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| **Guided Notes: Early Scientists and the Cell Theory** |
| https://encrypted-tbn0.gstatic.com/images?q=tbn:ANd9GcRfChREoe5MIwq9GyYRvamrjm4Cf3nrjSuR8g2geICxtJfT3XrS**Levels of Organization** (smallest to largest) | 1.
2.
3.
4.
5.
6.
7.
8.
 |
| https://encrypted-tbn3.gstatic.com/images?q=tbn:ANd9GcQZkjIVMsWv7YuPbwlWPZF0aFnViLysM8LhlHBMLYTPp7QtiuY-A **CELL** is… | *
* Cells were unknown until the invention of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the 1650’s.
 |
| **Anton van Leeuwenhoek** http://www.cartage.org.lb/en/themes/sciences/physics/optics/OpticalInstruments/Microscope/GlassSphere/usph_08.gif(1632-1723)  | * Observed pond water, sour milk, blood and semen
* Named the tiny living organisms he saw…
* Invented the 1st…
 |
| **Robert Hooke**https://encrypted-tbn2.gstatic.com/images?q=tbn:ANd9GcRfJqMG9u3xEIqs1OXhgQlb2KXl8uybbToSud6Ht3-jx_IWvgoK(1635-1703) | * Studied slices of cork
* Named the tiny structures he saw \_\_\_\_\_\_\_\_ because they reminded him of the small rooms monks slept in
* He was actually viewing…
 |
| **Matthias Schleiden**(1804-1881) | * 1804: German botanist concluded that…
 |
| **Theodor Schwann**(1810-1882) | * 1839: German physiologist concluded that…
 |
| **Rudolf Virchow**(1821-1902) | * 1858: German physician concluded that…
 |
| **3 components of the Cell Theory**1.
2.
3.
 |
| **Modern Cell Theory*** The cell contains hereditary information (\_\_\_\_\_\_\_\_\_\_) which is passed on from cell to cell during (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_).
* All cells are basically the same in chemical composition and metabolic activities.
* All basic chemical and physiological functions are carried out \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of cells.
* Cell activity depends on the activities of…
 |
| https://encrypted-tbn3.gstatic.com/images?q=tbn:ANd9GcRcKSBu76lVwBgUXT5r2zMGAhS2F_y7cTEt5vEhnpYHiQ1ochbS**Spontaneous Generation** | * Until the 1850’s, most people believed that living things could spontaneously appear from…
* EX: Mice could be created by…
 |
| **Francesco Redi****(1626-1697)** | * 1st to challenge…
* Did not accept the idea that flies came from rotting meat
 |
| **Redi’s Experiment****(1668)**http://www.pc.maricopa.edu/Biology/rcotter/BIO%20205/LessonBuilders/Chapter%201%20LB/maggots.jpg | * IV:
* DV:
* Hypothesis: If a jar containing rotting meat is covered, then…
* Conclusion: Flies lay eggs, eggs grow into maggots, maggots grow into flies. If flies cannot lay eggs...
 |
| **Objections to Redi**https://encrypted-tbn1.gstatic.com/images?q=tbn:ANd9GcQbv7RphywSPIVPyDuPeuV4AijpA_VeAVnw2PLxtPqwKoLldGb9dQ  | * Sealing the jar kept…
* Accepted the notion that large organisms could not spontaneously generate, but…
 |
| **http://aportes.educ.ar/biologia/Experimentos%2BSpallanzani.jpgLazzaro Spallanzani (1729-1799)**  | * Microbes that spoil food come from the air and can be killed by boiling.
* IV:
* DV:
* Hypothesis: If air is allowed to reach food, then…
 |
| **Spallanzani’s Experiment****(mid-1700’s)****Flask 1:** **Flask 2:** **Results:**  | http://i6.photobucket.com/albums/y227/childofthecorn9/school_biology/boilinggravy.gif |
| **Objections to Spallanzani**https://encrypted-tbn1.gstatic.com/images?q=tbn:ANd9GcS-UKyOqUDIKlwqL32wCoRgqSWBdVpB1BCAIl_zAXNVrRTXqATkvQ | * Sealing the flask…
*
 |
| **Louis Pasteur****(1822-1895)** | * Supported the idea that…
* Invented \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (sterilization by heat)
* Developed a special “swan-neck flask” which…
 |
| **Pasteur’s Experiment (mid-1800’s)****IV:****DV:****Hypothesis:**  | http://i6.photobucket.com/albums/y227/childofthecorn9/school_biology/brothinflask.gif |
| **SOL Practice Questions**

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| 1. Which of the following came first in the scientific study of living things? a. Light microscope c. Cell Theoryb. Electron microscope d. Model of DNA | 2. The results of Pasteur’s experiment helped Pasteur to — a. isolate the virus responsible for smallpox b. reject the theory of spontaneous generation c. convince people to cover food d. produce a vaccine against rabies   |

