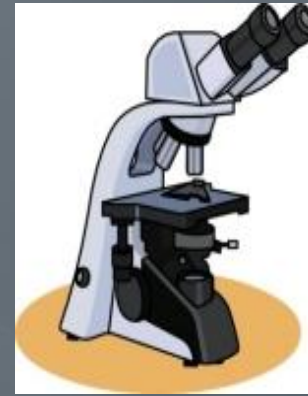
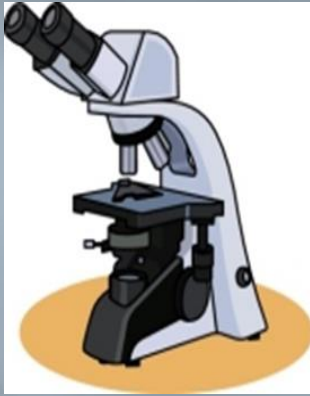
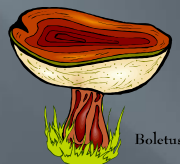
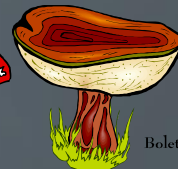




MUSHROOMS & MAGIC MICROSCOPIC MECHANISMS



Boletus

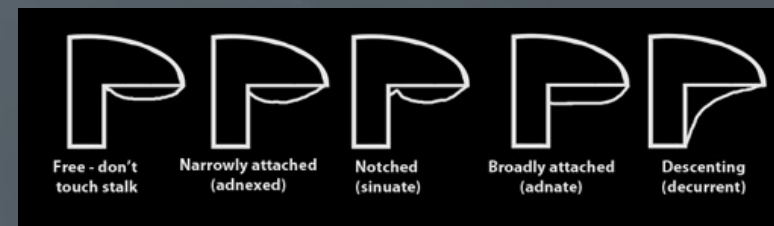
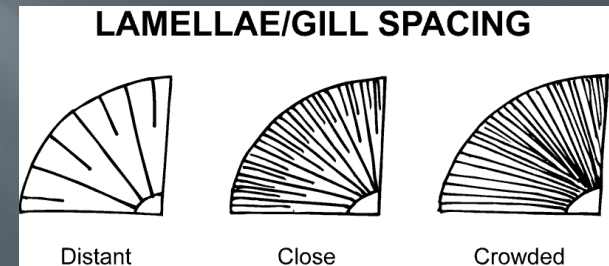
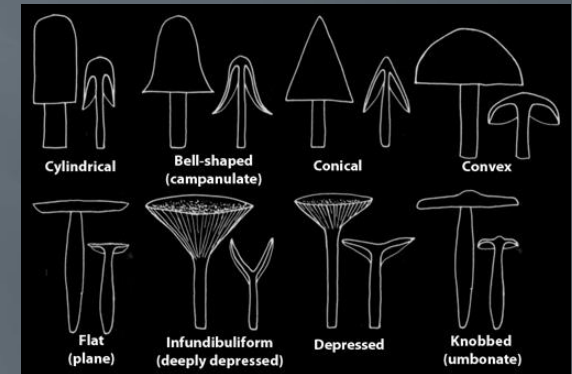
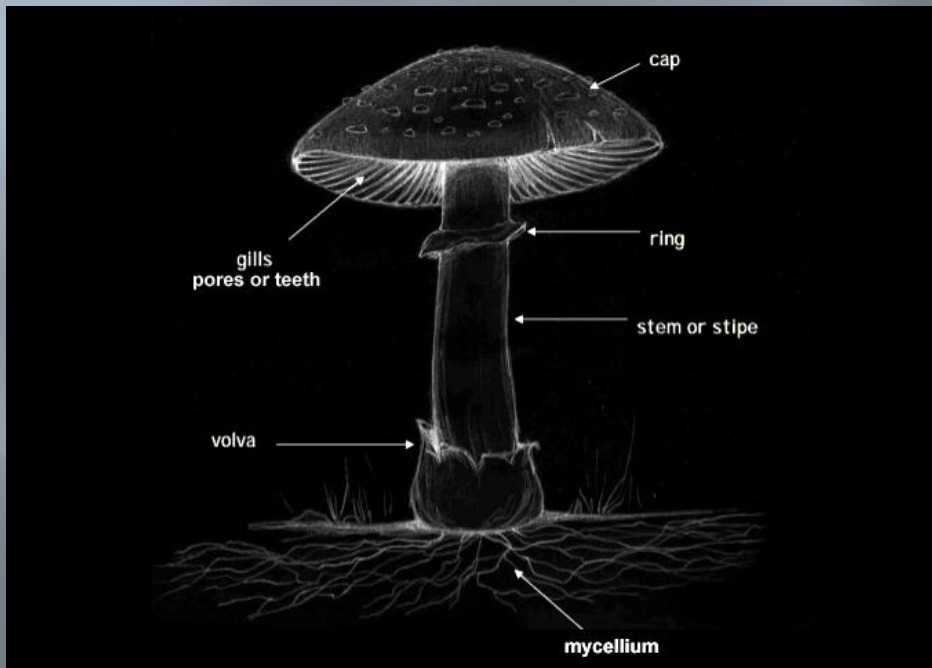


Boletus

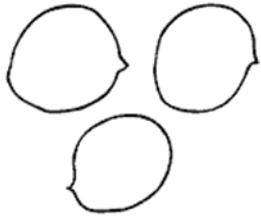


Function of Mushrooms & Spores?

