

Biology Unit Questions – Microscopes

You will need the Science 9 Textbook to answer these questions. Answer in full sentences.

The pages used to answer the question for this section can be found in CHAPTER 5, Pages 140-141 and 144-147.

1. Who was the first scientist to view cells under a microscope, and in what year? b) What was it that he actually saw and called cells?
2. Who was the first scientist to observe living cells, and when? Copy/add this information in your notes (answers) as well: He is known as the father of microscopy because of his work on lenses to increase the magnification of microscopes.
3. Who was the first scientist to observe something inside cells, and when? b) What organelle (internal component of a cell) did he observe?
4. Copy this information : The simplest type of microscope is the “light microscope”; it comes in 2 types – simple light microscope (single lens) and compound light microscope (2 or more lenses). a) What is an advantage of a light microscope? b) What is a disadvantage/limitation of a light microscope? c) What is the maximum magnification of a light microscope?
5. What is an advantage of a transmission electron microscope? b) What is a disadvantage/limitation of a transmission electron microscope? c) What is the maximum magnification of a transmission electron microscope?
6. What is an advantage of the scanning electron microscope? b) What is a disadvantage/limitation of a scanning electron microscope? c) What is the maximum magnification of a scanning electron microscope?
7. Referring to Table 1, list the following in order from smallest to largest: organ, bacterium, plant cell, animal cell, molecule, organism, virus
8. Write the name and explanation for Aristotle’s theory of how living things can get started.
9. What scientist first questioned Aristotle’s theory (s.g.) in 1668, by showing that simple organisms only come from simple organisms, and cannot develop from nonliving material? (Hint: summarizing sentence is at top of p. 145.)

10. About a hundred years after Redi's work, John Needham partially agreed with Redi (living organisms cannot come from nonliving material), but he partially disagreed. What did he demonstrate/conclude from his experiments?
11. About 25 years later (after Needham's work), Lazzaro Spallanzini questioned Needham's experiment – what did he conclude? What 2 things did he do differently than Needham?
12. In the later 1800's, who "put the nail in the coffin" of any suggestion of life somehow developing from nonliving material?
13. List the 3 premises of cell theory.
14. Write a definition of "life" or "living" or "alive". Use your own words.

Part 2: Fill out the diagram below.

