

4

The Exchange of Ideas



FIGURE 4-1 This painting by an unknown artist shows Galileo's trial before Church officials in 1633. What does Galileo's experience tell us about how difficult it is to change a worldview?

WORLDVIEW INQUIRY

How did the Renaissance spark the growth and exchange of ideas across Europe?

1633. The brilliant scientist Galileo was brought before a jury of Church officials called Cardinals on a charge of **heresy**, that is, opposing Church teaching.

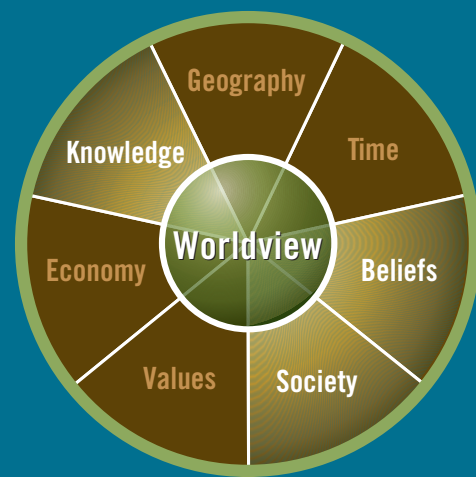
Galileo entered the hushed courtroom and knelt in front of the Cardinals. The Church had always taught that the Earth was at the centre of the universe. Galileo had published a book in which he argued that the Sun was at the centre, and the Earth—like the other planets—travelled around it. Galileo based his conclusion on observations he made with the new, powerful telescope he had developed.

The Church charged Galileo with heresy and ordered him to give up his views. If he refused, he knew he might be tortured or even burned alive for heresy. Galileo made his decision. He read out a statement denying his belief in a Sun-centred universe.

For publishing a book that challenged Church teachings, Galileo was sentenced to house arrest on his estate for the rest of his life. The Church put his book on the *Index of Prohibited Books*, a list of titles that Catholics were forbidden to read.

But Galileo knew that he was right. After he finished reading the statement, he is believed to have whispered to himself, “*Eppur si muove*” (“But it [the Earth] still moves”).

According to the story, why was Galileo sentenced to house arrest? With which elements of the worldviews icon did Galileo’s knowledge conflict?



In This Chapter

As you see, Galileo was faced with a dilemma. On one side were the humanists you read about in the previous chapter. They taught that people had it in their power to understand the universe. On the other side were the Church authorities, who were not ready to accept new ideas. Some Church officials saw Galileo’s book as an attack on Church teachings and leadership. What other ideas in the sciences, religion, and leadership challenged established ways of thinking during the Renaissance? How did they affect people? How did ideas and knowledge spread across Renaissance Europe?

Science: A New Way of Seeing

How can discoveries in the sciences shape people's worldview?



FIGURE 4-2 This page is from an Arabic translation of *De Materia Medica* by Greek physician Pedanius Dioscorides, who lived during the first century. It was the authority on herbs until about 1600.

If you lived at the beginning of the Renaissance and you wanted to learn about the sciences such as astronomy, physics, and biology, you would read books by scholars from Classical or Islamic civilizations. However, you were not encouraged to ask questions, study anything in the natural world, or do any hands-on experimenting.

The Scientific Method

Attitudes toward science changed during the Renaissance. Thinkers dramatically expanded the range of texts they read. In addition, the new importance that humanism placed on human beings and their experiences encouraged people to question and experiment. The scientist and artist Leonardo da Vinci wrote:

We must consult experience in the variety of cases and circumstances until we can draw from them a general rule that is contained in them. And for what purposes are these rules good? They lead us to further investigations of nature and to creations of art.

The process of making observations, experimenting, and drawing conclusions based on evidence is known as the “scientific method.” The use of the scientific method led to discoveries in many areas of science during the Renaissance. The most important advances were in astronomy, medicine, and mathematics.

Think IT THROUGH

Today we have a great deal more knowledge about astronomy, medicine, and mathematics than people had during the Renaissance. What do you think you know that Renaissance people had not yet learned? Explain your thinking.

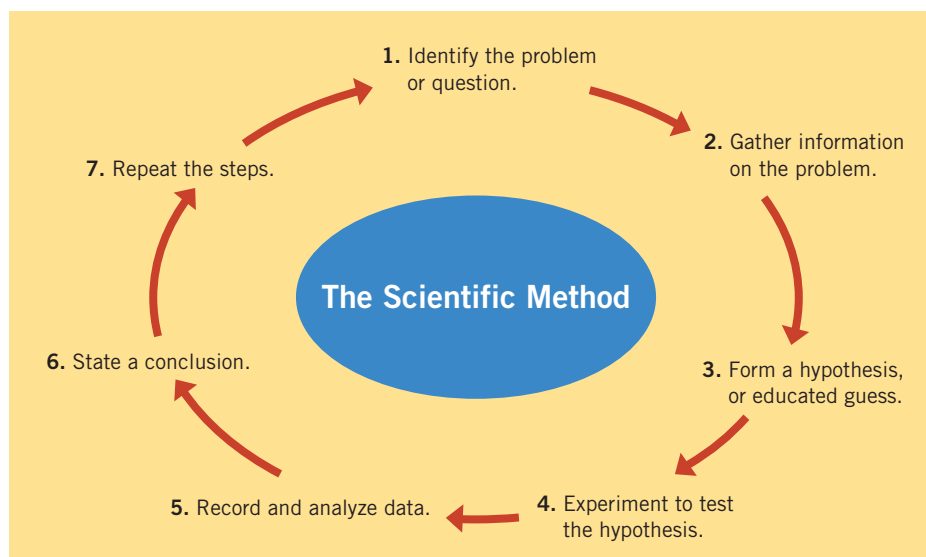
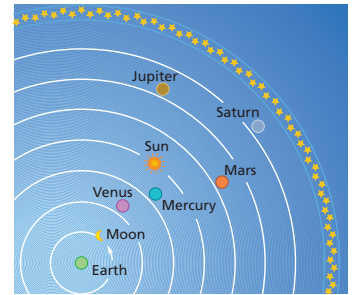


FIGURE 4-3 The scientific method is still used today. Why do you think it is so effective?

Astronomy

How do you know that the Earth goes around the Sun and not the other way around? For thousands of years, right up until the Renaissance, most people believed that the Sun went around the Earth. Ptolemy, a Greek astronomer who lived during the first century CE, introduced this idea of the universe. Europeans believed that God had placed the Earth at the centre of the universe.

The new theories presented by Galileo and the astronomers who came before him threatened the worldview of their time and permanently changed the way people looked at the universe. This chart shows how Renaissance astronomers built on one another's ideas.



FIGURES 4-7 Ptolemy, a Greek astronomer who lived during the first century CE, introduced this idea of the universe. Europeans believed that God had placed the Earth at the centre of the universe.

