Knowledge Organiser: Medicine KT1 – Medieval Medicine 1250-1500

Medieval Medicine	
1	This unit covers medicine in England during the medieval period (c.1250-1500). The main focus in medicine during this period was on religious and supernatural ideas about causes/treatments . In rational terms, the main form of medicine was the four humours.
Key events	
2	**1123** – Britain's first hospital, St. Bartholemew's was set up in London
3	**1348-49** – The **Black Death** affects England, kills estimated 30-50% of population.
4	**1350 –** Average life expectancy is 35 years of age
5	**1388** – Parliament passes the first law requiring streets and rivers to be kept clean by the people.
6	**1400 –** There were 500 hospitals in England
7	1500 – 1,100 hospitals in England
Key Concepts	
8	**Medieval Church –** official religion was Roman Catholic. Ideas were dominated by the Church.
9	**The Four Humours** - First suggested by Greek doctor **Hippocrate**s. He believed the body was made up of Four Humours, **Black Bile, Yellow Bile, Blood and Phlegm**. These humours linked to the four elements and seasons. Hippocrates believed if these humours became unbalanced you would get ill, so you would need to rebalance the four. **Galen**, a Greek doctor working in Rome, continued the Four Humours Theory and added his own ideas. His '**Theory of Opposites**' to heal illness suggested using opposites to balance the humours, e.g. using hot to cure cold.
10	Dissection- performed during the medieval period to illustrate/demonstrate the work of Galen by a barber-surgeon for medical students. Bodies dissected were always criminals, so any differences from Galen were explained as the work of the devil.

Key Words		
11	Superstition	A belief in the supernatural like witchcraft or astrology.
12	Monastery	A building where monks live, eat, pray and work
13	Miasma	'Bad air' which was blamed for causing/spreading disease
14	Astrology	Study of the planets and its effect on humans
15	Urine chart	Used human urine to help diagnose an illness
16	Purging	Treatment used to restore an imbalance of the humours.
17	Leeching	Purgative (purge) treatment to remove blood from a patient.
18	Cupping	Purgative treatment that used heated glass cups to draw blood to the surface.
19	Pilgrimage	A journey to a religious site, used as either preventative or cure.
20	Apothecary	A trained man whose job it was to prepare remedies.
21	Physician	Medical professional with a university training (equivalent to a modern doctor)
22	Barber Surgeon	Surgeon, trained through apprenticeship, who performed surgery such as amputations or surgical treatments such as blood-letting.
23	Wise woman	A female healer, who used magic or herbal remedies to cure illnesses.
24	Herbal remedy	Medicine made from plants/herbs
25	Rakers	Men hired to clean the streets of muck
26	Epidemic	Significant outbreak of a disease on a regional or national level
27	Pandemic	Significant outbreak of a disease on an international level (e.g. the Black Death, 1348-49)
28	Black Death	Name given to the outbreak of bubonic/pneumonic plague in 1348-49
29	Flagellant	People who whipped themselves to show God they repented their sins and wanted mercy.
30	Pestilence	A fatal epidemic disease, e.g. the Black Death. Term 'the pestilence' often specifically referred to the Black Death
31	Bloodletting/phlebotomy	Common treatment prescribed to restore humoural balance (performed by a barber surgeon).
32	Theriaca (or Theriac)	Remedy containing herbs and (often) opium, widely used as a treatment for many illnesses throughout the medieval and Renaissance periods.
33	Penance	The religious practice of seeking forgiveness of sins – used as both preventative and treatment in medieval medicine.
34	*Regimen Sanitatis*	Set of rules to follow about diet, exercise etc. to keep the humours in balance. Wealthy people would have a *regimen sanitatis* produced by a physician specifcally for them.
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Knowledge Organiser: Medicine KT2 – Renaissance Medicine 1500-1700

