

7.4.2 e4 Samaras Lab Narrative

Time: 90 minutes	Anchor Phenomena: Males of certain species have different physical characteristics than females of the same species (think, peacocks, white campion, etc.)
Big Idea: Specific adaptations and structures affect the probability of successful reproduction and offspring survival.	
CCCs <u>Structure and function</u>	Practices Obtaining, evaluating, and communicating information

EPISODE SNAPSHOT: To understand that plants also have structural elements that allow them to reproduce successfully, students will design and carry out an experiment using Samara seeds.

GATHERING

If possible, teacher shows the class samaras (helicopters). These are passed out to students. Students are encouraged to play with the samaras and write down observations they have. After students have a couple of minutes to do this, teacher asks students about what observations/inferences they made. *(Teacher note: before proceeding, students must identify that this is a seed and that a seed has the potential to become a new plant)*

Teacher asks the students: Why a plant would produce seeds in this way? What is the benefit? What would happen if the seed isn't shaped this way? Teacher asks students to identify what they could change about the samara that might affect how far it can disperse. Teacher writes these ideas on the board. Teacher explains that students will be researching this. Teacher asks students what would be the best way to measure this.

(Teacher note: guide students to identify that the time it takes the samara to fall is an easy way to measure how the change affects the ability for the seed to disperse, since the longer the seed is in the air, the farther it could potentially be dispersed from the parent tree)

Teacher assigns certain groups to certain changes the students have come up with. Each group should be investigating a different change, or for a large class, have two groups assigned to each change. Examples could include ripping the wing, poking holes in the wing, getting the seed wet, removing one half of the wing, etc. As a class, students and teacher create a set of procedures for the lab. Teacher can either have the class collect control data all together (as a demonstration) or a group can be assigned to collect the control data. Students collect data testing how their change affects how fast the Samara falls.

REASONING

Students share their data with the class on the board. Students use that data to complete a student sheet, where they analyze the information they have gathered.

COMMUNICATING

Students answer analysis questions and write a conclusion about how the structure of the samara allows the tree to be successful at reproducing.

****This episode was adapted from a lesson by Renee Nichols and Angela Stewart**

Assessment: Analysis questions and conclusion can be used as a formative assessment.	Materials, resources, handouts, etc: - Samaras (collected or purchased) - Timers 7.4.2 e4 SamarasLab student sheet Alternate: 7.4.2 e4 Samaras Alternate Lab (if Samaras unavailable)
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