



STEM Career Adventures: Marine Biologist

Technology for Sea Animals



Adventure Description:

In this adventure, you will think like a marine biologist and create a new piece of technology that can track sea animals!

Step 1: Background Information (10-15 minutes)

- Ask explorers if they know what a marine biologist does.
 - o If explorers know what a marine biologist does, create a list on the board of things that a marine biologist can do.
 - o If explorers don't know what a marine biologist does, discuss the meaning of the words "marine" and "biologist."
 - Ask explorers if they know what "marine" means. Explain that marine means "found in the sea"
 - Ask explorers if they know what "biologist" means. Explain that biologist means "a scientist who studies living things."
 - As a class, brainstorm what a marine biologist does based on these two definitions.
 - o Explain to explorers that marine biologists are scientists who learn about animals and plants that live in the ocean.
- Show **Discovery Picture: Marine Biologists in Action**.
 - o As a class, discuss what marine biologists do and where they work!
- Next, explain to explorers that marine biologists created tracking systems to see where animals go in the water. A tracking device is a special computer that goes on the back of sea animals. It tells a marine biologist where sea animals travel (show **Discovery Picture: Tracking Devices**).
 - o Ask explorers why marine biologists would want to track where sea animals go.
 - o Explain that marine biologists want to know where animals travel to. This will give them information about where the animals get food and sleep.
- Show **Discovery Link: Turtle Tracking**. Show Video from 2:00 until 2:53.

Contact Allison, Director of Customer Service, with any questions or feedback at 314-272-2560 or allison@rozzylearningcompany.com

Send photos of your explorers and their projects to allison@rozzylearningcompany.com to be featured on Rozzy's website, social media pages, and blog!



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- Ask explorers if they can think of any problems with the current tracking devices. As a group, brainstorm potential problems with current tracking methods. Here are some questions to get explorers thinking!
 - Would the tracking device fit on a really small animal, like a small fish or crab?
 - What happens if the tracking device runs out of battery or isn't charged?
 - What happens if the device falls off of a sea animal?
- Show **Discovery Picture: Problems with Current Tracking Devices**.
 - Discuss problems with current tracking devices. Ask explorers if they can think of any other problems with current devices.
- Explain to explorers that because of these problems, marine biologists are working with engineers to design new tracking devices!
 - Show **Discovery Picture: Smart Skins for Crabs**. Explain that the smart skins is a new type of tracking device!
 - As a class, read about how the smart skin works. Discuss how it is different from current tracking devices.
- Explain to explorers that they will be creating a smart skin for another sea animal.
- *Extra time?* Show **Discovery Link: Putting a Smart Skin on a Stingray**. This video shows how marine biologists carefully put a smart skin on a sea animal

Step 2: Building a Prototype of an Animal (10-15 minutes)

- Explain to explorers that they will first choose an animal that they want to build a tracking device for. Provide explorers with **Handout: Animal Choices**. As a class, read through the choices for animals that explorers can build.
- Explorers will now build a 3D version of their animal. They will use their animal in the next step when they place the tracking device on the animal.
- Provide explorers with clay and art supplies to build their animal.

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STEM Career Adventures: Graphic Designer

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- Note: This step is meant to be quick. Explorers should only spend 10 minutes building their animal so they can move on to the next step where they can build their tracking device.

Step 3: Building a Prototype of a New Tracking Device (15-20 minutes)

- Explain to explorers that they will now create a tracking device for their animals.
- Provide explorers with **Handout: Requirements for Tracking Devices**. As a class, read through the requirements that are needed for the tracking devices.
- Provide explorers with art supplies and building materials to create their tracking devices.

Extra Time?

- Have explorers share their designs with the class and describe how their tracking device works!

Materials List

Provided online:

- Discovery Picture: Marine Biologists in Action
- Discovery Picture: Tracking Devices
- Discovery Picture: Problems with Current Tracking Devices
- Discovery Picture: Smart Skins for Crabs
- Discovery Link: Putting a Smart Skin on a Stingray
- Handout: Animal Choices
- Handout: Requirements for Tracking Devices

Not provided:

- Art and building supplies
- Each explorer needs:
- Clay (to build an animal)

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