

Chapter 12 – Characterizing and Classifying Eukaryotes

1. State four reasons why eukaryotic reproduction is more complex than prokaryotic reproduction.

- Most eukaryotic DNA is packaged with histone proteins.
- Eukaryotes have a variety of methods for reproduction.
- Sexual reproduction, involving gametes and zygotes, has more steps than asexual.
- Algae, fungi, and some protozoa reproduce both sexually and asexually.

2. List three characteristics shared by all protozoa.

- Eukaryotic; Unicellular; No cell walls.

3. List five ways in which fungi are beneficial.

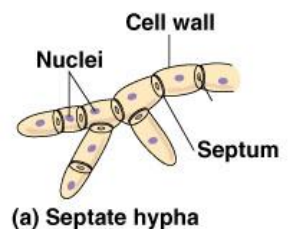
- They decompose dead organisms (particularly plants) and recycle their nutrients.
- The roots of vascular plants form **mycorrhizae**, which absorb water and dissolved minerals.
- Humans use fungi for food, religious ceremonies, and in the manufacture of foods and beverages.
- Fungi also produce antibiotics, such as penicillin and cephalosporin, cyclosporine, and mevinnic acids.
- Fungi are also useful research tools in the study of metabolism, growth, genetics and biotechnology.

4. Cite at least three characteristics that distinguish fungi from other groups of eukaryotes.

- Unlike protozoa, fungi have cell walls composed of chitin.
- Unlike plants, fungi lack chlorophyll and do not perform photosynthesis.
- Even though animals and fungi share genome relatedness, only fungi have cell walls.

5. Distinguish among septate hyphae, aseptate hyphae, and mycelium.

- The non-reproductive body of a fungus (roots area) is made of long, branched, tubular filaments called **hyphae**.
- **Hyphae** could be either **septate** (divided into cells by cross walls called septa) or **aseptate** (not divided).
- An intertwined mass of hyphae make up the **mycelium**. Consider the figure.



6. Describe budding in yeast. Consider the figure.

