6th Grade: Day at The Beach

Course description: Our educators will take students on a trip to the beach (in their minds of course). We will bring sunglasses, beach chairs, kiddy pools, and more to create our beach environment as we observe how the ocean, atmosphere, and landmasses generate the climate.

Day 1: Weather refers to short atmospheric conditions whereas climate is the weather of a specific region averaged over a long duration of time. Students will discuss what climate is and how climate is specific to different regions. Students will be able to describe how climate differs from the weather.

Demonstration: Students will discuss the variation in Earth's climates and see how different species have adapted to fit the varying conditions. Students will be able to compare and contrast the differences between weather and climate to clarify what they will learn through this unit. We will bring in animals from different climates and discuss their adaptations to specific environments.

Day 2: Students will learn about the purpose of Earth's atmosphere, what it's made of and how Earth's atmosphere was formed. They will talk about the early stages of Earth's atmosphere and how it was inhabitable for life but developed so that organisms could move from aquatic to terrestrial environments.

Demonstration: Students will first discover the main components that form the atmosphere. We will discuss how all these essential elements that form the atmosphere came to fruition and how that vital element we need for respiration, oxygen, entered Earth's atmosphere through cyanobacteria in the ocean. We will bring in some isopods which have been around for a long time and discuss how Earth's changing atmosphere affected them. Students will be creating their own mini volcanoes to talk about how the combustion reactions of volcanoes helped to break down elements in Earth's core and release them into the atmosphere.

Day 3: Students will begin exploring how the ocean and atmosphere affect climate in different regions. By the end of this lesson, students will understand how the ocean conducts heat through convection currents.

Demonstration: This demonstration will begin with students observing the different temperatures of an island in a dry vs. a wet container. We will then go outside and utilize a kiddy pool to pour hot, colored, water into the pool to show how convection currents travel.

Day 4: Now that students have conceptualized the different ways in which the ocean, atmosphere, and climate interact, they will build their knowledge of the ocean's ability as a heat sink by comparing this thermoregulation with animals that thermoregulate.

Demonstration: We will bring in different insects and animals that are great at thermoregulating their body to reinforce students' knowledge of how the ocean thermoregulates the Earth. A great example for this activity is showing students rats and

discussing how their tail acts to thermoregulate their body by constricting blood flow to their tail when they are cold and dilating blood vessel in their tail when they are warm.