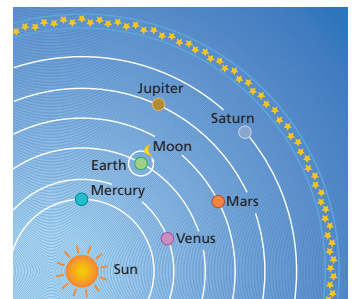


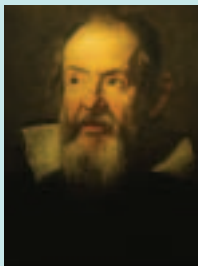


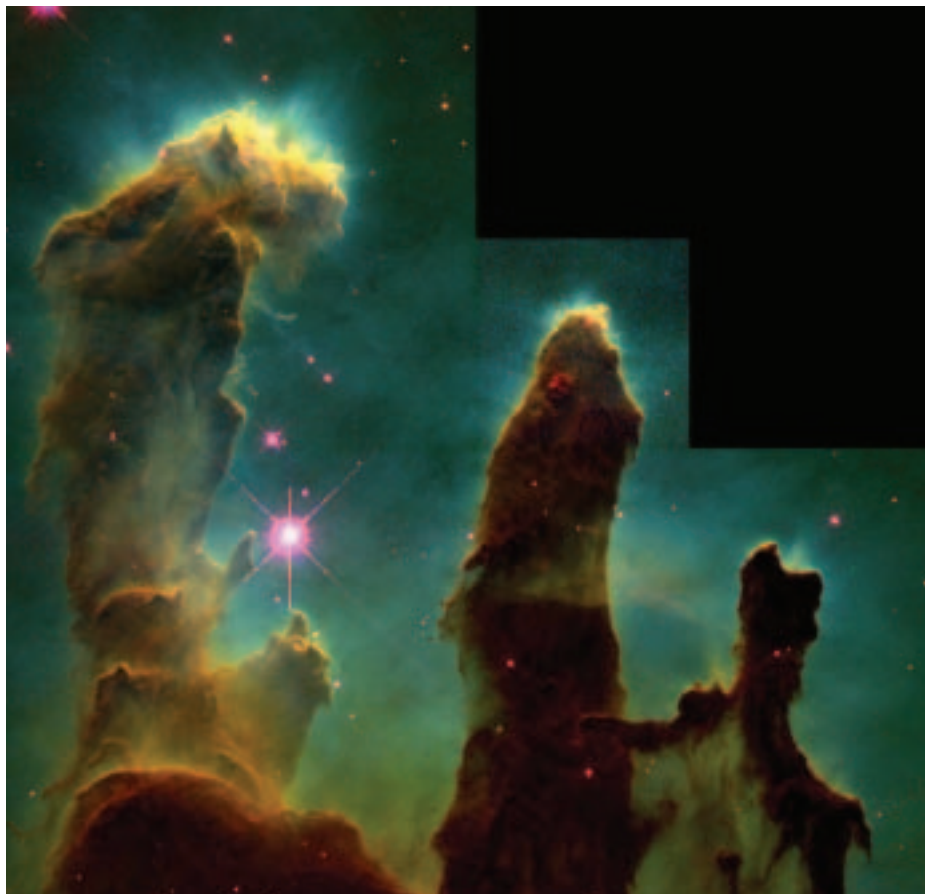
FIGURE 4-8 During the Renaissance, Copernicus suggested a very different view of the universe.

Astronomer	How Discoveries Were Made	Discoveries
 <p>FIGURE 4-4 Nicolaus Copernicus, Polish astronomer.</p>	<p>Got ideas from ancient Greek astronomers whose ideas were not accepted in their day.</p>	<p>Earth is a planet that moves around a stationary Sun.</p>
 <p>FIGURE 4-5 Johannes Kepler, German mathematician and astronomer.</p>	<p>Tried to combine Ptolemy's and Copernicus's systems. Spent 20 years using mathematics to test and prove his ideas.</p>	<p>Concluded that planets travelled in an elliptical (oval) orbit, not perfect circles as Copernicus believed.</p>
 <p>FIGURE 4-6 Galileo Galilei, Italian astronomer and philosopher.</p>	<p>Built telescopes and studied objects in the sky.</p>	<p>Through observation confirmed Copernicus's idea of a Sun-centred universe. Saw sun spots, craters, and mountains on the moon, the stars of the Milky Way, and Jupiter's moons.</p>

Think It Through

Albert Einstein said in 1941: *Science without religion is lame, religion without science is blind.* Einstein's comment suggests that science and religion need each other, that they are equal partners. How is this view different from the view during Galileo's time?

FIGURE 4-9 This is a photograph of the Eagle Nebula taken by the Hubble Space Telescope which has been in orbit around the Earth since 1990. The Hubble Space Telescope has transmitted many such remarkable images of space to Earth. From them, astronomers have learned a great deal about the age and rate of expansion of the universe. In what ways do modern scientists share Galileo's worldview?



What's in a WORD?

From the Greek word *astrologia*, which means "telling of the stars," astrology was considered a serious science in the Middle Ages and the Renaissance.

FYI...

Today, the practice of midwifery is regulated in most provinces and territories. To qualify as a midwife in Alberta, a university degree and attendance at 60 births are among the requirements. As of May, 2006, Alberta had 29 registered midwives.

Medicine

What does the following medical prescription for treating wounds suggest about Renaissance medicine? "In one pound of olive oil cook ten green lizards and filter them through linen; add one measure of marjoram and wormwood; cook slowly and set by for use." Doctors had little accurate knowledge about **anatomy**, that is bodily structure, and the causes of disease; remedies based on **astrology**, superstition, bloodletting, and applying leeches were common.

During the Renaissance midwives and others with knowledge of traditional and herbal remedies played an important role treating the sick. Remedies from the environment have always been an important part of healing for First Nations peoples. This is illustrated by the Mi'kmaq saying: "For every sickness on this Earth, there is a medicine under your feet."

Here are some traditional First Nation's attitudes toward healing:

- ◆ Rely on the wisdom of elders.
- ◆ Use the medicinal power of plants.
- ◆ Focus on the spiritual, emotional, and physical self.
- ◆ Medicine women/men help to establish harmony between people and nature.

During the Renaissance medical knowledge grew, particularly in anatomy and surgery. Scientists and doctors began to apply the scientific method to make new discoveries about the human body and how it worked.

Anatomy

During the Renaissance, dissection was made legal for the purposes of study in many Italian cities. Andreas Vesalius, a professor at the University of Padua, dissected bodies in the lecture hall while his students watched. He wrote a book, *De humani corporis fabrica* (*On the fabric of the human body*), which was illustrated with detailed, accurate drawings.



FIGURE 4-10 François Rabelais was a French humanist scholar and physician. He published translations of works on medicine by the Greek thinkers Hippocrates and Galen. He also wrote comic novels, which were read throughout Europe.



FIGURE 4-12 Leonardo da Vinci dissected bodies and made drawings of what he saw. How do you think knowledge of the human body might have helped Michelangelo create his *David* shown on page 58?



FIGURE 4-11 Rembrandt painted this scene of an anatomy class in 1632. In what ways do you think anatomy classes in medical schools are different today? Consider, for example, how the students are dressed, their age, gender, and their number.

Evaluating the Accuracy of Web Sites

The Internet has made it easier to find up-to-date information on many topics. It is an excellent place to do research. However, you need to keep in mind that there is no agency to control what is put on the Internet. As a result, some Web sites are not reliable sources of information.

Here are a few tips to help you critically assess Web sites.

Authority—Are the authors identified, and do they have expertise in the subject area?

