




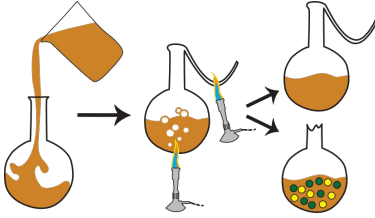
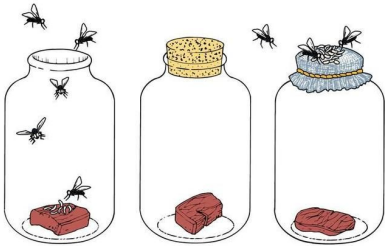


History of Microbiology

Topic Questions	Notes		
What is the cell theory?	Part 1: All organisms are composed of one or more cells.	Part 2: The cell is the basic unit of structure and organization in all organisms.	Part 3: All cells come from pre-existing cells.
Who are the major contributors to microbiology? 	<p><i>Father of Microbiology</i></p>  <p>Anton van Leeuwenhoek</p> <ul style="list-style-type: none">- Made simple magnifying glass- Observed "animalcules" <p><i>Father of Microbiology</i></p>  <p>Louis Pasteur</p> <ul style="list-style-type: none">- French chemist and microbiologist- Discoveries in vaccination, microbial fermentation and pasteurization	<p><i>Father of The Cell</i></p>  <p>Robert Hooke</p> <ul style="list-style-type: none">- Coined the term "cell"- Described common bread mold <p><i>Father of Immunology</i></p>  <p>Edward Jenner</p> <ul style="list-style-type: none">- First Smallpox Vaccine- Used cowpox to create this	
What is spontaneous generation?	<p>Theory: Living organisms develop from non-living matter</p> <p>Scientists Involved:</p> <p>Francesco Redi</p> <ul style="list-style-type: none">- Tried to disprove theory- Performed an experiment using jars and meat- Demonstrated that maggots on rotting meat came from the eggs of flies landing on the meat- Disproved spontaneous generation <p>Louis Pasteur</p> <ul style="list-style-type: none">- Demonstrated that air is filled with microorganisms- Boiled a meat broth in a "goose neck" flask which prevented falling particles from reaching the broth while still allowing the free flow of air.- Flask remained free of growth until it was turned so that way particles could enter- Disproved spontaneous generation and codified the Law of Biogenesis - Life only comes from previously existing life. <p>John Tyndall</p> <ul style="list-style-type: none">- Proved Pasteur was correct, but that sterilizing broths required different amount of times <p>Ferdinand Cohn</p> <ul style="list-style-type: none">- Discovered endospores (heat resistant form of bacteria) <p>Robert Koch</p> <ul style="list-style-type: none">- Demonstrated anthrax caused by a spore forming bacteria- Koch's Postulates <div></div> <div><p><u>Summarize Koch's Postulates:</u></p></div>		

Timeline of the Golden Age

Topic Questions	Notes
What happened in the golden age of microbiology?	<div><div></div><ul style="list-style-type: none">- <u>1831: GERM THEORY / EPIDEMIOLOGY</u> - Dr. John Snow tracks cholera epidemic in London, and establishes link to contaminated water- <u>1847: HAND HYGIENE</u> - Ignaz Semmelweis discovered link between doctor's soiled hands and patient infection- <u>1856: PASTEURIZATION</u> - Louis Pasteur establishes temperature range necessary to kill spoilage causing bacteria- <u>1859: HOSPITAL HYGIENE</u> - Florence Nightingale improves air and water quality in hospitals- <u>1862: GERM THEORY</u> - Louis Pasteur proves that spoilage and infection are caused by microorganisms- <u>1867: ANTISEPTIC SURGERY</u> - Joseph Lister (sound familiar?) uses carbolic acid as an antiseptic for surgery and dressings, reducing infection from 60% to 4%- <u>1876: KOCH</u> - First Proof of Germ Theory of Diseases- <u>1881: Growth of Bacteria on Solid Media</u>- <u>1882 - Koch's Postulates</u>- <u>1882: ACID FAST STAIN</u> - Developed by Paul Ehrlich- <u>1884: GRAM STAIN</u> - Developed by Christan Gram- <u>1887: PETRI DISH</u> - Invented by R.J. Petri- <u>1892: VIRUSES</u> - Discovered by Dmitri Iosifovich Ivanovski)- <u>1899: Martinus Beijerinck</u> - Recognized viral dependence on cells for reproduction- <u>1900: Walter Reed</u> - Proved mosquitoes carried the yellow fever agent- <u>1910: Paul Ehrlich</u> - Discovered cure for syphilis- <u>1928: PENICILLIN</u> - Discovered by Alexander Fleming<p><i>Beyond the Golden age...</i></p><ul style="list-style-type: none">- <u>1977: W. Gilbert & F. Sanger</u> - Developed a method to sequence DNA- <u>1983: (PCR)</u> - Polymerase Chain Reaction invented by Kary Mullis- <u>1995</u> - First microbial genomic sequence published (H. influenzae) (TIGR)- More Discoveries with the aid of technology!</div>
What is the Germ theory?	Ted+Ed: Germ Theory Video – Summarize the important findings from the video!