

Lesson Plan

Lesson Title	Backyard Mystery: The Case of the Mysterious Itchy Insect Bites
Grade Level	1 st Grade
Topic	Mosquitoes
Lesson time	30-40 minutes
Materials Required	<ul style="list-style-type: none">• Presentation (PowerPoint)• Life Cycle Kit• 1 observation journal per student (available here)
Standards addressed	<ul style="list-style-type: none">• LS1.A: All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find and taking in food, water and air

Step 1: Introduction and Expectations

Step 2: Read the Story (the following is the text for the book with some added questions for students).

Slide 1: Title

Slide 2: “People in your neighborhood have been leaving their windows open at night, and when they wake up, they have mysterious itchy insect bites. Let’s look for clues in the backyard and see if we can figure out what kind of insect is causing the problem. You might notice that there are three places in this picture that have filled up with water—let’s take a closer look...”

Slide 3: “If we look closely at the surface of the water in the bucket, we can see tiny clumps of eggs. Each clump is called an egg raft, and it is made of hundreds of tiny eggs that are stuck together.”

Slide 4: “If we looked even closer, we would see that each tiny egg has a door that opens and a baby insect called a larva wiggles out. This type of insect larva lives underwater, and has a tiny tube at the end of its body that is used like a snorkel to breathe at the surface.”

Slide 5: “Each hungry larva dives down to the bottom of the bucket to eat some slimy green algae. The larva has a mouth full of special hairs that collect tiny bits of food when the larva sucks in water. This is called filter feeding. Can you think of any other animals that feed in a similar way?”

Slide 6: “A larva can grow quickly if it gets enough food and the weather is warm. When insects grow, they shed their outer skin (also called the exoskeleton) because it doesn’t stretch very well. Before this happens, the insect grows a new soft squishy skin right underneath the harder outside skin. The older skin peels off, and the new skin that was underneath can stretch out before it becomes harder. Each time a larva sheds its skin, it gets bigger, and each larva will shed its skin several times before it changes into a pupa.”

Slide 7: “Like a larva, a pupa lives in the water and comes up to the surface to breathe. But unlike the larva, it cannot eat because it doesn’t have a mouth that is ready to use. Underneath

its skin, it is growing six legs, two wings and a long skinny mouth that looks like a tiny straw. What do you think it is?"

Slide 8: "It is a mosquito! The adult mosquito was trapped inside of its old skin. It used its breathing tubes to suck in so much air that the older outer skin split open so the mosquito could rise out of the water. If the water is still, the mosquito can stand right on top of the water and fly away."

Slide 9: "After a mosquito leaves the water, it needs to find something sweet so that it has the energy it needs to keep flying. Mosquitoes land on flowers and sip nectar because nectar is full of sugar. What other insects sip nectar?"

Slide 10: "After a female mosquito finds nectar, she will need something else to help her eggs grow. She can smell us, sense our breath and the heat from our bodies. The mosquitoes were flying in the open window, and biting people at night when they were asleep! Can anybody think of another insect that drinks blood?"

Slide 11: "After a mosquito gets a little blood, she finds a hiding place. She rests for a few days, until she is ready to find a place to lay her eggs. This mosquito has found a bucket of water that someone left out in their backyard."

Slide 12: "If you find something small like a toy or bucket that has filled up with water, get permission to dump it out so that mosquitoes don't lay their eggs!" If you find something small that needs to have water, like a pet's water dish, just rinse it out once a week so that the mosquitoes don't have time to grow."

Slide 13: "Sometimes you might find mosquitoes growing in something big that you cannot dump out (like a pond, fountain, or yucky green swimming pool). There is a special kind of fish that can live in these habitats and it eats mosquitoes."

Slide 14: "The fish is called a mosquitofish. It is named after its favorite food! Can you think of other animals that might eat mosquitoes?"

Slide 15: "Congratulations! You figured out that mosquitoes were growing in a bucket of water outside the bedroom window and that mosquitoes were sneaking inside and biting people at night! Now that you know the life cycle of mosquitoes, you need to teach your family about what you have learned. We don't want to give mosquitoes extra places to grow because sometimes they even make people and animals very sick".

Step 3: The Matching Game (Students love this)

- The final slide of the presentation is a matching game. All the students are on one team. Have students take turns guessing a number. When someone guesses a number, click or tap it (depending on whether you are using a mouse or a tablet) to reveal what is on the other side of the card. Have another student guess another number, reveal it, and if the picture matches, the students get a point, and those cards stay "revealed" (don't click/tap on those cards again). If the pictures do not match, click or tap on each to turn them back over, and the "teacher" team, gets a point. Call on another student and continue until they get all of the cards are revealed. If you let the student team have 3 free guesses, they should always

win and everyone will be happy. With this activity, be forewarned that students can get very excited and will noisily cheer when they get a matching pair. Also, make sure to not let give anyone a hard time if they don't get a match!

Step 4: Demonstrate how to use the life cycle kit and talk about the various task they will be responsible for (observing, activity sheets, feeding fish, making nectar, etc.)

Step 5: Allow the students to ask questions.

Visit the [Mosquito School website](#) for more information or email erice@msmosquito.com