Renaissance Medicine	
1	During the Renaissance, a number of discoveries were made that showed that much of medieval medicine, such as the theory of the four humours, was wrong. However, few new ideas about the causes or treatment of disease were developed.
Key events	
2	**1518 -** The College of Physicians is set up.
3	**1536-40 -** The Dissolution of the Monasteries – Henry VIII shuts down monasteries across England, includes the closing of church hospitals.
4	**1543 -** Vesalius published his book *On The Fabric of the Human Body.*
5	**1628 -** William Harvey proves his theory the circulation of blood in place of Galen's belief in 'arterial' and 'venous' blood generated in the liver.
6	**1660 -** The Royal Society set up by Charles II to discuss /share scientific ideas.
7	**1665-** The Great Plague in London.
8	1666 - The Great Fire of London.
9	1676 - Thomas Sydenham publishes *Observations Medicae*
10	1683 - Van Leeuwenhoek identifies bacteria under microscope (but he does not link it to disease).
Key Concepts and Key Individuals	
11	**Science and Technology –** printing press helped ideas to spread more quickly; microscopes helped advance knowledge
12	**The Church** – the Reformation led to changes in the church. The church had less control.
13	**William Harvey -** English physician. Proved that blood circulates around the body in this way: Heart > lungs > heart > arteries to rest of body > veins > back to heart
14	Thomas Sydenham - English physician. Believed doctors should visit patients and observe them, monitoring symptoms and treatments given.
15	Andreas Vesalius – Flemish physician. Dissected bodies and published his findings in 'on the fabric of the human body' with drawings. Advocate for medical students performing dissections. Discovered many examples of Galen's errors, such as the belief that human jaw was made of two separate bones.
16	Paracelsus – Swiss physician who emphasised the importance of observing symptoms of a disease and developed the system of chemical medicine.
17	Humanism – key idea of the Renaissance. Humanists focused on the careful study of ancient texts to identify errors in medieval knowledge/understanding. Humanists also emphasised the importance of rationalism and observing things for yourself, rather than simply believing what 'authorities' (such as Galen) passed down.
18	Giralamo Frascatoro – Italian physician who came up with the theory of contagion in his book *On Contagion*, published 1546.

Key Words		
19	Dissection	The cutting open of a human body to study its anatomy for medical training and research. Began to be allowed during the Renaissance.
20	Anatomy	The science of the structure of the human body.
21	Syphilis	A sexually transmitted disease that first appeared in Europe c.1500. Known as the 'Great Pox'.
22	Great Plague 1665	Last great outbreak of the plague in England, it killed approximately 25% of London's population.
23	Printing Press	Developed by Johannes Gutenburg. Used to print books from 1440. It helped spread ideas.
24	Plague Pits	Mass graves where victims of the plague were buried.
25	Direct Observation	The observation of the human body through dissection to improve knowledge and understanding.
26	Circulation	The movement of blood around the body.
27	Quack Doctor	A doctor who pretends to have medical knowledge or skills, but does not have any. They sold medicine which supposedly cured all illnesses.
28	Venereal Disease	A sexually transmitted disease e.g. syphilis
29	Quarantine	Preventative measure in which those who are infected with a disease are kept apart from others for a set period of time.
30	Scientific method	Process of experimentation to prove/disprove a hypothesis
31	Reformation	Period of religious change, beginning 1517 in Germany and from the 1530s in England. Protestant churches broke away from the power and traditions of the Roman Catholic Church. In England, this resulted in a significant reduction in the Church's power.
32	Iatrochemistry/chemical medicine	New method of medicine developed during the Renaissance that used chemical compounds to treat illness. Developed by Paracelsus and others.
33	Transference	New idea about the cause of disease in the Renaissance: an illness could be passsed to another living organism, such as fruit/vegetables or live animals.
34	Fugitive sheet	Sheets in an anatomical or medical textbook that could be lifted in layers to reveal the structure of parts of the body at different levels.
35	Pest house	Building where people suffering from an infectious disease (especially the plague) would be sent for quarantine.
36	Alchemy	Early form of chemistry that aimed to create new chemical compounds from base metals. Chemical medicine/iatrochemistry developed from alchemy.
37	Secular	Something not under the control of the Church.
38	Fumigation	New method of prevention that involved lighting fires/creating smoke to drive away disease-causing miasma (particularly used in the Great Plague of 1665).
39	Contagion	Renaissance theory that disease could be spread on 'spores' from person to person, or via objects such as clothes. Theorised by Giralamo Frascatoro.

