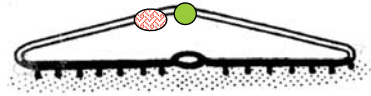
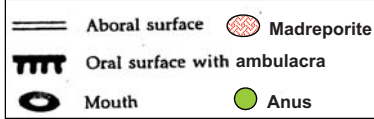
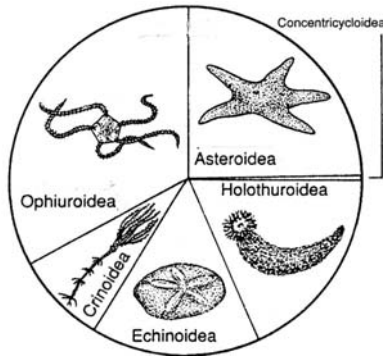
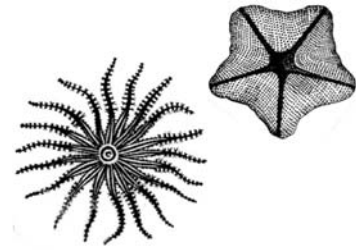


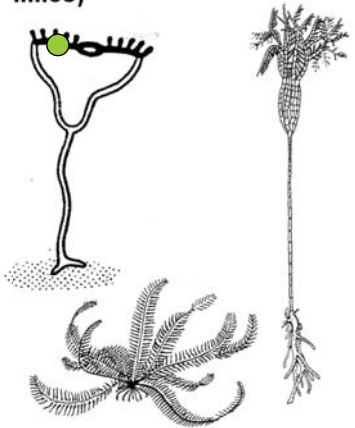
Ophiuroids (brittlestars)



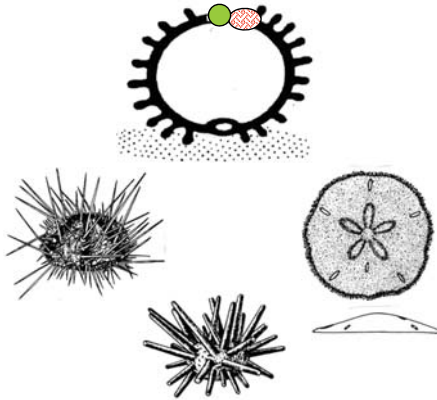
Asteroids (seastars)



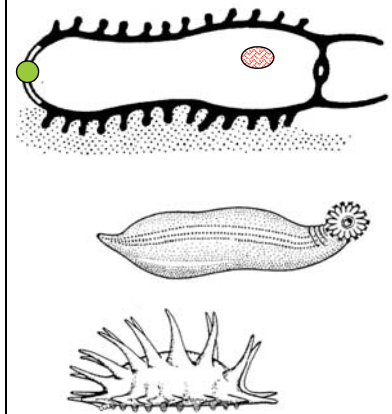
Crinoids (feather stars, sea lillies)



