

# History transition booklet

**Task:** This booklet contains 5 eras in British history that we will look at when studying Medicine Through Time. Pick two of them and complete the notes pages for each. You should then complete the 'Medicine in the Future' task on the last page.



# Medieval Medicine

READ THE NEXT FEW PAGES THEN MAKE NOTES ON WHAT YOU THINK ARE THE MOST IMPORTANT POINTS ON MEDIEVAL MEDICINE. IF YOU KNOW THE MATERIAL PROPERLY, YOU SHOULD BE ABLE TO DO THIS WITHOUT LOOKING!

# Ancient Rome

## The Roman Army

1. The Roman Empire was bigger than the Greek or Egyptian empire. They needed a big, healthy army to be successful with this.
2. When the army camped near swamps and marshes they became ill.
3. Even though they did not know about germs they realised there was a link between dirty water and disease.

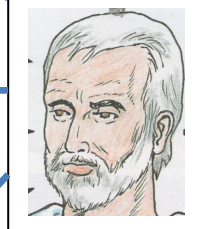
## Practical approaches - Leads to Public Health

1. The government paid for aqueducts to carry good water into cities, public baths, toilets and sewers to remove waste,
2. They also built roads for travel which increased communication.

Believed in Hippocrates' method of observation and the theory of the four humours.

Built on the theory of the four humours with the 'treatment of opposites'. This involved using an 'opposite' treatment to the problem. For example, if a man has a cold, should give him a fiery pepper to balance his humours.

Galen proved that the brain controls speech through a famous experiment on a pig. Before this, they thought the body was controlled by the heart!



Galen also said that every organ in the body had a special role to play and were designed by God. These ideas fitted in with the Christian belief that God created human beings.

Galen's reputation lasted over 1400 years!

Galen

## Factors that influenced medicine in the Ancient World

1. War - The Roman armies spread knowledge through the countries they conquered (including Britain!)
2. Individuals - Hippocrates and Galen
3. Religion - In all times religion banned dissection but in the Egyptian times they learnt about the body from mummification. In all time periods they believed Gods made you better.
4. Education - The Greeks were great thinkers, they encouraged logical thinking and natural solutions to causes of illness. The Egyptians developed writing.
5. Trade and Communication - as trade increased, there was an exchange of ideas.
6. Government - the Romans introduced public health into the towns.

# Medieval Medicine

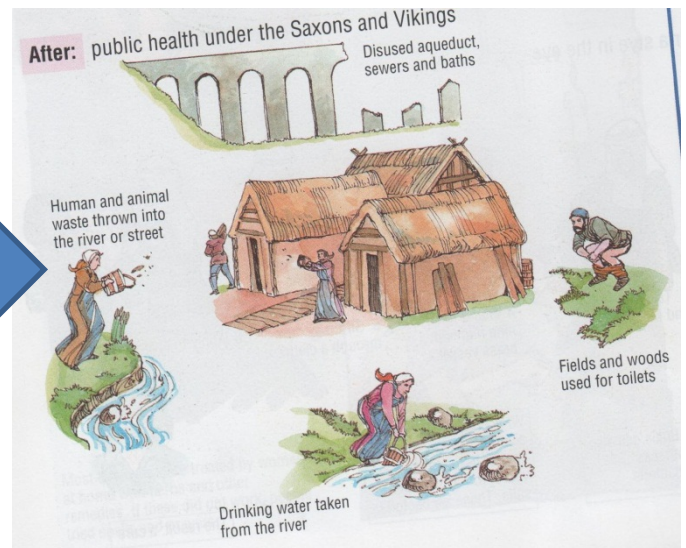
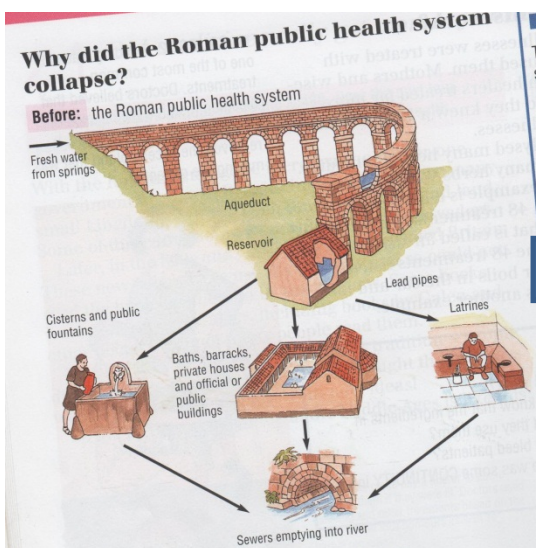
READ THE NEXT FEW PAGES THEN MAKE NOTES ON WHAT YOU THINK ARE THE MOST IMPORTANT POINTS ON MEDIEVAL MEDICINE. IF YOU KNOW THE MATERIAL PROPERLY, YOU SHOULD BE ABLE TO DO THIS WITHOUT LOOKING!