Knowledge Organiser: Medicine KT3 – Medicine, c.1700-1900

Medicine, c.1700-1900	
1	During the period from 1700-1900, a huge number of discoveries were made about illness. By 1900, the basis of modern scientific medicine was in place.
Key events	
2	**1796-98 – Jenner develops smallpox vaccination**
3	1842 – First use of ether as anaesthetic
4	**1847 – chloroform developed as an anaesthetic**
5	1848 – First Public Health Act
6	**1854 – Snow discovers the link between the cholera outbreak and the Broad Street pump**
7	**1854 – Florence Nightingale begins treating wounded soldiers in the Crimean War**
8	**1859 – Nightingale publishes *Notes on Nursing***
9	**1861 – Louis Pasteur comes up with Germ Theory**
10	1875 – Second Public Health Act
11	1881 – Pasteur develops vaccination for anthrax
12	1882 – Koch discovers bacteria causing tuberculosis
13	1895 – William Rontgen discovers x-rays
Key Concepts and Key Individuals	
14	Enlightenment – philosophical movement focused on the idea that people should think for themselves, and authorities should not control everyday life.
15	Spontaneous generation – new idea in the 1700s: the process of decay in organic matter causes the creation ('generation') of microbes causing disease.
16	Louis Pasteur – French scientist working in the food/drink industry who set out to disprove theory of spontaneous generation. Suggested new germ theory in its place.
17	Robert Koch – German bacteriologist who developed the work of Pasteur by identifying specific disease-causing bacteria using Petri dishes and microscopes.
18	Florence Nightingale – British nurse who introduced new standards for hospitals, focused on cleanliness, ventilation and good patient care. She professionalised nursing by setting up nursing school in London and publishing *Notes on Nursing*, a textbook.
19	John Snow – British doctor who mapped cases of Cholera in Soho , London, during the 1854 outbreak and theorised that Cholera was carried in the water, not miasma. Snow also developed a chloroform vapour inhaler to make the use of chloroform safer as an anaesthetic.
20	Edward Jenner – British doctor who developed the vaccine for Smallpox after identifying that Cowpox provided immunity to Smallpox.
21	Henry Bastian – British doctor and scientist who continued to believe in spontaneous generation and argued against germ theory until his death in 1915.
22	James Simpson – British surgeon who pioneered the use of chloroform as an anaesthetic in surgery.
23	Joseph Lister – British surgeon who developed the use of antiseptic spray during surgery.
24	Edwin Chadwick – British social reformer who wrote a report arguing that the government had a responsibility to develop improved systems of sanitation in towns and cities. This led to the Public Health Act of 1848.

Key Words		
25	Antiseptic surgery	Surgery during which carbolic acid is sprayed over the site being operated on. This is to prevent infection taking place.
26	Aseptic surgery	Surgery conducted in an environment carefully prepared to prevent any infection. In aseptic surgery, the surgeon and staff wear sterilized gowns and face masks and use sterilized equipment. The operation takes place in a room that has been sterilized beforehand and has a supply of 'cleaned' air.
27	Anaesthesia	Medication used during surgery to render the patient unconscious.
28	Ether	Chemical used as the first anaesthetic. While effective, Ether was extremely dangerous as it was highly flammable.
29	Chloroform	Chemical used in the nineteenth century as an anaesthetic. Developed by James Simpson who administered approximate doses on a handkerchief.
30	Germ Theory	Theory proposed by Louis Pasteur that disease was caused by microbes in the air. Basis of modern understanding of infectious diseases.
31	Inoculation	Process of infecting the body with a low or less serious dose of a disease to provide immunity to a the more serious form. This was commonly used before Edward Jenner developed the smallpox vaccine.
32	Vaccination	Method of prevention involving providing immunity to a disease. This can involve the use of inoculation or infecting someone with a disease related to a more serious disease (e.g. smallpox/cowpox).
33	Cowpox	An infectious disease among cattle, closely related to the human smallpox.
34	Smallpox	A highly infectious human disease with a high mortality rate. Eradicated in 1977 through the use of vaccination.
35	Dispensary	Place where medicines are distributed.
36	Public health	Measures introduced for the well being of the public as a whole. E.g. vaccination programmes, sewerage construction.
37	Privies	Public toilets outside houses.
38	Cesspit	A pit for storing sewage until dug out.
39	Workhouse	Victorian institution in towns and cities that provided basic accommodation and food ('poor relief') for those who needed it.
40	Culture	Sample of bacteria to be studied , grown on agar jelly in a Petri dish.
41	Bacterium (*pl.* bacteria)	Disease –causing microbe, e.g. tuberculosis, cholera, syphilis. Bacteria can multiply outside a living host and could be observed under microscopes by the late 1800s.
42	Virus	Disease-causing microbe, e.g. smallpox, influenza, polio. Viruses cannot multiply outside a living host and were too small to be observed under microscopes in the late 1800s.
43	Bacteriology	The scientific study of bacteria. Robert Koch is usually regarded as the first bacteriologist.
44	Carbolic acid	Antiseptic fluid used to kill bacteria. First used by Robert Lister in spray form during surgery to reduce infection.
45	Public vaccinator	Doctor paid by the British government to give people the smallpox vacccine.
46	Laissez-faire	Victorian belief that the government was not responsible for providing social needs such as education, healthcare, welfare or public sanitation. Belief in laissez-faire ideas declined during the course of the nineteenth century.

