



GEORGIA AQUARIUM

STEAM FORWARD – EPISODE 3

Vet Ops [Student Version]

Welcome to STEAM FORWARD!

Vet Ops!

Career: Veterinarian

Episode: Vet Ops

We're at Georgia Aquarium's Correll Center for Aquatic Animal Health. It's a state-of-the-art lab and treatment facility that keeps these thousands of animals healthy and thriving.

How do the technicians and veterinarians care for hundreds of different species? Let's check out some of the cutting-edge technology that helps them get the job done.

During this episode, hosted by Dr. Meisa Salaita, we will explore technology in vet services and see how experts use it.

Veterinarian Dr. Alexa Delaune and Animal Trainer, Andrew Madigan will show us how preventative care is paramount at Georgia Aquarium.

OBJECTIVES: Why am I learning this?

At the completion of this mini-unit, you will be able to:

- Describe the systems found in animal's body
- Understand the role of technology in medicine.

THE ESSENTIALS: ASK & ANSWER

- 🐟 How does an organization like Georgia Aquarium perform preventative care?
- 🐟 How does technology help vets?
- 🐟 How do vets put technology to use?





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Activity 1

Video segment: 0:00 –3:27

Introduction

Before one can treat or examine a patient, the Veterinary Operations team must have a solid understanding of the various systems found in an aquatic animal. Some systems are very simple in certain species where as those same systems are quite complex in other species.

OBJECTIVES: Why am I learning this?

At the end of this lesson, you will be able to:

- Describe the systems found in animal's body

1. Conduct background research on some of the different system found in an animal's body.

Body System	Function
Circulatory system	
Digestive System	
Excretory System	
Nervous System	
Skeletal system	
Muscular system	





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2. Choose two of the body systems above and investigate that system in a fish or shark. How is that system the same or different from that of human? Do sharks or fish possess any unique features that allow them to survive in an aquatic environment?

3. Share your results with the rest of the class.





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Activity 2

Video segment: 3:32-5:53

Introduction

Depending on the body part and medical issue, different types of technology can be used to assess and guide treatment. Let's look at x-rays and ultrasounds. X-rays are a type of electromagnetic radiation, similar to visible light. Electromagnetic radiation travels as waves. Waves can be described by their **wavelength** – the distance between crests or troughs of the wave. They can also be described by their **frequency** – the number of waves per second. Wavelength and frequency are related to one another. The higher the frequency, the shorter the wavelength. X-rays are higher energy than visible light.

Ultrasounds work by computing images from echoes received from high frequency sound waves sent into the body. The sound waves reflect and refract at the interfaces between tissues of different densities.

Objectives:

At the end of this lesson, you will be able to:

- Understand how different technologies are used to help scientists and doctors
1. Based on this information, compare and contrast x-rays and ultrasounds. Provide support for your answer.





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2. Based on what you have learned, Identify the technology (and why) you would use to investigate potential problems with each system.

Body System	X-ray or Ultrasound	Why you would use this technology
Digestive System		
Skeletal system		
Cardiovascular system		

3. For each of the images below, state whether you think it came from an x-ray or an ultrasound. State your evidence to support the claim.



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In The Field

What better way to bring STEAM FORWARD alive than to meet an expert at Georgia Aquarium? Here, you will learn more about the background and experience it takes to be a member of the STEAM TEAM. Let's get up close and personal!

MEET AN EXPERT

Meet: Dr. Alexa Delaune

What college or university did you attend?

University of Kansas for undergraduate and University of Florida for veterinary school

What were your major(s)?

B.S. Organismal Biology, B.A. Spanish – undergraduate

Do you have any advanced degrees? If so, what degree?

Yes, Doctor of Veterinary Medicine (DVM)

What is the most exciting part of your job at Georgia Aquarium?

Working with so many different species!

What advice do you have for students interested in doing what you do?

Get good grades, get practical (hands-on) experience, make good connections, work hard, get a well-rounded education, and take every opportunity you can get for experience in the field!

What is something surprising or unexpected about your career path?

How much time we have to spend writing records, answering emails, scheduling things with other departments, and talking to people – way more time than actual animal time!

What do you say to students who ask “Why am I learning this?”

A solid background in science, math, and technology is crucial for being a good veterinarian. As an aquatic veterinarian you need to know how to properly calculate drug doses and calculate water volumes. Many of our diagnostics tools are very technologically advanced – digital radiographs, ultrasounds, CT scans, etc. It is important to have a good understanding of how they work so you can use them properly. In addition, a knowledge of animal's natural history and physiology is crucial as there are so many species differences. You can't always use the same medications on each species and if you need to do surgery you must know their anatomy very well so you can make sure you're operating on the correct organ!