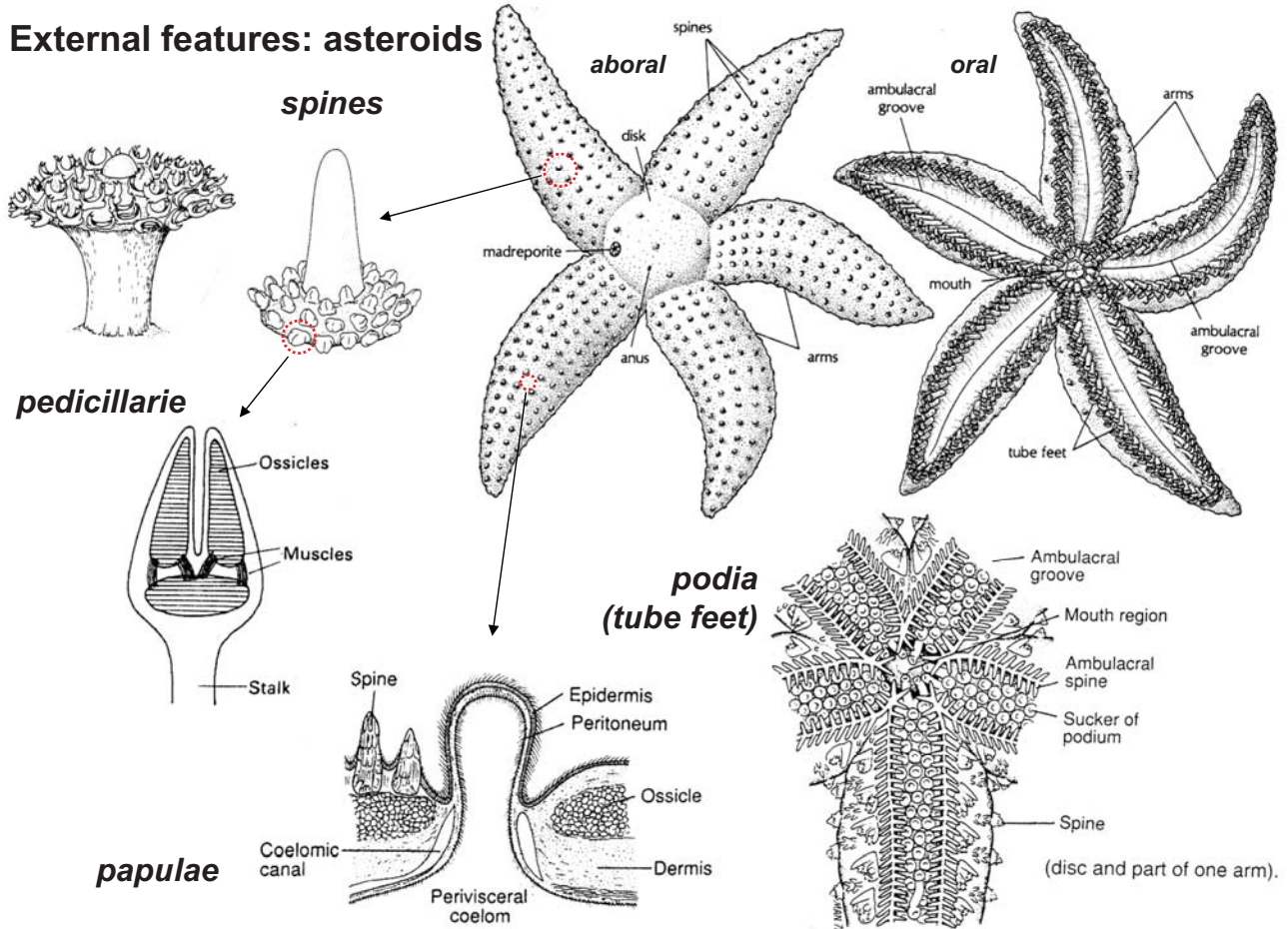
Echinoids (sea urchins, sand dollars)

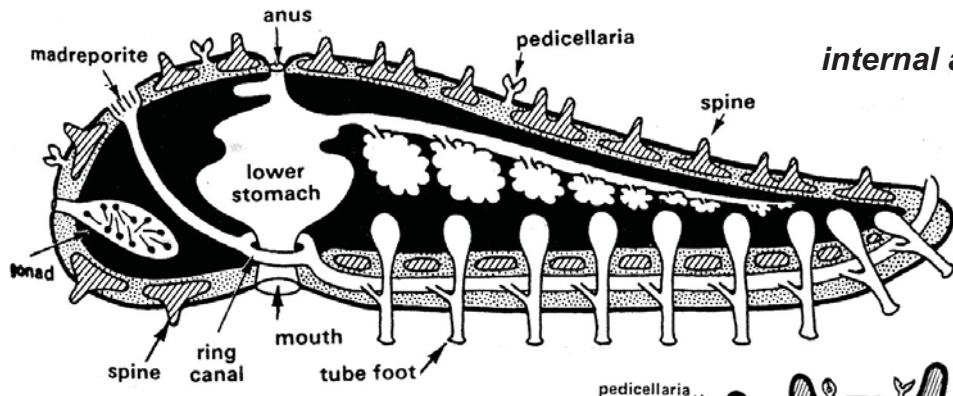


Holothuroids (sea cucumbers)

