

THE ENLIGHTENMENT

The scientific revolution

...on the way to the Enlightenment

2nd half of the 17th century

- new intellectual atmosphere, real science and scientific methods are born
- from 1660 - nature was believed to work as a fine **mechanical clock** which was therefore predictable and open to human understanding – this gave rise to a new religious philosophy – **deism** (“God as the clockmaker”)
- **scholars start to question the way things work and try to discover how nature and its laws work**

TASK 1:

Compare this new way of thinking and courage to ask questions to medieval philosophy.

TASK 2:

Can you think of any reasons which might have caused this change of thinking?

TASK 3:

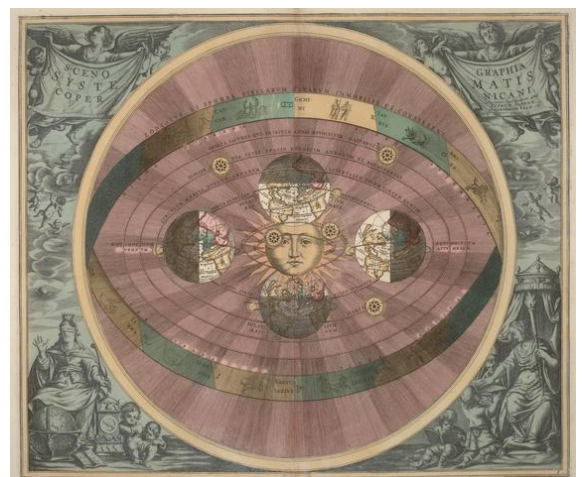
The Scientific Revolution was also based on the groundwork of earlier scientists. Here are a few examples. Can you say what their contribution was?

Johannes Kepler - _____

Galileo Galilei - _____

Francis Bacon - _____

Rene Descartes - _____



- **physics**

- **Blaise Pascal** – discovered the atmospheric _____
- **Isaac Newton** – formulated the laws of universal _____, but also studied motion, optics and mathematics

TASK 4:

Do you know the story about Newton and the apple?

Also, to demonstrate Newton's immense impact on science and philosophy, we can quote Alexander Pope (an eighteenth-century English poet), who said at the beginning of 18th century:

“Nature and Nature’s Laws lay hid in night! God said, Let Newton Be! and all was light.”

- **biology**

- field of science with great progress
- **Carl von Linné** – formulated the basic system of plant and animal classification which remains in use today
- **microscope** is used

- **chemistry**

- great progress
- **Antoine Lavoisier** – studied oxidation process in combustion and respiration, discovered that diamond is actually carbon, and proved the theory of conservation of matter in chemical reactions

- **study and use of electricity**

- great progress
- **Benjamin Franklin** – studied lightning and electricity, he also invented the lightning rod (accidentally at the same time as the Czech Prokop Diviš)
- **Luigi Galvani** – invented the _____
- **Alessandro Volta** – invented the first battery

- **progress in technology**

- **1765** – **James Watt** invented the steam engine
- **1783** – **the Montgolfier brothers** invented the first balloon

- **medicine**

- slower progress
- discovery of blood pressure, adoption of inoculation (smallpox vaccine)



The “philosophes”

- with great scientific achievements there was new need to adapt the philosophy of science and politics
“New philosophy calls all in doubt, the element of fire is quite put out, the sun is lost, and the earth, and no man’s wit can well direct him where to look for it...it’s all in pieces, all coherence gone.” (J. Donne)

TASK 5:

Why was the new philosophy called **the Enlightenment**? (think of the possible explanations of the word *light*)

- **The Enlightenment** is also called **the Age of Reason**.
- Scientific discoveries caused and speeded up the process but the major changes appeared in thinking itself – **philosophy** and **politics**.
- **John Locke**
 - claimed that political power does not come from God but from _____!
(which clearly opposes the idea of the Divine Right)
- Charles Louis de Secondat **Montesquieu**
 - published *De l’Esprit des Lois (On the Spirit of Laws)* in 1748 – he claimed the English constitution (the parliament, independent judges and the constitutional monarch) should be imitated by France
 - he also came with the idea of **separation of powers** which would divide political powers of the state:

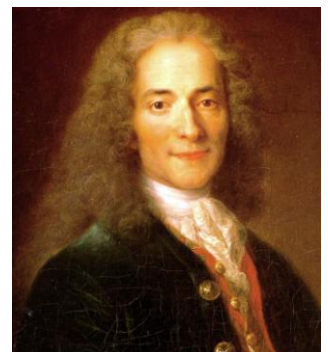
executive =

legislative =

judicial =

TASK 6: How is this separation of powers represented in the Czech Republic?