# The Dark Ages

What do we mean by 'The Dark Ages'?

1. By AD 400, the Roman Empire was being invaded by warriors from northern Europe. The Empire collapsed and the Roman Army left Britain.
  - a. With this came the collapse of the public health systems that had been put into place as there wasn't a central government to maintain it.
  - b. Due to war, travel was dangerous so ideas travelled slowly.
  - c. Many of the medical ideas of the Greeks and Romans were lost in Britain.
  - d. The Christian Church became a big part of British life. The church stopped dissection and encouraged the belief that disease was a punishment from God.
2. This led to the idea that medicine stagnated (didn't get better), or even got worse!

The Lack of Public Health



The Growing Power of the Church

1. The Roman Catholic Church grew in this period:
  - a. Churches - each village had its church and priest who told people what to believe and how to behave.
  - b. Conservatism - the pope and bishops were afraid that new ideas would challenge the power of the Church. Every new idea was checked to make sure it didn't challenge the bible.
  - c. Education - the church controlled this. Priests and monks were often the only people who could read. The church also sometimes banned books they didn't want people to read.
  - d. Superstition - The Greeks had looked for rational explanations. The church taught the opposite. They said that God and the Devil controlled their lives.

# The Return of Galen

## Galen Returns to Western Europe

☐

1. The works of Galen and Hippocrates were rediscovered in the libraries of the Arabic world.
2. The Europeans came into contact with the Arabists during the crusades, this made Europeans aware of the scientific knowledge of the Arabs.
3. By about 1100, versions of the works of Galen and Hippocrates came back to Britain.
4. About the same time, university medical schools in Europe were set up by the church. Anyone who wanted to be a doctor had to train here. They taught the ideas of Galen (which are wrong) but also taught the need to observe and record patient's disease.

## Who could treat you in the Medieval Period?

☐

1. Trained doctors were very expensive and the poor could not afford to pay. These were therefore limited to the rich.
2. Most of the medicine practiced amongst the ordinary people was provided by the monasteries and local women.
3. The Christian Church also set up hospitals to care for the poor and sick. However, only 10% cared for the sick, whereas 47% housed the poor and elderly and provided no medical care.
4. Apothecaries sold drugs and medicine and sometimes advised on their use.

## What diagnosis and treatments were available?

☐

1. Doctors would use urine charts to diagnose patients, they test the colour, smell and even taste of the urine.
2. They still believed in the theory of opposites and so would use methods such as bleeding to balance the humours.
3. There was a huge selection of herbal remedies. Many of these have been proven to work e.g. onion and garlic kill bacteria.
4. There were also supernatural treatments available, such as charms and The King's Touch (when the king would touch a person that was suffering with the disease scrofula to cure them)

## And what about surgery?

☐

1. Surgery was seen as a job for low-paid assistants and untrained barber-surgeons (the local barber).
2. Surgical treatments were still few and simple, as pain, bleeding and infection made major surgery very risky.



# The Black Death

What was the **Black Death**? ☐

1. In **1348**, a ship brought the Black Death to England. Over 40% (nearly half!) of the population died during the plague. The Black Death killed both rich and poor alike, swiftly and painfully. The dead were quickly buried in large communal graves.
2. There were two kinds of plague:
  - a. Bubonic Plague
  - b. Pneumonic Plague

What did they believe **caused** the black death and disease? ☐



1. There were also a group of people called the flagellants who whipped themselves to try and rid themselves of their sins. They believed this would protect them from the Black Death.
2. Some people even thought it was sent as a punishment for naughty children!

