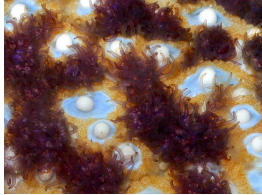
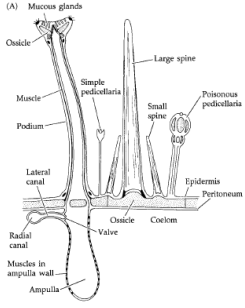


Skin

Echinoderm = Spinney hedgehog skin

Body wall


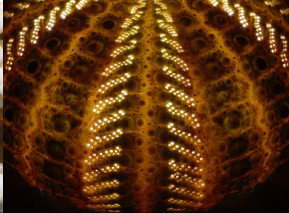
Epidermis covers entire body.
Tubefeet and dermal branchia protruding through and spines and pedicellaria on outside.

Skeleton/Muscular

Body wall


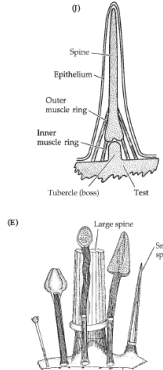
- Endoskeleton of ossicles: Calcareous with different degrees of calcification.
 - Ossicles can be fused into a **test** (urchins and sand dollars).
 - Ossicles spread apart in cucumbers.
 - Ossicles intermediate and variable in seastars.
 - Muscle fibers beneath ossicles. (has protein that can freeze them still)

Skeleton: Spines

Body wall

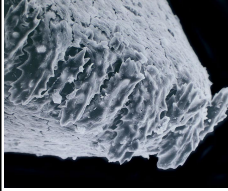
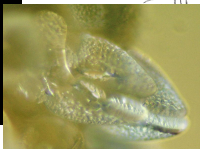
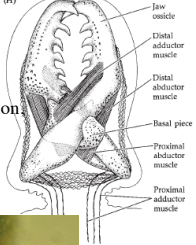
Tubercles and moveable spines on skeletal plates of echinoids.
Small muscles attach spines to test.

What do Echinoderms look like?

Body wall

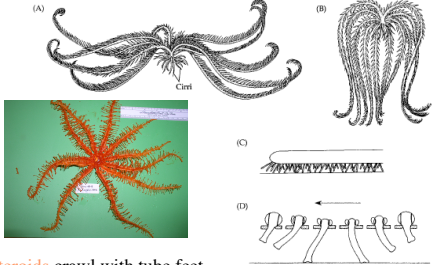
Pedicellaria in echinoids and asseroids.
Respond to external stimuli independent of nervous system.
Keep debris and larvae from settling, protection hold on to material for camouflage.

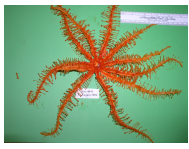
How do Echinoderms support themselves and move?

Movement

Crinoids walk on the tips of their arms. Some swim.




Asteroids crawl with tube feet.



How do Echinoderms support themselves and move?

Movement

Ophiuroids use flexible arms for crawling.



Urchins use tube feet and moveable spines.
Sand dollars use spines to burrow in sand.
Cucumbers crawl on podia of trivium or by muscular action of the body wall.

