

Virtual Super Sea Stars

2021

Grades: K-3rd

Advertised Description:

A live animal program using multiple cameras, pre-recorded videos, props and high student interaction; engagement with one instructor plus classroom teacher.

Format

One lesson is taught via Zoom or Teams. For younger students (K-1) the total lesson time is 20 minutes with 10 minutes open for questions. For 2nd-3rd grade, the lesson time extends to 30 minutes with 10 minutes for questions. Program always includes close up camera view with 3 different species, a live feeding, and a tour of our touch tanks.

Overall Learning Outcomes:

- The goal of Super Sea Stars is demonstrated increased student knowledge of: Invertebrate vs Vertebrate, definition of echinoderm, definition of radial symmetry, feeding strategies of echinoderms, water vascular systems, tube feet, echinoderm regeneration.

Background Information: Sea Stars are marine invertebrates called echinoderms. Echinoderm means “spiny skin”. Invertebrates have no backbone. Sea Stars are not fish because they do not have a backbone like fish (all fish have a backbone). “Starfish” is a commonly used but incorrect name for these creatures. Sea stars vary in size, texture, and number of rays (arms) but all are radially symmetrical. Sea stars have a water vascular system which is used to help them move. Sea stars can regenerate from even a single ray. An eyespot is found on each ray and used to sense light and dark. Sea stars have 2 stomachs. Some can extend their 2nd stomach out of their body to eat. Sea Stars find food by smelling it through cells in their skin.

Lesson Plan

We will begin with an introduction to three of the different Sea Stars in our tanks, and I will explain how each is SUPER. Then, we will discuss the phyla “echinoderm” and what it means. Students will be invited to participate. We will then move into the water vascular system of the sea star and how it moves its “tube feet”. Together we will watch the live sea stars crawl around and students can ask questions. Next, we will move into how Sea Stars eat. I will feed the Star a mussel and explain how its stomach comes out of its body and gets inserted INSIDE the mussel’s shell. I will explain how we feed our Sea Stars, and what they eat in the wild. Next, we will talk about regeneration in all echinoderms. To finish, I will show some of the Sea Star’s cousins (other echinoderms), and we will discuss what they all have in common.

Materials needed: 3 bowls, camera and stand, mussels for feeding, mussel shell and dried sea star, laminated images and seaport drone footage.

Lesson Outline:

- Prep - feed the mussels about 10 minutes before
- Introduction - Here for SUPER SEA STARS!
 - Are sea stars fish? Vertebrate vs Invertebrate
 - Echinoderm = Spiny skin
- Anatomy
 - Rays (How many arms do sea stars have?)
 - Close up with 3 different species
 - Regeneration
 - Eyespots (Can a sea star see?)
 - Activity - close your eyes then cover and uncover eyes with hand
 - Tube feet (How many feet do sea stars have?)
 - Show me your feet
 - Look at the extended tube feet of our live animals
 - Stomachs
 - Demonstrate eating
- Show a live feeding in our tank
- Touch tank tour
- Questions?

Age Differentiation: Spend more time exploring relatives of the sea stars for the older students and the phylogeny.