

Name: _____ Date: _____

Escape the Bio-Lab: Case Files for 7th Grade Microbiologists

Analyze microbial behaviors and structures to solve real-world mysteries, moving beyond basic recall to evaluate how tiny organisms impact global health and ecology.

1. A scientist finds an organism in a hot spring that lacks a nucleus and has a unique cell wall. To which domain does this extremophile likely belong?

- A. Eukarya
- B. Archaea
- C. Fungi
- D. Protozoa

2. Viruses are considered living organisms because they can reproduce independently outside of a host cell.

- A. True
- B. False

3. During the process of _____, certain bacteria convert nitrogen gas from the air into a form that plants can use to grow.

- A. Photosynthesis
- B. Fermentation
- C. Nitrogen Fixation
- D. Binary Fission

4. Which of these specialized structures does an Amoeba use for both movement and capturing food?

- A. Flagella
- B. Cilia
- C. Pili
- D. Pseudopods

5. A baker uses _____, a microscopic fungus, to make bread rise by releasing carbon dioxide gas during the fermentation of sugars.

- A. Mold
- B. Yeast
- C. Algae
- D. Lichen

6. Eukaryotic microorganisms, such as Diatoms, contain their genetic material inside a membrane-bound nucleus.

- A. True
- B. False

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7. If you observe a slide of lake water and see a spiral-shaped, single-celled organism with a long tail-like structure, how would you classify that tail?

- A. Flagellum
- B. Capsule
- C. Nucleoid
- D. Chloroplast

8. Penicillin, one of the world's first antibiotics, was originally derived from a microscopic _____, showing that microbes can fight other microbes.

- A. Bacterium
- B. Virus
- C. Mold
- D. Protozoan

9. Antibiotics are an effective treatment for viral infections like the common cold or the flu.

- A. True
- B. False

10. Why are decomposers like saprophytic bacteria and fungi considered the 'recyclers' of the ecosystem?

- A. They produce oxygen through photosynthesis
- B. They break down dead organic matter into nutrients for soil
- C. They convert solar energy into chemical energy
- D. They capture atmospheric carbon and turn it into oxygen