**How significant was the transformation of surgery 1845-1918?**

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**Key Enquiries**

1 In a Nutshell: How did surgery change 1845-1918?

2 What factors help us to understand change and continuity in Surgery developments 1845-1918?

3 Developing understanding: Depth studies –dealing with pain, infection and blood loss

4 Cracking the Puzzle – Preparing for revision and assessment.

**Language and Literacy**

 **Key Terms and their meanings in Surgery 1845-1918.**

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**In a Nutshell: How did surgery change 1845-1918?**

**The key features and concepts**

Students should have knowledge and understanding of:

* The main problems of surgery before 1840; pain, infection and blood loss.
* Developments in anaesthetics; nitrous oxide, ether, chloroform, Simpson, opposition and the ‘Black period’ of surgery.
* Developments in antiseptics; Lister, opposition, aseptic surgery
* Dealing with blood loss; blood types, Landsteiner, storing blood

Students should be aware of the impact of different factors on surgery; science and technology, war and communications.

**Activity 1 : initial imaging**

Your teacher will give you a sheet with two images on it. Consider what the two images provided reveals about the nature of surgery in both 1845 and 1918, and the changes which took place across this period.

**Activity 2 – On your marks…**

Colour code the developments on your copy of the timeline; use blue for those addressing pain, yellow for those addressing infection and red for those addressing blood loss.

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| **Developments in Surgery c1845-1918** |

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| **1846 Morton and Liston tried using ether to numb the pain in dentistry and surgery** | **1853 Queen Victoria influenced others when she used Chloroform in childbirth** | **1865 Lister tried carbolic spray to kill germs during surgery, despite general scepticism**  | **1901 Landsteiner suggested different blood groups. Direct transfusion could now work successfully** |
| **1845-1855** | **1855-1870** | **1870-1900** | **1900-1918** |
| **1847 James Simpson used Chloroform as an anaesthetic, but faced opposition.**  | **1850-1860s The ‘black period’; anaesthetics meant surgeons took longer but didn’t understand germs** | **After 1877 Lister had widespread influence. By 1890 most operations were in antiseptic conditions** | **1915 Sodium Citrate and Citrate Glucose were found to stop clotting, so blood could be stored. Blood donation began** |

**Your teacher may ask you to create your own, more detailed, surgery timeline, as your carry out research into this topic. You may wish to do this in your exercise book, in a programme like publisher or online, using a site such as weebly.com. Your teacher may choose to set this work as part of your homework through this topic.**

**What factors help us to understand change and continuity in Surgery developments 1845-1918?**

**Focus : Factors of change and continuity in Medical developments 1750-1900.**

**What do we need to focus on?**

Students should have knowledge and understanding

* The nature of surgery in c.1840 and attitudes to surgery at this time
* Developments in dealing with the three main problems of surgery: pain, infection and blood loss
* Factors which help explain both change and continuity



**Activity 1 – The dangers of surgery up to 1840**

Explain why surgery was so dangerous up to 1840, using DC SHP Medicine p116

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| --- |
| Why was surgery so dangerous up to 1840? |

|  |  |
| --- | --- |
| **The problem of pain** | **The problem of infection** |
| **The problem of blood loss** | **The problems with working quickly** |

# **Activity 2: What could you expect from a surgeon in 1845?**

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# **Activity 3: Factors to understand why change took place in Surgery 1845-1918.**

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| --- | --- | --- | --- | --- | --- |
| **Role of Individuals** |  | **New Ideas** |  | **Role of Government** |  |
|  |  | **FACTORS OF CHANGE 1845-1918** |  |  |  |
| **Science and Technology** |  | **War** |  | **Communication and Education** |  |



**Activity 4: Factors to understand why continuity took place in Surgery 1845-1918**

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| --- | --- | --- | --- | --- | --- |
| **Role of Individuals** |  | **Old Ideas** |  | **Role of Government** |  |
|  |  | **FACTORS OF CONTINUITY 1845-1918** |  |  |  |
| **Science and Technology** |  | **War** |  | **Communication and Education** |  |



**Activity 5: What could you expect from a surgeon by 1918?**

**Focus 1: Dealing with Pain.The development of Anaesthetics**



**Activity 1: Gaining an insight-videoclip**

Watch the first 30mins of *Scream-The History of Anaesthetics*, or *The History of Surgery episode 5, Parts 4 and 5* .Record key developments and keep a note of the factors which contributed to each development. Include information on attitudes to the developments.



