



## Podcast on Intertidal Organisms

### Designed by

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### Background

In this activity students will create a podcast on how an organism survives in the intertidal zone and the challenges it meets. Students will learn about the complexity of organisms in the intertidal zone and then focus on a specific organism to study. They will research information about this organism, develop a storyboard for their podcast. They will use iMovie, moviemaker or Garage band to create a podcast on how their organism adapts to the harsh conditions of the intertidal zone. In learning about the organisms that make up the intertidal zone, they will have a better understanding of the impacts invasive species have on an area and how these can alter the biodiversity of the intertidal zone.

#### Description of Audience:

This activity is designed for use in a general high school Biology or middle school, Biology or Life Science class, preferably as a collaborative project.

#### State Standards:

This podcast activity fulfills the following State of California Science Standards:

**Biology:** Grades 9-12: 6a, 6b, 6c, 6d, 6e,

**Investigation and Experimentation:** Grades 9-12: 1a, 1l, 1m

#### National Science Standards:

This activity fulfills the following National Science Standards:

**Content Standard C:** Life Science

**Content Standard E:** Science and Technology

**Content Standard F:** Science in personal and social perspectives

#### STEM Connection:

Podcast and multimedia presentations are being used in many areas of science. Tools such as this can be used to learn about new developments and topics as well as a way to present information in all fields of science from marine science to molecular biology and climate issues.

#### Technology Integration:

Computer technology using iMovie and GarageBand is used as well as digital pictures; video and audio media, which are integrated in this project.

### Goals(s):

The goals of this lesson are to:

- Expose students to marine intertidal zone and the organisms found here so they can understand the importance of biodiversity of the intertidal zone.
- Expose students to podcast technology and the use of digital media.
- Reinforce the connection between human impact and invasive species on marine environments.
- Clarify the similarities and differences between organisms that make up the intertidal zone

## Learning Objective(s)

Upon completion of this lesson, students will be able to:

- Make and present a multimedia project on an intertidal organism.
- Use digital images and import them into project
- Explain how the diversity of organisms are important to the intertidal zone
- Explain how organisms in the intertidal zone are adapted to this areas.

## Purpose/Rationale

I am teaching this unit because learning about the diversity of the intertidal zone is necessary for students to understand why it is important to protect and take care of our intertidal area. In learning about the diversity of the intertidal zone, students will understand why it is important to minimize invasive species and take care to protect the watershed they live in. Using technology to create a podcast will help engage students and expose them to this form of media as a science and educational tool. This is also a collaborative project where students need to work together and develop their communication skills in creating their project and presenting the project to their classmates.

## Materials/Resources

In order to complete this lesson, the following materials are needed:

- Student access to computers with iMovie, GarageBand or movie-maker and computers with lots of memory to store video media.
- LCD projector for project sharing time.
- Internet resources, digital file with video or images of intertidal organisms.
- Storyboard template and intertidal field card template.

## Teacher Preparation

Before this lesson, the teacher should be familiar with podcast and iMovie or moviemaker and be able to assist students with their projections. Internet resources on intertidal organisms and possible invasive species should be available or teacher should have appropriate digital resource folders with this available for student projects. A field trip visit to the local intertidal area would be helpful, but not essential.

## 3-Step Procedure

### #1 Introduction

- Introduce students to intertidal zone by pictures video or examples from personal experience.
- Ask students what special adaptations or features organisms would need to live their lives partly underwater and partly out of water.
- Ask students what special adaptations an organisms would need to live in the moving water of the intertidal zone.
- Review the watershed of your area and ask students where do things flow when it rains.

- Review appropriate content vocabulary on intertidal organisms structures as needed for your student population.

## #2 Exploration

- Students will be working in groups creating their intertidal field cards on different organisms so they develop a background.
- In groups assign organisms for students to create their podcast projects on and complete any addition research needed for their organism.
- Students will develop their storyboards on their organisms and submit it before working with iMovie.

## #3 Application

The final part of this project, students will create their video project. With a solid storyboard completed students will use iMovie or movie-maker and video or images from the digital resource folder created by the teacher or student field trips to build their project. Narratives and digital music can be overlaid to enhance the final projects.

## Assessment

- Student groups will present their projects to the class and share what they learned.
- A quiz can be used by the teacher at the end of all the presentations to see if students learned about the different organisms.
- Student groups can also develop their own short quizzes to evaluate how their presentation helped others learn.
- Student absent on the day of the presentations or those who didn't fully participate in the group activities can use their student created field card to review the different organism or they can view the final project on individually to learn about the diversity of the intertidal zone.
- An extension of this lesson would be to have students compare invasive species found in different areas. They could compare different types of invasive species found near harbor areas with the Marine Protected areas.

## Teachers' Self Evaluation

- Students had a lot of trouble creating their storyboards and needed help making a creative script. More example could have been developed in advance.
- Most of the student had a very limited background on the different intertidal organisms, aside from the sea star and needed more background and information.
- This was the first time for the students to use iMovie and GarageBand and final project took more time than anticipated.
- Students needed access to more video and pictures of their projects. A Second field trip, after the writing of the storyboard would have been helpful so more videos and pictures could be obtained.
- Extensions of this activity include students examining invasive species such as, the mussel; *Mytilus galloprovincialis* and the green alga *Caulerpa taxifolia* and create podcast on how these species are impacting the intertidal zone, how they were transported into this region and what we can do to minimize invasive species.