1. Lesson Title:

Polymer Clay Ecology: Sculpting Our Natural World

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2. Objectives:

Academic Objective(s):

- Students will identify an animal and describe its habitat using appropriate ecological vocabulary.
- Students will demonstrate understanding of how an animal meets its needs for food, water, shelter, and community in a specific biome.

Artistic Objective(s):

- Students will create a diorama that includes both two-dimensional (2D) and three-dimensional (3D) elements.
- Students will model an animal out of polymer clay and construct a setting that visually represents the foreground and background of its habitat.

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3. Standards:

Academic Standards:

- TEKS Science: 112.13(b)(10)(A) Investigate how animals and plants depend on each other and on their environment.
- TEKS Science: 112.11(b)(9)(A) Observe and describe the physical characteristics of environments and how they support populations and communities.

Arts Standards:

- National Core Arts Standards (Visual Arts):

- VA:Cr2.1.2a: Experiment with various materials and tools to explore personal interests in a work of art or design.
- VA:Cr3.1.Ka: Explain the process of making art while creating.

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4. Vocabulary Table:

Arts Vocabulary	Content Vocabulary (Science)
Modeling	Climate
Foreground	Biome
Background	Living Organism
	Habitat
	Forest, Desert, Tundra, Rainforest, Wetland
	Shelter
	Food
	Water
	Community

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5. Materials/Resources Needed:

General Materials:

- Paper
- Crayons or colored pencils

- Reference books or images of animals and habitats
- Shoeboxes or cardboard for diorama base

Specialized Arts Materials:

- Polymer clay (variety of colors)
- Clay sculpting tools
- Sculpting mats or placemats
- Polymer clay oven or toaster oven (adult supervision required)
- Glue or tape (for assembling 2D elements)

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6. Lesson Introduction (5–10 minutes):

Begin with a discussion about ecosystems and ask:
"What do animals need to survive?"
"How is where they live connected to what they eat and how they move?"
Share examples of various biomes (e.g., desert, forest, tundra) using images or short video clips. Explain that students will choose an animal, research its habitat, and create a mini world (diorama) using both drawing and clay sculpture to represent that animal in its natural environment.

Introduce polymer clay as an artistic medium and explain safety guidelines when using sculpting tools and ovens.

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7. Guided Practice (15–20 minutes):

1. **Animal Selection & Research:** Students choose an animal and complete a short worksheet identifying its habitat, food, shelter, and biome.
2. **Design Planning:** Sketch out the diorama layout, labeling background elements (e.g., mountains, sky, trees) and foreground (e.g., water source, animal shelter, food source).
3. **Clay Demo:** Teacher models how to safely use clay tools to form basic animal shapes.

4. **Drawing the Habitat:** Students begin creating the 2D background and landscape on the inner walls of the box.

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8. Independent Practice (15–20 minutes):

Students will:

- Sculpt their selected animal using polymer clay, shaping realistic features and scale.
- Bake the clay animal (with adult supervision) while students continue to decorate their diorama background and add drawn or collaged elements (e.g., leaves, rocks, nests).
- Assemble the habitat and place the animal into the environment to create a cohesive final piece.

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9. Closing (5–10 minutes):

Hold a **mini-museum walk** where students present their dioramas and share:
“What does your animal need to survive?”
“What part of the habitat is most important for your animal?”
Discuss the visual choices they made and how the artwork helps us understand the relationship between living things and their environments.

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10. Assessment:

Academic Assessment:

- Students will complete a reflection or oral share-out identifying the animal’s biome, and describing how it meets its needs for food, water, shelter, and community.

Artistic Assessment:

- Use a rubric assessing:
    - Completion of animal sculpture

- Use of 3D and 2D space
- Creativity and detail in habitat design
- Safe and effective use of materials

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11. Differentiation Strategies:

- Provide pre-made animal templates or clay shapes for students who need motor support.
- Offer visual aids with habitat vocabulary and sentence stems: “My animal lives in the ___ because…”
- Allow voice recordings for students who struggle with writing.
- Partner students to collaborate on dioramas for peer-supported learning.

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12. Reflection (Post-Lesson):

- Did students effectively represent the relationship between the animal and its environment?
- Were they able to integrate scientific knowledge and artistic expression?
- How did students respond to working in 3D materials?
- What part of the process showed the most creativity, and where might scaffolding be needed next time?

Notes:

Extensions:

- Connect to storytelling: Have students write a short narrative from their animal's perspective.

- Create a school-wide biome display with clusters of dioramas grouped by habitat type.

- Use the diorama as a springboard for environmental activism or conservation education—what can we do to protect these animals and spaces?

Age Range:
Grades K–5 (adaptable by scaffolded clay use and writing expectations)

Risk Level:
Low to Moderate — polymer clay and ovens require adult supervision and safety instruction.

Community Cultural Wealth Objectives:

This lesson aligns with **CULTIVAR's guiding principles** by:

- Drawing on students' **navigational capital**, helping them understand and interpret natural systems around them.

- Supporting **familial and linguistic capital** when students make connections between their cultural knowledge of animals (e.g., from family stories or home environments) and classroom learning.

- Encouraging **resistant capital** by empowering students to advocate for the wellbeing of ecological communities through creative expression.