**Activity 2: Developments in Anaesthetics**

Describe, explain and analyse each development in the path to dealing with the problem of pain. Complete the following table using DC SHP Medicine p117-119 and/ or WB SHP Medicine p110-111

|  |  |  |
| --- | --- | --- |
| **Anaesthetic** | **Description** | **Explain and analyse the effectiveness** |
| **Laughing Gas****1799 Humphrey Davy****1844 Horace Wells** |  | **+ve****-ve** |
| **Ether****1846 William Morton****1846 Robert Liston** |  | **+ve****-ve** |
| **Chloroform****1847 James Simpson** |  | **+ve****-ve** |



**Activity 3: Opposition to Anaesthetics**

Describe the medical and religious arguments against the introduction of anaesthetics, using DC SHP Medicine p117-118 and/or WB SHP Medicine p111

|  |  |
| --- | --- |
| **Opposition to Anaesthetics** | **Explanations for opposition** |
| **Medical Arguments** | **1****2****3** |
| **Religious Arguments** | **1****2****3** |

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# **Activity 4: The development of the use of Anaesthetics**

# Using DC SHP Medicine p117-119 and WB SHP Medicine 110-111, identify why anaesthetics were commonly used by 1860. You should consider the causal factors of; individuals, science and technology, communications and attitudes and beliefs. You could present this as a mind map, or under causal factor headings. Once you have identified examples and explanation of each causal factor, examine how the factors interrelate and which factor you believe played the most significant role. Be prepared to justify your judgement.



**Activity 5: How far did the development of Anaesthetics impact on surgery in the period 1845-1918?** Analyse how far the development of Anaesthetics impacted on surgery by plotting your own living graph and labelling some of the significant points related to changing ideas on it.

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**Activity 6: How far did Anaesthetics impact on surgery between 1845 and 1918?**

**Using Activities 1-5 organise your thoughts and answer the question using either of the suggested thinking frames below.**

**Thinking frame 1**

 **Intro: Whilst there were some changes in surgery as a result of the development of Anaesthetics during the period 1845-1918, there were many practises that remained the same.**

**Part 1: There were some significant changes in the practise of surgery during the period 1845-1918 as a result of the development of Anaesthetics. For example…**

**Part 2: However many ideas and practices within surgery remained the same in the period 1845-1918 despite the introduction of Anaesthetics. For example….**

**Thinking frame 2**

**Intro: Whilst there were some ideas that continued in surgery as a result of the introduction of Anaesthetics during the period 1845-1918, there were many significant changes.**

**Part 1: There were some ideas that continued in surgery despite the introduction of Anaesthetics during the period 1845-1918. For example…**

**Part 2: However there were many significant changes in the development of surgery as a result of the introduction of anaesthetics in the period 1845-1918. For example….**

**Focus 2: Dealing with infection-The development of Antiseptic and Aseptic surgery.**



**Activity 1 –gaining an insight-videoclip**

Watch *The History of Surgery episode 5, part 5 and Last part* . Record key developments and keep a note of the factors which contributed to each development. Also record information about attitudes to the developments



**Activity 2-Developments in Antiseptics and Aseptic Surgery.** Describe, explain and analyse each development in the path to dealing with the problem of infection. Complete the following table using DC SHP Medicine p119-121 and/or WB SHP Medicine p117-121**.**

|  |  |  |
| --- | --- | --- |
| **Anaesthetic** | **Description** | **Explain and analyse the effectiveness** |
| **Washing hands in chlorinated water 1846 Ignaz Semmelweiss**  |  | **+ve****-ve** |
| **Carbolic Spray****1865 Joseph Lister** |  | **+ve****-ve** |
| **Antiseptic Surgery****1894 William Halsted** | **From 1887 all instruments were sterilised. Surgical gowns and masks were worn. In 1894 Halsted paid the Goodyear rubber company to develop sterilised rubber gloves, after one of his theatre nurses developed a bad reaction to the chemical used on their hands. They married a year later** | **+ve****-ve** |



**Activity 3: Opposition to Antiseptics**

Describe the arguments against the introduction of antiseptics, using DC SHP Medicine p121 and/or WB SHP Medicine p120.

|  |  |
| --- | --- |
| **Opposition to Antiseptics** | **Explanations for opposition** |
| **Medical Arguments of surgeons** | **1****2****3****4****5** |
| **Medical Arguments of nurses** | **1****2** |

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# **Activity 4: The development of Aseptic surgery**

Using DC SHP Medicine p119-121 and WB SHP Medicine p117-120, identify why antiseptics were commonly used by 1880 and aseptic surgery was routine by 1895. You should consider the causal factors of; individuals, science and technology, communications and attitudes and beliefs. You could present this as a mind map, or under causal factor headings. Once you have identified examples and explanation of each causal factor, examine how the factors interrelate and which factor you believe played the most significant role. Be prepared to justify your judgement.



