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BIO 102

1. How are fungi important to mankind?

**Fungi** are **important** to everyday human life. **Fungi** are **important** decomposers in most ecosystems.

 **Fungi**, as food, play a role in human nutrition in the form of **mushrooms**, and also as agents of fermentation in the production of bread, cheeses, alcoholic beverages, and numerous other food preparations.

1. Illustrate the cell structure of a unicellular fungus with a well labeled diagram.



1. Outline the sexual reproduction in a typical filamentous form of fungi.

Sexual reproduction in the fungi consists of three sequential stages: plasmogamy, karyogamy, and [meiosis](https://www.britannica.com/science/meiosis-cytology). The diploid chromosomes are pulled apart into two daughter cells, each containing a single set of chromosomes (a [haploid](https://www.britannica.com/science/haploidy) state). Plasmogamy, the fusion of two protoplasts (the contents of the two cells), brings together two compatible haploid nuclei. At this point, two nuclear types are present in the same cell, but the nuclei have not yet fused. Karyogamy results in the fusion of these haploid nuclei and the formation of a diploid nucleus (i.e., a nucleus containing two sets of [chromosomes](https://www.britannica.com/science/chromosome), one from each parent). The cell formed by karyogamy is called the [zygote](https://www.britannica.com/science/zygote). In most fungi the zygote is the only cell in the entire life cycle that is diploid. The dikaryotic state that results from plasmogamy is often a prominent condition in fungi and may be prolonged over several generations. In the lower fungi, karyogamy usually follows plasmogamy almost immediately. In the more evolved fungi, however, karyogamy is separated from plasmogamy. Once karyogamy has occurred, meiosis (cell division that reduces the [chromosome number](https://www.britannica.com/science/chromosome-number) to one set per cell) generally follows and restores the haploid phase. The haploid nuclei that result from meiosis are generally incorporated in spores called [meiospores](https://www.britannica.com/science/meiospore).

1. How do Bryophytes adapt to their environment?

Two adaptations made **the** move from water to land possible for **Bryophytes**: **a** waxy cuticle and gametangia. **The** waxy cuticle helped to protect **the** plants tissue from drying out and **the** gametangia provided further protection against drying out specifically for **the** plants gametes.

1. Describe with illustration the following terminologies: (a) eusteles (b) atactostele (c) siphonostele (d) dictyostele.
2. eusteles : a stele typical of dicotyledonous plants that consists of vascular bundles of xylem and phloem strands with parenchymal cells between the bundles.



1. atactostele :  A type of eustele, found in monocots, in which the vascular tissue in the stem exists as scattered bundles.



1. siphonostele : A **stele** in which the vascular tissue is in the form of a cylinder surrounding the pith, as in the stems of most ferns and other seedless vascular plants.



1. dictyostele : a stele in which the vascular cylinder is broken up into a longitudinal series or network of vascular strands around a central pith (as in many ferns).



1. Illustrate the life cycle of a primitive vascular plant.

