



LIFE HISTORY OF A STRANGE TREE: THE STRANGLER FIG

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Grade Level: 6-8

Introduction: Strangler figs are one of the most iconic trees and are a keystone species of the tropical montane cloud forests of Monteverde, Costa Rica. Students will view strangler figs using the *Canopy in the Clouds* media and will become familiar with the fascinating life history of this interesting plant as they work to sequence the events of its life cycle.

Major Themes: Strangler fig trees; hemiepiphytes

Connections to National Science Education Standards: Structure and function in living systems (C); regulation and behavior (C); populations and ecosystems (C); diversity and adaptations of organisms (C).

Time: 50 minutes (5 minutes for opening, 15 minutes for Part 1 of handout, 15 minutes for Part 2 of handout, 5 minutes for Part 3 of handout, 10 minutes for closing)

Materials: Students will need use the following *Canopy in the Clouds* “Media”:

Strangler Fig panorama
“Strangler Figs” video

Computer with internet access

LCD projector

Student handouts (*Life Cycle of the Strangler Fig* and *Life Cycle of the Strangler Fig: Student Assessment*)

Class set of *Strangler Fig Life Cycle Cards*

Objectives: Students will be able to: 1) provide a definition for the phrase “life cycle,” 2) identify a strangler fig tree and 3) summarize the life cycle stages of the strangler fig tree.

Potential Misconceptions:

1) At first glance, one might think that a strangler fig starts out with its roots in the soil and grows upwards, as many trees do. In fact, the strangler fig starts out in the canopy, after which its roots grow down to the soil.

2) The strangler fig’s name may lead some to believe that this plant kills its host through strangulation alone. While preventing the host tree’s trunk from expanding outwards does damage the host plant, the fig further weakens its host by outcompeting it for sunlight as its crown grows and outcompeting it for limited soil nutrients as its root system becomes more extensive.



PROCEDURE

Opening: Project the panorama of a strangler fig (*Canopy in the Clouds* “Media”) for all students to view. Be sure not to scroll down far enough to reveal the caption below the panorama, as it reveals too many clues about the day’s activity. Ask students to describe the strangler fig tree. Rotate through the scene and zoom in and out, pausing to allow students to make detailed observations of the tree in question.

Development: Tell students that today you are going to learn the life cycle of this tree and ask for volunteers to define the term “life cycle.” Once you have agreed on a definition (i.e. the different stages of an organism’s life from birth to death, including reproduction), distribute the *Life Cycle of the Strangler Fig* student handout. Solicit a volunteer to read the brief introduction and the instructions for Part 1. Pair up students and give each pair a shuffled set of strangler fig life cycle cards. Allow students to begin working on Part 1.

As students complete their sequences, pair them with another set of students. Ask these groups of four to compare and discuss sequences then answer questions 1 and 2 (a,b,c) in Part 1 of the handout.

When students are ready to move on, read through the introduction to Part 2 together. Preview the questions as well. Use the computer and LCD projector to view the strangler fig video (available in “Media”) together. After watching the video, allow students to try to answer questions 1-5. After 5 minutes or so, replay the video so that students can try to pick up additional information to use in their responses. If time allows, discuss students’ responses to these questions as a class.

After watching the video and discussing with their classmates, students may need to revise the order of their life cycle steps. Ask students to write the proper order of the strangler fig life cycle cards in Part 3 of the handout. A student may make a reasonable case for a sequence that differs slightly from the order suggested in the *Strangler Fig Life Cycle Cards* document. If you deem it reasonable, the student may use the altered sequence instead.

Closing: Shuffle a set of strangler fig life cycle cards and pass one card to each of 14 students so that they are all distributed to different individuals. Ask students to quickly line up in order according to the cards they are holding. Once they think they are in the correct order, start with the first person in line and ask him/her to read his/her card. Ask students who are not in line to snap, click their tongues, raise their hands, or do some similar action if they hear something they believe to be out of order. Continue on down the line until you reach the final student. Allow audience to suggest changes to the order until the life cycle sequence is accurate.



Suggested Student Assessment: Have students complete the *Life Cycle of the Strangler Fig: Student Assessment* assignment. If possible, set aside one class period for students to present their work to the class.

Extending the Lesson: Explore the mutualistic relationship between the fig tree and the fig wasp with your class. This allows an opportunity to incorporate information about pollination and offers a fascinating example of plant/animal symbiosis.

Vocabulary: hemiepiphyte, epiphyte, defecate, fuse, decompose

WORKSHEETS: *Life Cycle of the Strangler Fig, Life Cycle of the Strangler Fig: Student Assessment, Strangler Fig Life Cycle Cards*