

Lecture 4 Core Learning Objectives

1. Spores are the offspring of a fungus
2. Spores arise through either sexual and asexual processes
3. Evolutionary pressure to survive drives the evolution of spore dispersal mechanisms
4. Innovation can arise from
 - a) mutation
 - b) a gene-mixing during sexual recombination

Ingredients for a Fungus:

Hypha (plural: hyphae)
(for eating; growing;
making structures)

Spore
(for reproducing and
getting around)



That's it, really.

Stories of spore dispersal are stories of
evolutionary innovation:
Fungi benefit from effective ways to disperse
spores

Fitness

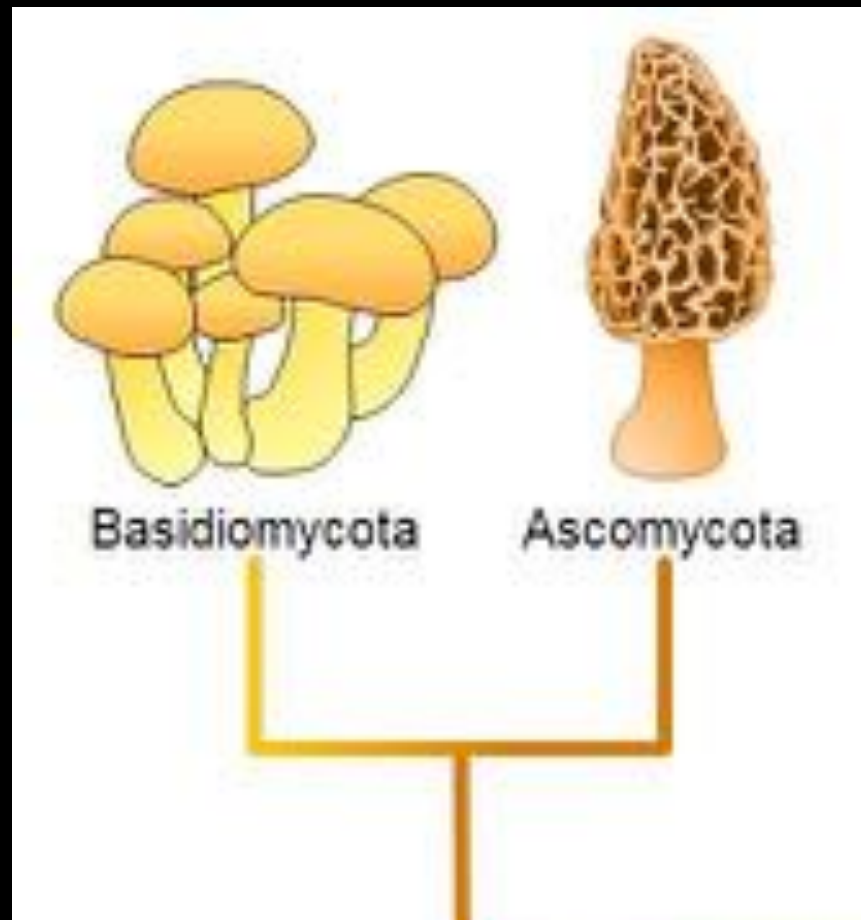
= a measure of
reproductive success

Not just having more offspring, but
**having more offspring that
survive and reproduce.**



Different **evolutionary innovations** in spore dispersal
led to
the success and diversity of these two phyla

basidia make
basidiospores



asci make
ascospores



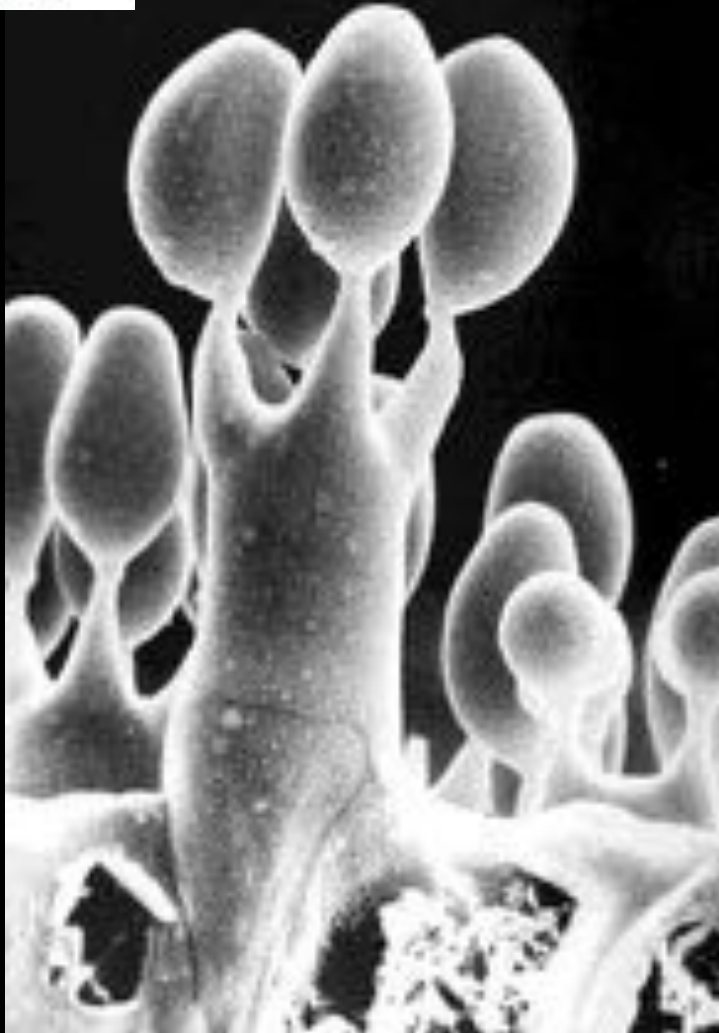
This mushroom (Basidiomycota) releases sexual spores from gills under its cap.

spore print on paper





Basidiomycota make their sexual spores on the outside of cells called **basidia**



The face of each gill bears thousands or millions of basidia

*one basidium
many basidia*



A puff of breath causes this cup fungus
(Ascomycota) to shoot spores all at once





Ascomycota make their spores in
water cannons called **asci**

*one ascus
many asci*

Sexual spore production

Effective spore dispersal is soooo important or your lineage might die out.



Basidiomycota

Passively condense water from outside air; use it to fling their spores out into the air



Ascomycota

Develop water pressure (turgor) inside their asci, use it to SHOOT their spores into the air



a local *Agaricus* sp.