

PHYLUM ECHINODERMATA

Saturday, August 5, 2023 1:24 PM

ECHINODERM

→ Greek < Echinos → spine
Derm → skin → **Spiny skinned animals**

HABITAT

- Exclusively → **Marine**
- Found → Bottom → **shore line** → **shallow seas**

BODY STRUCTURE

- Flattened Like → **Biscuit** → **Cake urchin**
- star shape → **short arm** → **Star Fish**
- star shape → **Long arm** → **Brittle star**
- elongated body → **Cucumber** → **Sea Cucumber**
- Triploblast → **Coelomate** → **Deuterostome**
- **Symmetry** → **larvae** → **Bilateral**
→ **Adult** → **Radial**

DIGESTIVE SYSTEM

- Well-developed
- Mouth → **on the lower surface** → **oral**
- Anus → **on the upper surface** → **aboral**

BODY SKELETON

- Exoskeleton → **Calcarius** → **Mesodermal cells**
- Endoskeleton → **Mesoderm**

EXCRETORY SYSTEM

- No specialized organs

RESPIRATORY SYSTEM

- No specialized organs

CIRCULATORY SYSTEM

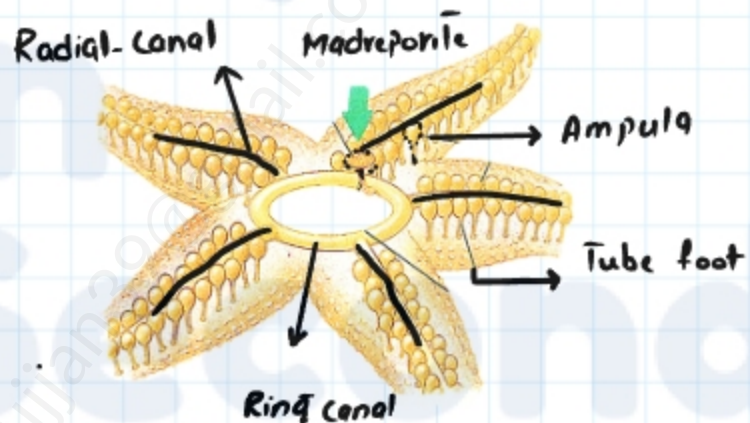
- NO specialized organs → **haemal-system**

NERVOUS SYSTEM

- No brain
- A Nerve ring → **pharyngeal region**

VASCULAR SYSTEM

- Water-vascular system
- Complex system of tubes



- Water → channels → Sieve-like → Madreporite → **aboral surface**

LOCOMOTION

- Free living → **Tube feet** → Soft sac like

REGENERATION

- Ability to reform lost organ
- Common among echinoderms

REPRODUCTION

- Separate sexes
- Fertilization → **External**

- Larvae → **Bipinnaria and brachiolaria**

EXAMPLES



Star fish



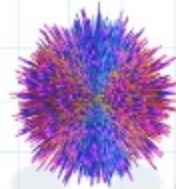
Sea urchin



Brittle star



Sea cucumber



Cake urchin

AFFINITIES OF ECHINODERMATE WITH HEMICHORDATES

1. **Coelom** → Form and blastopore → anus
2. **Mesoderm** → Derived from cells close to blastopore
3. **Exoskeleton** → Mesodermal origin
4. **Phosphocreatin** → Energy source

RESEMBLANCES OF ECHINODERMATA WITH CHORDATES

- **Radial cleavage**
- **Deuterostomes** → Blastopore → anus
- **Early developmental stages same**
- **Phosphocreatin present**

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