



◀ The city of Florence, Italy, was the center of Europe's Renaissance.

Florence: The Cradle of the Renaissance

29.1 Introduction

In the last chapter, you learned that the Renaissance began in Italy. In this chapter, you will visit the Italian city of Florence to learn about a number of **advances** that were made during the Renaissance.

Florence is located on the Arno River, just north of the center of Italy. The city is often called the “cradle of the Renaissance.” Between 1300 and 1600, it was home to some of the greatest artists and thinkers of the Renaissance.

Renaissance Florence was a beautiful city. One of its most notable buildings was the *duomo*, or cathedral, of Santa Maria del Fiore. The domed cathedral was the center of the city's religious life. Nearby was the Palazzo Vecchio (Old Palace). This building was the headquarters of the city government. The grand Palazzo Medici was the home of Florence's ruling family, the Medicis. A more humble house was the Casa di Dante (Dante's House). It was the home of Italy's most famous poet.

During Renaissance times, Florence was the banking center of Europe. People from around Europe came to the Mercato Nuovo (New Market) to trade their coins for florins, the gold coins of Florence. Another busy spot was the Ponte Vecchio (Old Bridge). This beautiful bridge spanned the Arno River and was lined with the shops of fine jewelers and goldsmiths.

Florence's wealth helped to make it a cultural leader during the Renaissance. In this chapter, you will visit several places in the city to learn about Renaissance advances in a number of fields. You'll explore Renaissance **architecture** and **engineering, painting, sculpture, literature, and science** and **mathematics**. You'll also find out about Florentine **politics** and **commerce** and **trade**.



Use this map as a graphic organizer to help you explore various aspects of Renaissance life and advances through sites in the city of Florence.



The Palazzo Vecchio housed the government of Florence. Local authorities wanted to awe people with their power and also have a place of safety, so this building was made to look like a fortress or castle.

29.2 The City of Florence

Florence was Italy's leading cultural center during the Renaissance. The city was the birthplace of the great poet Dante Alighieri. The famed painter and sculptor Michelangelo grew up there. So did the brilliant thinker and artist Leonardo da Vinci. Other Florentines, such as the sculptor Donatello, also made their mark on the Renaissance.

What made Florence so special? One answer is its location. As you remember from the last chapter, in Renaissance times Italy was divided into city-states. Florence was one of these city-states. The city's location on the Arno River made it an important center for trade and commerce. Florence became the hub of woolen-cloth trading for all of Europe. About 100,000 residents lived inside the city walls.

Renaissance Florence was dominated by a single family, the Medicis. The Medicis acquired their wealth through Florence's major industry: banking. In the early 14th century, Florence became Europe's banking center.

The banking and wool trades created wealth that supported intense cultural activity in Florence. The city and its rich residents could afford to be patrons of talented artists and

thinkers. The Medicis, for example, spent lavish sums on art. Their home was a gathering place for artists, philosophers, and poets. Michelangelo once lived for a time in the Medici household, where he mingled with other artists.

Over time, the work produced by Florentines inspired still more creative activity. People learned from one another, and they sometimes competed to produce even greater work. Florentines were also influenced by ideas from other places. The city drew travelers from many parts of the world. Some came to do business. Some came to study art with Florence's master artists. Others came to learn at the city's schools and libraries. These visitors brought new ideas, goods, and technologies that enlivened the city.

Florentines were also inspired by the freedom of ideas that was at the core of humanism. Recall that humanists prized the individual and tried to look with fresh eyes at nature and human society. You'll see the influence of humanism throughout this chapter as you study examples of Renaissance advances.

29.3 Advances in Architecture and Engineering

You have learned that the humanist scholars of the Renaissance were influenced by classical ideas. So too were architects and builders. Renaissance architects studied Greek and Roman ruins, and they modeled their own buildings on what they learned. They were particularly attracted to rounded arches, straight columns, and domed roofs.

Architects also added their own ideas to classical building styles. During the Renaissance, wealthy families built private townhouses known as *palazzi* (palaces). Many had shops on the ground floor and homes above. Most *palazzi* were built around a private courtyard, which might contain statues and other works of art.