**Activity 5: How far did the development of Antiseptics impact on surgery in the period 1845-1918?** Analyse how far the development of Antiseptics impacted on surgery by plotting your own living graph and labelling some of the significant points related to changing ideas on it.

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**Activity 6: How far did Antiseptics impact on surgery between 1845 and 1918?**

**Using Activities 1-5 organise your thoughts and answer the question using either of the suggested thinking frames below.**

**Thinking frame 1**

 **Intro: Whilst there were some changes in surgery as a result of the development of Antiseptics during the period 1845-1918, there were many practises that remained the same.**

**Part 1: There were some significant changes in the practise of surgery during the period 1845-1918 as a result of the development of Antiseptics. For example…**

**Part 2: However many ideas and practices within surgery remained the same in the period 1845-1918 despite the introduction of Antiseptics. For example….**

**Thinking frame 2**

**Intro: Whilst there were some ideas that continued in surgery as a result of the introduction of Antiseptics during the period 1845-1918, there were many significant changes.**

**Part 1: There were some ideas that continued in surgery despite the introduction of Antiseptics during the period 1845-1918. For example…**

**Part 2: However there were many significant changes in the development of surgery as a result of the introduction of Antiseptics in the period 1845-1918. For example….**

**Focus 3: Dealing with the problem of bleeding-The development of blood transfusions.**



**Activity 1 –gaining an insight-videoclip**

Watch *The History of Surgery episode 5, part 5 and Last part* . Record key developments and keep a note of the factors which contributed to each development. Also record information about attitudes to the developments



**Activity 2-Developments in Blood Transfusions**

Describe, explain and analyse each development in the path to dealing with the problem of blood loss. Complete the following table using DC SHP Medicine p152 and WB SHP Medicine p126-7

|  |  |  |
| --- | --- | --- |
| **Developments in Blood transfusion** | **Description** | **Explain and analyse the effectiveness** |
| **Discovery of blood groups & Direct transfusion****1901 Karl Landsteiner** |  | **+ve****-ve** |
| **Indirect transfusion****1915 Richard Lewishon** |  | **+ve****-ve** |
| **Longer storage of blood****1916 Rous and Turner** |  | **+ve****-ve** |



**Activity 3: Opposition to Blood transfusion**

Describe the arguments against the introduction of blood transfusion, using DC SHP Medicine and/or WB SHP Medicine.

|  |  |
| --- | --- |
| **Opposition to Blood transfusion** | **Explanations for opposition** |
| **Medical Arguments of surgeons** | **1****2****3****4****5** |
| **Medical Arguments of nurses** | **1****2** |

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# **Activity 4: The development of blood transfusion** Using DC SHP Medicine p152 and WB SHP Medicine p126-127, identify why blood transfusions were commonly used in surgery by 1920. You should consider the causal factors of; individuals, science and technology, communications and attitudes and beliefs. You could present this as a mind map, or under causal factor headings. Once you have identified examples and explanation of each causal factor, examine how the factors interrelate and which factor you believe played the most significant role. Be prepared to justify your judgement.



**Activity 5: How far did the development of blood transfusion impact on surgery in the period 1845-1918?** Analyse how far the development of blood transfusion impacted on surgery by plotting your own living graph and labelling some of the significant points related to changing ideas on it.

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**Activity 6: How far did blood transfusion impact on surgery between 1845 and 1918?**

**Using Activities 1-5 organise your thoughts and answer the question using either of the suggested thinking frames below.**

**Thinking frame 1**

 **Intro: Whilst there were some changes in surgery as a result of the development of blood transfusion during the period 1845-1918, there were many practises that remained the same.**

**Part 1: There were some significant changes in the practise of surgery during the period 1845-1918 as a result of the development of blood transfusion. For example…**

**Part 2: However many ideas and practices within surgery remained the same in the period 1845-1918 despite the introduction of blood transfusion. For example….**

**Thinking frame 2**

**Intro: Whilst there were some ideas that continued in surgery as a result of the introduction of blood transfusion during the period 1845-1918, there were many significant changes.**

**Part 1: There were some ideas that continued in surgery despite the introduction of blood transfusion during the period 1845-1918. For example…**

**Part 2: However there were many significant changes in the development of surgery as a result of the introduction of blood transfusion in the period 1845-1918. For example….**