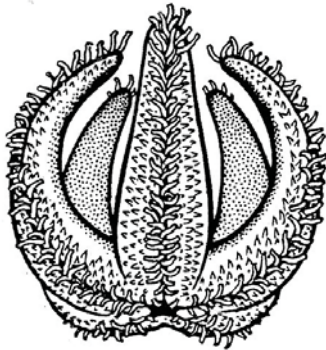


External features: asteroids

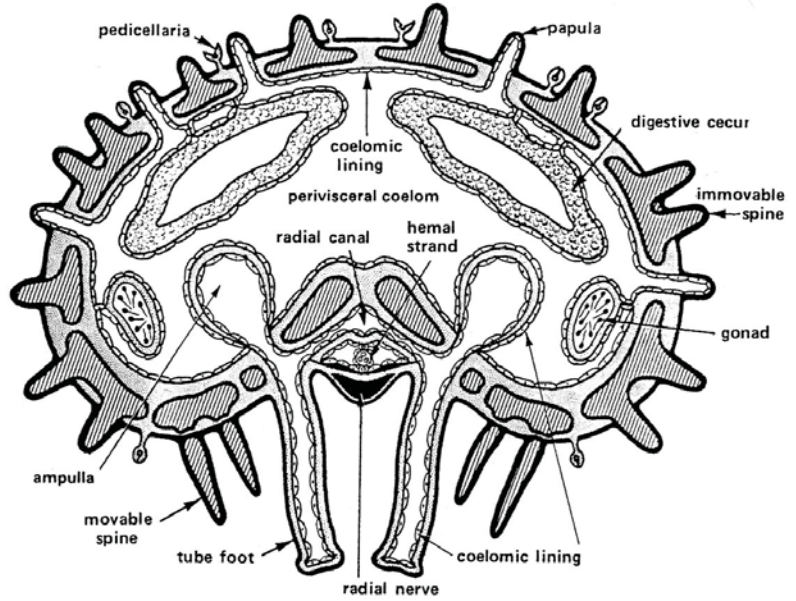




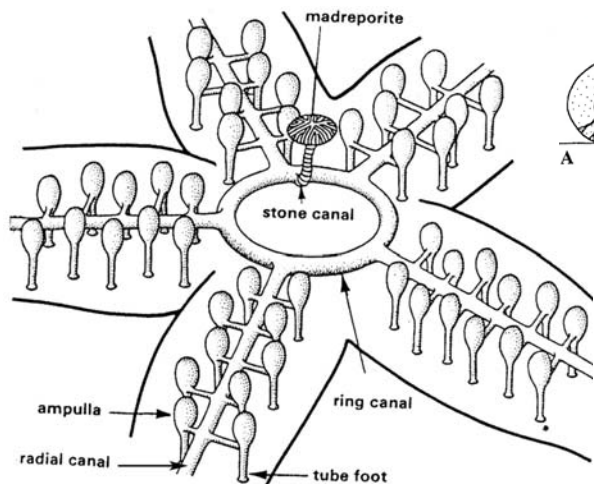
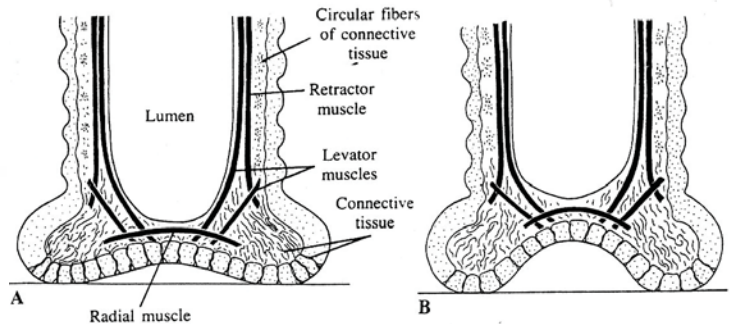
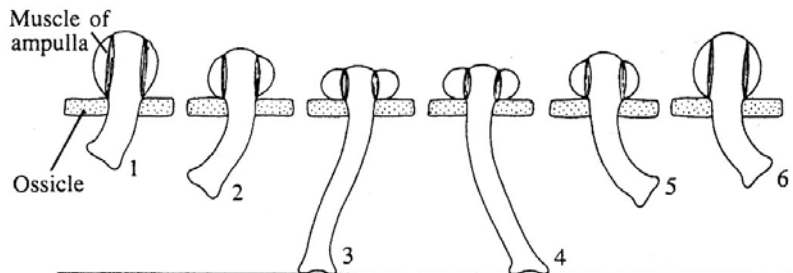
internal anatomy: asteroids



If we imagine the arms of a sea star, with the upper surface skinned off, bending upward to meet at their tips, and if we fill the angles between them with hard plates, we can see how the globular sea urchin is similar to a 5-armed sea star.



