**Section VII: Africa, East Asia, and the Renaissance**

**Day 5: Henry VIII and the Scientific Revolution**

S.W.B.A.T:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Key Vocabulary Terms:**

Henry VIII:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Ptolemy:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Nicolaus Copernicus:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Isaac Newton:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The English Reformation

At first, English \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ was against the protestant reformation. He denounced Luther and the pope awarded him the tittle “Defender of the Faith.” However, in 1527, an issue arose that set Henry at odds with the Church.

After 18 years of marriage, Henry and his Spanish wife, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, had one surviving child, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Henry felt that England’s stability depended on his having a male heir. He wanted to marry \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, hoping that she would bear him a son.

Because Catholic law does not permit divorce, he asked the pope to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Popes had annulled royal marriages before. But the current pope refused. He did not want to offend the Holy Roman emperor Charles V, Catherine’s nephew.

Henry was furious. Spurred on by his advisers, many of whom leaned toward Protestant teachings, he \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Control of the English church was taken from the pope and placed it under Henry’s rule.

Henry then wed Anne Boleyn, who bore him a second daughter, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Anne Boleyn was later executed for adultery and treason. In the years ahead, Henry \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ but had only one son, Edward.

Widespread Persecution

During this period of heightened religious passion, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Both Catholics and Protestants fostered intolerance. Catholic mobs attacked and killed Protestants. Protestants killed Catholic priests and wrecked Catholic churches.

Almost certainly, the religious fervor of the times contributed to a wave of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Those accused of being witches, or agents of the devil, were \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, although some men faced similar attacks. Between 1450 and 1750, tens of thousands of women and men died as victims of witch-hunts.

Scholars have offered various reasons for this persecution. At the time, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. They saw a close link between magic and heresy. In addition, during times of trouble, people often look for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. People accused of witchcraft were often social outcasts—beggars, poor widows, midwives blamed for infant deaths, or herbalists whose positions were seen as gifts from the devil.

Most victims of the witch-hunts died in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, all centers of religious conflict. When the wars of religion came to an end the persecution of witches also declined.

Changing Views of the Universe

Until the mid-1500s, European scholars accepted the theory of the ancient Greek astronomer Ptolemy. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Not only did this view seem to agree with common sense, it also matched the teachings of the Church. In the 1500s and 1600s, some startling discoveries radically changed the way Europeans viewed the physical world.

In 1543, Polish scholar \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ published *On the Revolutions of the Heavenly Spheres*. In it, he proposed a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The sun, he said stood at the center of the universe and the Earth was just one of several planets that revolved around it.

Tycho Brahe and his assistant Johannes Kepler supported Copernicus’ findings. They used data to calculate the orbits of the planets revolving around the sun. In Italy, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ assembled an astronomical telescope. He observed the four moons of Jupiter moving slowly around that planet—exactly, he realized, the way Copernicus said that the Earth moved around the sun.

Galileo’s discoveries caused an uproar. Other scholars attacked him because his observations contradicted ancient views about the world. The Church condemned him because \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that the heavens were fixed, unmoving, and perfect.

In 1633, Galileo was tried and threatened with death unless he withdrew his “heresies,” Galileo agreed to state publicly that the Earth stood motionless at the center of the universe \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

A New Scientific Method

Despite the opposition of religious authorities, by the early 1600s a new approach to science had emerged. Unlike most earlier approaches, it did not rely on authorities like Aristotle or Ptolemy or even the Bible. It depended instead upon \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

The new approach to science required scientists to collect and accurately measure data. To explain the data, scientists used reasoning to propose a logical \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. They tested the hypothesis with further observation or experimentation.

Complex mathematical calculations were used to convert the observations and experiments into scientific laws. After reaching a conclusion, scientists repeated their work at least once—and usually many times—to confirm their findings. This \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Newton

As a student in England, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ devoured the works of the leading scientists of his day. By age 24, he and formed a brilliant theory to explain why the planets moved as they did. According to one story, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. He wondered whether the force that pulled that apple to the Earth might not also control the movements of the planets.

In the next 20 years, Newton perfected his theory. Using mathematics, he showed that a single force keeps the planets in their orbits around the sun. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. In 1687, Newton published *Mathematical Principles of Natural Philosophy*, explaining the law of gravity and other workings of the universe. Newton argued that all motion in the universe can be measured and described \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.