Accuracy—Do the authors provide source references for their information? If not, how can you measure the accuracy of what they say?

Bias—Are the authors arguing on behalf of a particular viewpoint? Is more than one viewpoint presented? Is the difference between facts and opinions made clear?

Style—Is the writing full of slang and grammatical errors or does it seem thorough and reliable?

Currency—Is the information up to date? Are the links to other sites current, or do they send you to sites that no longer exist?

Usability—Is the material presented in a way that is clear and easy to use?

If you find two or more sites on the same topic that give conflicting information, use these steps to determine which site is most reliable. And remember always to record the site Web address and refer to it when you use the information in an essay or presentation.

Try It!

Many people don't consider Columbus a hero and are opposed to celebrating his arrival in North America. If you wanted to find out more about this you might type "Columbus Day Controversy" on a search engine. One entry you will get is the History Channel site. Visit this site on the Internet and evaluate it based on the criteria above. Visit two other sites that came up on the search and evaluate them with a partner. Rate the three sites using the criteria.



FIGURE 4-13 What impact do you think the Internet has had on Alberta students?

Scientific Progress?

Dissection was a controversial practice until the Renaissance. It was discouraged by the Church because medieval Christians believed in the physical resurrection of the body. Today there are still many debates about medicine and science. Two examples are stem cell research and alternative health therapies.

Genetically modified (GM) plants are another such issue. Natural forms of genetic modification have been practised by Indigenous peoples for centuries. For example, farmers in the Andes Mountains (along the west coast of South America) developed more than 3000 types of potato. They were prepared for every soil and climate condition they encountered. This biodiversity led to security in food supply because blight could not affect more than a few strains of potato at a time. Today, however, often genetic modification involves putting a gene from one organism into another organism. The idea is to produce plants that have desirable characteristics. For example, a gene from a fish has been put into a tomato plant to produce a tomato that can withstand colder temperatures.

Critics of genetic modification of plants question the safety of GM foods. They say that not enough long-term research has been done on these “Frankenfoods.”

People in favour of GM plants argue that they will allow us to produce enough food to end world hunger and do away with the use of pesticides. Whatever the arguments, much of the food we eat every day contains genetically modified ingredients.

Think IT THROUGH

1. Why do you think it is sometimes difficult for people to accept new ideas in science and medicine?
2. a. Find five sites on the Internet on this subject and analyze them for bias using the tips in the Building Your Skills on page 84.
b. Rank your sites from most to least biased. Explain the criteria you used.
3. Review the results of your research. Discuss with a partner or in small groups the various points of view and perspectives you found. Refer to the critical thinking checklist on page 9 to assess your contribution to the debate.



FIGURE 4-14 What perspective on genetically modified foods does this cartoon suggest?

Mathematics

Think IT THROUGH

Do you believe math could reasonably be called an international language? Why or why not?

The works of ancient mathematical scientists like Euclid (geometry) and later works by al-Khwarizmi (algebra) were studied with new vigor during the Renaissance. Thinkers like Leonardo da Vinci believed that mathematics was the basic tool for understanding the universe. Mathematical proofs were an important part of the scientific method. As you have already seen, Renaissance astronomers like Kepler used mathematical calculations in their work. Mathematics was also an important part of Europe's changing economy. As trade and commerce grew, knowledge of mathematics became essential for members of the merchant class.

Earlier civilizations contributed much to Renaissance understandings of mathematics. The concept of zero, for example, was used in ancient India, and the decimal system we use today was refined by Muslim mathematicians.

EXPLORING SOURCES

Mathematics and Art

Mathematics was used by painters, sculptors, engineers, architects, and musicians. Renaissance artists used the rules of "perspective" which makes the images in paintings look as they would in life. Perspective fools the eye of the viewer into thinking that the image has depth. In other words, a three-dimensional image is created on a two-dimensional surface.

- In which parts of this painting has the artist created the illusion of depth?
- What mathematical shapes and ratios do you see in the sketch?



FIGURE 4-15 The sketch to the right shows the lines of perspective that create the illusion of depth in Masaccio's *The Holy Trinity*.



FIGURE 4-16 Masaccio painted *The Holy Trinity* between 1425 and 1428 on the wall of Santa Maria Novella, a church in Florence.

Perspective had been known in the ancient world, but no record of it had ever been found. The Renaissance architect Filippo Brunelleschi rediscovered the mathematical theory of perspective. He used perspective drawings to show how the buildings he was planning would look when they were finished.

Brunelleschi developed his technique through experimentation and by applying mathematical principles. This is how he went about it:

1. He began by painting over a reflection of a building called the Baptistry on the surface of a mirror.
2. Then, in order to prove that his painting was identical to the Baptistry, he drilled a small peephole in the painted mirror and stood in front of the Baptistry.
3. He looked through the peephole in the back of the painted mirror and held up a blank mirror to block his view of the Baptistry. The blank mirror reflected his painted image.
4. By moving the blank mirror in and out of the way, he could see that his painted image was identical to the actual building.

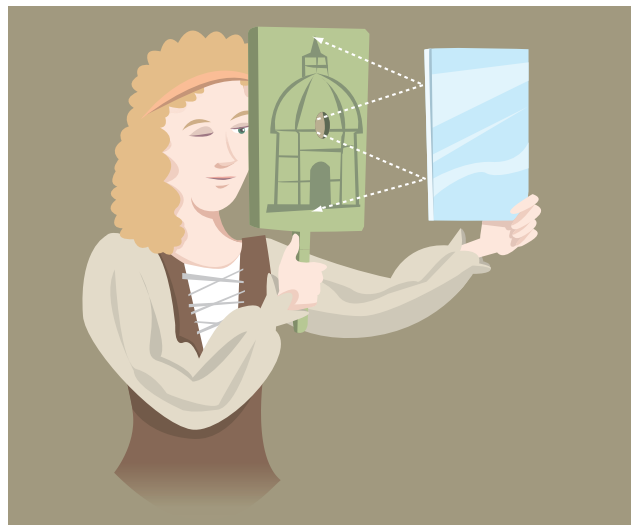


FIGURE 4-17 After completing his experiment, Brunelleschi analyzed the structure of his image mathematically and worked out the principles of perspective.

Over to YOU

1. The Renaissance worldview encouraged making direct observations and experimenting to learn about the world. What discoveries were made as a result of this attitude? Use a chart like the one below to organize your ideas.

Discipline	Innovator	Discovery
astronomy		
medicine		
mathematics		

2. **Consider a Dilemma:** You are a person in the Renaissance and you have cut your hand badly. Your family has always used home remedies to treat cuts, but these were not always successful. There is talk about a doctor in a nearby town who studied at the University of Padua. Will you stick to traditional remedies or will you try out the doctor? What factors will influence your decision? To what extent does your worldview influence your decision?

Political and Religious Leadership

What role do leaders play in changing or maintaining worldview?

In Chapter 2, you read about the struggles for power within the Italian city-states and the wars among them. Merchants and bankers as well as humanists came to believe that strong leadership was the solution. Strong leaders would bring peace and stability that would allow business and the arts to prosper. Who should these leaders be and how should they best rule?

Born into Leadership

As you read in Chapter 3, civic humanism encouraged citizens to participate in the government of their state.

