Lesson 10: Build & Observe a Mini Ecosystem with the National Geographic Light-Up Terrarium

Subject: Life Science — Ecosystems

Learners create their own living terrarium habitat with real plants, gemstones, and dinosaurs. They explore how ecosystems recycle water and energy, practice scientific observation, and track plant growth over time.

Learning Objectives

1. Explain how producers, consumers, and decomposers function in an ecosystem.
2. Assemble a terrarium using layered substrate, seeds, and decorations.
3. Track variables like light exposure and moisture while making growth predictions.
4. Record observations using drawings, data tables, and written reflections.

Materials Needed

1. National Geographic Light-Up Terrarium Kit (with LED lid)
2. Water mister or dropper, paper towels
3. Optional: magnifier, ruler, extra seeds or moss
4. Notebook or printable growth log sheets

Preparation & Setup

1. Review the kit’s layering guide and identify components (rocks, soil, seeds, décor).
2. Introduce key terms: germination, condensation, photosynthesis, humidity.
3. Choose a display spot with indirect light and an outlet for the LED lid.

Lesson Steps

1. Hook: Ask what plants need to survive (light, water, air, soil). Brainstorm ideas.
2. Layer the habitat: Add drainage rocks, soil, and seeds in order. Decorate last.
3. Mist the soil lightly and close the lid. Turn on LED (day mode).
4. Record the start date, seed type, soil level, and a sketch/photo of setup.
5. Maintain care routine daily: check condensation, adjust LED, mist lightly.
6. Weekly: measure tallest sprout, count leaves, and record changes.

Data & Assessment

1. Growth logs: record height (cm), leaf count, and moisture conditions.
2. Exit reflection: 'One thing that changed was…' and 'Next time I will…'.
3. Rubric: observation accuracy, vocabulary use, consistency of care, reflection depth.

Discussion & Reflection

1. How does water cycle within the terrarium (evaporation → condensation → drip)?
2. What signs show that photosynthesis is occurring?
3. How did your care routine affect growth speed or plant color?

Extensions & Cross-Subject Links

1. Math: Graph height over days and compare with peers.
2. ELA: Write a 'Seed Diary' entry from the perspective of a sprouting plant.
3. Art: Draw labeled sketches showing seedling stages.
4. Science: Test a control terrarium without LED lighting and compare results.

Parent & Teacher Tips

1. Water lightly—moisture should recycle through condensation, not pooling.
2. Rotate the terrarium weekly for even growth.
3. If mold forms, increase airflow, reduce misting, and remove debris.
4. Praise curiosity and patience; this project rewards consistency.

Wrap-Up

This terrarium project builds both scientific and personal growth. Students learn patience, observation, and responsibility while witnessing life cycles in real time. Perfect for blending STEM and nature appreciation.