Knowledge Organiser: Medicine KT4 – Modern Medicine 1900-present

Modern Medicine, c.1900- present	
1	Medicine since 1900 has developed along scientific lines, following from the developments of the nineteenth century. Since the second half of the twentieth century, the focus has been largely on illness linked to lifestyle and genetic factors, rather than infectious diseases.
Key events	
2	1901 - Karl Landsteiner discovers blood groups.
3	1906- first magic bullet created by Paul Ehrlich (Salvarsen 606)
4	1928 - Alexander Fleming accidentally discovered penicillin bacteria.
5	1932 - Second magic bullet created by Gerhard Domagk (Prontosil)
6	1938 - Florey and Chain develop penicillin research into a working drug.
7	1941 - US companies mass produce penicillin.
8	1942- National campaign to vaccinate children against Diphtheria launched.
9	1942 - Beveridge Report is written producing blueprint for welfare state and NHS after the Second World War.
10	1948 - The National Health Service (NHS) is founded
11	1950 – National vacinnation campaigns against Whooping Cough begun.
12	1952 – 'Great Smog' in December: extreme air pollution event leads to deaths of around 10,000 people.
13	1953 - DNA discovered by Crick and Watson.
14	1954 - The Salk vaccine created to combat the disease Polio.
15	1954 – Link between smoking and lung cancer established by Richard Doll.
16	1956 – Polio vaccine introduced in the UK.
17	1956 - First Clean Air Act - bans coal burning in specific built-up areas.
18	1965 – ban on cigarette advertisements on television.
19	1967 - The first heart transplant is carried out.
20	1968 - second Clean Air Act places further restrictions on coal burning in cities.
21	1968 – introduction of the measles vaccine.
22	1971 – first health warnings introduced on tobacco packets.
23	1990 - The Human Genome Project to map DNA begins.
24	2007 - Smoking ban introduced in public places in England and Wales.
25	2012 – Ban on displaying cigarettes in shops
26	2015 – UK introduces plain packaging for cigarettes, banning the use of logos or promotional information.

Key Words		
27	Magic bullet	Chemical compound designed to target specific germs in the body to treat illnesses – e.g. Salvarsen 606.
28	Penicillin	The first antibiotic. It was from a bacteria and used to fight infections that chemical compounds could not beat.
29	DNA	This is what makes your genes It is like a long list of instructions about what each gene in your body does. It has led to conditions such as Downs Syndrome and Cystic Fibrosis.
30	Welfare state	This is the concept of government supporting the individual to provide a basic level of care and support through intervention. For example Family Allowance and the NHS.
31	Superbugs	These are the names given to germs that are resistant to normally used antibiotics. For example, MRSA, which needed stronger antibiotics.
32	Genetic medicine	This means medicine like the use of stem cells to repair genes or in some cases try to avoid the passing down of genetic diseases.
33	Nuclear medicine	This means treatment such as Radiotherapy and Chemotherapy which has been used to treat cancers.
34	Preventative medicine	The focus of modern preventative medicine is to change people's lifestyles to avoid conditions such as heart disease, type-2 diabetes and some cancers.
35	X-Ray photography	Method of producing images inside the body using electromagnetic radiation (x-rays) to see through flesh. Commonly referred to as Roentgen Rays until the First World War.
36	Genome	The genetic structure (DNA) of an organism.
37	Haemophilia	Genetic disorder that results of blood being unable to clot properly.
38	Mastectomy	Operation in which a patient has a breast removed either to remove or prevent breast cancer.
39	Antibiotic	A type of medication that kills bacterial infections.