Isabella D'Este grew up in a cultured family in the city-state of Mantua. She received a fine classical education and, as a girl, met many famous humanist scholars and artists. When she was 16 she married the Duke of Mantua. Their court became a centre of learning, music, and the visual arts. Isabella's brilliant mind was much admired and she became known as "the first lady of the world."

The Duke of Mantua was often away on military campaigns, so Isabella ruled the city-state in his absence. She wrote many letters to

her husband keeping him informed about the political situation in Mantua. In one letter she told him about her activities as ruler:

... I beg of you, have a peaceful mind . . . for I intend to govern the State . . . in such a manner that you will suffer no wrong, and all that is possible will be done for the good of your subjects . . . I not only listen to officials, but allow all your subjects to speak to me whenever they choose [so] no disturbance can happen without my knowledge . . .

Isabella enjoyed political life and became a strong and effective leader. When her husband died, she helped her young son to rule Mantua.



FIGURE 4-18 Portrait of Isabella D'Este (1534) by Titian

The Scientific Ruler

Just as Renaissance scientists were using observation to learn about the natural world, the Florentine civil servant Niccolò Machiavelli was observing people and governments. His observations led him to new ways of thinking about leadership and power.

Machiavelli explained his conclusions about the best way to govern in his book *The Prince*. It became one of the most controversial and influential political texts ever written. Even today scholars continue to argue about Machiavelli and his theories. Although Machiavelli was a humanist, some of his ideas might surprise you.

Think IT THROUGH

Machiavelli seems to imply that “the end justifies the means.” What does this expression mean to you? Name some current and past leaders whom you consider followed this thinking. What are your opinions of them?

EXPLORING SOURCES

Machiavelli's Thinking

Here is one conclusion that Machiavelli drew from observing people:

. . . [I]t is a good general rule about men, that they are ungrateful, fickle, liars and deceivers, fearful of danger and greedy for gain. . .

Here are some of Machiavelli's ideas concerning how leaders must sometimes act in order to protect their power and their state:

It needs to be understood that a prince, and especially a prince recently installed [placed in power], cannot observe [follow] all those qualities which make men good, and it is often necessary in order to preserve the state to act contrary to faith, contrary to mercy, contrary to humaneness, and contrary to religion.

In actions of all men, especially princes, where there is no recourse to justice, the end is all that counts. A prince should only be concerned with conquering or maintaining a state . . .



FIGURE 4-19 *Niccolò Machiavelli* by Santi di Tito. Before Machiavelli, people thought about the best way to rule, but no one had applied a scientific approach to it. Machiavelli is considered the first political scientist in history.

- What do you think of Machiavelli's ideas about what people are like? About how rulers sometimes need to behave?
- Compare Machiavelli's ideas about leadership with those of Isabella D'Este. Which do you think would be more effective? Explain your thinking.

Was Machiavelli Machiavellian?

“I have thought it proper,” Machiavelli wrote, “to represent things as they are in a real truth, rather than as they are imagined.” Not everyone appreciated Machiavelli’s “tell it like it is” attitude to politics. Along with Galileo’s writings, *The Prince* was listed in the Church’s *Index of Prohibited Books*. Machiavelli’s ideas were revolutionary in their time for two reasons:

- **When it came to leadership, Machiavelli did not think that ideas of right and wrong were important.** The only thing that mattered was the effective running of the state. The prince or leader could do anything as long as it was good for the state as a whole.
- **Machiavelli described the state as a creation of human beings.** It was a secular, that is, non-religious institution. Machiavelli was not against religion, but it was not the focus of his thinking about politics and power.

Not everyone is lucky (or unlucky) enough to have his or her name turned into an adjective. Within 50 years of his death, the term “Machiavellian” could be found in English dictionaries. People today still use the word to describe an unscrupulous person who seeks and holds power by any means possible. But is this a fair judgment on Machiavelli?

A Different Perspective

Maurizio Viroli, who recently wrote a biography of Machiavelli entitled *Niccolo’s Smile*, argues that Machiavelli has been misunderstood. He writes:

Machiavelli never taught that the end justifies the means or that a statesman is allowed to do what is forbidden to others. He taught, rather, that if someone is determined to achieve a great purpose—free a people, found a state, enforce the law and create peace where anarchy [lawlessness] and despotism [oppression] reign—then he must not fear being thought cruel or stingy but must simply do what is necessary in order to achieve the goal.



FIGURE 4-20 Werner Horvath painted this portrait of Machiavelli in 2002. What do the colours Horvath chose for this portrait suggest to you? Horvath included images of a lion and a fox because Machiavelli wrote that a leader must be like a lion and a fox.

A New Visual Perspective

This is how contemporary artist Werner Horvath has reinterpreted the Renaissance portrait of Machiavelli on the previous page.

Think IT THROUGH

1. How does Viroli’s quotation contribute to your understanding of Machiavelli? Does it change your thinking about him? Explain.
2. What characteristics are associated with a lion and a fox?
3. How might these characteristics be applied to a political leader?

Zoom In > Allegorical Paintings

Sieneese artist Ambrogio Lorenzetti painted these images on the walls of Siena's City Hall nearly 700 years ago. They are part of larger paintings called *Allegory of Good Government* and *Allegory of Bad Government*.

The use of the word **allegory** gives you a clue that deeper meanings are contained in a work or art or novel. An allegory is a work in which the characters and events are meant to be understood as representing other things and symbolically expressing a deeper, often spiritual, moral, or political meaning.

Although most people in medieval and early Renaissance Europe could not read or write, they could walk into this room and immediately understand Lorenzetti's message. They could read images the way you might pick up a story book and read words. They knew instantly, for example, that the nine "dancers" you see below in Figure 4-22 were the nine muses, and that the figure in the middle of Figure 4-21 was Tyrannia (Tyranny), shown victorious over Justice, who lies defeated at the bottom of the image.

- How would you represent good government and bad government in a work of art?

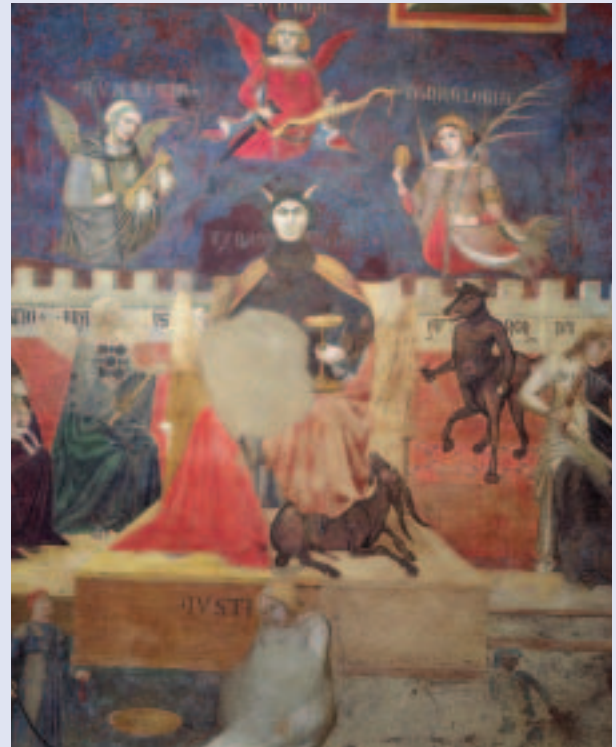


FIGURE 4-21 What detail does Lorenzetti provide in the appearance of Tyrannia that lets you know, more than 700 years after he painted it, that he considers Tyrannia "bad"?



