**Lesson 1A:** Eelgrass and Photosynthesis

Students review photosynthesis and infer and explore how this process in underwater plants may affect the ocean.

**NGSS Standards**

* **MS-LS-2:** Construct an explanation that predicts patterns of interactions of organisms across multiple ecosystems.
* **MS-LS2-3:** Develop a model to describe cycling of matter and flow of energy among living and nonliving parts of an ecosystem.

**Materials**

* Pens/pencils
* Lesson 1A worksheet
  + Photosynthesis inputs/outputs
  + Compare and contrast terrestrial photosynthesis and marine plant photosynthesis
* Exit slip

**Lesson**

1. Begin introducing this lesson with a review of photosynthesis using the lesson 1A slides.
2. **Activity 1**:
   1. Hand out materials for activity 1
   2. Begin a class discussion about what in our terrestrial environment photosynthesizes and what students think are some of the inputs and outputs of this process.
   3. Give students 10 minutes to fill in the worksheet with their guesses for the inputs and outputs of photosynthesis. Have students illustrate these concepts.
   4. Come together as a class to share these ideas and correct students’ worksheets with the correct inputs and outputs.
3. Return the lesson 1A slides, transitioning to an introduction to eelgrass.
   1. Introduce the idea that photosynthesis is a process done by eelgrass.
   2. Identify the two species of eelgrass in Washington. Mention that one species is native to the state and one is non-native and was introduced and is now abundant.
      1. **Note**: We will discuss that there are two species of eelgrass in Washington, a native and non-native species, but will not dive to concretely into the differences as invasive species is a topic that would require background knowledge or an additional lesson.
4. Compare and contrast terrestrial and aquatic photosynthesis.
   1. Begin to elicit student ideas about how processes we are already familiar with (i.e. terrestrial photosynthesis) are occurring underwater and what the implications or importance of these processes may be.
      1. **Note**: Lesson 2 dives into ocean acidification, so here we are just beginning to think about these processes.
5. **Activity 2:** 
   1. Students fill out a Venn diagram comparing what they know about terrestrial photosynthesis and photosynthesis in eelgrass. They should begin to think about what the implications of this process under water are in relation to climate change and rising CO2 concentrations.
   2. Quick exit question to elicit student ideas about the implications of these processes which we will learn about in the coming lessons.
6. Finish slides and have students fill in exit questions prompted by the “Thinking Ahead” slide.