



Component	Description
Title of Lesson	That's Gross
Content/Subject Area	US History
Context	<p>The late 19th century was a time of great medical advancement in Philadelphia and abroad. Philadelphia had a reputation for being particularly well respected in the medical community as the city was the home to many medical institutions and America's first hospital, Pennsylvania Hospital, which still operates to this day.</p> <p>Thomas Eakins was a prominent Philadelphia painter at the time and he is known for two controversial pieces of art depicting medical practices in Philadelphia. By viewing these two images and reading a passage about the influential Dr. Joseph Lister, students will be able to see how medical advancement around the world were received and promoted in Philadelphia for the betterment of the city.</p>
Duration	One 60 minute class period and one 30 minute homework assignment or two 45 minute class periods
Objective	SWBAT analyze a scientific diary and two paintings IOT determine how medical advancements from around the world of the late 19th century influenced Philadelphia.
Standards	<p>8.1.9.A Compare patterns of continuity and change over time, applying context of events.</p> <p>8.2.12.C Evaluate continuity and change in Pennsylvania are interrelated to the US and the world: Technology</p> <p>CCSS.ELA-LITERACY.RH.9-10.2 Determine the central ideas or information of a primary or secondary source; provide an accurate summary of how key events or ideas develop over the course of the text.</p> <p>CCSS.ELA-LITERACY.RH.9-10.9 Compare and contrast treatments of the same topic in several primary and secondary sources.</p>
Instruction Part 1 5 minutes	<p><i>Think/Pair/Share</i></p> <p>Display the following quote ("That's Gross" Slideshow Slide #2), and ask students to discuss with their neighbors what image may have caused such a reaction.</p> <p>"... one of the most powerful, horrible, yet fascinating pictures that</p>

	<p>has been painted anywhere in this century...but the more one praises it, the more one must condemn its admission to a gallery where men and women of weak nerves must be compelled to look at it, or not to look at it is impossible."</p>
<p>Instruction Part 2 5 minutes</p>	<ol style="list-style-type: none"> 1. Display image of <i>The Gross Clinic</i> ("That's Gross" Slideshow Slide #3) on screen and inform students that this is the controversial painting from the anticipatory set, gauge their reactions with discussion. 2. Distribute Student Handout A and let students know they are to view the images and answer the questions.
<p>Instruction Part 3 20 minutes</p>	<ol style="list-style-type: none"> 1. Students will view <i>The Gross Clinic</i> ("That's Gross" Slideshow Slide #4) and answer questions on Student Handout A. Teacher should circulate and offer support. 2. Discuss answers with the class. 3. Provide additional information about the painting ("That's Gross" Slideshow Slide #5) 4. Students will view <i>The Agnew Clinic</i> ("That's Gross" Slideshow Slide #6) and answer questions on Student Handout A. Teacher should circulate and offer support. 5. Discuss answers with the class. 6. Provide additional information about the painting ("That's Gross" Slideshow Slide #7) 7. Provide background information about Dr. Joseph Lister ("That's Gross" Slideshow Slide #8)
<p>Instruction Part 4 25 minutes</p>	<ol style="list-style-type: none"> 1. Distribute Student Handout B. 2. Students will read primary source text and answer text based questions. Teacher should circulate and offer support.
<p>Closure 5 minutes</p>	<p>Review answers to Student Handout B</p>
<p>Assessment 30 minutes</p>	<p>Student Handout C</p> <p>Use the information in text of <i>Joseph Lister, his Life and Work</i> as well as the details from Thomas Eakins paintings <i>The Gross Clinic</i> and <i>The Agnew Clinic</i> to complete the following activity.</p> <p><u>I Was There</u> Pretend you were one of Agnew's students in Thomas Eakins The Agnew Clinic. Dr. Agnew has extensively taught you and your classmates about the work of Dr. Lister and the importance of Antiseptic Surgery. Write your reactions and observations to the surgery in a detailed one page diary entry.</p>

<p>Key Terms</p>	<p>Antiseptic - chemicals that kill germs Septicemia - blood poisoning brought on by germs in the blood stream Erysipelas - a type of bacterial infection common in the 19th century Postmortem - after death Suppuration - the process of forming pus Putrefaction - the process of decaying flesh Fermentation - process of gasses produced by bacteria Calico - a type of cloth Forceps - large surgical tweezers Tenacious - firm holding</p>
<p>Resources and Materials</p>	<p><i>Background Reading for teachers</i> https://en.wikipedia.org/wiki/The_Gross_Clinic https://en.wikipedia.org/wiki/The_Agnew_Clinic http://www.archives.upenn.edu/histy/features/1800s/1889med/agnewclinic.html http://www.philamuseum.org/collections/permanent/299524.html</p> <p><i>Full Text of the Joseph Lister, his Life and Work</i> https://archive.org/stream/jstor-6707/6707_djvu.txt</p> <p><i>Materials Needed</i> SmartBoard Copies of Student Handout A Copies of Student Handout B Copies of Student Handout C “That’s Gross” Slideshow: https://docs.google.com/presentation/d/10Oc1b0bEu9XwEniQdu4Kq2fGJ_TUVLGPRVssfZNS7gY/edit#slide=id.g115bebf5e4_0_5</p>