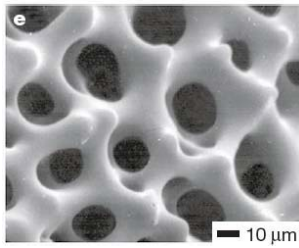
locomotion: asteroids



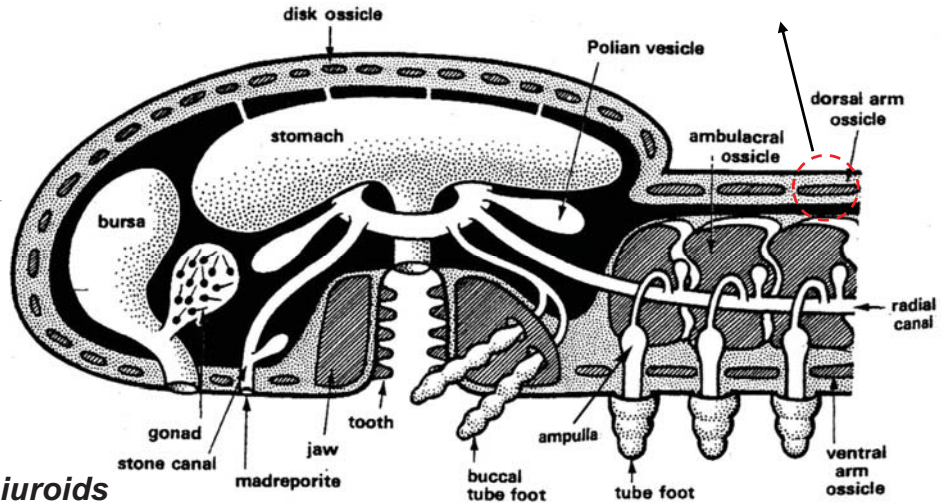
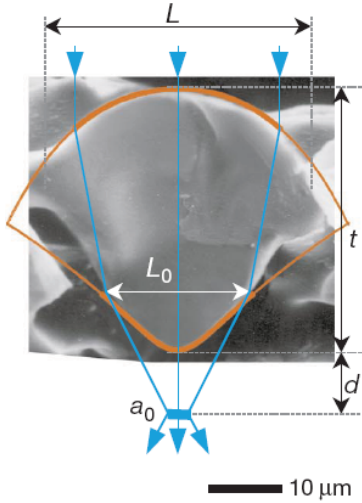
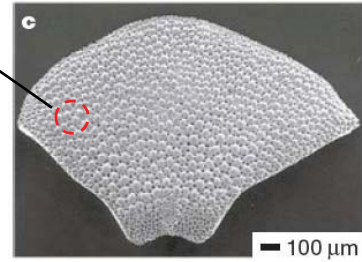
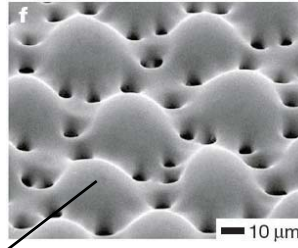
locomotion: ophiuroids