# Renaissance Medicine

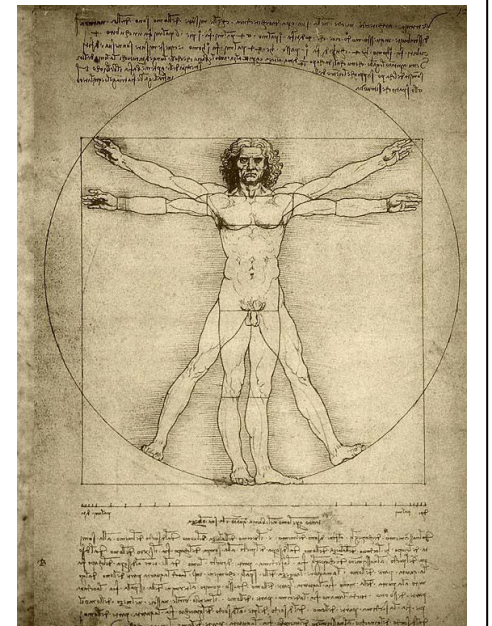
READ THE NEXT FEW PAGES THEN MAKE NOTES ON WHAT YOU THINK ARE THE MOST IMPORTANT POINTS ON MEDIEVAL MEDICINE. IF YOU KNOW THE MATERIAL PROPERLY, YOU SHOULD BE ABLE TO DO THIS WITHOUT LOOKING!



# The Renaissance

## Renaissance Man - born-again Roman? ☐

1. The Renaissance gets its name from the rebirth in interest of the classical period.
2. The Royal Society (a famous scientific society), was founded in this period (1660). The Renaissance saw science begin to replace explanations of superstition, astrology and religion.
3. Renaissance Man is important as people at the time thought that a well-educated person should have a good knowledge of science and art. Artists like Michelangelo and Da Vinci would have studied both. They would attend dissections resulting in wonderful drawings.
4. The return of the works of Galen and Hippocrates renewed a belief in the four humours, treatment of opposites and various herbal remedies.



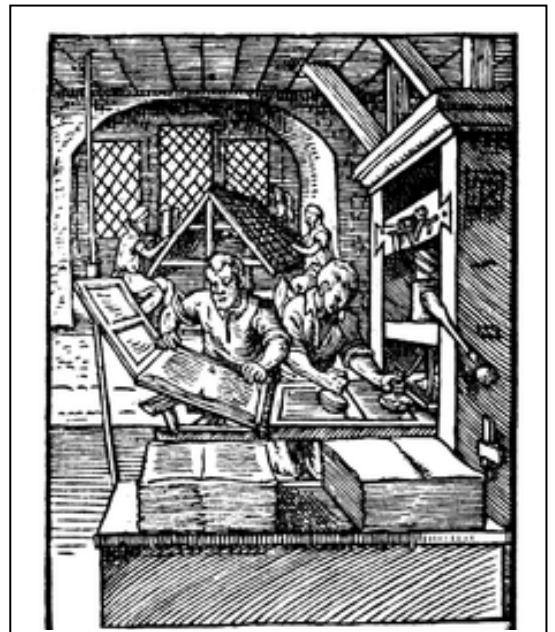
An illustration by Da Vinci

## The Renaissance also led to new ideas ☐

1. Within this period, there was a break away from the Roman Catholic Church, which we call the 'Reformation'. Different groups of Christians went different ways, encouraging debate.
2. This led to the questioning of old ideas, even those of Galen and Hippocrates!

## Printing - one of the greatest inventions of all time ☐

1. Johann Gutenberg introduced printing to Europe in 1454. This invention helped medicine progress! William Caxton set up the first British printing press in 1476 in Westminster Abbey.
2. Making a single copy by hand could take weeks, months, even years to complete by a copyist. Books were therefore very rare before printing. New ideas could not be spread easily as they just weren't written down anywhere!
3. The printing press changed this, and was a big factor in helping new ideas spread within the Renaissance.