FIGURE 4-22 What details in this image indicate that Lorenzetti thinks good government results in a peaceful, prosperous society where people are busy and happy?

Changing Leadership in the Church

Have you ever been disappointed by the actions or words of a person you believed in? Do you ever think that people in charge of something—a business, government, a hospital, or in authority in some other way—sometimes behave improperly? People during the Renaissance were also sometimes disappointed with their government, business, and religious leaders.

During the Middle Ages and the Renaissance, the Catholic Church was the most powerful institution in Europe. Many Church leaders considered that they were responsible for more than the religious well-being of people; some considered the Church to be the natural leader in all areas of society—political and business, as well as religious.

As happens sometimes today, people in positions of authority do not always behave appropriately. Some Church leaders, and some parish priests, took advantage of their authority to gain power and money for themselves and members of their family. Some bishops and cardinals “bought” their titles. Some priests did not honour their vow of poverty but spent the Church’s money on themselves. People complained, and over the decades, the complaints became louder and louder. How would the tension between the Church and many of its followers be resolved?

Savonarola

Girolamo Savonarola was a monk who belonged to the Dominican order. He dedicated his life to fighting against the corruption he saw in the Church and in society. For a few years, Savonarola was the unofficial political leader in Florence. From the Church of San Marco, before as many as 3000 people, Savonarola preached sermons in which he accused the pope, Alexander VI, of corruption. His actions were contrary to the oath of obedience to the pope that all Roman Catholic clergy take even today.

Under Savonarola’s direction, in 1497, the citizens of Florence built a huge “bonfire of the vanities” in their town square and burned their wigs, make-up, fancy clothing, art, and books. Savonarola taught that these things kept people’s attention away from God.

Savonarola’s continuous ranting against the pope and the Church in Rome, and his call for the establishment of a separate council to oppose the pope, led to his **excommunication**, that is, official exclusion from the Church. By then, the people of Florence were also tired of Savonarola’s sermons and turned against him. In 1498, Savonarola was tried for heresy, found guilty, and executed.

FYI...

Between 1309 and 1377, the popes lived in Avignon (now France) instead of Rome. The shift was part of a growing struggle for power between the authority of the pope and the power of kings.

Think IT THROUGH

To what extent do you think Savonarola’s criticisms could be applied to modern society?

FYI...

Pope Alexander VI, who served as pope from 1492 to 1503, is known to us as Rodrigo Borgia. Some positive accomplishments resulted from his tenure as pope, but he is also known as a worldly pope who used his office to advance his family’s fortune.

Savonarola's Views

This is part of a sermon delivered by Savonarola in Florence.

This country of ours is like a piece of cloth long enough to make coats for everyone: but it is so unequally divided that one [person] has enough to wrap around him three times and trail upon the ground, another has too little to make even a beggar's cloak . . . Equality demands that no citizen should be able to oppress another. . . Nowhere in the Gospel [New Testament of the Bible] have I found a text recommending golden crosses and precious stones [for clergy] . . . I, for my part, will give everything away, beginning with my own coat.

- What are Savonarola's criticisms of the Church?
- Why do you think some Church officials wanted to silence Savonarola?
- How are the attitudes of Savonarola and John Ball in Chapter 1 on page 25 similar?

FIGURE 4-23 This painting, entitled *The Martyrdom of Savonarola*, was done by an anonymous artist in the 1400s. How does the artist suggest the people of Florence reacted to Savonarola's death? Why do you think this might be so?



Martin Luther

Savonarola's criticisms didn't result in any changes in the Church. But almost 20 years later, Martin Luther, a German monk, took more effective action. Influenced by humanist methods, he began to carefully study the Bible for himself. He came to the conclusion that the Bible, rather than the Church, should be a Christian's true spiritual guide.

Luther was also upset by the wealth of the Church and critical of the way it was obtained. The Church made money by selling **indulgences**, which were certificates that reduced the time people would be punished for their sins after they died. In 1517, Luther nailed his *Ninety-Five Theses* criticizing the selling of indulgences on the Church door in Wittenberg. He challenged other scholars to debate Church issues. The *Ninety-Five Theses* were printed and distributed throughout Germany.

Pope Leo X issued a "bull," or official order, condemning Luther and banning his works. Luther publicly burned the pope's bull.



FIGURE 4-24 Here the pope is writing out indulgences while people pay out their coins. Why do you think Luther might have objected to indulgences?

1483	born in Eisleben, Germany
1507	ordained as a priest
1508	began teaching at University of Wittenberg
1510	visited the Church in Rome
1517	nailed <i>Ninety-Five Theses</i> on the Church door in Wittenberg
1520	was condemned by Pope Leo X and works banned
1521	called before the Diet of Worms and excommunicated
1522	published a Protestant translation of the New Testament into German
1534	published a Protestant translation of the complete Bible into German

FIGURE 4-24 Key Events in Luther's Life

Think IT THROUGH

1. Luther knew that publishing his *Ninety-Five Theses* would force a confrontation between himself and the Church. Why might he have wanted this confrontation?
2. How might things have turned out differently if the Church had reformed before Martin Luther posted his *Ninety-Five Theses*?



FIGURE 4-25 Marguerite de Navarre, the sister of the king of France, protected early Protestants from arrest by the Church. She was an influential French humanist writer and religious reformer.

In 1521, Luther was called before the emperor at an Imperial Diet (assembly) in the city of Worms and, like Galileo, asked to give up his ideas. But unlike Galileo, Luther didn't back down. According to legend he said, "Here I stand. I can do no other." The pope excommunicated Luther, and Emperor Charles V declared Luther an outlaw who could be killed. Luther went into hiding.

The Protestant Reformation

Like his *Ninety-Five Theses*, Luther's Protestant translation of the Bible reached an unprecedented number of Germans. They followed Luther when he broke with the Catholic Church. A new church was started in Northern Europe—the Lutheran Church. Before long, Luther's ideas

spread all across Europe.

Luther and people who agreed with him were called Protestants, and this time became known as the "Protestant Reformation." Protestants "protested" against the Church's refusal to allow "reform" and eventually achieved a *Reformation*.

