

The Secret Life of the Armor-Plated Roly-Poly

Lesson Overview

In this lesson, Keatyn will transform into a "Backyard Biologist" to explore the fascinating world of pill bugs (Roly-polies). Through observation and hands-on habitat building, she will learn about their unique biology, their role in nature, and why they aren't actually "bugs" at all!

Materials Needed

- A clear plastic container (like a clean deli tub or a small terrarium)
- A magnifying glass
- Natural materials: Damp soil, dried leaves, a few small rocks, and a piece of bark
- A spray bottle with water
- Paper and crayons/markers
- A small slice of potato or apple (as a treat for the bugs)
- Access to a backyard, park, or a damp area under rocks/logs

Learning Objectives

By the end of this lesson, Keatyn will be able to:

- Identify that a Roly-poly is a crustacean (related to crabs) and not an insect.
- Explain why Roly-polies roll into a ball (defense and moisture).
- Identify the three things a Roly-poly needs to survive (moisture, food, and shelter).
- Create a mini-habitat that mimics a Roly-poly's natural home.

1. Introduction: The Tiny Transformer (The Hook)

The Hook: Ask Keatyn: "If you were a tiny creature living under a heavy rock, what would you do if a giant lifted it up? Would you run away, or would you turn into an armored ball?"

The Big Secret: Tell Keatyn: "Did you know that Roly-polies are actually like tiny land-shrimps? They have gills just like fish and crabs! Today, we are going to find out how these little 'land-crabs' live and build them a 5-star resort."

2. Content & Guided Discovery (I Do / We Do)

Part A: The "I Do" - Biology Talk

Explain these fun facts using simple language:

- **Leg Count:** Insects have 6 legs. Let's count these... Roly-polies have 14 legs! That's a lot of shoes!

- **Breathing:** They have "pleopodal lungs" which are like gills. They need to stay damp to breathe. If they get too dry, they can't breathe!
- **The Roll:** They roll into a ball to protect their soft bellies and to keep their gills from drying out. It's called "conglobation." Can you say that big word?

Part B: The "We Do" - The Great Bug Hunt

Take the clear container and magnifying glass outside. Look under rocks, logs, or piles of leaves.

- **Observation:** When you find one, watch what it does. Does it roll up immediately? That's his armor!
- **Collection:** Gently scoop 3-5 Roly-polies into the container. *Instruction: "Use a leaf to scoop them so we don't accidentally squeeze them too hard."*
- **Magnified View:** Use the magnifying glass to look at their "plates" (armor). Does it look like a tiny dinosaur or a robot?

3. Hands-On Application: The Roly-Poly Resort (You Do)

Now, Keatyn will build a temporary home for her new friends to observe them for the day.

1. **The Floor:** Put 1 inch of damp soil in the bottom of the container.
2. **The Furniture:** Add the piece of bark and rocks. This gives them a "basement" to hide in.
3. **The Food:** Add dried leaves (their favorite snack) and the slice of potato or apple.
4. **The Rain:** Let Keatyn use the spray bottle to mist the habitat. *Remember: Not a puddle, just a mist!*
5. **The Drawing:** On her paper, have Keatyn draw her Roly-poly. Ask her to draw the 14 legs and the "armor" sections.

4. Conclusion & Reflection

Summary: Ask Keatyn to tell you the three things she put in the habitat to keep the bugs happy (moisture, shelter, food).

Recap:

- Are they insects? (No, they are crustaceans!)
- Why do they roll up? (To stay safe and stay wet!)

The Release: Explain that "Scientists always return their friends to nature." After observing them for an hour or two, go back to the spot where you found them and gently let them go under their favorite rock.

Assessment (How we know she learned it)

- **Formative:** During the bug hunt, can Keatyn identify if a bug is a Roly-poly based on its legs or its ability to roll?
- **Summative:** Look at Keatyn's drawing. Did she include multiple legs and the shell? Can she explain why she had to spray the habitat with water?

Success Criteria

- Keatyn can explain that Roly-polies need water to breathe.
- Keatyn can successfully find and gently handle a pill bug.
- Keatyn completes a drawing that shows the bug's physical features.

Differentiation & Adaptations

- **For an extra challenge:** Have Keatyn do a "Taste Test." Put a piece of leaf and a piece of potato on opposite sides of the container. Which one do the bugs go to first? Record the results!
- **For more support:** Focus purely on the sensory aspect—feeling the damp soil, watching the bug roll and unroll, and counting the legs together.