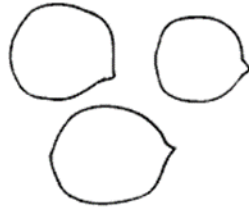
➤ Taxonomy ?



SPORES



Globose



Subglobose



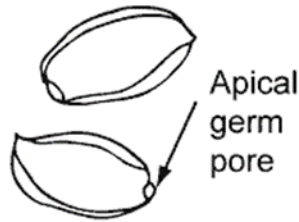
Elliptical



Oblong



Subfusiform



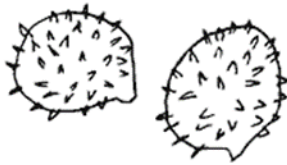
Thick walled with apical germ pore



Cylindric



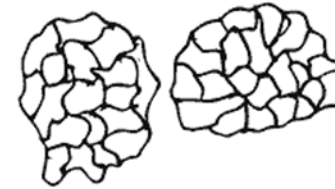
Warty



Spiny



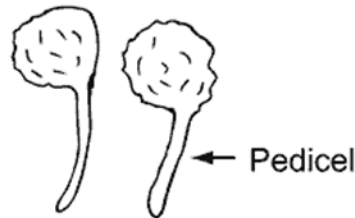
Wrinkled/rugose



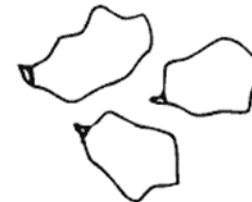
Reticulate



Longitudinally striate



With a pedicel



Angular

Biological meaning of Mushrooms & Spores?

Basidiospores (spores) serve in the
reproduction and dispersal of
Basidiomycete fungi

How do they carry out this function ?

How is this function related to morphology (the
different shapes, sizes, colour, ornamentation etc.) ?

