

Malaria: Initial Engagement Experience

Unit Big Ideas

- Living organisms in ecosystems are dependent upon each other.
- Changes in the population of one type of living organism in an ecosystem will have an impact on the population of other living organisms in the ecosystem.
- There are patterns to the interactions between different organisms.

Key Aspects of Initial Engagement Activity

How do you plan to accomplish each of the following through your Initial Engagement Activity?

Develop an awareness of student understanding related to unit concepts	Introduce an interesting or curiosity-provoking phenomenon related to unit concepts	Collect student questions related to the Initial Engagement Activity and unit concepts
<ul style="list-style-type: none"> • Have students organize a list of structures from smallest to largest. • Use of discussion questions throughout story and student description at the end of the story. 	Tell Borneo story	Students respond to questions related to the big ideas and big questions and the teacher collects them at the end of class.

Anticipated Progression of Initial Engagement Activity

What is the anticipated sequence of student and teacher activity that will take place during the Initial Engagement Activity? (Include specific management techniques, ways to differentiate, projected timeframes, and anticipated student responses)

Part 1

- Show students the list of structures that can be found in an ecosystem. Ask students to work on their own or in pairs to organize the list from smallest to largest
 - Predicted student answers: may vary, but would like to see quark as the smallest and universe as the largest
- Have students write their groups list on the board. Discuss with students their lists and create a class list. Ask students when they give an answer why they think that. As a class we come to an agreement with the structure of ecosystems.
 - Discuss with students that we will be focusing on biomes, ecosystem, environment for this section of class

Part 2

- Let students know that you will be telling them a story today, and that story starts in Borneo. Ask students where they think Borneo is.
 - Predicted student answers: South America, Africa, Asia
- Show students the first slide and go discuss where Borneo is. Ask them what they think the climate would be like in Borneo and what type of animals they think would live there.
 - Predicted student answers: tropical, wet, hot, lots of bugs, monkeys, people
- Show slide 2 to students. Discuss the climate of Borneo. Then show slide 3, and share with students that wet climates have a lot of insects. Let students know that mosquitoes in Borneo carry a parasite which causes malaria. Ask students what we do to get rid of mosquitoes.
 - Predicted student answers: spray for them, use those candles, we spray ourselves, use nets to keep them away
- Let students know that in Borneo they used a spray called DDT, which was good because it got rid of the mosquitoes, but it also killed wasps (slide 5). The wasps that killed the caterpillars. Ask students what they think happened to the roofs of the houses in Borneo.
 - Predicted student answers: they stayed the same, the caterpillars ate them
- Tell students, "So, I live in Borneo, I don't have holes in my roof, a bunch of dead mosquitoes in the backyard, but, I don't have malaria."
- Show slide 6→ well these geckos will also eat the caterpillars, but they have this toxin on them. Ask students what they think happened to the geckos.
 - Predicted student answers: they died, they got sick
- Tell students that the geckos got sick and would not be able to eat well
- Show students the picture of the cat (slide 7). Tell students in Borneo there are some pretty common predators like the cat. And the cats will eat the geckos, but the geckos have the DDT on them. Ask students, "what do you think happened to the cats?"
 - Predicted student answers: they died
- Discuss with students: so, I live in Borneo, I have a pile of dead cats in the yard, a pile of dead wasps, holes in my roof, and sick geckos running around. But, I don't have malaria. But, now I have a different problem.
- Show students the picture of the rat and flea. Ask students what happens when rat populations increase and flea populations increase.
 - Predicted student answers: disease
- Tell students that I live in Borneo, I have a pile of dead cats in the yard, a pile of dead wasps, holes in my roof, and sick geckos running around. Now I have the plague. But, I don't have malaria.
- Ask students what they think people in Borneo did.
- Show students the picture of the cat with the parachute on it. Let students know that they increased the population of cats in Borneo to balance everything else out and stopped using DDT.

Part 3

- Ask students to answer these questions on a sheet of paper:
 - What did you notice about the relationships within the story?
 - What patterns did you notice in the story?
 - What are you wondering now?

What materials will you need to prepare and have ready students?

[Borneo story](#) and accompanying [PowerPoint](#)
Sheets of paper