Inventions

The Renaissance was a time for wonderful new ideas and creative thought. This thinking led to some important inventions that changed the way of life during these years. Here is a list of only some of the great new ideas from the 1300s to the 1600s.

Clocks

The oldest surviving mechanical clocks appear to be from the late 1300s. In 1581, the Italian scientist Galileo discovered the pendulum. This enabled a better regulator for constant movement of the hands or bell of a clock. Water clocks and hourglasses were also widely used in the 1500s.

Printing

Books have been around for a long time, but they took months or years to hand print. They were very expensive and limited only to the wealthy and scholars. Block printing of books developed separately in two parts of the world—Europe and China. The Chinese produced the first blockprinted book in 868 and the first movable type process in 1041. The Chinese made their type out of baked clay, but these could not withstand repeated use. The Koreans, in the early 1500s, developed a metal type that is still in use today. In the mid-1400s, in Europe, Johannes Gutenberg invented the printing press, using movable type. Now books could be printed with greater speed and less effort. Information could be shared with more people. Once the materials became more available, more people became interested in studying, learning, and attending schools. His development was so efficient that there were no significant changes until automation was introduced in the 19th century.

Eyeglasses

Around the 1300s, paintings first appeared with the people wearing or holding spectacles. In the 1400s with the invention of the printing press and more books available, the demand for eyeglasses increased. It is thought that the first glasses for far-sightedness were developed in Italy in 1287. Later in the 1500s, near-sightedness was able to be corrected. The first glasses were crude, heavy, and made by hand. A variety of materials were used for frames including wood, lead, copper, bone, leather, and even horn in an attempt to make them lighter.

Lenses

After the development of eyeglasses, lenses were then used in other areas. In 1608, Hans Lippershey found that putting two lenses together magnified the image. Thus a working telescope was created, but the image was poor. Isaac Newton solved this problem in 1668, by making a reflecting telescope. In 1606, Galileo created the astronomical telescope to look at the stars and planets. He discovered the mountains on the moon and many new stars. Also in the mid-1600s, Anton van Leeuwenhoek by using many tiny lenses was able to magnify up to 200 times—the microscope.

Inventions *(cont.)*

Musket

The musket was the first usable rifle that soldiers could carry with them into battle. It was developed in Spain in the 1500s. It could fire a metal ball that could kill or seriously injure people. Before then, soldiers fought with swords, cannons, clubs, and hand weapons. The first muskets were very heavy, at 40 pounds (14k) and 6 feet (2 meters) long, and difficult to use. Soldiers, known as musketeers, often rested their guns on forked stands to improve accuracy. The suit of armor from the Middle Ages was no match for the musket, so the knight in shining armor disappeared.

Rudder

Around the 1200s, a number of inventions revolutionized water travel and made it possible for long voyages of exploration. One was the sternpost rudder. This greatly increased the control over the steering of the ship. Another was the tun, a wooden cask for water. Now with a fresh supply of water on board, a ship could take longer voyages from land. So important was the tun that a ship's carrying capacity was measured in "tunnage," meaning the amount of space on a ship. Today the word is spelled "tonnage," and still refers to the amount of space in shipping.

Wallpaper

Before the development of wallpaper, only the wealthy of medieval times could afford to adorn the walls of their castles with woven tapestries. The tapestries helped to keep the cold castle walls warmer, and told stories stitched in elaborate detail. The lower classes hung cheaper painted-cloth imitations on their interior walls. Then in 1496, England saw its first paper mill come into operation, and it soon became the site of innovative work by English artists. This lead to the production of wallpaper decorated with hand-painted designs, stencils, and wood-block prints. For the next 200 years, England was the premier producer of wallpaper for Europe.

The Flush Toilet

The water closet (one of many names for early flush toilets) dates back to 1589 when it was invented by Sir John Harington. The tank worked with a valve that released the flow of water. Harington recommended that it be flushed once or preferably twice a day.

Other Inventions	Inventor	Date	Place
Adding Machine	Blaise Pascal	1642	France
Airpump	Ottovon Guericke	1654	Germany
Barometer	Evangelista Totticelli	1643	Italy
Thermometer	Galileo	1593	Italy
Watch (portable timepiece)	Peter Heinlein	1504	Germany