# New Discoveries

Vesalius wrote anatomy books with accurate diagrams

☐

1. Vesalius was born in 1514 and studied medicine in Paris and Italy. He was allowed to perform dissections but couldn't look closely at the skeleton. He was so dedicated he stole the body of a criminal from the gallows.
2. He became professor of surgery at Padua in Italy where he performed more dissections. He wrote books on his observations including The Fabric of the Human Body in 1543.
3. His illustrations were carefully labelled and he used his powers of observation to point out some of Galen's mistakes.
  - a. Galen thought that blood passed through the septum of the heart through little holes. Vesalius proved there were no holes in the Septum.
  - b. Galen believed that human jaw bones were made of two pieces. Vesalius proved it was one.
4. This was important as it proved Galen could be wrong!

Pare was forced to improvise - and so improved

☐

1. Pare was a barber surgeon born in 1510. Surgery was still a low status profession. He first worked for a public hospital and then became an army surgeon.
2. At the time the wound left by amputation was sealed by burning the end with a red hot iron, known as cauterisation. This was very painful.
3. Pare invented the method of tying off vessels with thread, known as ligatures. This was less painful, but may have caused infection as they did not yet know about germs.
4. Gunshot wounds were, at the time, treated by pouring boiling oil into the wound.
5. During one battle, Pare ran out of oil and resorted to an ointment of his own. To his surprise, these patients recovered better than the ones scalded with oil.
6. He received opposition to his ideas from doctors who didn't want to listen to a lowly surgeon. However, when he became surgeon to the King of France and gained the King's support, people started listening to his ideas.

Harvey discovered the circulation of the blood

☐

1. William Harvey was born in 1578 and studied medicine in Padua in Italy. He then worked in London as a doctor and lecturer to James I and Charles I.
2. He realised he could observe living animal hearts in action and his findings would also apply to humans. He chose cold-blooded animal so the heart beat was slow.
3. In 1628, he published a book showing that blood was going around and around and NOT being used up and remade like Galen thought. He also proved the difference between arteries and veins.
4. Although Harvey's discovery was useful for knowledge of anatomy and for challenging Galen, it did not radically change surgery. Bleeding continued to be performed and blood transfusions were not generally successful until the discovery of blood groups in 1900.

# Did health actually improve?

## The Great Plague of London, 1665

☐

1. The Black Death returned in 1665, killing around 100,000 people in London.
2. Some efforts were made to control the disease, such as every house with the disease was painted with a red cross, and every person buried must be in a grave at least six feet deep.
3. These measures showed that people realised that the disease was spread through people but they still didn't understand about germs.
4. Doctors, chemists and priests were more likely to get the disease than most, because the sick went to them for help.
5. The Great Fire of London, in 1666, effectively sterilized large parts of London, killing the plague bacteria.

## What changed?

☐

1. The discoveries made by Harvey and Vesalius were important as they proved to doctors that Galen was wrong and that careful dissection and experimentation were the way to new ideas.
2. Pare's use of bandaging wounds and using ointment instead of boiling oil helped patients survive as other surgeons could see it working. However his use of ligatures slowed down surgery, causing problems with bleeding, and also helped spread infection as these were not sterilised.
3. In 1492, America was discovered. This brought a wide range of new knowledge to Europe including many new herbal treatments. Trade and communication helped here.

## What stayed the same?

☐

1. The discoveries of Harvey and Vesalius did not make anyone healthier at the time. Life expectancy did not increase much. They hadn't discovered new and better ways of treating illnesses.
2. Treatments: Herbal remedies were still widely used. It is important to remember that a number of these worked. Surgery only improved a little.
3. Treatments from the Four Humours were still widely used; this had not yet been disproved.
4. Superstitious treatments were still widely used, including charms and the famous 'King's Evil', this included the king touching someone with the skin-disease, Scrofula, in order to cure them.
5. Trained doctors and surgeons could still treat those who could pay. The poor had to rely on family, wise women and travelling quacks.

## What factors affected this?

☐

- |                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"><li>1. <u>Experiment</u>: People were willing to <u>challenge</u> old ideas. By experimenting they could prove they were correct.</li><li>2. <u>Wars</u>: Public health was made worse.</li><li>3. <u>Education</u>: literacy was increasing and there were more schools.</li><li>4. <u>Printing</u>: helped with the spread of ideas.</li></ol> | <ol style="list-style-type: none"><li>6. <u>Ancient learning</u>: renewed interest in the writings of Greek/Roman thinkers.</li><li>7. <u>Art</u>: more realistic artwork.</li><li>8. <u>Machinery</u>: there were improvements in clocks, watches and pumps.</li><li>9. <u>Wealth</u>: Money to spend on luxuries and education.</li></ol> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

# Medicine: 1750 - 1900

READ THE NEXT FEW PAGES THEN MAKE NOTES ON WHAT YOU THINK ARE THE MOST IMPORTANT POINTS ON MEDIEVAL MEDICINE. IF YOU KNOW THE MATERIAL PROPERLY, YOU SHOULD BE ABLE TO DO THIS WITHOUT LOOKING!

