Studying Succession Through Forest Exploration

Purpose:

- In this activity, students will learn the definition of succession and be introduced to the different stages of succession. Older students will go outside and observe the successional stage of a forest.

Time Required: 1 hour
Appropriate grades: 7th – 12th
NGSS and Common Core Standards:
HS-LS2-6.: Evaluate claims, evidence, and reasoning that the complex interaction in ecosystem maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem.
MS-LS2-2: Construct an exploration that predicts patterns of interactions among organisms across multiple ecosystem

Objectives:

- Students will define forest succession using think, pair, share.
- Students will identify the different stages of forest succession by arranging a set of succession cards.
- Students will describe how events and processes that occur during ecological succession can change populations and species diversity by playing the successional board game.

Materials:

- Succession cards - 4 sets of 5 (provided)
- Dice - 4 (provided)
- Game board - 4 (provided)
- Game pieces - 4 sets of 9 (provided)
- Scenario cards - 4 sets of 23 (provided)

Activity:

Introduction	Begin the lesson by telling your students that forests go through a lot of changes before they become the collection of full-grown trees that we know. Ask your students to tell you some of the reasons why forests may go through changes. Examples include: Lack of precipitation, fire, changes in temperature, logging, etc.
Body	Divide your class into groups and pass them the succession cards and ask them

	to arrange them in order. After this, ask them to come up with definition of succession. Ask them what different forest stages they notice. What are some disturbances that can interrupt forest succession? After having groups share, explain the definition of succession and explain successional stages. (See "Background Information" for support). **Succession Board Game:** In this game students simulate the effects of succession on a community and specific species. The game is intended to explain facilitation, where the successes of one community type change the environment gradually so as not to favor their own (or their children's) continued dominance, but rather favor the success of some new, different community members. Game pieces: Grasses, lupine, poison oak, white leaf manzanita, madrone, Douglas fir, ponderosa pine, sugar pine, black oak Rules: 1. Each player chooses a game piece and rolls the dice to see who moves first. The person who rolls the highest number goes first and turns continue in a clockwise rotation. 2. To move through the game board, players roll a dice and follow the squares. When a player lands on a red square they draw a scenario card. The scenario card will designate the next move of EVERY player. 3. After a scenario card has been played, the next player starts his/her turn from their current position depending on what the last turn assigned. Some players may be affected in other players' turns depending on the scenario card. 4. If two players end up on the same square, no matter the color, they will have to duel for survival. In a duel, the person who rolls the highest number wins. The winner moves up one space, the loser moves back one space.
Closure	Have students share experience after playing the game. Were some plants more successful than others? Why might that be? Ask students to explain the importance of succession. Remind them that succession helps to provide homes for a diverse flora and fauna life. Conclude by asking students whether they think disturbances in the forest are good or bad. (This should not be an easy yes or no question! It is important to consider everyone and everything that may be affected by a disturbance.)

Modifications:

- **High School:**
    - Once you feel your students have a solid understanding of forest succession and its different stages, have them go outside in the forest to observe and explain successional stages. Discuss how succession helps to provide homes for diverse flora and fauna. How do natural disturbances help achieve different successional stages? How might natural disturbances be bad in terms of ecosystem health?