typical stereom

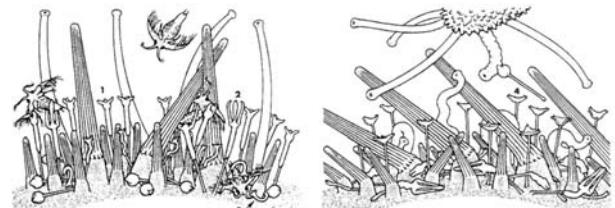
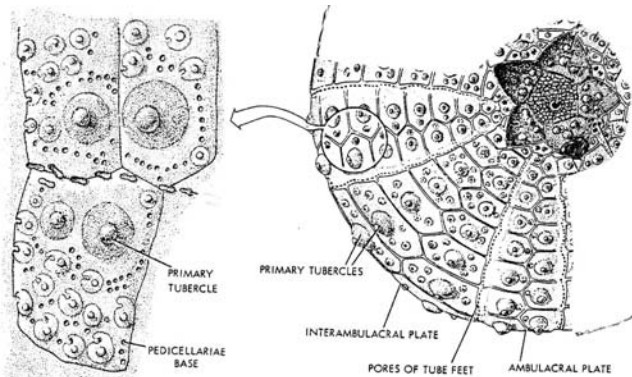
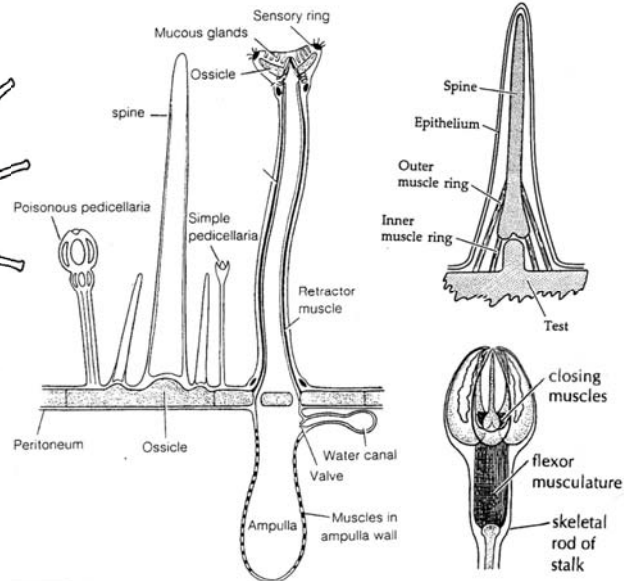
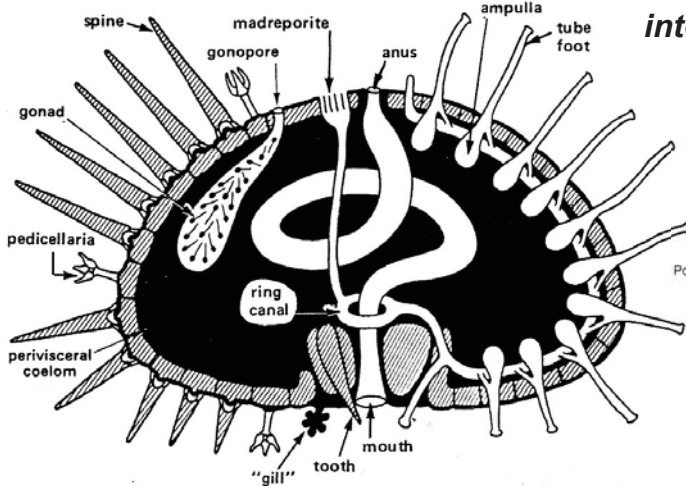