# From Innoculation to Vaccination

## Lady Montagu introduces inoculation from Turkey

☐

1. Smallpox was a big killer in the 18<sup>th</sup> century. If you survived the disease you were left badly scarred.
2. Lady Montagu learnt about inoculation in Turkey and introduced it to Britain. This was when pus from a sore of someone with mild smallpox was given in a small cut to the person being inoculated. After a mild reaction, they were immune to smallpox.
3. Unfortunately inoculation sometimes led to full blown smallpox and death.
4. However, as people feared smallpox, they took the risk. Doctors were made rich from this.

## Jenner was interested in milkmaids

☐

1. Jenner (b. 1749) was a country doctor. He heard that milkmaids didn't get smallpox, but they did catch the much milder cowpox.
2. Using his skills of experimentation and observation, he found that this was true.
3. In 1796, he tested his theory on a boy called James Phipps. He injected him with pus from a milkmaid who had cowpox. Jenner then injected him with smallpox but he didn't catch the disease.
4. The Latin for the word cow, vacca, gives us the word vaccination.

## Jenner became famous, but not everyone was happy

☐

1. In 1840, vaccination was made free for infants, and compulsory in 1853. (The first time any government had forced a medical treatment on the entire population)
2. Some people opposed the vaccination. Reasons were varied and include:
  - a. Doctors who were making money out of inoculation didn't want to lose their income.
  - b. Jenner couldn't explain why it worked and some people didn't believe a disease that came from cows could protect you.
  - c. Vaccination was seen as dangerous. Not all doctors were careful with the dosages.
  - d. Some people did not like government forcing medicine upon them.

## Continuity and change in doctors and treatments

☐

1. Doctors: From the 1750s ordinary people were able to call on the services of a local doctor or general practitioner after they trained in an apprenticeship. They would often waive the fees of the poor who were unable to pay.
2. But the cost of medicine was a problem. Dispensaries began to appear. These were created to provide the poor with cheap medicine.
3. Many illnesses were still treated in the home using common sense and herbal treatments.
4. There was also a rise in 'Patent Medicines' which claimed to cure all. There were some dangerous ingredients in a number of these.



# What did women do?

Could you see a woman doctor in the 1850s? ☐

1. No! Due to a number of changes, the role of women in medicine had gradually reduced:
  - a. In the middle ages, the Church allowed only men to train as physician.
  - b. By 1700, surgeons also had to have a university degree. As women could not go to university, they were unable to become surgeons.
  - c. With the introduction of medical forceps. Midwifery also was taken over by men.
  - d. In 1852, there was the Medical Registration Act which required all doctors to belong to one of the College of Physicians, Surgeons or Apothecaries. All of these were closed to women.
2. Some women did fight to overcome this. Elizabeth Garrett was the first woman to qualify as a doctor in Britain.
3. Women still played a major role as healers in the home, and as nurses. In the 1850s, female nurses went to work in the Crimea. This was the first time women were used as army nurses.

The 'Lady with the Lamp' changed nursing ☐

1. Florence Nightingale became a nurse despite opposition from her family.
2. When the Crimean War broke out in March 1854, horror stories emerged about the hospitals that were treating the wounded British soldiers.
3. The secretary of war, who was a friend of the Nightingale family, asked Florence to go and sort out the nursing care in the hospitals over there. Florence took 38 hand-picked nurses and made changes such as bringing in good food and boiling the sheets. The death rate in Scutari hospital was 42% before she arrived, and 2% afterwards.
4. When she returned, she set up the Nightingale School of Nursing and wrote her book 'Notes on Nursing' which became the standard textbook.
5. Men were not admitted onto the Royal College of Nurses until 1960.