- In this idea of separation of powers Montesquieu laid the theoretical basis for the future **constitutional monarchies** where the power of the monarch would be limited by _____ and controlled by the _____
- **Voltaire**
 - born as Francois-Marie Arouet
 - he became famous all over Europe as a historian, playwright, poet and populariser of science
 - he was a keen **critic of the existing political institutions**, especially the Church
 - he criticized the abuse of power by royal tyrants but at the same time he was in favour of absolute monarchy: *“No government can be effective unless it possesses absolute power.”*
 - he also was strongly against the idea of the ordinary people influencing how the state was to be run

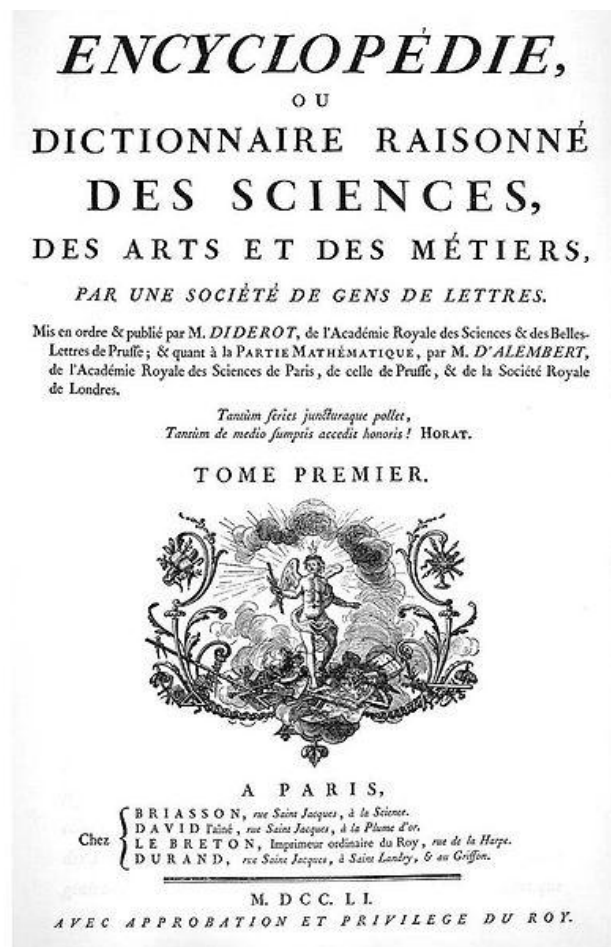


- **Denis Diderot**

- the leader of the **Encyclopaedists**
- Encyclopaedists started compiling an **Encyclopaedia** which was to be an account of all existing knowledge (science, philosophy, culture, the arts, etc.). They tried to remain true to facts so the articles were sometimes seen as offensive by the authorities. In spite of that (or maybe because of that?) the Encyclopaedia became vastly popular among the people and was constantly re-issued.
- other Encyclopaedists were, for example, Voltaire, mathematician **Jean d’Alembert**, and Jean Jacques Rousseau

- **Jean Jacques Rousseau**

- his greatest political work was *Du Contract Social (The Social Contract)*, where he justified that a man though “*born free is everywhere in chains.*” (=subject to the government)
- this can be justified only if the ideas and desires of the people are really fulfilled by the government. the *General Will* of the people must be sovereign. Thus, liberty and equality are finally realized. He did not believe that monarchy would be able to realize this.
- he believed in **democracy**



ENLIGHTENED ABSOLUTE MONARCHS

Frederick II “The Great”

(1740-1786)

- **King of Prussia**
- son of Frederick William, he did not like his own father, he even tried to escape from Prussia with his friend Katte but they were captured and Katte was executed (Frederick had to watch and was then imprisoned)
- he disliked his own nationality but was very fond of the French and their culture and language
- he was a gifted musician, played the flute and composed music
- despite his dislike of his father’s policies he was a good military commander
- **legal reforms**
 - a ruler had no right to interfere with the law
 - he abolished cruelty in executions and reduced the list of things people could be executed for
- **religion**
 - Frederick himself had no interest in religion but he thought it was a good way to influence people
 - promoted religious toleration
- **economy**
 - fair system of taxation, **mercantilism**
 - building of river canals to promote transport
- **education**
 - he did not support it much, he thought it was not a good idea to educate the poor
 - but he founded the Prussian Academy of Science
 - he preferred French even in education
- **serfdom**
 - Frederick **did not free the serfs** but he prevented abuse of peasants