Key Concepts and Key Individuals	
40	Florey and Chain - Oxford University scientists who turned penicillin into workable drug
41	Alexander Fleming - Discovered germ called Penicillin that could kill other germs.
42	Aneurin Bevan – Labour Minister of Health who developed and launched NHS.
43	Crick and Watson - Discovered DNA following X-Ray technology advancements.
44	William Beveridge – government advisor who wrote a report (known as the *Beveridge Report)* in 1942 that planned the welfare state and the NHS to be set up after the Second World War.
45	Paul Ehrlich - Created first magic bullet SALVASEN 606 to combat syphilis.
46	Gerard Domagk - Created second magic bullet PRONTOSIL to combat blood poisoning.
	Wilhelm Roentgen – German physicist who discovered x-radiation, which led to the use of x-ray photography in medicine.

Knowledge Organiser: Medicine KT5 –The British sector on the Western Front

The British sector on the Western Front	
1	This unit focuses on the role of British troops in the First World War, including the battles fought and developments in warfare, in order to help you understand the impact of this on medicine and surgery on the front line. All questions for this section of Paper 1 are source-based.
Key events	
2	Oct-Nov 1914 First Battle of Ypres – the British stopped the Germans from capturing the port of Calais.
3	Apr-May 1915 Second Battle of Ypres – A German attack using Chlorine gas for the first time.
4	Jul-Nov 1916 Battle of the Somme – Major attack led French and British to move German troops from Verdun.
5	Apr-May 1916 Battle of Arras – large scale Allied attack. Very high casualties.
6	Jul-Nov 1917 Third Battle of Ypres – Aim to capture Passchendaele ridge near Ypres. The ground turned to mud.
7	Nov-Dec 1917 Battle of Cambrai – first use of a large number of tanks by the British. 40,000 British casualties.
8	Spring 1918 The German Spring Offensive – Large scale German attack to bring the war to an end before the Americans arrived
9	Summer-Autumn 1918 The final months – the Allied army, reinforced by the fresh US troops broke through German lines.
10	11th Nov 1918 Germany surrendered and the war ended.
Types of sources	
11	National Army records for individual soldiers
12	National newspaper reports
13	Government reports on aspects of war
14	Medical articles by doctors or nurses who worked in the war
15	Photographs
16	Hospital records
17	Army statistics
18	Personal accounts of medical treatments by soldiers, doctors, nurses or others involved.

Key words		
19	Terrain	The type of ground – e.g. hilly, muddy, easy/hard to walk or run over.
20	Front line Trench	The trench nearest the enemy, from which med advanced into no-man's land.
21	Communication Trench	Linked the firing line with the command support and reserve trench.
22	No Man's Land	Area between the enemy front line trenches where the fighting took place.
23	Trench Fever	Spread by lice and caused headaches, shivering and pain in joints.
24	Trench Foot	Bacterial infection resulting from standing in waterlogged trenches, feet became numb and swollen. Some cases became gangrenous and needed amputation.
25	NYDN	'Not Yet Diagnosed – Nervous' – army medical code for shell shock.
26	Shrapnel	Fragments of metal in artillery shells designed to cause maximum injuries.
27	Artillery	Heavy fire causing half of all casualties.
28	Steel Helmets	Introduced to British troops by autumn 1915 & widely available by Summer 1916 to reduce head wounds.
29	Gas	Method of chemical warfare used extensively during the First World War. The main types used were: 1. Tear Gas – widely used to irritate tear ducts, weakening ability of troops to attack/defend. 2. Chlorine – leads to lungs producing fluid, resulting in drowning/asphyxiation. 3. Phosgene – less detectable than chlorine and mustard gas, attacked the lungs, leading to death after around 24 hours. 4. Mustard Gas – yellow, oily liquid that led to skin blisters and burns, as well as internal bleeding. It could take as long as 4-5 weeks for a soldier exposed to mustard gas to die.
30	Evacuation Route	The system by which injured soldiers accessed medical treatment from front line fighting. Stretcher bearers, Regimental Aid Post (RAP), Field Ambulance and Dressing Station, Casualty Clearing Station (CCS) and Base Hospital.
31	Thomas Splint	A type of splint developed by Hugh Owen Thomas, a surgeon, in the 1870s, but not widely used until introduced by the RAMC in 1916. The Thomas Splint allowed an injured leg to be carried more carefully and significantly reduced both blood loss and infection developing. It thus reduced the death rate from compound fractures dramatically.
32	Plastic Surgery	Improved during WW1, led by Harold Gillies, who opened a specialist hospital in Kent in 1917.