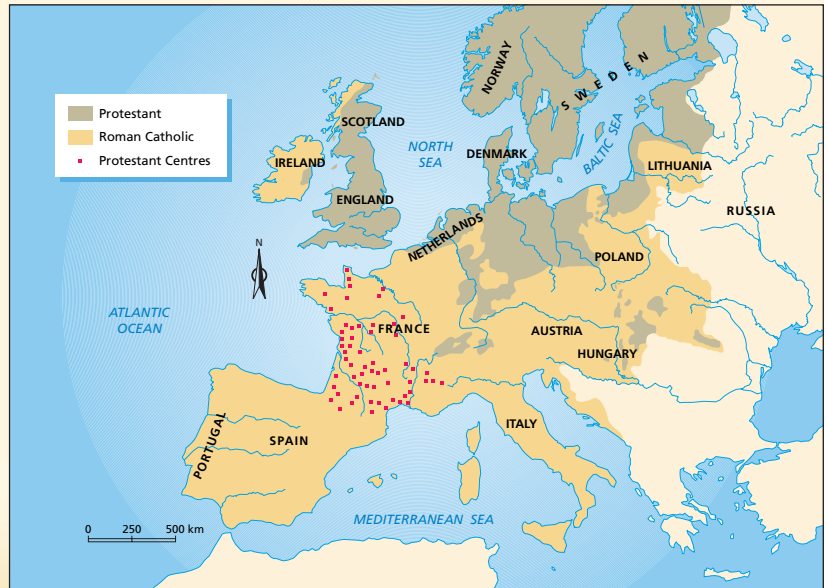


FIGURE 4-26 In 1898, Eugene Siberdt painted *Martin Luther Translating the Bible, Wartburg Castle, 1521*. What do the details in the painting tell you about Martin Luther? Consider, for example, things on the desk, on the floor, and on the walls.

Protestantism Spreads

- Many Protestant centres grew up throughout France. How do you think this might have been received by the country's Catholic rulers?

FIGURE 4-27 The Spread of Protestantism in Europe. There was over a century of religious wars in Europe as a result of the Protestant Reformation. The wars resulted in an end to the absolute power of the Catholic Church over religious life in Europe.



SKILL POWER

When you apply reasoning skills to details or facts and draw a general conclusion, you are making a generalization. Generalizations are based on patterns found after careful study.

- What generalizations can you make about the spread of Protestantism in Europe based on this map?
- What information in the map did you base your generalization on?
- Find a modern map that shows the distribution of religions in Europe today. Compare it with this map. Is your generalization still valid?

The Catholic Counter-Reformation

The Catholic Church lost much of its authority and membership because of the Protestant Reformation. Pope Paul III called a series of meetings, now known as the Council of Trent, at which the Church examined its policies. This movement was known as the “Catholic Counter-Reformation.” As a result of these meetings, corruption among the higher clergy was cleaned up and priests were given a better education.

New religious orders that focused on converting people to Catholicism were also established during this time. The most important of these was founded by Ignatius Loyola. It was called the Society of Jesus; his followers were called Jesuits. Jesuit missionaries were very active among the Wendat (Huron) during the early days of European settlement in Canada. The Wendat called them “Black Robes” because of the clothes they wore.

What's in a **WORD**?

The term “Catholic Counter-Reformation” implies that the actions taken by the Catholic Church were entirely in response to the Protestant Reformation. Many people argue that Luther was a Catholic reformer before he became a Protestant, and that throughout the Catholic Church's history, Catholic voices have been raised when needed to call for reform.

Religious Freedom

In 2001, when he was 12, Gurbaj Singh Multani's ceremonial dagger, his *kirpan*, fell out of its cloth holder and landed in his Montréal school yard. The school board banned Gurbaj from bringing the *kirpan* to school because it was considered a weapon. Gurbaj argued that it was not a weapon but a religious symbol, which he as an orthodox Sikh was required to wear at all times. After many court cases, the Supreme Court of Canada ruled unanimously that the ban on *kirpans* was a violation of Gurbaj's religious freedom as guaranteed by the *Charter of Rights and Freedoms*. "Religious tolerance is a very important value of Canadian society," wrote Justice Louise Charron. The decision, however, does allow school boards to impose restrictions on how *kirpans* can be worn to protect the safety of students.

Think IT THROUGH

1. Canada is a pluralistic and multicultural society. How does this influence our attitude toward religious tolerance?
2. What two perspectives came into conflict in this situation?

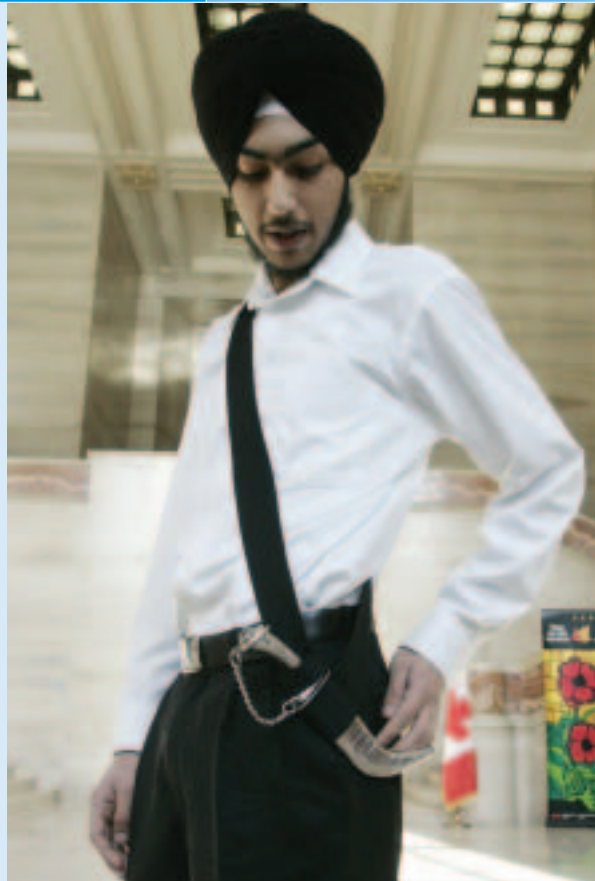


FIGURE 4-28 Gurbaj was 17 by the time the Supreme Court finally made its ruling. In the meantime, he transferred to a private school for his education. Do you think his family should be compensated for this expense? Explain.

Over to YOU

1. **a.** Work with a partner or in small groups to review what you learned about Machievelli, Isabelle D'Este, Savonarola, Luther, and Pope Paul III. Which of these individuals worked to maintain the existing worldview? Which worked to change it?
 - a.** Write a paragraph in response to this statement.
 - b.** Get together with a group to share and discuss your responses.
- b.** Brainstorm a list of political and religious leaders you know of today—in your school, community, province, country, or internationally. Do you think the leaders you came up with are working to change a worldview, or maintain it? Explain your thinking.
2. Choose a statement from one of the political thinkers in this section that you found particularly interesting or challenging. It doesn't need to be something that you agree with, just something that made you think.
 - a.** Look through newspapers to find articles about conflicts that are a result of religious differences.
 - b.** For each identify the perspectives that have come into conflict.
 - c.** Note which of the situations or perspectives are similar to those during the Renaissance. What conclusions can you draw?
3. Religious differences are still the source of controversy and warfare around the world.

The Spread of Ideas

You have probably heard people say that we live in an “information age.” What does this phrase mean to you? Why is it so easy to spread information in today’s world? What method of communication do you think is most important in spreading ideas and information today?

The Renaissance was also an information age in that there were so many new ideas and so much new knowledge. The Renaissance began in Italy and eventually spread through France, Spain, and Portugal as well as northern Europe. Later, ideas also spread from the Americas to Renaissance Europe. For example, one of the first novels, *Utopia*, described characteristics of the Aboriginal peoples such as equality without money. But spreading ideas and information 500 years ago was very different than it is today. At the beginning of the Renaissance, information was still largely spread by word of mouth.