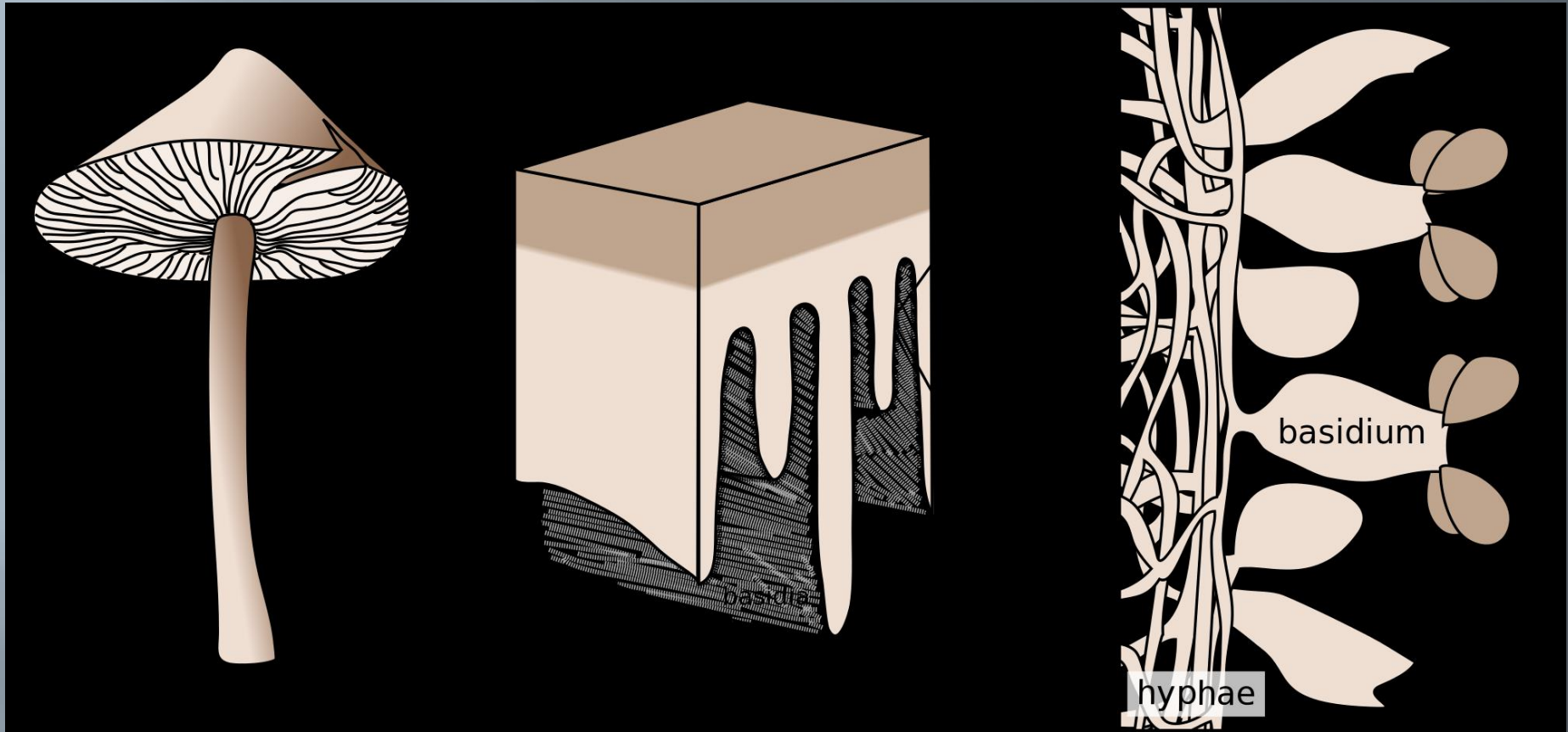


I hope the answers to these questions help you:

- ▣ Appreciate the engineering elegance of spores and mushrooms
- ▣ Appreciate why some mushrooms are very