

# GCSE History Knowledge Booklet

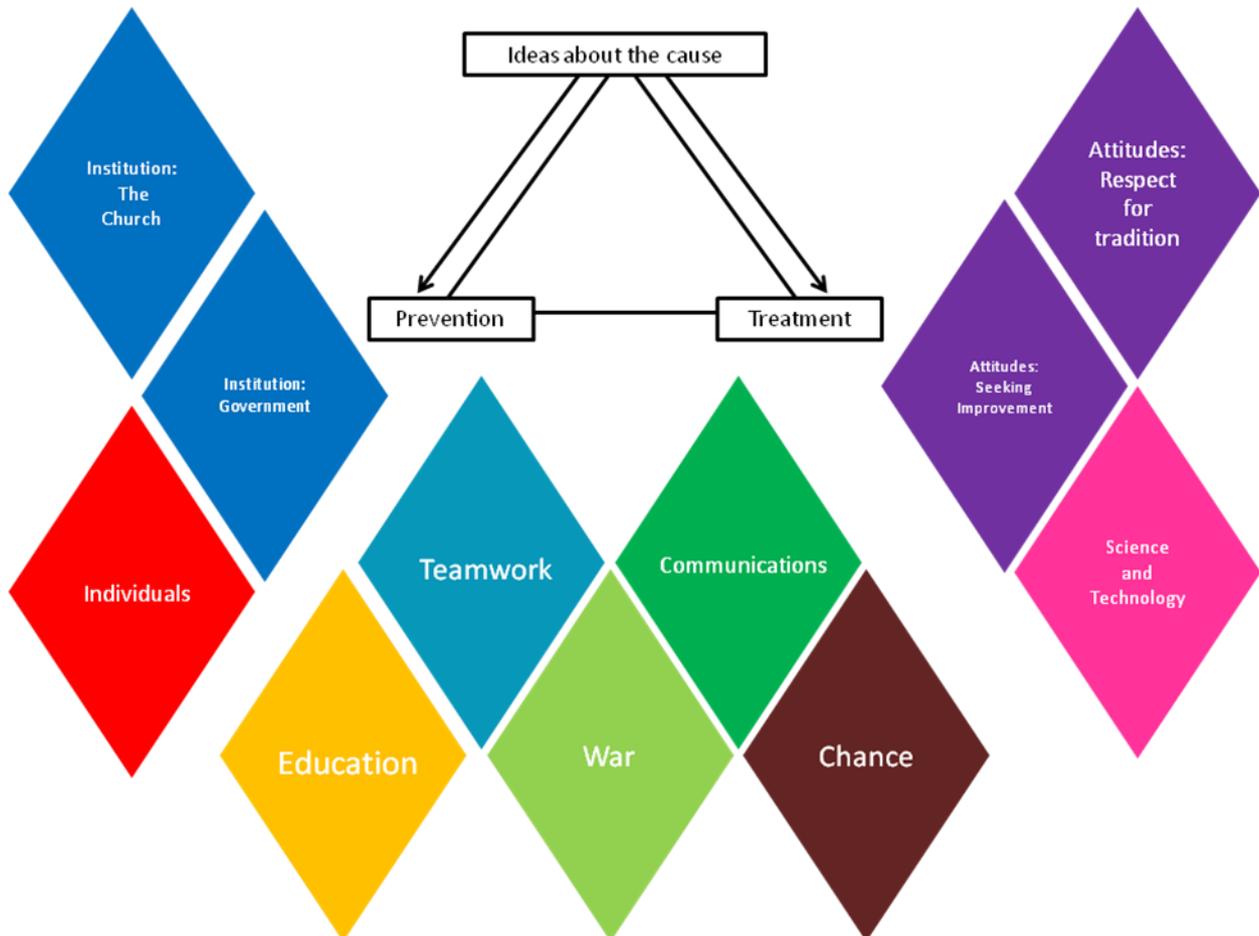
## The Industrial Revolution c1700-c1900

### Part 1 Topics 3.1 - 3.2b

The History of Medicine is about some of the most important questions in the whole of history. Today we live far longer than our ancestors did. We are healthier and have more chance of surviving major illness. **So why has medicine- and our health - changed so much over the centuries? This paper is about why there were changes and continuities throughout the ages.**

This booklet will help you to focus on the period of the Industrial Revolution in England and the changes and continuities, progress and stagnation in medical thinking and practice.