Gathering Great Minds

Some wealthy merchant patrons played an important role in the exchange of ideas and knowledge. In Florence, the Medici family established the Platonic Academy where humanist thinkers gathered to discuss Greek ideas. As you saw in Chapter 3, the Medici also founded one of the great libraries of the time. The books, manuscripts, and documents it contained were a valuable resource for scholars from all over Europe.

Universities

Many early humanists taught at Italian universities. They shared their new ideas through discussions with one another and through their writings. Some instructors, such as Vesalius at the University of Padua, were so famous that students came from across Europe to study with them. The students then went back to their own cities and shared their learning.



How do ideas and knowledge spread?

Think IT THROUGH

1. In what ways do you think modern communication technology affects your worldview?
2. Do you think libraries play an important role in the exchange of ideas today? Explain.

SKILL POWER

Create a map to share information.

- Do research to find out when and where universities were established in Italy during the Middle Ages and the Renaissance.
- Draw a map of Italy to record the information you gather. Use the maps in Figures 4-30 and 4-34 to help you plan your map.

FIGURE 4-29 Before the development of the printing press, books like these were very expensive. All books were hand-written on parchment made from animal skins. It took a **scribe**, a person who copied books, months or even years to produce a single book. Many of these manuscripts were copied by monks in monasteries.

FIGURE 4-30 This map shows cities visited by Leonardo and Erasmus.

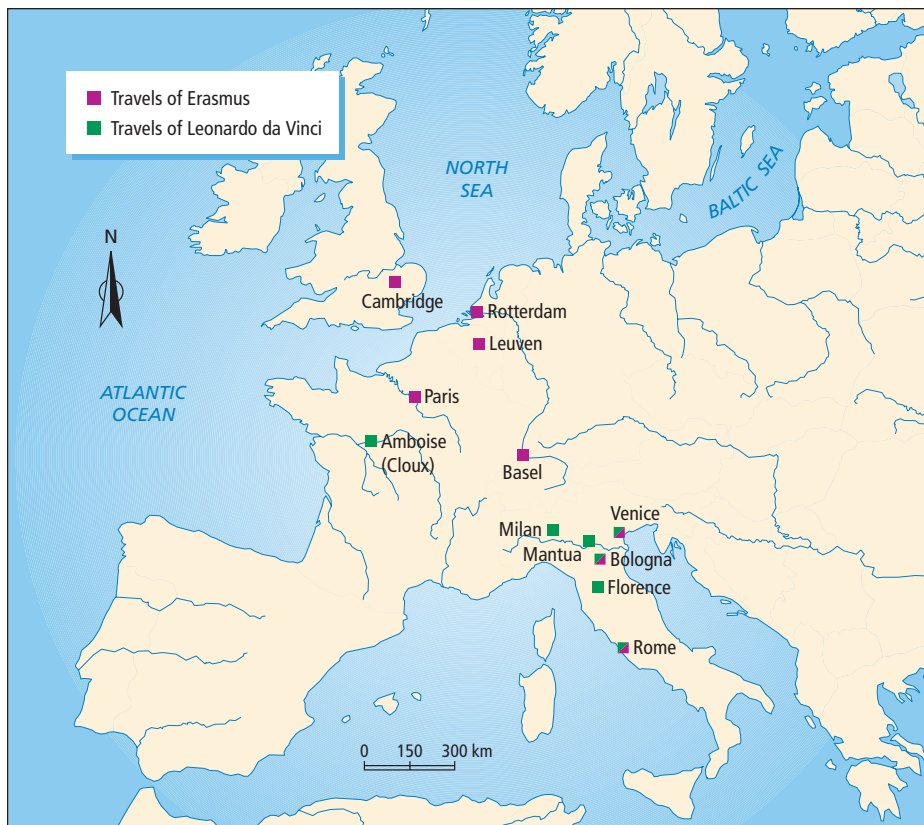


FIGURE 4-31 How do you think travelling to other parts of Canada and the world might affect your worldview?

Travelling Celebrities

Famous Renaissance scientists, artists, and thinkers like Leonardo da Vinci and Erasmus were celebrities—the “superstars” of their day. They were in demand in courts and universities all over Europe. Everywhere Leonardo went, he set up a workshop and trained younger artists. Erasmus taught at several universities and engaged in discussions with scholars all over Europe both in person and by letter.

Royal Courts

Kings and queens were eager to attract scholars and writers to their courts. The court of François 1^{er} (Francis I) of France became a centre of learning. He collected manuscripts, Renaissance paintings, and sculptures. He invited Leonardo da Vinci to his court after France invaded Milan in 1515. He provided Leonardo with a house and a very generous pension.

The Printing Press: A New Technology

If you lived in Europe at the beginning of the Renaissance, you would probably have been illiterate. Only the most educated people in society could read and write. Being literate meant that you needed to know Latin or Greek. Most books at that time were written in Latin, the language of scholars and the Church. And finally, unless you were very wealthy, you would never be able to afford a book. How would these circumstances affect people’s ability to learn and to share their ideas with others?



FIGURE 4-32 The Château de Chambord, the castle that François 1^{er} (Francis I) had built at Chambord, is considered by some to be a masterpiece of Renaissance architecture. Leonardo da Vinci designed some of its decorations.



FIGURE 4-33 This painting done by an anonymous artist in the 1600s shows the interior of a print shop in the 1500s.

Then, in about 1450, everything changed. A German named Johannes Gutenberg developed a printing press that allowed books to be produced quickly and cheaply. Using this new technology, printers could produce thousands of books in the time it had once taken to make a single copy. They were printed on paper, which was much less expensive than parchment.



FIGURE 4-34 The Growth of Printing in Europe. Gutenberg opened the first printing press in Mainz in 1448. How long did it take the printing press to reach Constantinople, Bonn, Warsaw, and Dublin?

Think IT THROUGH

Consider a dilemma: The printing press allowed for a more-educated population. These educated people usually create greater progress and wealth in a society. However, educated citizens are often critical thinkers and might challenge those in power. What would you do if you were a ruler during the Renaissance? Would you encourage or discourage the establishment of publishing companies in your state? Explain your position.

The Spread of Knowledge

By 1500, there were more than six million books in print in Europe. Books allowed an exchange of ideas and knowledge in Europe on a scale that had never been known before.

- ◆ Now that books were cheaper and more accessible, middle-class people began to read, discuss, and eventually write about the exciting ideas of their time.
- ◆ Instead of printing books only in Latin, more books, including translations of the Bible, were printed in the vernacular, that is, the language that ordinary people spoke. The success of Luther's 1522 New Testament was based in part on existing demand for books and Bibles in German.
- ◆ Thinkers like Erasmus made money from the books they wrote. This gave them the freedom to travel to many cities and universities spreading their ideas.

EXPLORING SOURCES

The Spread of Literacy

- How would printing allow thinkers like Luther and Galileo to spread their ideas more quickly?
- How would printing and writing books in the languages that people spoke help to spread ideas?
- What effect do you think this would have on the number of people who were literate?



FIGURE 4-35 In 1641, Rembrandt painted a Protestant couple, *Cornelius Anso and His Wife*, studying a copy of the Bible printed in their own language. Protestantism gave women more opportunity to participate in religious study. The Anabaptists, a Protestant sect, allowed women to preach.