Public spaces were often influenced by humanist ideals. For example, humanists valued good citizenship. Architects designed public buildings where citizens could interact in settings that were grand yet welcoming. They used Roman-inspired, roofed porches called *loggia* to join buildings and create outdoor plazas.

Advances in engineering made new kinds of architecture possible. For instance, one of the most impressive architectural feats of the Renaissance was the great cathedral, the Duomo di Santa Maria del Fiore. Florentines started building this eight-sided cathedral in 1296, but they had to leave an opening for the dome. At the time, they didn't know how to build a large enough dome that would not collapse. It took a Renaissance architect, Filippo Brunelleschi, to solve the problem.

Brunelleschi had studied ancient ruins in Rome. He had also learned about the mathematics involved in creating buildings. The dome he designed and built for the cathedral took true engineering genius. It used no internal support beams or columns. Instead, eight huge stone arches met at the top of the dome and leaned against each other. Hoops of iron, wood, and brick wrapped around the arches, keeping them in place. Brunelleschi invented machines called **hoists** to raise building materials and food to workers at the top of the dome as they were building it.

The magnificent dome was finished in 1436. It stood more than 300 feet above the city. It still stands today, over 500 years later. From its top you can see most of the city of Florence.

The dome of the Duomo di Santa Maria del Fiore rises from the octagonal (eight sided) cathedral. Its design is one of the great engineering achievements of the Renaissance.



hoist a mechanical device used to lift people or heavy objects

29.4 Advances in Painting

Wealthy patrons made Renaissance Florence a thriving center of art. The Medicis spent huge sums of money on fine palaces, paintings, and statues. The Palazzo Medici was filled with works of art that were commissioned by the family.

Patrons like the Medicis created opportunities for talented painters, who made a number of advances in style and technique. As you learned in the last chapter, Renaissance painters were influenced by the renewed interest in classical culture and the spread of humanism. They wanted to depict real people who were posed in lifelike ways and who showed

feelings. They also wanted to include realistic backgrounds. The result was a very different style from the more flat, rigid painting of the Middle Ages.

One key advance made by Renaissance painters was the discovery of perspective. Painters use perspective to create the appearance of depth on a flat surface. Renaissance artists used several techniques to indicate depth. One was the size of objects. The smaller a painted object, the farther away it appears to be. The larger an object, the closer it appears to be. Painters also learned that a feeling of depth



Renaissance painters were the first to use techniques of perspective. This is Botticelli's *Adoration of the Magi*. Notice the sense of distance, or depth, in the painting.

could be created by lines that came closer together as they receded into the distance. They discovered that careful shading could make figures and objects look three-dimensional. *Adoration of the Magi*, a famous painting by Sandro Botticelli, shows some of these techniques.

Science and mathematics helped artists make other advances. The Florentine artist Masaccio used geometry to figure out how to divide the space in a painting to make scenes appear more as they would in real life. Leonardo da Vinci and others studied anatomy. They observed bodies and how they moved. Their studies helped them to portray the human body more realistically.

Renaissance science also gave painters new materials, such as oil-based paints, to work with. Oil paint was made by mixing powdered pigments (colors) with linseed oil. This type of paint was thicker and dried more slowly than the older, egg-based paint. Oil paint also allowed artists to paint over previous work and to show details and texture in new ways.

29.5 Advances in Sculpture

Like painters, Renaissance sculptors were influenced by the humanist interest in realism. They were also inspired by ancient Roman statues dug up from ruins. Sculptors began carving figures that looked like real people and showed emotions.

For the first time since the days of ancient Greece and Rome, sculptors made freestanding statues that could be viewed in the round. This was very different from the relief sculptures of medieval times. The new statues caused quite a sensation. They seemed to symbolize the humanist ideals of independence and individuality.

Donatello, a Florentine, was one of the first sculptors to use the new, more lifelike style. His work expressed personality and mood. A good example is his statue of David, the young warrior in the Bible story of David and Goliath. In the 1500s, Giorgio Vasari, an architect and painter, wrote that Donatello's *David* is "so natural...it is almost impossible...to believe it was not molded on the living form." This statue is thought to be the first life-size nude statue since classical times.