3. Francesco Redi performed an experiment in 1668. In the experiment, he placed rotting meat in two jars. The first jar was left open. After a few days, fly larvae were found on the decaying meat inside. The mouth of the second jar was covered with gauze. After a few days, the decaying meat inside was free of fly larvae, but larvae were found on the gauze. This experiment supports the hypothesis that —a. fly larvae only come from adult flies c. Adult flies are not attracted to decaying meatb. fly larvae prefer fresh meat d. Decaying meat produces fly larvae |
| **A Cloze Activity on the Cell Theory** In 1665, Robert Hooke, an English scientist, used a crude compound light microscope to examine thin slices of cork from the bark of an oak tree. He observed that the (1)\_\_\_\_\_\_\_\_\_\_ was composed of tiny, (2)\_\_\_\_\_\_\_\_\_\_ boxes similar to a (3)\_\_\_\_\_\_\_\_\_\_. Hooke called the boxes (4)\_\_\_\_\_\_\_\_\_\_ because they reminded him (5)\_\_\_\_\_\_\_\_\_\_ the small, boxy living (6)\_\_\_\_\_\_\_\_\_\_ of monks. Their rooms (7)\_\_\_\_\_\_\_\_\_\_, in fact, called cells. (8)\_\_\_\_\_\_\_\_\_\_, we know that the (9)\_\_\_\_\_\_\_\_\_\_ Hooke observed were the cell (10)\_\_\_\_\_\_\_\_\_\_ of dead plant cells. (11)\_\_\_\_\_\_\_\_\_\_ published his drawings and (12)\_\_\_\_\_\_\_\_\_\_ which led other scientists (13)\_\_\_\_\_\_\_\_\_\_ that time to look (14)\_\_\_\_\_\_\_\_\_\_ evidence of cells. In (15)\_\_\_\_\_\_\_\_\_\_ 1830’s, two German scientists, (16)\_\_\_\_\_\_\_\_\_\_ Schleiden and Theodor Schwann (17)\_\_\_\_\_\_\_\_\_\_ able to view many (18)\_\_\_\_\_\_\_\_\_\_ organisms with microscopes and (19)\_\_\_\_\_\_\_\_\_\_ some important conclusions. Schleiden (20)\_\_\_\_\_\_\_\_\_\_ a microscope to observe (21)\_\_\_\_\_\_\_\_\_\_ and concluded that all (22)\_\_\_\_\_\_\_\_\_\_ are composed of cells. (23)\_\_\_\_\_\_\_\_\_\_ made similar observations about (24)\_\_\_\_\_\_\_\_\_\_ cells.  The observations and (25)\_\_\_\_\_\_\_\_\_\_ of scientists from the (26)\_\_\_\_\_\_\_\_\_\_ 17th century to the (27)\_\_\_\_\_\_\_\_\_\_ of Schwann and Schleiden (28)\_\_\_\_\_\_\_\_\_\_ summarized into the cell (29)\_\_\_\_\_\_\_\_\_\_, one of the most (30)\_\_\_\_\_\_\_\_\_\_ ideas of modern biology.(31)\_\_\_\_\_\_\_\_\_\_ cell theory is made (32)\_\_\_\_\_\_\_\_\_\_ of three main ideas…1. (33)\_\_\_\_\_\_\_\_\_\_ organisms are composed of (34)\_\_\_\_\_\_\_\_\_\_ or more cells. An (35)\_\_\_\_\_\_\_\_\_\_ may be a single (36)\_\_\_\_\_\_\_\_\_\_, such as an amoeba (37)\_\_\_\_\_\_\_\_\_\_ a bacterium. Larger organisms, (38)\_\_\_\_\_\_\_\_\_\_ as humans, are composed (39)\_\_\_\_\_\_\_\_\_\_ many cells.
2. The cell (40)\_\_\_\_\_\_\_\_\_\_ the basic unit of (41)\_\_\_\_\_\_\_\_\_\_ of organisms. In the (42)\_\_\_\_\_\_\_\_\_\_ way that the basic (43)\_\_\_\_\_\_\_\_\_\_ of matter is the (44)\_\_\_\_\_\_\_\_\_\_, the basic unit of (45)\_\_\_\_\_\_\_\_\_\_ is the cell.
3. All (46)\_\_\_\_\_\_\_\_\_\_ come from pre-existing cells. (47)\_\_\_\_\_\_\_\_\_\_ come from the reproduction (48)\_\_\_\_\_\_\_\_\_\_ previously existing cells, a (49)\_\_\_\_\_\_\_\_\_\_ in which cells reproduce (50)\_\_\_\_\_\_\_\_\_\_ copies of themselves.

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| --- | --- | --- | --- | --- |
| All | Animal | Are | At | Atom |
| Basic | Cell | Cells | Cells | Cells |
| Cells | Conclusion | Cork | Descriptions | Different |
| Draw | Exact | For | Hollow | Honeycomb |
| Hooke | Is | Late | Life | Mathias |
| Of  | Of | Of | One | Or |
| Organism | Organization | Plants | Plants | Process |
| Quarters  | Same | Such | Schwann | The |
| The | Theory | Time | Today | Unit |
| Up | Used | Walls | Were | Were |

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