difficult to identify on morphology alone
- ▣ Appreciate the universal rule in biology:
FORM FITS FUNCTION

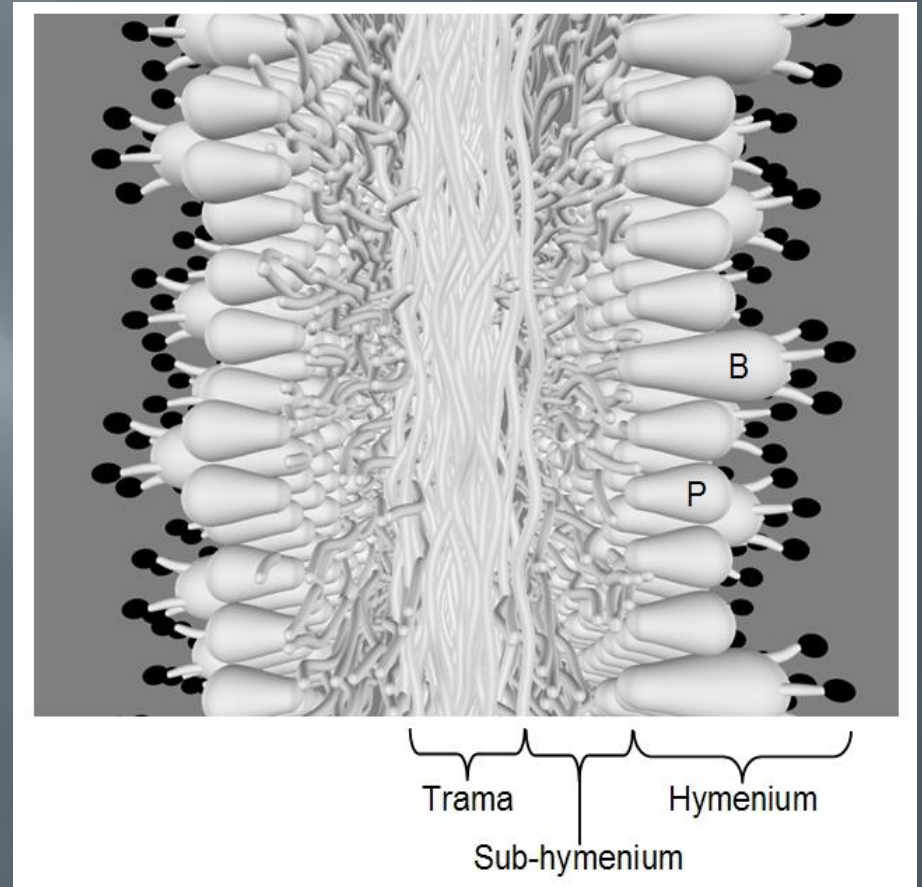
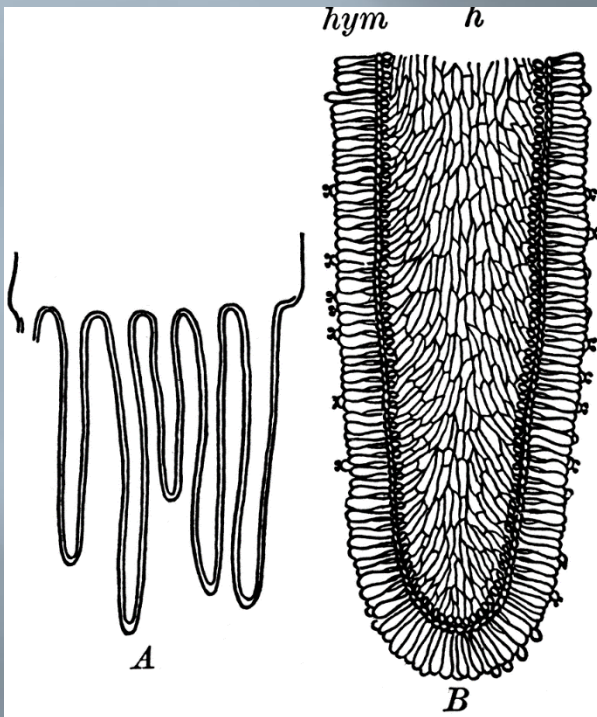
Mushroom Facts

