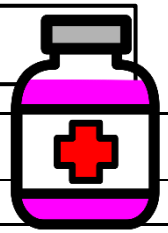
Medicine in Britain knowledge organiser



Key dates	
1348-9	Arrival of Black Death in Britain
c1439	Invention of the printing press
1536-40	Dissolution of the monasteries meaning that the power of the Catholic church began to decline and the hospitals they ran started to close.
1543	Publication of Vesalius' The Fabric of the Human Body
1628	Publication of William Harvey's work on the circulation of the blood
1660	Establishment of the Royal Society to carry out experiments and promote the understanding of science. From 1665 it published a journal.
1665	Outbreak of the Great Plague
1676	Publication of Thomas Sydenham's Observations *Medicae*
1796-98	Development of smallpox vaccination by Jenner
1847	James Simpson's discovery of chloroform as an anaesthetic
1854	Severe cholera outbreak in London led to John Snow's observations linking the cholera outbreak to a specific pump
1856	Start of Florence Nightingale's lobbying of government to improve hospitals
1859	Publication of Florence Nightingale's Notes on Nursing
1860	Opening of Florence Nightingale's School of Nursing
1861	Pasteur's discovery of Germ Theory
1866	Start of carbolic acid being used by Joseph Lister to create an antiseptic environment for surgery
1875	Second Public Health Act
1876	Koch's isolation of the bacteria responsible for anthrax
1881	Pasteur's development of a vaccination for anthrax
1895	William Röntgen's discovery of x-rays
1909-10	Paul Ehrlich's discovery of the first magic bullet, Salvarsan 606
1914	Marie Curie's development of mobile x-ray units
1928	Fleming's discovery of penicillin
1932	Discovery of the second magic bullet, Prontosil
1941	Florey and Chain's development of Fleming's discovery of penicillin into a usable treatment
1948	Launch of the NHS
1953	Crick and Watson's discovery of the structure of DNA
1990	Mapping of the Human Genome

Key Individuals	
Galen	Developed Hippocrates theory of the four humours to propose **the theory of the opposites**. This was supported by the **Catholic church for over 1000 years**
Thomas Sydenham	In **1676 Thomas Sydenham published Observationes Medicae** which theorised that illness was caused by external factors rather than the four humours. He refused to rely on medical books when diagnosing a patient's illness. Instead he made a point of closely observing the symptoms and treating the disease causing them. He theorised that the nature of the patient had little to do with the disease, allowing him to identify that measles and scarlet fever were different diseases. This encouraged a more scientific approach to medicine.
Andreas Vesalius	Andreas Vesalius was a famous anatomist. His most famous publication was **On the Fabric of the Human Body in 1543**. He **corrected around 300 mistakes** in Galen's work including the human jaw bone being in one part, not two. Vesalius encouraged other doctors to base their work on dissection rather than old books
William Harvey	Harvey proved Galen wrong about the circulation of the blood. Through cutting open cold blooded animals and dissecting human corpses he proved that arteries and veins were connected and the heart acted as a pump.
Louis Pasteur	After being challenged by the French academy of science to prove or disprove spontaneous generation, Louis Pasteur discovered and published his germ theory that **bacteria in the air caused decay and disease**. He later developed this through developing vaccinations.
Robert Koch	Pasteur was unable to identify specific bacteria and so Koch developed methods of dyeing bacteria. **Robert Koch discovered the bacteria that caused tuberculosis in 1882. In 1883 he discovered cholera and in 1884 proved that it was spread in water supplies**.
Florence Nightingale	Florence Nightingale worked in the Crimea. As a result of cleaning up hospitals the **mortality rate fell from 40% to 2% in six months**. Nightingale also established a nursing school at St Thomas's Hospital in London called the Nightingale school for nurses in 1860.
James Simpson	Simpson discovered **chloroform**, an effective anaesthetic which would numb pain in operations. It was used by **Queen Victoria during the birth of her 8th child**.
Joseph Lister	In **1864 Lister came up with the idea of using carbolic acid to prevent infection**. This was effective and was the main method of preventing infection until Koch developed aseptic surgery.
Edward Jenner	Edward Jenner was a doctor in Gloucestershire In 1796, Jenner performed an experiment on a young boy, and concluded that **cowpox protected the body from smallpox** and in 1798 he wrote 'An Enquiry into the causes and effect of the variola vaccinae'. He named the technique vaccination after the Latin word for cow.
John Snow	In **1854 a cholera outbreak allowed Snow to record deaths through statistical data and prove that cholera was being spread through the water**. However Snow believed that it was miasma in the water spreading cholera until Koch was able to identify the bacteria.
Crick and Watson	1953 two scientists from Cambridge, Francis Crick and James Watson, **discovered the structure of DNA**. They proved that this DNA structure was present in every cell and showed how it passed on information from parents to children.
Alexander Fleming	In **1928 Alexander Fleming discovered penicillin**. In 1929 he wrote about penicillin in a medical journal. However because he had not tested on animals nobody thought it was important.
Florey and Chain	In 1938 Florey and Chain were researching how germs could be killed and discovered Fleming's work. The American government realised the potential of penicillin and made **interest fee loans to 21 US pharmaceutical companies** to buy the equipment to mass produce.