Donatello's work influenced Florence's other great sculptor, Michelangelo. This famous artist is renowned both for his painting and his sculpture. He was also a talented poet and architect. Of all these arts, he preferred sculpture because it seemed to bring his subjects to life.

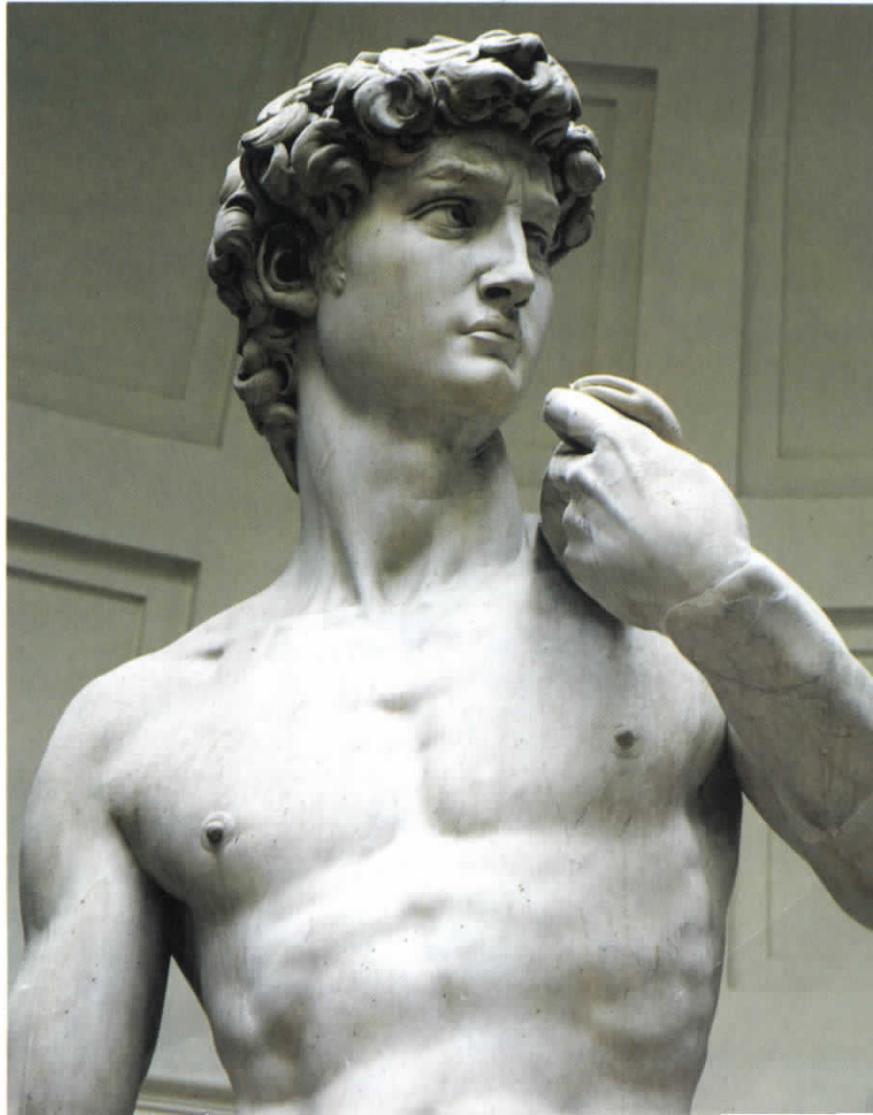
Michelangelo created his own majestic statue of David. It may be the world's most widely admired sculpture. Carved in white marble, Michelangelo's *David* stands about 17 feet tall. It is famed as an ideal of male beauty, yet it reflects humanist ideas. David's expression shows the concentration and tension of a real youth on the verge of battle.

Michelangelo's *David* was installed in the Piazza della Signoria, the plaza in front of the Palazzo Vecchio. It became the prized expression of Renaissance genius in Florence.

