people became concerned with wealth and power than with questions about the church and its leaders. A Dutch scholar, Erasmus, wrote books that questioned the church and its leaders.
Renaissance Art

The Renaissance began in Italy. Then it spread northwest across Europe. More and more people began to appreciate beautiful things. The work of Italian craftworkers became very fine. People thought of it as art. Europeans showed a new interest in the civilizations of ancient Greece and Rome.

"Perhaps," people said, "that is when civilization was as its best!"

"Look at the art that came out of Greece," they said. "Look at the beautiful statues and the paintings. Look at the fine architecture of the Romans." At first Italian artists tried to copy the work of the ancient Greeks and Romans. Then they began to improve on it.

During the Middle Ages most paintings were of religious scenes. The people in these pictures were not very lifelike. Renaissance artists studied the human form. They tried to make the people in their pictures look more like real people. For the first time, artists used live models.

Craftworkers could make a good living from their work. It was harder for artists to earn a steady wage. Wealthy Italians served as patrons for promising young artists. A patron provided food, housing, and enough money for the artist to live on. Because of their patrons, artists were able to work and study to improve. Some of the world’s finest artists lived during the Renaissance.

**Michelangelo Buonarroti**

One of the most famous artists of the Italian Renaissance was Michelangelo Buonarroti. During the Renaissance, people were encouraged to be good at many things. Michelangelo, in true Renaissance spirit, was more than just a fine painter. He was also a sculptor, a poet, and an architect.

**History Fact**

The spirit of humanism led Renaissance artists to make the people in their pictures lifelike.
Michelangelo's pattern, noted Michelangelo's brilliance. He became young boy. A wealthy Italian, Lorenzo de' Medici, town in Italy. He began showing artistic talent at a younger age. Michelangelo was born in 1475 in a mountain town. His talent was discovered by Lorenzo de' Medici, who became his patron. Michelangelo was known for his ability to sculpt with great precision and detail. His works often depict scenes from the Bible and history, and he is considered one of the greatest sculptors of all time. Michalangelo's work is characterized by its realism and attention to detail, and he is known for his innovative use of space and perspective. Michelangelo's greatest fame came for his sculptures. He studied the human body, and his sculptures are known for their lifelike quality. Each muscle is perfect, and each position is realistic. His works are often compared to the work of ancient Greek and Roman sculptors, and he is considered a key figure in the development of Renaissance art.
At age 24 Michelangelo created his first masterpiece, a huge statue called the Pietà. Michelangelo sculpted it for St. Peter's Church in Rome. In the Pietà, the body of Christ is shown held in his mother's arms. The word Pietà came from the Italian word for pity.

Michelangelo's statue David is another of his most famous works. Completed in 1504, it is a perfect example of the Renaissance interest in the human form. "David" is strong and looks alive. The statue is 18 feet high and made of solid marble. Michelangelo's David is very heavy. It took 40 men to move it from the workshop to a central square in Florence, Italy.

Pope Julius II hired Michelangelo to paint the ceiling of the Sistine Chapel in Rome. Michelangelo painted a series of pictures showing events in the Bible. Over 300 figures from the Bible appear on the 60-foot-high chapel ceiling. Michelangelo had to paint the scenes lying on his back. He lay on a platform held by ropes. He worked on that ceiling for four years.

Later in his life, Michelangelo turned to architecture. He worked on the rebuilding of St. Peter's Church. He took no pay then. He believed it was a task that would please God.

Michelangelo died when he was 90. He had had a long life in which to sculpt, to paint, and to build. His art brought light and beauty to all of Europe.

**Education and Learning**

All writing was done by hand during the Middle Ages. Books were copied on parchment made of animal skin. Therefore, books were beautiful, but they were also expensive and few in number. Only wealthy people could own books of their own. Most books were written in Latin, the language of the church. The only scholars were clergy. The church was the main place where studying went on. The church dominated all learning.
Johannes Gutenberg's printing press made written information available to people.