Possible Extension Activities

1. **Reimagine History** Write a letter of acceptance from the Centennial Exhibition to Thomas Eakins for his Painting “The Gross Clinic”. Tell him specifically what the commission liked about the painting and why it showcases the best of Philadelphia.
2. **Modern Medicine** Research an emerging medical procedure. Provide a summary of what the new medical procedure is and its potential impact on Philadelphia.
3. **Field Trip** Visit the painting at the Philadelphia Museum of Art

Name: _____ Date: _____ Per: _____

That's Gross

Student Handout A



The Gross Clinic, Thomas Eakins 1875



The Agnew Clinic, Thomas Eakins 1889

<p>What do you see in this painting?</p>	<p>What do you see in this painting that is similar to The Gross Clinic?</p>
<p>What reaction do you think the artist wanted to viewers of this particular piece of art to have?</p>	<p>What reactions do the medical students in the image seem to be having to this surgery?</p>
<p>What can this painting teach us about life in Philadelphia in 1875?</p>	<p>What major changes to medicine seem to have taken place in the time between the creation of these two paintings?</p>

Name: _____ Date: _____ Per: _____

That's Gross

Student Handout B

JOSEPH LISTER, HIS LIFE AND WORK

By Dr. PAUL F. CLARK, UNIVERSITY OF MICHIGAN

In order the better to understand his most important work, namely, Lister's discovery of the principles of **antiseptic** surgery, it will be necessary to suggest briefly the conditions that prevailed in hospitals. At that time there was no security that the simplest operation would not end in a fatal **septicemia**.

... When a dresser or a house surgeon entered upon his term of office, he hunted up an old coat... Their operating coats lasted from year to year and eventually acquired an incrustation of filth of which the owners appeared unconscious or even proud... No attempt was made to isolate septic cases; nurses and dressers passed directly from **erysipelas** wards to healthy patients... The supply of water even in the operating theaters was inadequate and one of the frequent duties of the operating surgeon was the performing of **postmortem** examinations. As in Vienna... the surgeon used frequently to come from the post-mortem chamber directly to the operating room, with only such cleanliness as common decency demanded.' Surgeons were not ashamed to speak of a "good old surgical stink."

... The mortality statistics after amputation gives some indication as to the prevailing conditions. At the Edinburgh Infirmary the death rate was 43 per cent; at Glasgow Infirmary 89.1 per cent. At the Pennsylvania Hospital the record was unusually good, the average mortality for a series of years being 24.3...

It was under such conditions as these that Lister taught and worked, his technique being no better than that of many others. There was this difference, however: he did not believe these conditions inevitable, and he was constantly searching by observation and experiment to find out the cause of the high mortality in all hospitals.

In 1865, while intensely occupied with the study of **suppuration**, Lister learned from the work of Louis Pasteur that **putrefaction** was a kind of **fermentation** caused by the growth of microorganisms and that these microorganisms were present in the dust of the air and responsible for wound infection... In considering the possible methods of eliminating the airborne infections, he chose chemical antiseptics as his means and happened to hit upon carbolic acid first. The first product used was a crude acid known as German creosote, which he tried on a compound fracture. Quoting from one of his papers:

*After cleansing the broken limb and squeezing out as far as possible all parts of blood, a piece of **calico** or lint soaked in undiluted*

Antiseptic - chemicals that kill germs

Septicemia - blood poisoning brought on by germs in the blood stream

Erysipelas - a type of bacterial infection common in the 19th century

Postmortem - after death

Suppuration - the process of forming pus

Putrefaction - the process of decaying flesh

Fermentation - process of gasses produced by bacteria

Calico - a type of cloth

<p><i>carbolic acid and held by a pair of forceps, was introduced into the wound and passed freely in all directions in order to destroy the germs that had entered either at the time of the accident or afterwards and might be lurking in deeper parts. ...The dressing was then fixed in position by strips of adhesive plaster ... for the purpose of soaking up any blood or discharges that might escape. The blood and carbolic acid soon formed a tenacious crust or thick paste which was not removed for several days but its antiseptic properties were renewed from time to time by painting some more of the undiluted carbolic acid on its outer surface..."</i></p> <p>... He did not obtain another suitable case for the application of his principle until the spring of 1866. This also was a compound fracture and he wrote his father on May 27 :</p> <p><i>"It is now eight days since the accident and the patient has been going on exactly as if there were no external wound, that is as if the fracture were a simple one. His appetite, sleep, etc., good, and the limb daily diminishing in size while there is no appearance whatever of any matter forming. Thus a most dangerous accident seems to have been entirely deprived of its dangerous element."</i></p>	<p>Forceps - large surgical tweezers</p> <p>Tenacious - firm holding</p>
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1. Describe the conditions in hospitals prior to Lister's work. Cite at least two pieces of evidence from the text to justify your description.
2. What portions of Lister's methods as described in his writing, sound similar to modern medicine?
3. What impact of Lister's work can you see in Thomas Eakins *The Agnew Clinic*?