Michelangelo had an enormous influence on other artists. Giorgio Vasari was one of his followers. He wrote, "What a happy age we live in! And how fortunate are our craftsmen, who have been given light and vision by Michelangelo."



Moses (above) by Michelangelo sits at the tomb of Pope Julius II in Rome. Michelangelo's *David* is perhaps the most admired sculpture in the world.



29.6 Advances in Literature

Literature, like other Renaissance art forms, was changed by the rebirth of interest in classical ideas and the rise of humanism. During the Italian Renaissance, the topics that people wrote about changed. So did their style of writing and the language in which they wrote.

In medieval times, literature usually dealt with religious topics. Most writers used a formal, impersonal style. Most Italian writers wrote in Latin. Their work could be read only by a few highly educated people.

In contrast, Renaissance writers were interested in individual experience and in the world around them. Writing about **secular**, or non-religious, topics became more common. Writers used a more individual style, and they expressed thoughts and feelings about life. By the end of the Renaissance, most writers were writing in their own dialect instead of Latin. As a result, far more people could read their work.

Dante Alighieri, a native of Florence, was the first well-known writer to create literature in his native language. His best-known work, *The Divine Comedy*, was written in the early 1300s. This long poem describes Dante's imaginary journey through the places where Christians believed that souls went in the afterlife. With the spirit of the ancient Roman poet Virgil as his guide, Dante witnesses the torments of souls condemned to Inferno, or hell. Virgil also takes him to Purgatory, a place

between heaven and hell where souls await entry into heaven. Then a beautiful woman named Beatrice shows him Paradise, or heaven.

Like other humanist art, *The Divine Comedy* highlights strong emotions and the experiences of individuals. Dante's poem is a social commentary, too. It is filled with real people. The inhabitants of hell included people Dante disapproved of. People he admired appeared in heaven.

Dante's work became a model for other Renaissance writers. He strongly influenced two important Florentine writers, Petrarch and Boccaccio. They described people's lives with a new intensity of feeling. Like Dante, they wrote using the local dialect, so their words touched many more people.

secular relating to earthly life rather than to religion or spiritual matters

Dante, a Renaissance writer in Florence, wrote a long poem called *The Divine Comedy*. Dante is painted here with scenes of heaven and hell as described in his poem.



29.7 Advances in Science and Mathematics

The Renaissance was not just a time of progress in the arts. Scholars and others also made great advances in science and mathematics.

Before the Renaissance, most of what people believed about the natural world was based on ideas in ancient Greek and Roman texts.

As the humanist spirit took hold, people started questioning old ideas. They began carefully observing the world around them. Instead of relying on old books and theories, scientists began to perform experiments. They analyzed the results using mathematics and logic. This approach to research changed the study of science.

One of the most creative Renaissance thinkers was Leonardo da Vinci. Leonardo was an artist, a scientist, and an inventor. He studied under art masters in Florence and did his early work there. It is said that he was often to be found thinking and sketching at his favorite church, Orsanmichele.

Leonardo was endlessly curious. He did not accept anything as true until he had proved it himself. In his notebooks, he sketched and wrote about an amazing variety of topics. He wrote about geometry, engineering, sound, motion, and architecture. He studied anatomy, including the **circulation** of blood and the workings of the eye. He learned about the effects of the moon on Earth's tides. He was the first person to draw maps from a bird's-eye view (above the ground). As an inventor, he designed bridges, weapons, and many other machines. Among his many farsighted ideas was an underwater diving suit.

Other Italian scientists and mathematicians made breakthroughs as well. Girolamo Cardano solved complex equations in algebra. Cardano, who was interested in gambling, also did pioneering work in probability, the science of chance. Galileo Galilei did important experiments concerning gravity. He proved that a heavier object and a lighter object fall at the same rate. If the two objects are dropped from the same height, they reach the ground at the same time. Galileo also built the first telescope that could be used to look into space. He used his telescope to discover sunspots and the moons of the planet Jupiter. By emphasizing observation and experiment, Galileo and other Renaissance scientists paved the way for modern science.