**Trigger Memory Activity for Surgery 1845-1918**

|  |  |  |
| --- | --- | --- |
| **Trigger Words** | **Trigger Picture** | **Add Trigger****Points from your notes** |
| **Problems in surgery before 1840** |  | **1****2****3**  |
| **Anaesthetics** |  | **1****2****3** |
| **Opposition to anaesthetics** |  | **1****2****3** |
| **Factors in dev of anaesthetics** |  | **1****2****3** |
| **Black period for surgery** |  | **1****2****3** |
| **Antiseptics** |  | **1****2****3** |
| **Opposition to antiseptics** |  | **1****2****3** |
| **Factors in dev of antiseptics** |  | **1****2****3**  |
| **Dealing with Blood loss** |  | **1****2****3** |
| **Factors in dev of blood transfusion** |  | **1****2****3** |
| **Surgery by 1918** |  | **1****2****3** |

**Trigger Memory Story Surgery 1845-1918**



**The story must be very imaginative. It must involve you seeing, talking and doing things. It must link the ten trigger words together in the form of a continuous story. You should then rehearse the story and commit it too your long term memory to be recalled when necessary. This will take some effort but will be very useful! Use different colours to write the trigger words in your story.**

I was...

**Assessment for Learning**

**Here’s what the students do for their GCSE Paper for Historical Enquiry**



**Question Number 1. Explore, investigate and develop technique.**

**What can you learn from Source A about what it was like to XXX? Explain your answer using the sources and your own knowledge.**

**Target Source comprehension: inference (AO3A)**

From Source A I can learn that…because it shows…Furthermore I can infer that…because it shows..

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| --- | --- | --- |
| **Level** | **Mark** | **Descriptor** |
| 1 Comprehension. | 1 | Answer selects relevant detail(s) from the source. |
| 2 Unsupported inference. | 2–3 | Valid inference(s) are offered, but without support from the source. |
| 3 Supported inference | 4–6 | Valid inference(s) are made and supported from the source.One well-developed point may score a maximum of 5. |



**Question 2. Explore, investigate and develop technique.**

**What was the purpose of this representation? Explain your answer, using Source …. and your own knowledge.**

**Target : knowledge recall & selection, key features & characteristics of periods studied, analysis of representations of history (AO1/AO2/AO3).**

There are several ways in which the author/artist Source B creates an impression of X

* Firstly the author/artist mentions /shows X. This creates the impression…...by...
* Secondly, the author uses language/symbols such as Y. This creates the impression…...by..
* Finally, the author uses language/symbols such as Z. This creates the impression…...by..

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| --- | --- | --- |
| **Level** | **Mark** | **Descriptor** |
| 1 Simple statement about the representation. | 1–2 | EITHER Valid comment is offered about the representation but without support from the source.OR Answer identifies detail(s) or information from the presentation, but relevance to the intended purpose is not identified. |
| 2 Supported statement, comprehending the representation. | 3–5 | Valid comment about the purpose of the representation is offered and linked to details in the content of the source.Award top of level to candidates who identify the purpose of the representation using detail from both content AND own knowledge of the historical context. |
| 3 Explained purpose, analysing the representation. | 6–8 | Analysis of the treatment or selection of the content of the representation is used to explain its purpose. Maximum 6 marks for answers which do not make explicit use of own knowledge of the historical context. |



**Question 3 Explore, investigate and develop technique.**

 **Why …….?**

**Explain your answer, using Source C and your own knowledge.**

**Target: knowledge recall & selection, key features & causation in a historical context, source comprehension (AO1/AO2/AO3).**

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| --- | --- | --- |
| **Level** | **Mark** | **Descriptor** |
| 1 Simple statements. | 1–3 | EITHER Answer consists of simple statements from the source.OR Answer consists of simple statements based on additional knowledge without reference to the source. |
| 2 Supported statements. | 4–7 | Statements are supported by information from the source and/or additional knowledge. Maximum 5 marks for answers, which do not use both source and additional knowledge. |
| 3 Developed explanation. | 8–10 | Answer uses the source and precise own knowledge. NB: No access to Level 3 for answers that do not include additional knowledge. |



**Question 4 Explore, investigate and develop technique.**

**How reliable are Sources X and Y as evidence of……..? Explain your answer, using Sources… and…and your own knowledge.**

**Target : knowledge recall and selection, key features and characteristics of period studied, evaluation of sources for reliability (AO1/AO2/AO3).**

