

## PYLUM ECHINODERMATA: URCHIN DISSECTION

All echinoderms are marine and benthic

Class Echinoidea: sea urchins, sand dollars, sea biscuits, heart urchins

Sea urchins have radial symmetry

Green sea urchin *Strongylocentrotus drobachiensis*  
 Found: northeast and northwest coasts of North American and in Europe

Oral pole/view – flattened

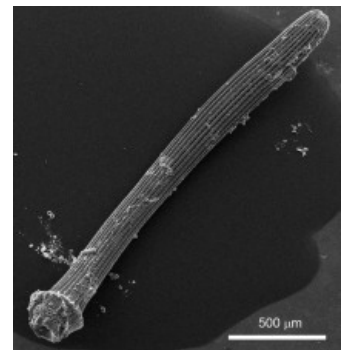
Aboral pole/view (pictured to right) – more rounded

Thin outer epidermis

Test – fused calcareous ossicles; hollow; and most of the urchin's soft parts are inside it

- Podial Pores – perforations for the tube feet
- Tubercles – the ball that holds the spine; allows for ball and socket joint between test and spine

Spines (one spine pictured to right) – articulated, movable; part of the connective tissue skeleton and also covered by thin epidermis; spines have longitudinal ridges and grooves; pointed at apex; large primary and smaller secondary have similar shape; basal end of each spine has a socket that articulates with a ball on the test (range in direction); the ball is called a tubercle; outer ring of muscles and inner ring of collagen fibers work to allow for movement or locking the spines into a fixed position



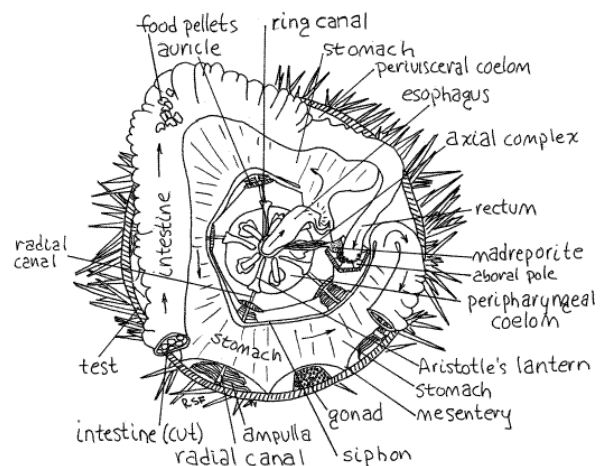
Tube feet – 10 rows; long slender; normally longer than spines (not if preserved); tube feet end in wide suckers used for attachment, locomotion, and respiration; suckers are reinforced with tiny flat ossicles so to resist deformation under stress

Peristome – center of oral surface; no underlying test/skeleton; five teeth of Aristotle's lantern protruding from mouth; mouth opens to pharynx

Periproct (pictured top right)– center of aboral surface; surrounding anus

Reproductive system – 5 gonads; fertilization is external

Digestive system (pictured to right) – large, complicated white, calcareous mass in the center of the floor of the body cavity is Aristotle's lantern, a device that supports and operates the five teeth in the mouth; mouth opens into the pharynx, entirely within the lantern; pharynx emerges as the esophagus; stomach follows; the intestine is at the end of the stomach; conclude with rectum



Water vascular system – responsible for circulation; motor movement by pressurizing tube feet