### Examples of Factors that causes change and continuity.



## History of medicine Contents

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# Key Topic 3: c1700–c1900: Medicine in eighteenth and nineteenth century Britain

## Key Topic 3.1 Ideas about the causes of disease and illness c1700–1900



- Belief in Gods and 4 Humours fading.
- In early 1800s people still believed that bad air caused diseases.
- Anthony van Leeuwenhoek made a microscope in 1600 and this was improved by Joseph Lister senior who developed a microscope that could magnify things 1000 times. (Science and

Technology-Helping)

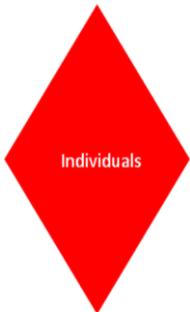
- Theory of spontaneous generation  
scientists used new microscopes to  
and decided that bacteria was created by decay.



developed by Felix Pouchet -  
study germs on rotting food

### Louis Pasteur changes ideas

- Louis Pasteur (1822-1895) was a French university scientist, not a doctor. He loved to demonstrate his experiments in public. (Individual Genius-Helping)
- Pasteur worked in alcohol industry in Lille. Realised that bacteria made alcohol sour. Suggested that heating liquids (pasteurisation) would kill bacteria and make them safe to drink.

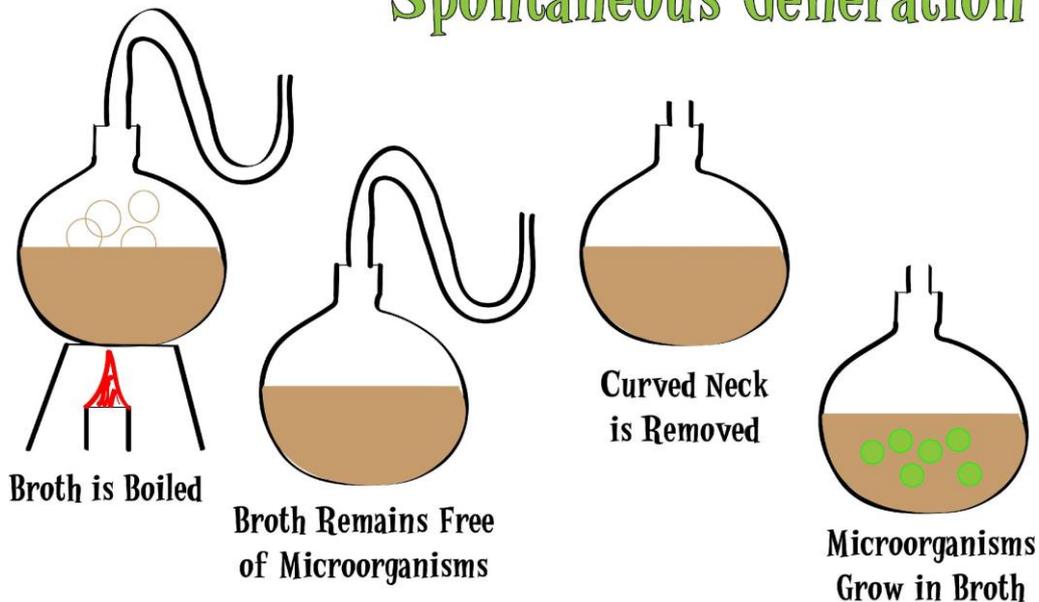


- Pasteur was convinced that germs caused disease but he was mocked by those who believed in spontaneous generation.

• The French government supported Pasteur and paid for his research assistants and a new laboratory to carry out his experiments with specially designed equipment (e.g. swan neck flasks. (Government/Technology-Helping)

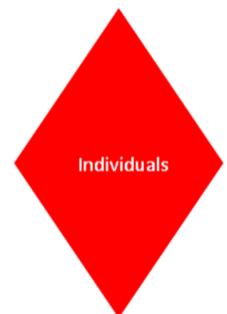
- In 1864 he carried out experiments that proved germ theory correct. Showed bacteria caused decay, were not evenly distributed in air. Took sterile flasks into streets of Paris and sealed them - bacteria grew. Bacteria varied depending on location. Stale air included no bacteria and showed heating air made it sterile.
- In 1865 called to help silk industry because disease killing silkworms. Proved disease being spread in air and causing disease in animals. Then began to research human diseases but couldn't identify specific bacteria.

