

I'm a Survivor: Comparing Adaptations

Purpose:

This lesson provides students with the opportunity to recognize and identify the adaptations for survival of two different marine animals and compare them.

Curriculum Match:

For Curriculum Match visit:

<http://www.vanaqua.org/education/LearningOutcomesandIRPConnections.pdf>

- Direct experience is the basis of human learning
- Students should be provided opportunities to develop an aesthetic appreciation of the environment

(Taken from Appendix C: Cross – Curricular Outcomes)

** Adapt to best suit your grade level.

Materials:

- paper
- pencil
- coloured pencils or pens
- clipboard or binder (hard surface to write on)

Background Preparation:

Talk about adaptations with your class. They should know about mouth, body, fin and tail shapes; different types of colouration (e.g. camouflage, cryptic and warning colouration); how to look for behaviors; special developments (e.g. venom/poison, electricity, extra senses); how these adaptations help with the animals survival.

Vocabulary: adaptations – defined as a characteristic (body part, behavior, etc.) that helps a plant or animal survive in its environment. Adaptations may involve shape, specialized parts, colour, camouflage, special developments and behavior.

Procedure at the Aquarium:

Have students explore the Aquarium and choose two interesting marine animals in separate habitats. Draw a large, detailed picture of each animal on its own page (include patterns and colour), label all the parts they know – making sure to show where the mouth is placed. Under each drawing, list the adaptations the animal has to help it survive. After the adaptations are listed for each animal, compare the two. What is the same? What is different? A venn diagram is a good tool for this part of the exercise, but feel free to use any comparison method you choose. Lastly, have them develop several questions to ask the class about the adaptations of one or both of the animals they chose.

Pre-Activities or Extensions:

1. Back in class, with the comparison done, present this question to the students to think and write about:

What adaptation would you want if you were a marine animal? Discuss why you think that that adaptation would be effective. Be detailed and specific in your explanation.

2. Materials: string, suction cup, glue, tape, tweezers, pictures of a sea star, urchin, snail, anemone, octopus, mussel, barnacle, and crab.

Discuss the tidepool habitat and explain that ocean waves are constantly threatening to pluck marine animals from the rocks as water and rocks crash upon them. Have students imagine that they are tidepool animals and that waves are continually washing over them. Ask how they would hold on so that they would not be dislodged and washed ashore or out to sea. What tools might they use to keep themselves secure? Show students pictures of the tidepool animals and explain that each of them has developed a different way of holding on to the rocks. Show students the tools (string, suction cups, glue, tape, and tweezers) and ask which tool would best represent each tidepool animal's adaptation for holding on.

- String is similar to the mussel's byssal threads – thin, strong, string-like material used to anchor its body down
- The suction cup is similar to the tube feet on echinoderms – sea stars, sea cucumbers, and sea urchins – and very like the strong suction cups on the arms of an octopus
- The glue is like the waterproof substance that barnacles use to attach their heads to a rock
- The tape is similar to the sticky foot on sea snails and anemones
- The tweezers can be compared to the pointy appendages of a crab

3. Describe and show pictures of other habitats and have students brainstorm what adaptations an animal would need in order to survive in that particular environment.

Activities 2 and 3 have been taken and adapted from "Passport to the Pacific: A Guide to Habitats, Inhabitants, and Activities" from the *Aquarium of the Pacific* 2002

Assessment:

Use an observation sheet to assess students as they work, showing evidence that they:

- Follow directions
- Can identify and correctly interpret an animals adaptations
- Can accomplish a comparison in a thoughtful and meaningful way
- Can generate thoughtful questions
- Can gather and record information