

# Homeschool



# SCIENCE SERIES

2023 SEMESTER: JANUARY 11 TO MAY 10

**January 11:** Nene Week: The Three Ws of Dispersal

**January 18:** 'Ōhelo Week: Volcanism & Recolonization

**January 25:** 'Ōpae Week: Freshwater Ecosystems

**February 1:** O'opu Week: Animal Lifecycles

**February 8:** Hala Tree Week: Plants and Photosynthesis

**February 15:** Ae'o Week: Adaptation

**February 22:** Pueo Week: Food Webs and Energy Transfer

**March 1:** 'Ōpe'ape'a Week: Science of Sound

**March 8:** Tiger Shark Week: Science of Electricity

**March 29:** Humpback Whale Week: Science of Wayfinding

**April 5:** Pinao Week: Science of Flight

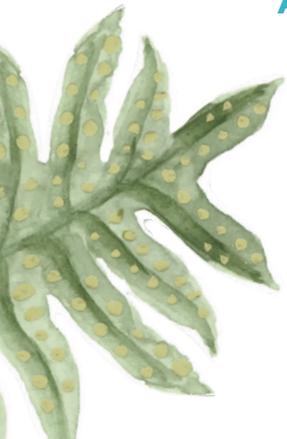
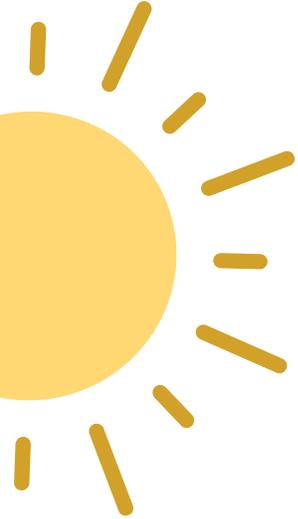
**April 12:** Jackson Chameleon Week: Camouflage & Biomimicry

**April 19:** Firespike Week: Colors in Nature

**April 26:** Common Cinnabar Polypore Week: Fungus Among Us

**May 3:** Mongoose Week: Invasive Species

**May 10:** 'O'o Week: Our Changing World



### **January 11: Nene Week: The Three Ws of Dispersal**

Using the Nene as our flagship species, we begin our semester by exploring what makes the animals and plants so special here in Hawai'i. We talk about what it means to be 'endemic,' how different species arrived here (wind, wings, waves), and what happens to organisms that have been isolated for a very long time.

### **January 18: 'Ōhelo Week: Volcanism and Recolonization**

One of the first plants to re-colonize a lava flow, the 'Ōhelo is our flagship species this week as we explore how our islands were formed. We tackle geology and volcanology, learn about different types of volcanoes, and go on a rock scavenger hunt around the Nature Center to see what types of minerals we can find. We finish the day by studying what happens to lava flows after it has cooled and how plants, and animals, can recolonize a once barren landscape.

### **January 25: 'Ōpae Week: Freshwater Ecosystems**

All living things, including the humble 'Ōpae depend on freshwater for their livelihood. In this session, we explore the differences between freshwater and ocean ecosystems, learn how the Hawaiians traditionally used/carried/and farmed with freshwater, and discuss the threats to this precious resource. Using Makiki stream as our field site, we will also explore freshwater biodiversity and habitats.

### **February 1: O'opu Week: Animal Lifecycles**

All living things undergo a life cycle, but few are as incredible as the O'opu. Using this amazing fish as an example, we learn about the different types of lifecycles and the changes that happen to animals and plants during development.

### **February 8: Hala Tree Week: Plants and Photosynthesis**

The Hala tree is our representative for our introduction to plants. Through experimentation and data collection we'll learn how plants photosynthesize, take a hike through Makiki valley to explore the different types of medicinal, edible, and culturally significant species, discover plant anatomy, and incorporate leaves and other plant parts into an artistic craft.

### **February 15: Ae'o Week: Adaptation**

With its long legs and long beak, the Ae'o is a perfect entry into this week's theme of 'adaptation.' Using the various plants and animals in Hawaii as examples, we explore how adaptation occurs, the difference between physical and behavioral adaptations, and take to the field to discover these various adaptations in the wild.

### **February 22: Pueo Week: Food Webs and Energy Transfer**

As an apex predator, the Pueo symbolizes the highest tier of our forest food chains on island. This week we will learn how energy moves throughout different ecosystems, strategize on how to build the best food chain through an interactive cooperative activity, observe food chain components in the field, and think about how humans fit into it all.

### **March 1: 'Ōpe'ape'a Week: The Science of Sound**

How does sound travel through air? How does temperature play a role in the science of sound? How do we and other animals hear sound? How does echolocation work? The amazing 'Ōpe'ape'a (the Hawaiian Hoary Bat) will be our focal animal this week as we explore all these questions, test our own hearing, and complete different sound-based challenges.

### **March 8: Tiger Shark Week: The Science of Electricity**

Scientists have long known that sharks use electrical pulses to hunt their prey, but how do they do it? What is electricity anyway? This week we study electricity, currents, and charges through several mini labs and hands on investigations. We theorize how animals use electricity to survive and learn how humans do the same!

### **March 29: Humpback Whale Week: The Science of Wayfinding**

Certain migratory animals are incredible at using the magnetic poles of our planet to stay on course. This week, we'll explore magnetism in its many forms- from the geological to compass reading. We will participate in migratory challenges as a human-sized pod of whales, work together to navigate through a challenge course, and learn how different animals use the magnetic field to survive.

### **April 5: Pinao Week: The Science of Flight**

Different flies tackle flight in different ways, from the soaring albatross to the darting native dragonfly, the Pinao. This week, we will learn how animals fly, why they fly, and the advantages of different types of wings. Using paper airplanes and model wings, we will also take a close look at how wing shape affects flight and learn about several champion fliers of the animal kingdom.

### **April 12: Jackson Chameleon Week: Camouflage and Biomimicry**

The color changing abilities of the chameleon are one of the neatest examples of cryptic camouflage in the animal kingdom. Students explore the different types of camouflage both through activities and in the field, as well as learn about several animal and plant examples that are serving as inspiration for new technology.

### **April 19: Firespike Week: Colors in Nature**

Where some animals might want to blend in, flowers often want to stand out. We learn about the opposite of camouflage this week- from bright blooms, to warning colors, to birds and flowers with patterns visible only under UV light. We also think about our own eyes and how we process all the visual information.

### **April 26: Common Cinnabar Polypore Week: Fungus Among Us**

With a name bigger than its visible body, the common cinnabar polypore is one of the most common fungi in Makiki valley. This week we study what makes a fungus a fungus, the life cycle of these unique organisms, and their role in culture and medicine. We take to the forest to try to identify the various types of species we see and investigate their heroic role as decomposers.

### **May 3: Mongoose Week: Invasive Species**

The introduction of the mongoose is a cautionary lesson in invasive species and the harm they can create in an environment. This week, we learn how and why foreign species are introduced, study their effects on an ecosystem, and learn how we can help protect what native species remain.

### **May 10: 'O'o Week: Our Changing World**

The extinct 'O'o is our final flagship species as we think about the changes that are occurring on Earth today. From invasive species to climate change, we investigate the different threats facing our natural world but leave on a positive note, with a pledge to make simple changes for big differences!