Key terms	
The Four Humours	The idea of the Four Humours was proposed by Hippocrates in Ancient Greece. This was the idea that there were four humours in the body- **blood, phlegm, black bile and yellow bile**. When these were balanced, you were well, when unbalanced you were ill.
The Theory of the Opposites	Galen's Theory of the Opposites developed Four Humours by suggesting that the humours could be balanced with a treatment that would balance the illness, for example eating a hot pepper to balance a cold.
Religious beliefs	Religious beliefs about illness were widespread. The Church taught that those who committed a sin could be punished by God, illness was the punishment. This meant that to **treat illness people would pray, go on pilgrimage or offer gifts to the gods**.
Astrology	Astrology was used as a method of diagnosis. A physician would consult star chats, looking at when the patient was born and when they fell ill, to identify what was wrong. It was also believed that a misalignment of the planets could cause illness.
Miasma	Miasma was bad air that was believed to be filled with harmful fumes. These were thought to spread illness and were written about by both Hippocrates and Galen.
Apothecaries	These were Medieval chemists. They would mix herbs, spices and sometimes chemicals to make a treatment for illness.
Physicians	These were doctors. They were trained at universities and most learning was from books and not practical experience. Lectures were dictated in Latin and though dissection was not legal until the Renaissance. Their learning was based on the ideas of Galen.
Barber Surgeons	Barber surgeons offered services such as bleeding, amputations and fixing broken bones. They were not trained at university and their knowledge came from experience.
Regimen Sanitatis	In the Medieval period and the Renaissance disease was prevented through regimen sanitatis. This was a loose set of instructions provided by physicians to help a patient maintain good health. It would **include advice such as moderate exercise, not overeating, adjusting your diet, avoiding stress, breathing in clean air and avoiding excessive cold, heat, dryness or humidity**.
Transference	Transference was a popular idea- **methods such as strapping a chicken to a bubo were meant to draw out the poison** and help the patient to recover. The idea was that the illness would transfer from the ill person to the animal.
Spontaneous generation	Scientists in the 18th century developed the theory of spontaneous generation as an alternative to the Four Humours. Improvements in microscopes meant that scientists could see microbes present on decaying matter. Most people believed that these **microbes were the product of decay, rather than the cause of it**. However this was just a theory and could not be proven.

The germ theory	Louis Pasteur published his theory in **1861**, he called it the Germ Theory. This said that; the air contains microorganisms, microbes can be killed by heating them, microbes in the air cause decay and they are not evenly distributed in the air. This meant that **if germs in the air were causing decay, they could be causing disease**. This disproved the four humours and spontaneous generation as causes of illness.
Anaesthetics	These numb pain in surgery. **Nitrous Oxide**, or laughing gas, was the first anaesthetic. **Ether** was then used however it was flammable and irritated the lungs. **Chloroform** was discovered in 1847 and was effective in stopping pain.
Antiseptic	Antiseptics kill bacteria and so stop infection. **Lister discovered carbolic acid after seeing it used in the sewers of Carlisle.**
Aseptic surgery	This was developed by Robert Koch. It involved **steam sterilising equipment and surgeons wearing protective clothing** to ensure that no germs entered the operating theatre.
Inoculation and vaccination	For years the only way prevent smallpox was by inoculation. This was too expensive for most people to afford and was highly dangerous as it involved catching a mild dose of the disease. **Vaccinations involve a weakened strain of disease or, for smallpox, catching another similar disease which will create immunity**. Jenner developed the first vaccination for smallpox by catching cowpox.
DNA and human genome	DNA carries information from one person to another. **1953 Francis Crick and James Watson, discovered the structure of DNA**. The complete set of genes in a living creature is called a genome. **In 1986 the Human Genome Project began to identify the exact purpose of each of the genes in the human body.** This was completed in 2001. It was so complicated it needed teams of scientists in 18 countries to take apart including USA, Britain, Japan, France and Canada.
Magic bullets	These were the first cures for people who had already become ill with diseases. These chemical cures would attack the microbes in the body causing disease, whilst at the same time leaving the body unharmed. **The first was developed by Erlich and Hata and treated syphilis. It was named Salvarson 606.**
Penicillin	This is an antibiotic which can treat diseases caused by a certain strain of bacteria. It was difficult to mass produce but the US government invested and **2.3 million doses were given on D Day in 1943.**
NHS	**The NHS was launched in 1948 to provide medical care for the entire population of Britain free at the point of delivery**. It was paid for by National Insurance contributions. It took over existing hospitals and medical services. The government was now responsible for **1143 voluntary hospitals and 1545 city hospitals.**
High tech surgery	This involves **micro-surgery, keyhole surgery, x-rays and transplants**. These have allowed for shorter recovery times, less chance of infection and higher rates of survival.