Not just that of Latin scholars, translated into the languages of the common people, the press was wildly available. Books were available, and tales were spread. The ideas of the past and Romans and tales of travel. The stories of the Greeks and many people could read the stories of the Greeks and Romans.

Now books could be made quickly at low cost. Now one time, onto paper, the movable type printed a whole page at a time. When inked and pressed, the letters could be moved around with movable type. Letters were molded onto type for printing.

Johannes Gutenberg discovered how to use movable metal blocks. The letters were moved around to spell different words. Then a new invention was invented by the Moors of Spain. They were introduced by the Moors of Spain from China. Then, about a.d. 1450, things started to change.
With the *Gutenberg Bible* Europeans could read the Bible for themselves. People did not have to rely on the church to tell them what the Bible said. The Bible was translated into English, Italian, French, and German.

It became important to be able to read. More schools opened. Schools that taught Greek and Latin grammar were called "grammar" schools. There were new universities. Studies went beyond religious thought. People studied the world. They also studied about their own place in the world.

**Science and Invention**

The Renaissance was a time for progress. There were some important changes during the Middle Ages. However, change had come slowly. Now new books—and new ideas—were available for anyone who could read. Universities were growing. With the spirit of the Renaissance, change came rapidly.

People explored new ideas. Gutenberg's printing press was just one of the new inventions. Inventors discovered how to make springs. Then they made watches that were small enough to be carried in a pocket. Before, the only clocks had been huge ones on public buildings. Now people could keep time at home.

New instruments helped sailors find their way on the open seas. New maps improved travel. People experimented with metals. Soon they came up with cast iron to replace expensive bronze.

In medicine, the English doctor William Harvey discovered that the heart pumps blood throughout the body. In 1600 the microscope was invented. It led to a new look at the world. Suddenly people learned that there were tiny creatures—smaller than the eye could see!
The ground at the same time.
and a one-pound weight. He showed that they both hit
proof his theory. Then he dropped a ten-pound weight.
climbed to the top of the Leaning Tower of Pisa to
calmed no matter what their weight. Galileo
at the same speed, no matter what their weight. Galileo
Galileo found that gravity pulls all bodies to the Earth.
Later, he discovered the "law of falling bodies."

up with the idea of the pendulum.
from the ceiling of the cathedral in Pisa. Then he came
at the age of 20. Galileo watched a great lamp swing
1564. He made his first important scientific discovery
Copernicus and left off: Galileo was born in Pisa in
An Italian scientist, Galileo Galileo, took up where
How scientists could get a better look at the sky.
The invention of the telescope challenged more old

Galileo

Most people would not believe him!
including the Earth, revolve around the sun.
Copernicus wrote a book. He said that the planets,
Earth. Then in 1543, the Polish astronomer Nicolaus
that the sun’s moon, and stars all moved around the
Earth was the center of the universe. They believed.
For hundreds of years people had believed that the
book up the scientific world and shook up the church.
humanity's place in the whole system. These ideas
stirred people. Now there was also a new way of seeing
only were there new ideas about the way the Earth and
ideas changed people’s thinking in many ways. Not
Renaissance came in the field of astronomy. These new
some of the greatest scientific discoveries of the

The Center of the Universe
Some people were angry. They were shocked that Galileo would dare to challenge the ideas of the wise Greek, Aristotle. Galileo’s discoveries would bring him a lot of angry words.

The invention of the telescope brought another breakthrough. Galileo was not its inventor, but he was the first to use the telescope to study the heavens. With his telescope, Galileo discovered that the moon did not have its own light. It reflected light. He discovered moons around Jupiter and the mass of stars in the Milky Way. All of Galileo’s discoveries led him to support Copernicus’s theory. The Earth was not the center of the universe. The Earth was just another planet revolving around the sun!

