

ECHINOIDERMATA LAB III: Sea Stars & Brittle Stars Participant(s): _____

Though similar in appearance, sea stars and brittle stars represent two separate classes of echinoderms. Sea stars are members of the Class Asterozoa; brittle stars are members of the Class Ophiurozoa. More recently both of these have been grouped as Subclasses within a Superclass called Stellerozoa.



Image A: Starfish



Image B: Brittle Stars

Part I: Sea Star and Brittle Star Chart. Questions 1-20. Consult the images above, the fossil included in the kit, plus other available resources, including the internet, to complete the chart. Place an “X” in either the “Sea Star” or “Brittle Star” column to identify which creature best matches each description.

Part II:

21. Identify and record the specimen included in the kit as either a sea star or brittle star.
22. As sea stars and brittle stars fossilize, softer parts decay leaving only the hard parts behind. List those parts of the fossil that are both present and identifiable.
23. Under what circumstances might a brittle star purposely break off an arm?
24. What term refers to a creature’s ability to regrow a lost body part?
25. The aboral surfaces of both sea stars and brittle stars face upward, and their oral surfaces face downward. What does this arrangement reveal about these creature’s feeding habits?
26. How did “chopping up” the crown-of-thorns sea stars which were destroying the coral polyps of Australia’s Great Barrier Reef actually make the problem worse?
27. T/F Brittle stars and sea stars are members of the same class of echinoderms.
28. Why is the term “sea star” more appropriate for this creature than the term “starfish”?
29. Do sea stars, brittle stars or both use tube feet for locomotion, or movement?
30. Sea stars possess well-developed ambulacral grooves which run down the middle of each arm, from distal tip to mouth. Within these grooves are four rows of tube feet with suckers. These tube feet serve two purposes? List these.

ECHINOIDERMATA LAB III RESPONSE SHEET

Participant(s): _____

Sea Star and Brittle Star

Part I

Description	Sea Star	Brittle Star
1. Wastes expelled through an anus		
2. Wastes expelled through the mouth		
3. Each arm contains body organs		
4. Highly flexible arms		
5. Extrude their stomach through their mouth to feed		
6. Class includes basket stars		
7. More commonly mobile predators		
8. More commonly scavengers or deposit feeders		
9. Has an eyespot at the end of each arm		
10. Its arms do not contain organs		
11. Arms can move side-to-side, but not up-and-down		
12. Use tube feet to move about		
13. Arms attach to the disk rather than joining each other		
14. Long thin arms are attached to the central disk		
15. Central disk is relatively small when compared to its entire body		
16. Well-defined separation between their arms and central disk		
17. Its arms blend with the central body disk		
18. Is the fastest moving echinoderm		
19. Moves by a sinuous flexing of its arms		
20. Also known as a serpent star due to its snake-like movements		

Part II

21. _____

22. _____

23. _____

24. _____

25. _____

26. _____

27. _____

28. _____

29. _____

30. _____