## Pasteur's Test of Spontaneous Generation



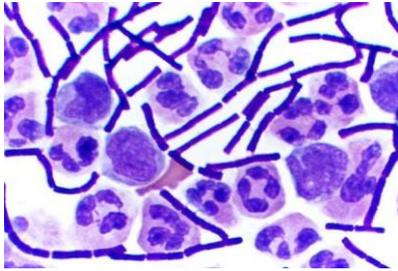
### Robert Koch's ideas about the cause of disease

- Robert Koch, a doctor from Germany, began to study bacteria himself. He was ambitious, focus on detail, worked painstakingly. Increased rivalry between France and Germany in 1870-1871 due to Franco-Prussian War.



Wanted to be successful to glorify countries. (Individual Genius/War - Helping)

- Koch investigated anthrax and discovered specific bacterium that caused anthrax. First time specific germ that caused an individual disease been discovered. Proved germ theory.



- He then developed a method of proving which bacteria caused disease. He improved methods of studying bacteria. He developed ways of staining bacteria so they could be photographed using a new high-quality photographic lens.

(Science and Technology-Helping)

- The first human disease he identified was Tuberculosis.
- Revolution in communications in nineteenth century helped spread of ideas. Quickly reported in newspapers and fast boat and train travel allowed doctors to meet at conferences and learn from each others' ideas (Communication-Helping)

### **Knowledge Check 3.1 Ideas about the causes of disease and illness c1700-1900**

1. Identify two ideas about the cause of disease that remained but started to fade in this period?

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2. Who was the first person to suggest that microorganisms were the cause of disease (Germ Theory?)

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3. Before Pasteur, scientists thought that micro-organisms didn't cause disease but appeared because of death or disease. What was this theory called?

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4. Which scientist first linked diseases to the microbes that caused them?

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5. What was the first human disease identified by Koch?

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6. Which technological development helped both Pasteur and Koch

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7. Which factor helped to spread the ideas of Koch and Pasteur rapidly?

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## Key Topic 3.2 Approaches to prevention and treatment

### *Continuities*



- Still use of purging, praying, herbal remedies as past.
- Many illnesses still treated at home - food, warmth and herbal remedies.
- Some also visited 'quack doctors' or bought remedies that claimed to cure everything. Made little or no contributed to improvement in health but were

cheaper. Were not controlled by government and although they did not work - people got rich from them.

### *Changes*



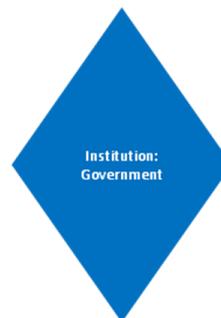
- Doctors were using new technology like stethoscope and used drugs and herbal remedies to treat.

- Dispensaries appearing to give medicines to doctors. Provide poor with cheap medicine. Many people got

control making of medicines and by 1900 harmful

Chemical drugs starting to be developed such as

companies like Boots, Wellcome and Beecham set up.



treatments from here.

introduced laws to

ingredients removed.

aspirin. By 1900

### *What role did women play?*

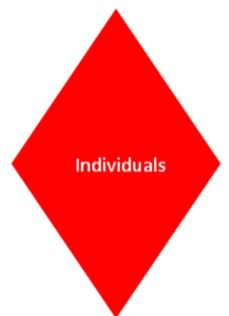
- Until 1700s women could qualify as surgeons and midwives. However, not allowed to become physicians as needed university training and women not allowed. (Attitudes-Hindering)

- In 1852 a law required doctors to belong to a College of Surgeons, Physicians or Apothecaries (person who dispenses medicine) - all of which were closed to women.
- Women allowed to be nurses as seen with Florence Nightingale and Mary Seacole in 1854.
- Elizabeth Garrett Anderson first woman to qualify as a doctor in Britain. During 1860s she worked as a nurse and attended lectures at Middlesex Hospital. Male students at the Hospital protested against her attending. Elizabeth Garrett passed all the exams to qualify as a doctor but the Colleges of Surgeons and Physicians would not allow her to join. She took the College of Apothecaries to Court which then accepted her as a member before it too banned female members. (Individual Genius-Helping/ Attitudes-Hindering)

### Key Topic 3.2a Nightingale and hospital care



- Nightingale brought discipline and professionalism to a job that had a bad reputation at the time.
- From a wealthy background, she became a nurse despite the opposition of her family.
- Went out to the Crimean War to sort out nursing care in the English camp.
- She made huge improvements in the death rate, due to improvements in ward hygiene.
- She focussed on sanitation in hospitals, ventilation in hospitals (she believed in miasma!) and ensuring that all patients good food supplies.
- When she returned home, she wrote a book 'Notes on Nursing' and sets up a hospital in London.
- Her nursing schools concentrated on teaching nurses practical skills but she did not let doctors teach about germ theory because she believed nurses needed to just keep wards clean.



