Mōlī Life Cycle Program

Kilauea Point National Wildlife Refuge

Updated 10-2025

Lesson 2: The Lifecycle— Colonies and Courtship

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| Grade Level | 3 |
| Next Generation Science Standards (NGSS) | 3-LS1-1:  Develop models to describe that organisms have unique and diverse life cycles, but all have in common birth, growth, reproduction, and death.  3-LS2-1:  Construct an argument that some animals form groups that help members survive. |
| Bullseye outlineStudent Learning Target | 1. Students can make a model of the mōlī life cycle and describe what makes it unique from other animals. 2. Students can explain how living in a colony while on land helps mōlī survive. |
| Materials | * Rope * Lifecycle stages cards * Power Point Presentation |
| Introduction and Building Background Knowledge(10 minutes) | Introduce the vocabulary **courtship displays.**   * *“Courtship displays are a form of communication, enabling birds to signal their interest in a potential* ***mate,*** *or partner to raise a chick with****.*** *They also give the birds an opportunity to assess if their potential partner’s body condition is strong enough for chick rearing.”* * *“Different species of birds have unique courtship displays. Albatrosses use dancing.”* * *“Albatrosses know 25 different moves, and they are combined into an endless number of routines. Each year when they come back to the colony, they dance to find their mate so they can reproduce and lay an egg.”*   **Albatross Dance Activity:**   * Model the 5 different dance moves. Have the kids practice each one individually. Then make a dance routine with the class having 5 or so kids adding one dance move to the routine. Then do the whole dance together as a class.  1. ***The stare:*** *Stand still with your wings at your sides, and stare at another bird.* 2. ***Bill-under-wing****: Quickly tuck your head under your wing.* 3. ***Sky-moo:*** *Look up and make “maaaaaaaaw” sound, using your hands like a bill.* 4. ***Bow-clapper:*** *Bow down a little bit, face partner, use your hands like a bill, and clapper your bill fast.* 5. ***Bob-strut:*** *Walk forward, with your wings tucked in, bobbing your head and crouching down with each step.*   Play video LINK of albatrosses courting. Play the first time for students just to watch. Play it a second time for keep a tally in their journal of the dance moves that they see. Link will be in powerpoint.  Students **Turn and Talk** to discuss their observations and make a hypothesis about why mōlī show this unique behavior.  **Student sentence stems:**  I observed that\_\_\_\_\_\_\_\_\_\_\_\_\_  Albatrosses are dancing and calling so that they can\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. |
| Whole Group Lesson(15 minutes) | Review **learning target** and clarify vocabulary in the target:   * I can make a diagram of the mōlī **life cycle** and describe what makes it unique from other animals. * I can explain how living in a **colony** while on land helps mōlī survive.   Discuss why the Moli come back to their colony on land.   * *“Mōlī live mostly alone when they are out at sea. Everything they need is there, food and space. Their feathers provide protection from the elements and their salt gland allows them to desalinate water. However, they cannot lay an egg out at sea. They return to their colony to do that. They come back to land at the start of breeding season and live in big colonies.* * *Living in colonies is a behavioral adaptation that mōlī have for living on land.”*   Discuss Kaua‘i’s colonies at Kīlauea Point, Princeville, Moloaʻa, Larsons, PRMF. Use the PowerPoint to talk about the different colonies and show photos. On Midway the colony has over 2 million birds.  Show Wisdom slide and share her story.   * *“Albatross will go through this breeding cycle many times. Wisdom is the oldest known bird in the world. She was banded Z333 in 1956 on Midway Island. She was already laying eggs then, so we know she was at least 5 years old. Scientists estimate that she has laid around 60 eggs in her lifetime and raised about 30 chicks. Just last December she was spotted in her Midway colony; she laid an egg and was spotted with a new mate. Her previous mate has not returned.* *We don’t know how long albatross can live for but studying birds like Wisdom help us learn more about the entire species.”*   Have students turn and talk about why they think albatross live in colonies.   * Write some of the reasons on the board including:   + Courtship rituals   + Finding a mate   + Protection from predators including pigs, cats, and dogs.   Lay out the rope in this shape   * *“Every bird’s life cycle starts with an* ***egg*** *and ends in* ***death.”***   Add the real egg and the feather (use the large feather to represent death) to the rope lifecycle model.   * *“We already learned one part of the life cycle:* ***Courtship Rituals.”*** * *Courtship Rituals are such an important part of the lifecycle that mōlī aged between ages 4 and 7-years-old come back to the colony each year to learn the dance moves and practice dancing. And they get better each year. When they are between about 7 and 9 years old, they will select a mate, and their mate will select them based on their courtship skills.*   Add SELECT A MATE to the lifecycle.   * *“Albatrosses are monogamous which means they keep the same partner (in most cases) for multiple years or even decades.”* * *“After they select a mate, they make up a dance routine together that will help them recognize each other when they get back to the colony each year after being apart.”* * \*\*\*Note: Unless the sex of the bird is clear (the female bird lays the egg), refer to birds as parent birds not male and female or mother and father. In Hawai‘i up to 1/3 of nests might have two female birds. It is not necessary to go into this adaptive breeding strategy at this level, but you can touch on it if it comes up as long as we are accurate.   Go through the breeding cycle.   * *“The center circle is the yearly cycle of reproduction that happens every year. Sometimes they skip years because raising a chick is so intensive that the pair might not be in good enough body condition to nest again.”*   Have students place the cards on the lifecycle rope. Use student participation whenever possible to suggest the part of the life cycle.   * Chick * Fledge * Juvenile * Select a Mate * Nest building/pair bonding * Lay a fertilized egg/Egg incubation * Incubation 63 days * Pipping/ hatching (pipping can take 3-4 days for the albatross chick to break out of its shell). * Chick Rearing (5 ½) months * Return to Sea   Ask students what the last part of the lifecycle is. Discuss death and what other lifecycles end in death, have students discuss with a partner. Share a few examples with the group. Ask the students if they can think of any lifecycles that don’t end in death. Lead a discussion about what lifecycles have in common.   * *“Lifecycles can start in many ways. Some living things are born, some hatch, some sprout. Every living thing has reproduction in their lifecycle. Flowers are pollinated, frogs and birds lay eggs and mammals gestate their young inside their bodies. And all lifecycles end in death.”* |
| Independent Work(5 minutes) | Students fill out their lifecycle diagram with vocabulary. |
| Closing(5 minutes) | Return to whole group. Review the learning targets. Have them explain to a partner why mōlī live in colonies and have them share their life cycle diagram. Have them self-assess if they met their learning target. |