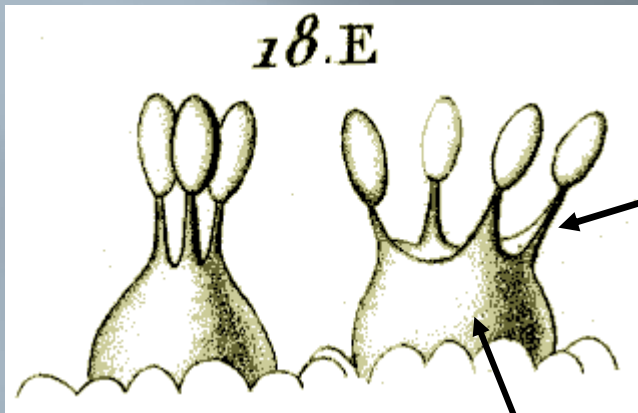
- ▣ Primary function to produce as many spores as possible
- ▣ Release the spores for dispersal
- ▣ Associated with moisture
- ▣ Spore release controlled by microclimate, diurnal rhythms reaching maxima when temperature lowest and with subsequent humidity highest



Gills increase the surface area available for spore formation

Basidia (basidium sl) produce spores on the gill (or pore) surface

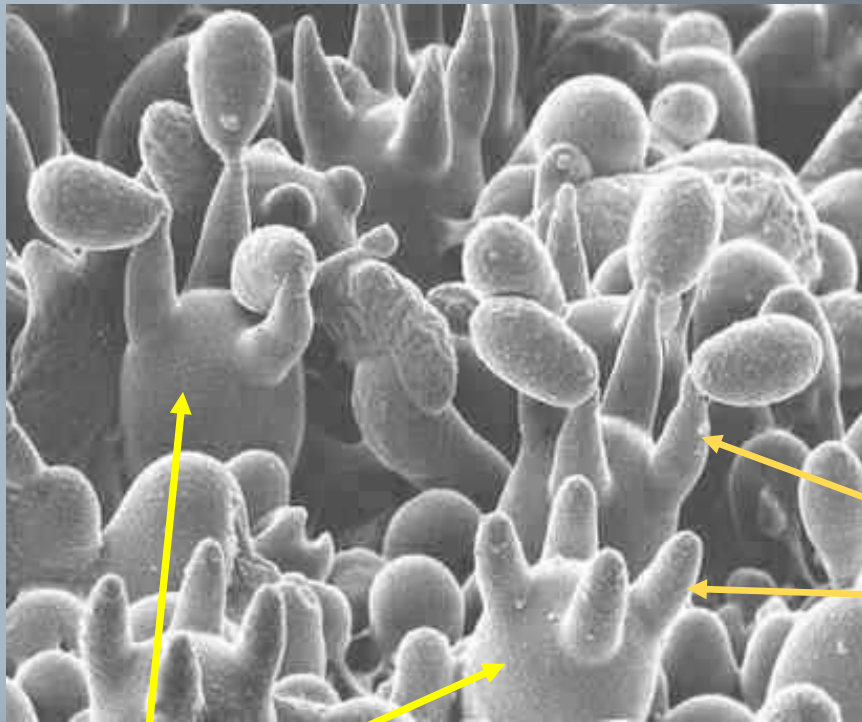




Sterigma

Basidium

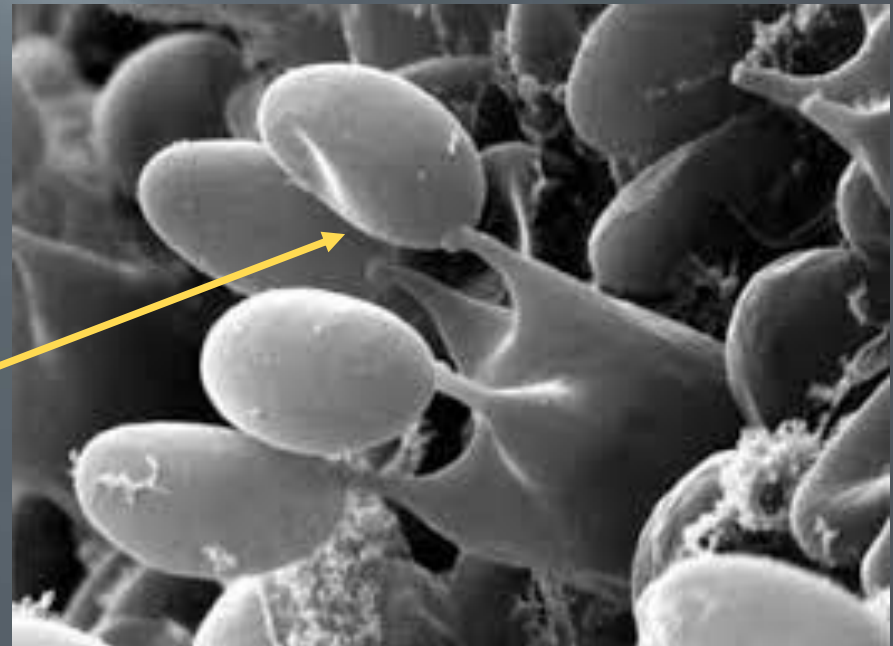




Basidia

Sterigma

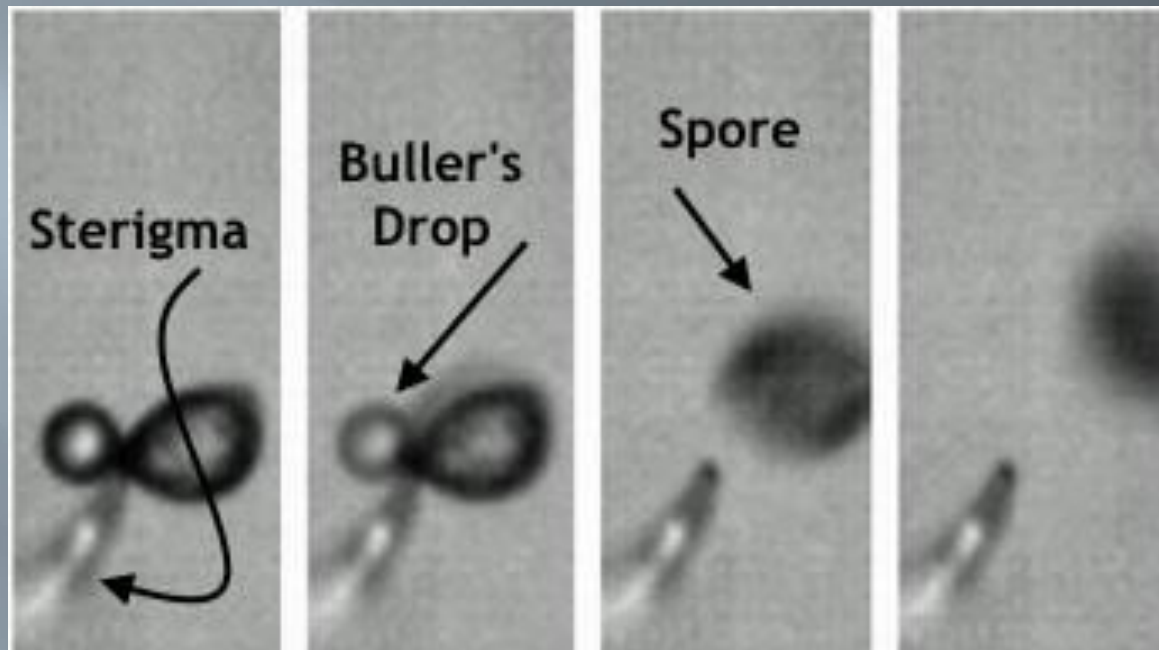
**Some Basidiospores =
Ballistospores**

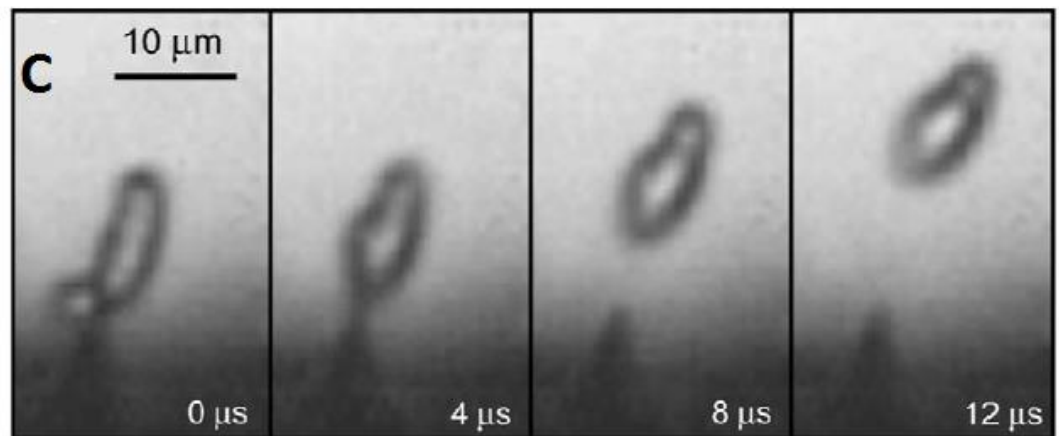
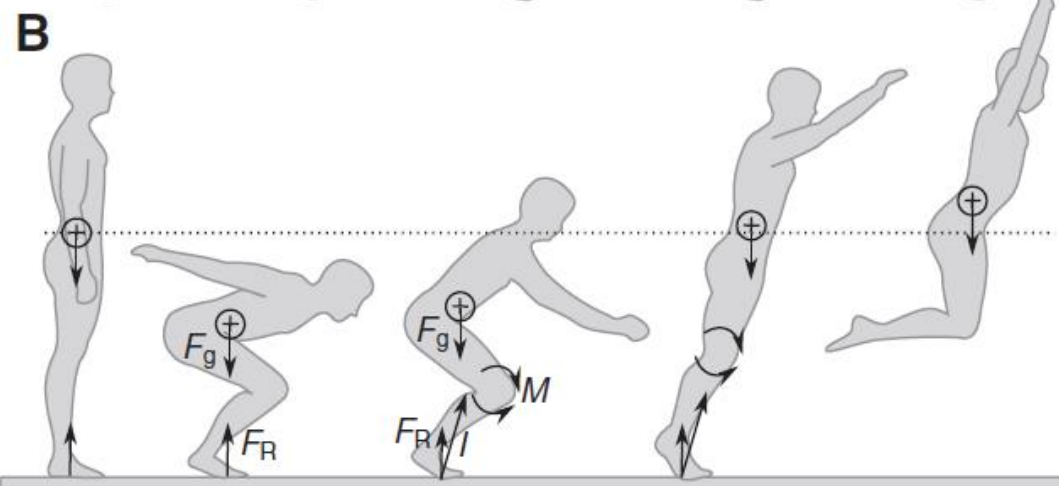
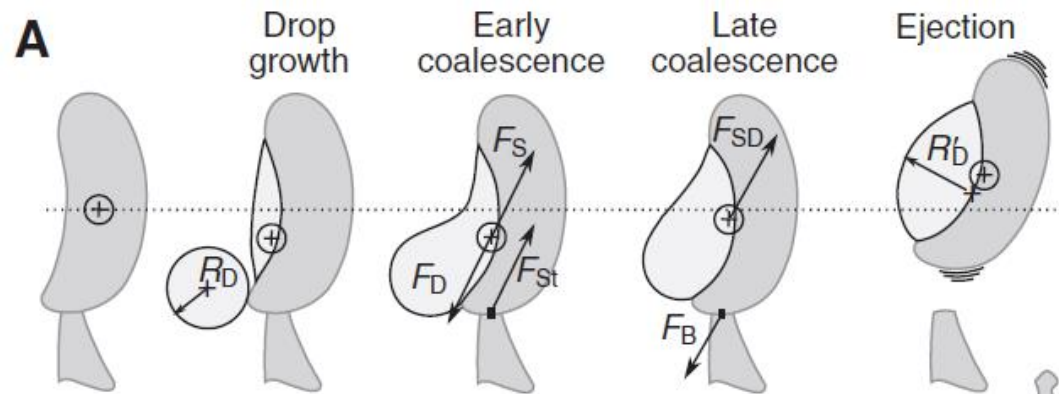