Mary Seacole also nursed in the Crimea ☐

1. Mary Seacole learnt nursing from her mother, who ran a boarding house for invalid soldiers in Jamaica. She came to England to volunteer for the Crimea.
2. She was rejected, probably due to racism, but raised money to make her own way.
3. She nursed soldiers on the battlefield and was loved by many. However, when she returned to England she was unable to find any work and went bankrupt.

# The discovery of the Germs

Pasteur was the first to suggest that germs cause disease

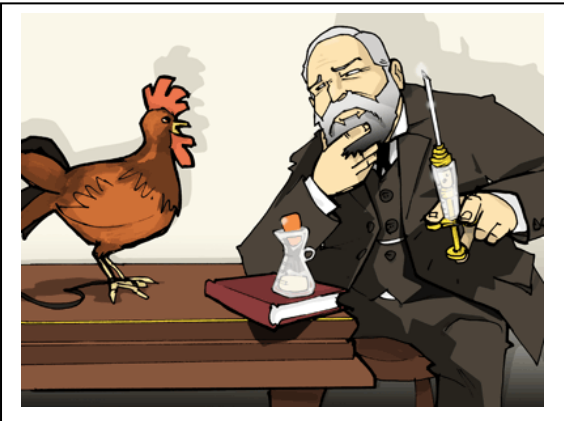


1. Micro-organisms had been seen through 18<sup>th</sup> century microscopes but scientists thought that they were caused by disease and appeared because of illness. This was the theory of spontaneous generation. Instead of blaming the micro-organisms, they blamed bad smells or miasmas.
2. Louis Pasteur was employed in 1857 to find out why alcohol was going bad in a brewing company. His answer was to blame germs in the air. Pasteur proved this and showed how to kill these germs by boiling the liquid.
3. Pasteur was a scientist, not a doctor, and he carried out his early experiments with beer, wine and silkworms.

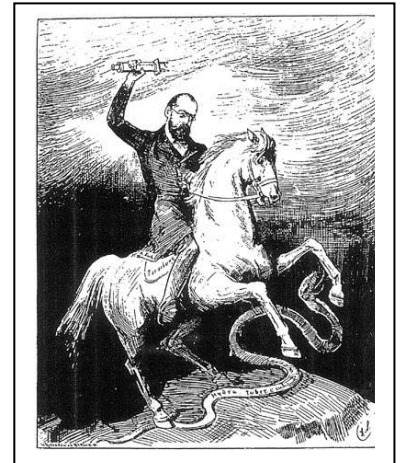
Robert Koch used dyes to link germs to human disease



1. Koch began to study different microbes (germs) to see which microbe caused what disease. He developed a solid medium to colour microbes, and dyeing techniques to colour them.
2. He managed to identify the anthrax microbe in 1875, linking germs to human disease.



Vs.



Pasteur, rival of Koch, finds chicken cholera vaccination



1. Pasteur (French) and Koch (German) were rivals at this point. France had lost a war to Germany in 1870-71 and it bothered Pasteur that Koch appeared to be getting ahead on the medical front.
2. Pasteur joined the race to find cures for anthrax and chicken cholera. Both he and Koch had been given large teams to help them.
3. In the summer of 1879, some chicken cholera solution was accidentally left out over the holiday. On the return of the team, this was injected into a number of chickens. The chickens survived, they then tried with some new cholera, but the chickens still lived.
4. They worked out that the cholera had been weakened by its time out in the open, and that this weakened cholera had made the chickens immune (like Jenner's vaccination)!
5. The cure for anthrax followed in 1881, then rabies in 1882.

# 19<sup>th</sup> century Surgery

## The problems of surgery in the 1800s

☐

1. There were 3 main problems with surgery at this time:
  - a. Pain
  - b. Infection
  - c. Bleeding



Five surgeons participate in the amputation without anesthetic of a man's leg while another oversees them. Wellcome Library, London.

## Simpson, solvent abuse and the rise in anaesthetics

☐

1. The use of natural drugs like alcohol and opium to reduce pain had been around for a while. But these were not very effective and could make the patient ill.
2. Laughing Gas was introduced by Humphry Davy in 1799, but it did not work on all patients.
3. Ether was introduced in the 1840s but this was an irritant and also fairly explosive.
4. In 1847, James Simpson was 'testing' some drugs and discovered that chloroform was an effective anaesthetic. It then started to be used in surgery.