Leonardo da Vinci studied many things, including human anatomy. These sketches of the muscles of the arm are from his notebooks.



circulation the movement of blood through the body

29.8 Florentine Politics



Florins were the most valuable coins in all of Europe during the Renaissance.

The local government of Florence was housed in the Palazzo Vecchio. Like other Italian city-states, Florence was ruled by a governing board. As you learned in Chapter 28, however, these boards were often controlled by rich families. The powerful Medici family controlled Florence for nearly three centuries.

The Medicis maintained their power in a number of ways. They built palaces and kept a strong military. They were involved in all aspects of life in the city. They were great supporters of artists, writers, and musicians. The Medicis also defeated enemies who plotted against the family or even to murder some of its members.

One of the most powerful members of the Medicis was Lorenzo the Magnificent. A leading patron of art and scholarship, Lorenzo ruled Florence for more than 20 years, from 1469 until his death in 1492. Two years later, a revolution forced the Medicis into temporary exile. In 1512, the family regained power.

A Florentine statesman and historian, Niccolò Machiavelli, watched these struggles for power. During the Medicis' exile, he reorganized the city's defenses. He also served as a diplomat and spent time observing the actions of other Italian rulers.

Machiavelli drew on his experiences in a famous book called *The Prince*. The book was a frank account of how politics and government really worked. Machiavelli advised rulers to make their states strong by doing what worked best, rather than by being good or moral. He said that they should even lie if it helped them to rule. In his view, the end, or purpose, justified the means (the actions taken to achieve a certain purpose). Rulers, he wrote, should be feared rather than loved.

The Prince seems to contradict humanist ideals about people's goodness. Its cold realism shocked many readers. Yet in other ways the book shows the influence of



The Procession of the Magi is a fresco from one of the Medici family's palaces in Florence.

humanist ideas. It was the product of one individual's careful observation and thinking. It was concerned with how things really worked in the world. It also separated ideas about government from religion. In this respect, *The Prince* was a very modern work.

29.9 Florentine Commerce and Trade

As you have learned, one reason that Florence became a cultural center was the wealth that trade and commerce brought to the city. Let's conclude our visit to Renaissance Florence with a look at this part of the city's life.

The economy of Florence was unusually flexible. Its first great industry was woolen-cloth making, but people often worked in several kinds of business. The owner of a cloth factory might also deal in banking and real estate. A grain dealer might also be a lawyer. People often belonged to several of Florence's guilds at once.

The shift to a money economy during the Renaissance helped create a thriving banking industry in Florence. The Medicis, for example, started out as merchants and moneylenders. Over time, Florence became Europe's banking hub. The Medicis became one of the wealthiest families in Italy, and Florence became richer than the largest kingdoms in Europe. Popes and kings borrowed money from its 80 banks.

There were two market centers in the city. At the Mercato Vecchio (Old Market), people bought everyday items like vegetables, fruits, bread, fish, meat, medicine, and shoes. The Mercato Vecchio was crowded, noisy, and smelly. Still, people from all over Europe came there to buy and sell goods.

The Mercato Nuovo (New Market) was built in the mid 1500s as a center for the cloth and banking industries. City officials banned food and weapons from this new market. They wanted it to be clean and orderly as a sign that commerce was highly regarded in Florence.

The Mercato Nuovo became one of the largest financial marketplaces in Europe. People traveled from far and wide to get loans or to convert their money into florins, which could be used anywhere in Europe.



Florence's Mercato Nuovo (New Market) was much cleaner and nicer than the city's Mercato Vecchio (Old Market). The Mercato Nuovo represented Florence's high status in Europe as a center of commerce.

29.10 Chapter Summary

In this chapter, you visited Florence to learn about Renaissance advances in a number of fields. You saw how humanism influenced artists and thinkers like Michelangelo and Leonardo da Vinci. You also learned about Machiavelli's political ideas and Florentine trade and commerce.

In the next chapter, you will learn how Renaissance ideas spread from Italy across Europe. Then you will meet 10 leading figures of the Renaissance—people who changed the world with their ideas.