### **Knowledge Check 3.2a Approaches to prevention and treatment (hospitals)**

1. Identify three ideas about the treatment of disease continued into this period?

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2. Who was the first female doctor to qualify in Britain?

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3. What occupation did Florence Nightingale have?

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4. In which war did she go to sort out care in an English camp?

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5. Give two ways in which Nightingale improved hospitals

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6. Which outdated theory did she still believe in?

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7. What was the name of Nightingales book?

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8. Why did she only focus on teaching nurses practical skills?

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## Key Topic 3.2b Approaches to prevention and treatment (Anaesthetics and Antiseptics)

- In 1750-1800 poor conditions for surgery.
- No anaesthetics so patients held down - focus on speed in surgery led to accidents.



which



- No knowledge of germs so dirty environments - surgeons wore own clothes and no antiseptics. Big problems with infections - in hospitals death rates between 25% and 50% after amputations from infections.

### **Development of anaesthetics**

1. Laughing gas/nitrous oxide discovered by Humphry Davy 1799. This reduced but did not make patients unconscious.



pain



2. Ether used from 1847 which was first used by J. R.

Liston.

However, ether irritated eyes and lungs - causing coughing and sickness. It could also catch flame and smelt bad.

3. Chloroform discovered by James Simpson of Edinburgh University in 1847.

Experimented with different chemicals to see effects as an anaesthetic -

realised chloroform was very effective. Other surgeons started to use it. However, did lead to sickness and bad taste. Could also result in death as could not control dosage.

4. Controlling dosage of chloroform was helped by John Snow when he invented an inhaler to control the dosage



### **Development of antiseptics**

- Had previously used liquids such as wine and vinegar to keep wounds clean as before Germ Theory had no idea what was causing infection in open wounds. Did not wash hands, reused bandages, did not sterilise equipment and wore dirty clothes (Science-Hindering)

Ignaz Semmelweis

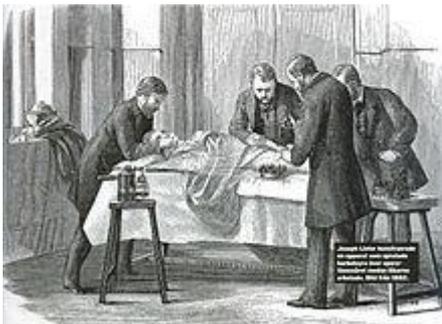


- Noticed that women whose babies were delivered by midwives were much less likely to die than those delivered by medical students.
- He recommended washing their hands in a basin of chlorinated water to reduce risk of infection and called doctors who did not wash it 'murderers'.

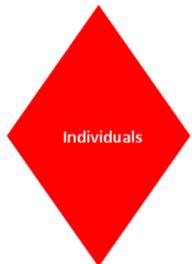
- However, he had little support and no-one built on his ideas. People thought he was a crank and a fanatic



Joseph Lister



- He used the ideas of Pasteur and Germ Theory which helped to spark his discovery.



- Came up with idea by noticing that carbolic acid had an effect on sewage and prevented smells. He

experimented with using carbolic in treating people who had fractures where bone broken through skin. Applied carbolic acid to the wound and used bandages soaked in carbolic to help the wounds heal. Death rates dropped from 45.7% to 15%.

- People began washing hands with carbolic acid and a carbolic spray to kill germs in the air was placed around the operating table.
- 1880 he started the use of antiseptic ligatures in surgery made from catgut.

- In long term other doctors built on ideas as hospitals became cleaner places and longer and more complicated surgery.

### **Knowledge Check 3.2b Approaches to prevention and treatment (Anaesthetics and Antiseptics)**

1. What is the difference between an antiseptic and an anaesthetic?

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2. What was the name of the Hungarian doctor who first urged midwives and nurses to keep their hands clean?

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3. Who urged the use of a special spray to keep operating spaces completely clean?

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4. What was the name of the spray he used?

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5. What did Humphry Davy use in 1799?

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6. What alternative to ether did Dr James Simpson test out on himself?

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7. Identify two problems were the problems with chloroform?

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