Zoom In > Michel de Montaigne

When modern scholars are asked to list the most influential books of all time, the writings of several of the people you have been reading about are usually mentioned: Niccolò Machiavelli's *The Prince*, Martin Luther's *On the Babylonian Captivity of the Church*, Nicolaus Copernicus's *On the Revolution of the Celestial Orbs*, and Galileo Galilei's *Dialogue Concerning Two New Chief World Systems*.

Another Renaissance thinker who appears on these lists is the French writer Michel de Montaigne. He wrote a book called *Les Essais* (*Essays*), in which he invented a new literary form, the personal essay. In his writings, he explored his ideas about a wide range of subjects, such as vanity, glory, the force of imagination, and the education of children.

Montaigne believed that “all the evils of this world are engendered [caused] by those who teach us not to be aware of our own ignorance.” He took as his own motto “What do I know?” and argued that doubt was the beginning of wisdom. He believed that by admitting your own ignorance, you become less likely to be harsh or judgmental toward others.



FIGURE 4-36 Montaigne believed that knowledge came only through experience. His motto was “What do I know?” How does this express the questioning attitude of humanism?

- Use a cause-and-effect organizer to illustrate Montaigne's claims about the effect(s) of ignorance. Do you agree with his analysis? Do you think exploring worldviews might result in behaviour that is less judgmental or cruel? Why or why not?

The Printing Press — Its Role Today

How many times in a day do you read words? Where do you find those words? In books? Newspapers? Magazines? Signs? Brochures? It's pretty clear that the printing press continues to play a significant role in the way our society records and **disseminates** (spreads) information. As grade 8 students in a technological society, there are other methods you have for finding information, for example, the Internet.

FYI...

Statistics Canada reports that in 2004, Canadian book publishers produced 16 776 new titles. About one-fifth of these were educational books, while more than half were adult fiction and non-fiction.

Think IT THROUGH

About 99 percent of Anglophones are satisfied that there is enough Internet content in their official language of choice, but only 62 percent of Francophones are satisfied with the amount of content in theirs. How might language limit Internet usage? What are some ways those barriers could be overcome?

Canadians and the Internet

Your generation is the first to grow up using computers and the Internet. Over the last few years, numerous surveys have gathered information about how—and how many—Canadians use the Internet. Here are some of the results:

- ◆ 90 percent of Canadian teens (age 15–19) use the Internet.
- ◆ Canadian teens use the Internet to access information (71 percent), communicate electronically (60 percent), play games (48 percent) and learn school-related material (32 percent).
- ◆ In 2003, 97 percent of schools had Internet connections.
- ◆ More than two-thirds of First Nations' Band offices have Internet, but statistics are not available for private residences on reserves.
- ◆ 45 percent of Canadian teens aged 12–17 prefer instant messaging as a means of communication.
- ◆ Among Canadian teens who use the Internet regularly, instant messaging is a daily activity for 57 percent and a weekly activity for 97 percent.
- ◆ Francophones are less likely to use the Internet than Anglophones.
- ◆ Canadians living in rural areas are less likely to use the Internet.

Over to YOU

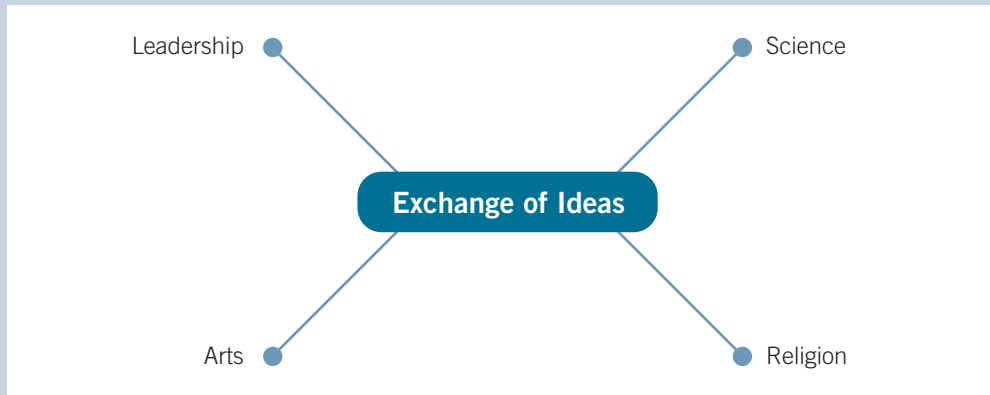
1. New technology can bring great changes to a society.
 - a. Create a Venn diagram to examine the similarities and differences between the uses and impact of the printing press in Renaissance Europe and the personal computer in modern times. Consider new skills needed, access to information, training required, cost of new technology.
 - b. Write a statement explaining why you think communications technology can be a powerful force for change.
2. Work with a group to design and conduct a survey to find out what sources people use most often to get information.
 - a. Consider what sources you will list, how you will have people record their response, how many people you will ask to respond and who they will be, and how you will present your results.
 - b. What conclusions can you draw from your survey? What impact might it have on the design of school and public libraries in the future?
3. Why is having access to information an important part of citizenship? Create a public service advertisement to convince people to stay informed about local, provincial, national, or world events.
4. What effects did the development of the printing press and writing and printing books in the vernacular have? Use the chart below to help you think it through.

Event	Effects
Development of printing press	
Writing and printing books in the vernacular	

Explore the Big Ideas

The Renaissance was an exciting—and sometimes dangerous—time to live. People were willing to go to prison and even die for the sake of ideas they considered important. It was a time when powerful new ideas and knowledge challenged the traditional world order.

- a.** Using an organizer like the one below, list changes the exchange of ideas created in science, leadership, religion, and the arts.



- b.** Choose one idea from your organizer. How did that idea influence the world we live in today? Create a flowchart or timeline that supports your position.

2. The 1986 Nobel Prize winner for literature, Wole Soyinka, said: “A book if necessary should be a hammer [or] a hand grenade which you detonate under a stagnant way of looking at the world.” Choose three books mentioned in this chapter that you think fit Soyinka’s criteria the best. Prepare a short talk in which you introduce these books to your class and tell why you chose each one.

3. Consider a dilemma: You are a scholar in the court of a noble who has close ties to the Church. You have just made a discovery that the noble (political leader) or the Church (religious leader) will not want made known, but it will improve the lot of many people. What is your responsibility—to

share your knowledge, or to avoid confrontation with the leaders? What might be the consequences of your actions?

a. Work with a partner to develop a script for an interview with a Renaissance scientist facing this dilemma. Provide the scientist’s answers. Present the script to the class.

OR

b. Draw a cartoon illustrating the scientist’s dilemma and possible consequences.

4. You have seen how patrons in the Renaissance supported the sciences and arts.

a. Research how much support scientists and people in the arts receive from the Canadian government today.

b. Develop a pie graph or bar graph to show what you learned.

c. Now discuss your views with the class:

- Do you think government should support individuals in the arts and sciences? If so, what criteria should they use to determine who gets support?

- If you were in a position to be a sponsor, whom would you support? What would this say about your worldview?

d. Write a persuasive essay outlining your action plan for funding for arts and sciences in Canada. Gather feedback on your ideas and use your action plan.