Introduction

* To some extent, sources X and Y are reliable both as information and as evidence for an historian studying Z. For example (Use CTK and NOP)
* However sources and X and Y have limitations to their reliability as information and as evidence for an historian studying Z. For example (Use CTK and NOP)

Conclusion. A summary of the extent of reliability of both sources

|  |  |  |
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| **Level** | **Mark** | **Descriptor** |
| 1 Judgement based on simple valid criteria. | 1–3 | Comments based on subject/amount of detail, or assumed reliability because of time/nature /origins of the source. Maximum 2 marks for use of one source only |
| 2 Judgement is based on the reliability of sources’ information or an evaluation of the nature or authorship of sources. | 4–7 | EITHER Answer focuses on details which can be corroborated or challenged.OR Answer focuses on how reliable/representative/authoritative the source is.Maximum 5 marks if Level 2 criteria are met for only one source.Maximum 6 marks if answer does not use own knowledge of the context. |
| 3 Judgement combines both elements of Level 2 to assess the reliability of the sources for the specific enquiry | 8–10 | Answer considers the reliability of the information, taking into account an aspect of its nature (ie how reliable/representative/ authoritative/comprehensive it is).Maximum 8 marks if own knowledge of the historical context is not explicitly used, or if Level 3 criteria are met for one source only. |



**Question Number \*5. Explore, investigate and develop technique.**

**Putting the analytical thinking together to reach a conclusion using the sources and your own knowledge.**

**‘Quote giving a viewpoint’ How far do you agree with this interpretation? Explain your answer, using your own knowledge, Sources…., …and…., and any other sources you find helpful.**

**Target : knowledge recall and selection, analysis of causation and key features of historical periods, reaching a judgement on representations and interpretations of history (AO1/AO2/AO3).**

**Assessing QWC: For the highest mark in a level all criteria for the level, including those for QWC, must be met.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Totally agree** with some minor qualifications regarding the XXX. | **Mostly agree** with some major qualifications regarding the XXX. | **Mostly disagree** with some major qualifications regarding XXX. | **Totally disagree** with some minor qualifications regarding XXX. |

Introduction

I totally agree/disagree, mostly agree/disagree with this comment because..

· XXX can be extremely useful to historians who wish to find out about YYY. For example..**.**(Use CTK and NOP)

· However the historian should be cautious before totally accepting what these XXX offer as evidence because they could be extremely misleading. For example..(Use CTK and NOP)

In conclusion

I think...

|  |  |  |
| --- | --- | --- |
| **Level** | **Mark** | **Descriptor** |
| 1 Generalised answer. | 1–4 | EITHER Answer offers valid undeveloped comment to support or counter the interpretation, without direct support from sources or additional knowledge.OR Selects details from the sources which support or counter the interpretation, but without direct linkage to the question. QWC Writing communicates ideas using everyday language and shows some selection of material but the response lacks clarity and organisation. The candidate spells, punctuates and uses the rules of grammar with limited accuracy. |
| 2 Supported answer, linking the interpretation to relevant detail. | 5–8 | Answer offers a judgement which agrees with or counters the interpretation and links to relevant details from sources and/or additional knowledge.QWC Writing communicates ideas using a limited range of historical terminology and showing some skills of selection and organisation of material, but passages lack clarity and organisation. The candidate spells, punctuates and uses some of the rules of grammar with general accuracy. |
| 3 Developed evaluation, agreeing or disagreeing with theinterpretation. | 9–12 | Answer reasons from the evidence to consider support and challenge of the claim. At this level the answer will be unbalanced and only points of agreement or disagreement with the interpretation will be convincingly explored.Maximum 10 marks for answers which do not include additional knowledge to support their argument.NB: No access to Level 3 for answers which do not use the sources.QWCWriting communicates ideas using historical terms accurately. Shows some direction and control in the organising of material. The candidate uses some of the rules of grammar appropriately and spells & punctuates with considerable accuracy, although some spelling errors may still be found. |
| 4 Sustained argument and evaluation, reviewingalternative views before giving a balanced judgement onthe interpretation  | 13–16 | Answer considers the evidence which supports the Interpretation and also considers evidence which suggests the other viewpoint. The evaluation of the interpretation is supported by precisely-selected evidence from the sources and additional knowledge.Reserve 15–16 marks for answers which also take into account the strength of the evidence from the provided sources when coming to an overall conclusion.NB: No access to Level 4 for answers which do not include additional knowledge.QWCWriting communicates ideas effectively, using a range of precisely-selected historical terms and organising information clearly and coherently. The candidate spells, punctuates and uses the rules of grammar with considerable accuracy, although some spelling errors may still be found. |