

Name \_\_\_\_\_

## Fungi: Nature's Ecosystem Engineers

### Open-Ended Response Answer Key

1. Decomposition is the process by which fungi break down dead organic matter into simpler compounds, releasing nutrients back into the soil. This process is important for ecosystems because it recycles nutrients, making them available for uptake by plants and other organisms, and prevents the accumulation of dead organic matter, which could hinder the growth of new life.
2. Mycorrhizal associations benefit both fungi and plants by increasing nutrient uptake and water absorption. Fungi extend the reach of plant roots into the soil, helping plants access essential nutrients such as nitrogen and phosphorus, while plants provide fungi with sugars produced through photosynthesis, fueling fungal growth and reproduction.
3. Fungi contribute to soil formation by producing hyphae, thread-like structures that bind soil particles together and improve soil stability and fertility. Soil structure is important for ecosystems because it affects water retention, nutrient availability, and the growth of plants and other organisms.
4. One example of a fungal pathogen is *Candida albicans*, a yeast that can cause infections in humans, particularly in the mouth, throat, and genital areas. This fungal pathogen can lead to conditions such as thrush and yeast infections, impacting the health and well-being of its host organism.

