The Scientific Revolution (17th-18th centuries)

Europeans' thinking after the Renaissance and Reformation in 17th and 18th century

- Europeans had new understandings and views about nature, society and the world though rational thinking.
- Started to challenged traditional teachings
- Developed new understandings and views
- Lead to Scientific Revolution and the Enlightenment

Begin of the Scientific Revolution

- Scientific study became popular in 16th-century Europe
- Mainly aim to revive the ancient Greco-Roman scientific knowledge
- In the 17th century, the 'Scientific Revolution' started
- New scientific theories were proposed, leap forward in the technological development of modern Europe

Causes of the Scientific Revolution

Encouragement of the Renaissance

- Renaissance scholars carried out experiments, and proposed scientific theories.
- Contradicted the teachings of the Church
- Modern Western science began to rise

Printing press

- The development of printing press increased book circulation and promoted academic exchanges
- Created favourable conditions for the start of the Scientific Revolution

Voyages of Discovery

- Between 15th century and 16th century, European navigators started a series of naval explorations known as 'Voyages of Discovery'
- Opened up new sea routes and discovered unknown lands
- Widened the horizons of Europeans.
- Discover global circumnavigation and proved that the 'Earth was round' and overthrew traditional theories
- Increased interest of European scholars to find new knowledge include science

Major development during the Scientific Revolution

Establishment of scientific organization

- Scholars seldom exchanged their ideas before Scientific Revolution
- During the Scientific Revolution, independent scientific bodies were founded, such as 'Royal Society of London for Improving Natural Knowledge', set up in 1660.
- Held meetings and published reports which provided a platform for academic exchanges.

Scientific methods

- European scholars stressed the importance of 'scientific methods'
- A skeptical attitude, observations and experiments were necessary for scientific research

Scientific main achievement	
Kepler (1571-1630)	Suggested the law of motion, the famous 'Kepler's laws'
Harvey (1578-1657)	Showed the work of heart and blood and blood circulation in animals and humans
Boyle (1627-1691)	Defined chemical elements and prove principles behind natural phenomena
Newton (1642-1727)	Suggested the law of light, the law of motion and the law of universal gravitation

Scientific Method

- Observation
- *Propose a theory based on observation*
- Theory
- *Make a hypothesis based on this theory*
- Hypothesis
- *Formulate and carry out experiment*
- Experiment
- *Modify theory or propose a new one based on the results of the experiment*

Impact of the Scientific Revolution

- The Scientific Revolution changed Europeans' thoughts and views
- New scientific theories had proved that Church's teachings on the universe were wrong
- People's faith in the Church at that time decrease
- Europeans found out truth by adopting old knowledge, rational thinking and reasoning.
- Increase European's faith in reason
- Scientists learned to use observation and experiments to create more new discoveries and theories
- Increase Europeans' understanding of the natural world
- Scientists and Europeans were encouraged skeptical attitude and challenge traditional authority. Europeans apply scientific theories to industrial production and transportation
- The Scientific discoveries and new technologies invention increase. Led to the Industrial Revolution in the 17 century and accelerated the rise of modern Europe