Arm ossicle of light-sensitive brittlestar



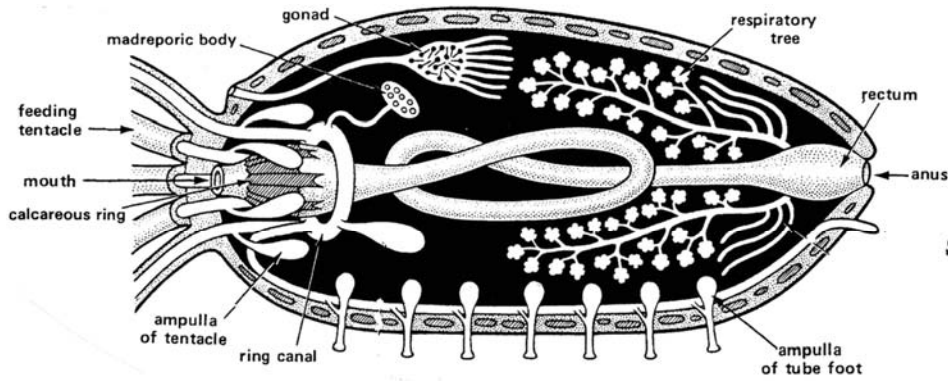
internal anatomy: ophiuroids

internal & external anatomy: echinoids

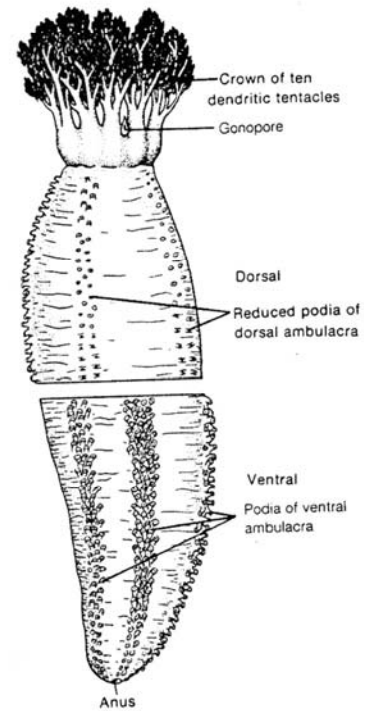
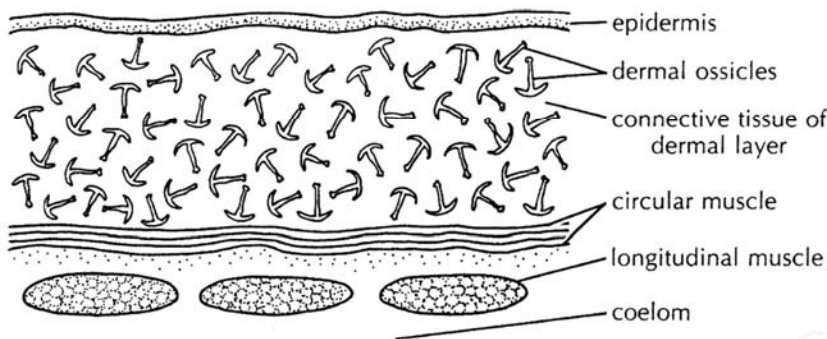


Swimming plankters (*Artemia*). Two kinds of large pedicellariae, and also spines, catch and crush nauplii. Tiny pedicellariae seize ones that fall to the surface. Predator, a sea star (*Marthasterias*). Tube feet of urchin contract, spines bend away. Toxic, toothed pedicellariae open wide and bite at star's tube feet. The star retreats.

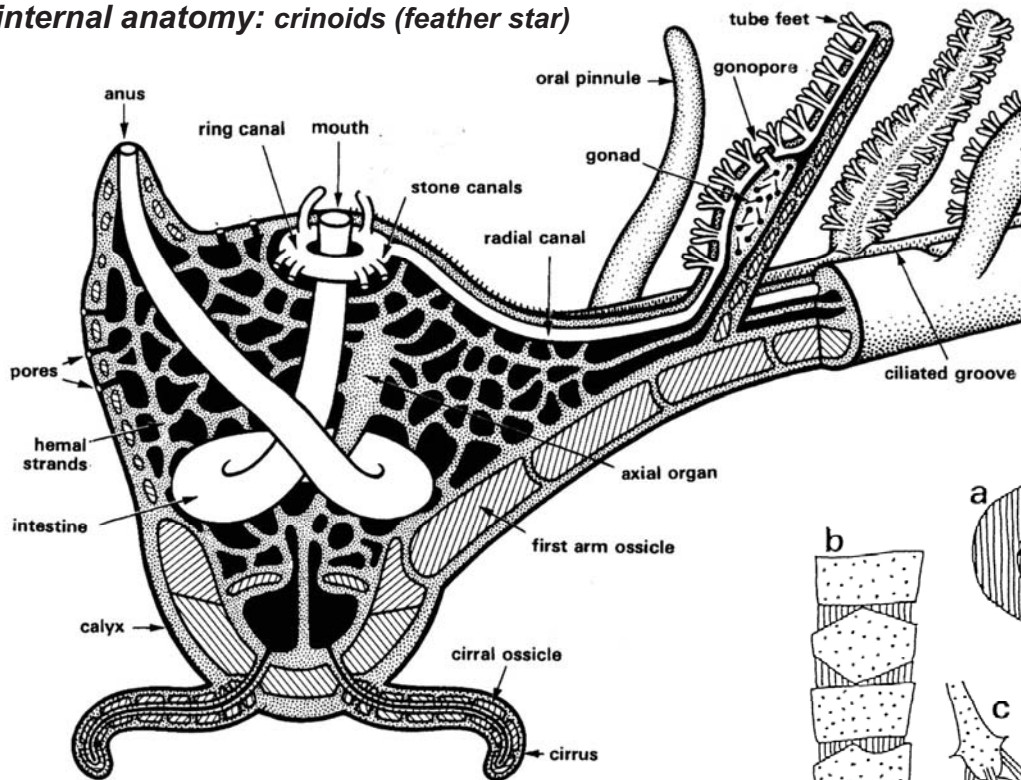
anatomy: holothuroids



Microscopic ossicles of sea cucumbers.



internal anatomy: crinoids (feather star)



echinoderm mutable ("catch") connective tissue (hatched)

(a) thick dermis of holothuroid, (b) jointed ossicles of ophiuroid arm, (c) movable spines of echinoids, (d) imbricating skeleton of asteroid