No matter how well Galileo proved his theory, the church would not hear of it. Church members were ordered not to read Galileo’s books. The church sent Galileo warnings. He was not to teach his theories. In 1632 Galileo was called to a church hearing. There was a long trial. Galileo had to promise that he would give up his belief in Copernicus’s theory. The church forced him to say that the Earth was the center of the universe. Church officials watched Galileo closely for the rest of his life. He became a prisoner in his own home.

Check Your Understanding

Write your answers in complete sentences.

1. What is the meaning of the word Renaissance?
2. Why were Michelangelo’s sculptures so lifelike?
3. What is the name of the famous ceiling that Michelangelo painted?

1. Renaissance means rebirth or awakening.
2. He studied human form at work and rest. Each muscle and bone is perfect, each position is life-like.
3. Michelangelo painted the ceiling of the Sistine Chapel in Rome.
Leonardo da Vinci

A Renaissance man should be able to put up a good

The human body and its functions, as well as the study of how to make things work. Da Vinci's sketches show the different ideas for how machines were designed and built. His work in this area inspired many others to follow in his footsteps.

Leonardo da Vinci was not only an artist and a sculptor, he was also a writer and a scientist. He wrote books on a variety of subjects, including anatomy, botany, and mathematics.

A man of many talents, da Vinci was able to apply his knowledge in a variety of fields. He was a musician, a poet, and a philosopher. He was also a great inventor, creating devices that were ahead of their time.

Da Vinci was a man of great wisdom, and his ideas continue to inspire people today. His influence can be seen in the works of many other artists and scientists who have come after him.
Leonardo da Vinci’s sketchbook contains his ideas for machines. Da Vinci was one of the greatest inventors of all time.

Da Vinci had a sure sense of the way things worked. He understood the way parts joined together to form a whole. This great knowledge helped make Da Vinci such a good artist.

Da Vinci’s *Mona Lisa* is a painting of a woman with a mysterious smile. It is one of the world’s most famous masterpieces. Today it hangs in the Louvre Museum in Paris, France.

For 17 years Da Vinci served the Duke of Milan. He worked as a painter, a sculptor, and an engineer. He was then hired as a painter by the government of Florence. For the last two years of his life, Da Vinci lived in France at the invitation of King Francis I.
The wrong direction, concern was that the Catholic Church was headed in.
Europeans set out to reform, or change, the church.

During the Renaissance, people went to school,
and learned to read. They began to question many things, including the ways of the church.
Western Europe was Roman Catholic. The Catholic Church held great power. It owned lands and collected taxes. Popes, bishops, and priests were wealthy men.

New ideas and new inventions like da Vinci's were made in the Renaissance. Leonardo da Vinci was a genius. He was curious and thirsting for knowledge. He had a desire to know more about everything. It was curiosity that made his paintings seem all the more real. He had a unique way of understanding people and the world. This understanding helped him understand another. His scientific studies helped him understand his world.

Da Vinci, the Renaissance man, used one talent...
A person did not need fancy rituals or pilgrimages to find God, Luther said. He began to criticize the Catholic Church in public sermons. In 1517 Martin Luther wrote a list of 95 complaints about the church. He nailed it to the door of the Castle Church in Wittenberg, Germany.

Luther continued to question church practices. In 1521 he spoke out against the power and authority granted the pope. This did not please the pope. Luther was told to recant, or take back, what he had said. Luther refused. He said that unless the Bible itself proved him wrong, he would not recant.

Luther was thrown out of the Catholic Church. Emperor Charles V declared Luther an outlaw. He said that anyone could kill Luther without punishment.

Several German princes supported Luther and his feelings about the church. One prince hid him in a castle. The church could not take him prisoner. Soon Luther had so many supporters that before long he was able to set up a whole new church.

The new church, based on Luther’s ideas, simplified religion. Religious practices would be based on what was found in the Bible. In 1529 the Catholic Church declared that no one should practice Lutheranism. Lutheran princes decided to protest. Because of this, they were called Protestants.

Other leaders across Europe also protested against Catholic practice. Other Protestant churches were started. The Reformation was under way.