## New anaesthetics were not necessarily a good thing

☐

1. Some people objected to its usage on religious grounds. Others were afraid of the dangers of an overdose (Remember Hannah Greener dying when removing a toenail)
2. Surgeons could perform more complicated surgery. As infection and bleeding were still a problem, this actually led to more deaths.
3. It was hard to get the balance right; some patients were paralysed by the drug, whereas others could still feel the pain.

## Joseph Lister and the fight against infection

☐

1. Lister's background helped him with his discoveries as his father developed better microscopes and he had the best medical training.
2. In 1867 Lister read Pasteur's work on bacteria. He thought that bacteria might be causing the infections. He used carbolic spray to kill these bacteria. This was antiseptic surgery.
3. Why was Lister's work important?
  - a. In the short term, more of his patients survived. The percentage of his patients who died after operations fell from 46 per cent to 15 per cent. His ideas spread and were used by other doctors, although at first many doctors did not believe in Lister's discovery.
  - b. Other doctors built on his ideas. Hospitals and operating theatres became much cleaner places. All medical instruments were sterilised effectively. The whole room was sterile. All germs were killed. This was called aseptic surgery. Longer and more complicated operations became possible as the danger of infection was reduced.

# Medicine: 1900 onwards

READ THE NEXT FEW PAGES THEN MAKE NOTES ON WHAT YOU THINK ARE THE MOST IMPORTANT POINTS ON MEDIEVAL MEDICINE. IF YOU KNOW THE MATERIAL PROPERLY, YOU SHOULD BE ABLE TO DO THIS WITHOUT LOOKING!



# How has war impacted medicine?

## The First World War



1. During the First World War, more people were killed and wounded than in any previous war. New and deadly weapons were used for the first time, such as shrapnel bombs and high-explosive shells. They caused terrible injuries that surgeons had never seen before.
2. However, this caused a number of improvements in medicine and health:
  - a. Surgery improved - they had opportunities to experiment with new techniques. These included developing new techniques to repair broken bones, and to perform skin grafts (the start of plastic surgery).
  - b. X-rays were discovered before the war. During the war, they were used to find bullets and shrapnel lodged in the body. Governments paid for more and more X-ray machines to be made.
  - c. Blood transfusion was used effectively for the first time after blood types were discovered in 1900. Methods of storing blood and transporting it were improved.
  - d. The poor health recruits to the army made the government very worried about their living conditions at home. The soldiers who fought in the war were promised 'homes fit for heroes' when they returned. This caused unhealthy slum houses to be knocked down.



## The Second World War



1. The second world war improved medicine by:
  - a. Further improvements in blood transfusions. Including better ways to store blood and the introduction of donations of blood from civilians.
  - b. Rationing was introduced to improve some people's diet and healthy eating was encouraged through government posters.
  - c. Penicillin was developed - the first antibiotic.
  - d. Further improvements in the use of skin grafts and in the treatment of burns by surgeons.
  - e. 1.5 million children were moved from the cities into the countryside for their safety. This showed how much difference there was between the rich and the poor. The government became more serious about fighting poverty.
  - f. The government improved what services the poor people could access. In 1942, William Beveridge, a civil servant, put forward the idea of a 'free national health service' for all.



# How have governments helped medicine since 1900?

## Improvement 1 - National Insurance



1. At the beginning of the twentieth century the poor and unemployed could not afford to get help if they were sick.
2. The first step towards helping them came in **1911** when the Liberal Gov. passed the **National Insurance Act**. The aim was to give **workers** the chance to get medical help and sick pay if they could not work because they were ill. They did this by paying into a **sickness fund**.
3. However, it only applied to people in **work**. The unemployed, long-term sick and the elderly could not pay into the scheme, so they could not get help.

## Improvement 2 - Better Housing



1. In **1900**, poor housing was still a major cause of ill health. Many didn't have fresh water or toilets.
2. The first big step came with the **Housing Act** in **1919**. The Housing Act said that local councils had to provide good homes for working people to rent. A quarter of a million houses were built under this scheme.
3. The next step was to **clear the overcrowded, filthy slums**. This began in the 1930s. Tens of thousands of slum houses were cleared and 700,000 new homes were built.
4. Even so, the last of the slums did not disappear until the 1960s.