Catherine II “The Great”

(1762-1796)

- **Tsarina of Russia**, (“Empress of all Russians”)
- she was originally a German Princess married to Peter III of Russia, she deposed her husband
- she wrote letters to Voltaire
- **legal reforms**
 - law should be fair – “*Nakaz*” (there were good ideas but it was never put in practice)
 - it is better to prevent crime than punish
 - “*Charter of the Nobility*” – she gave more power to the nobles
- **religion**
 - she was born a Lutheran but in Russia she had to adopt Russian Orthodox religion
 - she took away the power and wealth of the Russian Orthodox Church
 - she granted **religious freedom**
- **economy**
 - she favoured free trade between countries – she was not a mercantilist
- **education**
 - she did not support education for everyone but she founded the first school for girls in Moscow and a military academy
- **serfdom**
 - at first she had some ideas on how to improve the conditions of the serfs but she did not abolish serfdom
- she expanded Russian territory in the **Turkish Wars** (1768-1774, 1787-1792)
 - Catherine attacked the Ottoman Empire to gain the northern coast of the Black Sea
 - Russia gained strategic positions on the coast of the Black Sea, especially Crimea, and it replaced the Ottoman Empire as the dominant power in the Black Sea region



Maria Theresa of Austria

(1740-1780)

- **Holy Roman Empress**
- daughter of Charles VI.
- ruled because of the **Pragmatic Sanction (1713)** which enabled a female heir to inherit the crown
- married **Francis of Lorraine**



Joseph II

(1780-1790)

- **Holy Roman Emperor, Austria**
- after the death of his father he co-ruled with his mother Maria Theresa
- see your notes on Czech history



TASK 7:

Use your knowledge from the Czech history lessons and fill in the chart reforms and accomplishments of Maria Theresa and Joseph II. Also, fill in the other enlightened absolute monarchs to compare their achievements.

ENLIGHTENED MONARCHS	Religion	Economy	Education	Serfdom
Frederick II				
Catherine II				
Maria Theresa and Joseph II				

TASK 8:

Now, how were the Enlightened Absolutists different from the Absolute Monarchs of the previous era? Using the knowledge from this chapter, define the difference.

Conflicts of the Enlightened Monarchs

- **War of the Austrian Succession 1740-1748**
 - the key issue was the right of Maria Theresa of Austria to succeed to the lands of her father, the H.R.E. Charles VI. (as it was said by the _____), and also the right of Maria Theresa's husband Francis of Lorraine to the imperial title
 - countries involved – Britain and Austria (with their allies)
against Prussia, France, Spain and Bavaria
 - the conflict spread to India and North American colonies (Britain against France). In Europe Silesia was gained by Prussia
 - results – Maria Theresa and Francis of Lorraine defended their rights but Austria was weakened (they lost Silesia to Prussia)
 - the conflict was ended by the Treaty of Aix-le-Chapelle but in North America the conflict continued and led to the Seven Years' War
- **The Seven Years' War 1756-1763**
 - started as a rivalry between Prussia and Austria but continued because of unresolved issues between Britain and France (colonial rivalry)
 - but it was also a struggle for supremacy in Germany between Austria and Prussia
 - the states involved – Britain, Prussia and Hannover
against France, Austria, Russia, Sweden and Spain
 - in North America the Indians got involved and fought on both sides
 - results – Britain won in America and was confirmed as a colonial power, France lost Canada
- in Europe Austria and Russia were victorious
 - ended by the Treaty of Paris
- **War of Bavarian Succession (“The Potato War”) 1778-1779**
 - the key issue was Joseph II's ambition to add Bavaria to the Habsburg Empire
 - countries involved – Austria against Bavaria (in alliance with Prussia)
 - there was no fighting (Prussian soldiers picked potatoes in Bohemia, hence the nickname of the war)
- **Partitions of Poland 1772, 1793, 1795**
 - in the 18th century Poland lost its independence and was divided between its neighbours _____, _____ and _____, first in 1772
 - later the brief resistance led by **Tadeusz Kosciuszko** did not prevent two other partitions in 1793 and 1795
 - it was divided mainly to the benefit of Russia (in fact it became its protectorate) and as an independent country Poland disappeared from the map of Europe



INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

REVISION

TASK 9:

Which of the scientific discoveries and inventions of the enlightened scientists do you consider the most significant? Explain your idea.

TASK 10:

What was the biggest change in thinking during the Enlightenment era?

TASK 11 :

Which of the enlightened monarchs did the most for his country? Use your chart from task 7.