Environmental Science: Botany

Session 3 2022, Tuesdays 11:00 AM - 12:30 PM
Tim Handley, Instructor

Course Overview:

In the third section, we will focus on plants. Through a series of lectures, labs, and creative activities, students will learn about key ideas in botany and ecology – with a particular focus on the connection between form and function. We will explore the way that the design of various plant parts (e.g., leaves, flowers, and fruits) affects the way that they function, and the ways that function affects survival. To bring these ideas together, students will have a final project where they generate a random environment (D&D style), and then use their understanding of form and function to design a plant that would thrive in that environment. In every activity, science and art go hand in hand.

Course Expectations:

- Be mindful of your health, and the health of others.
- Attend all classes that your health allows.
- Arrive on time and prepared.
- Be open to ideas and to work safely.
- Balance your needs and the needs of others.
- Balance art, science, work, and creativity.

Accountability:

Each class meeting will begin with a short, low-stakes quiz covering material from the previous classes. Students who score less than 10/10 may retake the quiz at the end of class. Students who score 10/10 on either sitting may choose a plant from the available selection, and take it home.

Class Structure:

Classes will be a combination of lecture, lab, and outdoors exploration. Each topic will be introduced with a 5-20 minute lecture. Following this, students will be tasked with hands-on activities that require them to use knowledge creatively. Many activities will task students with exploring the surrounding area to find specimens for discussion, dissection, or experimentation.

Final Project:

During the last two weeks, each student will work on an individual final project – to design a plant. We will begin by using dice to roll-up an environment - D&D style. Each student will then design a (mostly) realistic plant that would be successful in the given environment. In the final class meeting, each student will have five minutes to talk about their work - to justify/explicate their design choices using words and ideas from class. Parents will be invited to join us for the sharing.

Schedule of topics and activities*

* Dates for various topics may move around to accommodate needs of guests and field trips.

Day 1 - 01.11

- Class Intro
- Seeing plants / Dichotomous keys

Day 2 - 01.18

- Phyla of the plant kingdom
- Hillside walkabout

Day 3 - 01.25

- Leaf structure and function (part 1 of 2)

Day 4 - 02.01

- Leaf structure and function (part 2 of 2)

Day 5 - 02.08

- Field Trip (Details TBA)

Day 6 - 02.15

- Flower structure and function

Day 7 - 02.22

- Fruit structure and function

Day 8 - 03.01

- Final project begins

Day 9 - 03.08 (FAMILY WELCOME)

- Final project presentations (family welcome)
- Botanical Scavenger Hunt (family welcome)