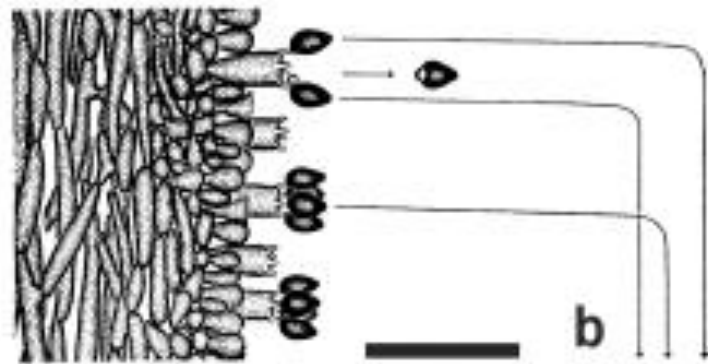
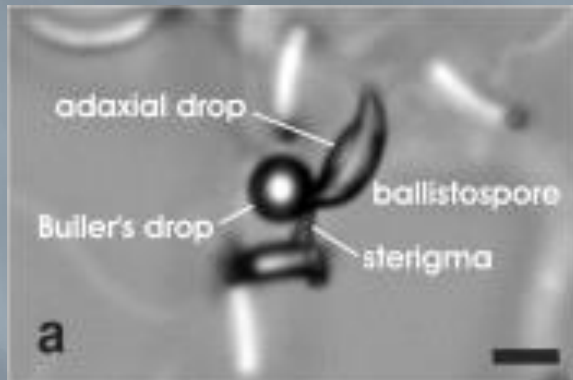
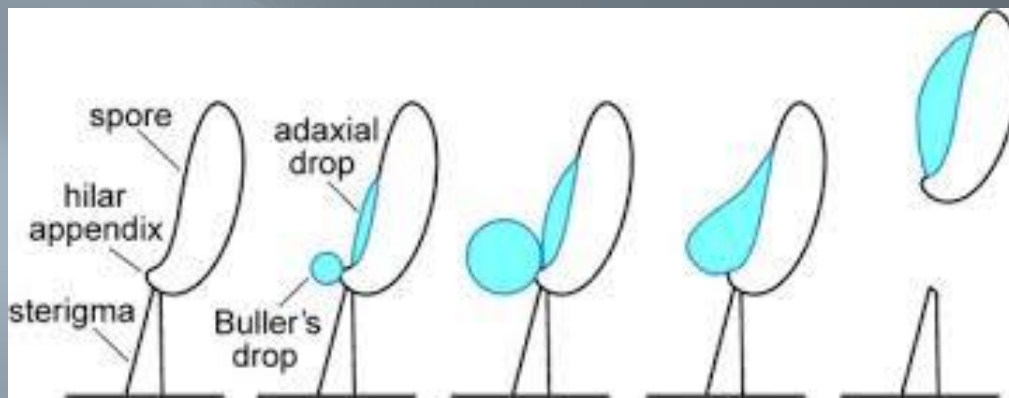
Spore release & dispersal challenges

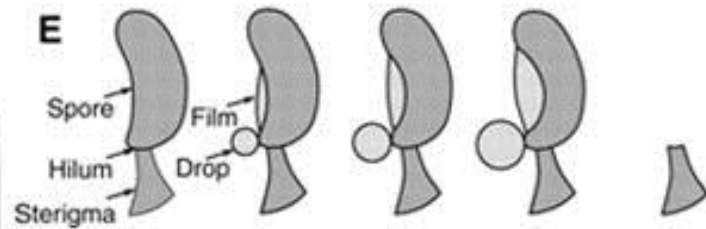
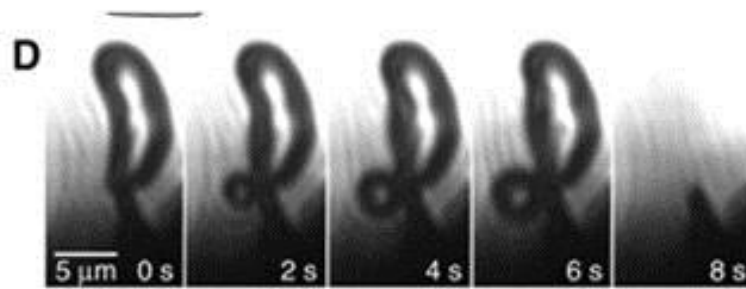
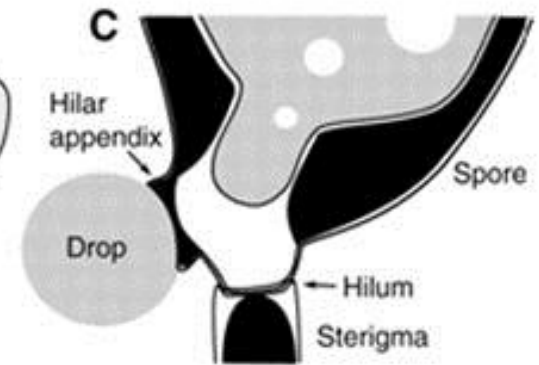
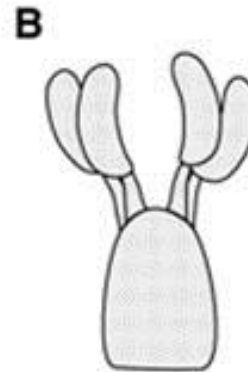
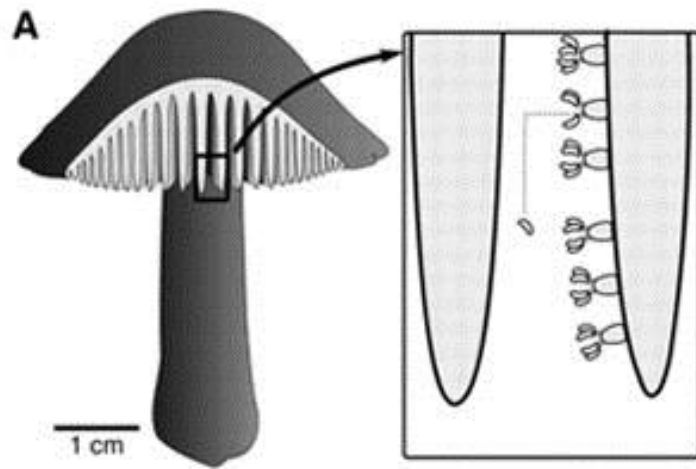
Spores need to be released from the basidia get out beyond the gill structure and boundary layer into the middle of the gill space so they can fall down below the cap to be caught by cross breezes and carried away.