## Improvement 3 - National Health Service



1. WW2, in which people of all classes worked closely together, led to a call for a fairer health service that would help everyone.
2. As a result, William **Beveridge** (a leading civil servant), put forward a plan in **1942** to reform medical services.
3. After the war, this plan led to the creation of the **NHS** in **1948**. The key point was that all services were free.
4. **Doctors**, **dentists** and **nurses** were to be **paid by the government** instead of by their patients. This was the biggest step forward in improving the health of people in Britain.



# Why did infant mortality fall so rapidly after 1900?

Why was **infant mortality** so high in 1900?

☐

1. **Housing** - many people lived in **overcrowded**, poor-quality housing. These houses were damp, dirty and had no toilets.
2. **Disease** - infectious diseases spread rapidly, because vaccines had not been developed for some of the most common killer diseases.
3. **Medical care** - many parents could not afford this.
4. **Diet** - parents and babies had poor diets.
5. **Education** - there were not enough trained midwives to help and advise new mothers. Some parents did not know how to keep their babies healthy.

Why has **infant mortality** fallen?

☐

1. Scientists developed new **vaccines**. Government started to make sure that these were given to children e.g. in 1940, it was made compulsory to have the diphtheria vaccination. This reduced deaths from 300 per million to less than 10 per million.
2. In **1902**, the gov. said that all **midwives** had to be **trained**.
3. In **1906** the gov. started to provide **school meals** so that children of poorer families could get some good food.
4. In **1909**, the gov. banned overcrowded back to back housing and enforced **building regulations**.
5. In **1919** local councils started **clinics** for mothers to be. They appointed health visitors to visit families and advise on health and hygiene.
6. In **1948**, the **NHS** was set up. It provided free medical treatment and medicine for everyone.
7. Since the **1970s**, **technology** has advanced greatly. Babies can now be scanned before they are born to check they are healthy.

What **kills** people today?

☐

1. There are still big **killers** in today's society, these include:
  - a. Cancer
  - b. Heart disease caused by people being overweight.
  - c. Lung disease caused by people smoking.
  - d. Aids
  - e. Malaria
2. It is important to note that different diseases affect different people in the world. Some countries still suffer from the same infectious diseases that have not been in Britain for a long while!

# How was penicillin developed?

Fleming discovered penicillin - the first antibiotic

☐

1. The discovery of penicillin is a good example of a chance finding helping science.
2. Alexander Fleming was searching for a cure for infections. In 1928 he went to clean up some culture dishes which had bacteria growing in them. By chance, the penicillin bacteria had blown in through the window. He noticed that not one the infectious bacteria grew near the penicillin. He had found the first antibiotic.
3. Fleming was unable to take his work further as he did not have enough money or government support.

Florey and Chain developed this further

☐

1. Florey and Chain, two scientists from Oxford University, experimented on penicillin. They found a method to take and test penicillin and grew the penicillin in any container they could.
2. They tried it on the first human in February 1941. Although the patient's health did improve, there was not enough penicillin to cure him and he eventually died.
3. However, although the patient died, the trial showed how powerful penicillin could be if it could be grown in huge amounts.
4. In December 1941, America joined the war and the American government gave \$80 million to find a way to mass-produce penicillin.
5. In 1943, scientists used penicillin to treat wounded British soldiers for the first time. By June 1944, there was enough penicillin to treat all the casualties from D-Day.

How was penicillin developed?

☐

1. War - the need to fight infection.
2. Chance - that penicillin came in through the window.
3. Individual Genius - Fleming, Florey and Chain were awarded the Nobel Prize in 1945.
4. Government - Gave money to fund research.

What treatments were there?

☐

1. At the beginning of the century, the people had to rely on cheap, easy-to find remedies. Most people cared for their family when they were sick.
2. However, with improvements due to war, technology, science, governments and individual genius, the medicine available has risen dramatically. This includes vaccinations, access to hospital for all and the new surgeries we see today!

# MEDICINE IN THE FUTURE

Make a mind map showing what you think the future of history will include.

Thinking points: what discoveries will be made within:

- 10 years?
- 50 years?
- 100 years?
- 500 years?