Most organisms aim to disperse offspring away from the parent



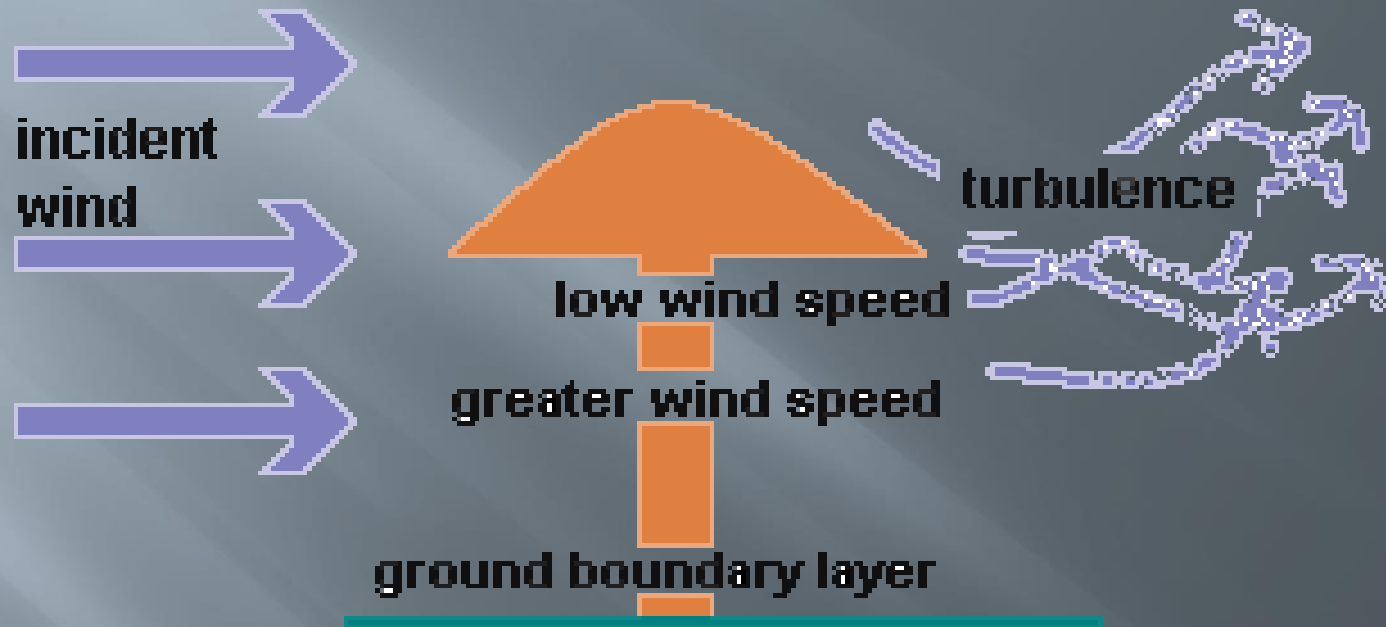












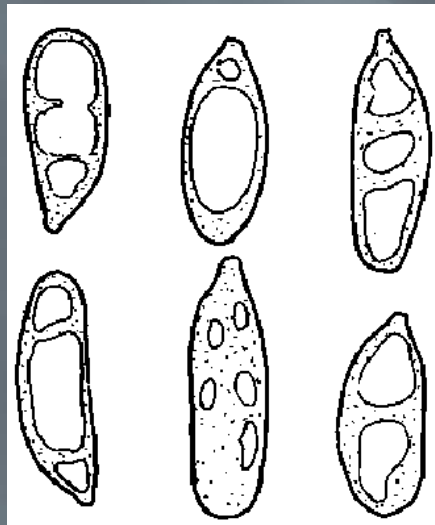
Mushrooms are essentially an umbrella shape to keep direct rain drops off the spores

Maintain high humidity

Lift spores up from the ground so that they can be released and get picked up by wind currents for dispersal



All ballistospores are asymmetrical and have a small scar where they were attached to the sterigma



Variation occurs through size, shape, colour, ornamentation but the basic design is the same the allows for the efficient release and dispersal of spores

Convergent evolution of this mechanism means that some species may look very similar – but have evolved from quite different groups. Therefore molecular taxonomy will sometimes disagree with the morphological taxonomy











