

Visible Elements in Photo



- A small reptile (appears to be an alligator or crocodilian hatchling) with tan and dark patterned scales
- Human hand holding the animal, showing scale/size reference
- Textured skin with distinct scale patterns (smaller scales on head, larger banded patterns on tail)
- A blurred background suggesting an outdoor or field setting
- The reptile's claws visible on its feet

Reasonable Inferences

- From scale patterns & texture: This animal's scales serve multiple functions—protection from environmental wear, water resistance, and camouflage in its natural habitat (likely wetland environments with mud and vegetation).
- From small size & human handling: Young reptiles are vulnerable; they likely need shelter from predators and extreme temperatures in their early life stages.
- From claw structure: The animal uses claws for gripping surfaces and moving through wet, slippery terrain (mud, water, vegetation).

Engineering Task

K-2 Challenge:

Design a cozy home for a baby alligator. Your baby gator needs a safe place to hide from bigger animals and stay cool and wet. Build a shelter using things like rocks, sticks, mud, or sand. Make sure your gator can fit inside and can get in and out easily. Test it by placing a toy alligator (or your hand!) inside.

3-5 Challenge:

Design a protective enclosure for a young crocodilian. Your hatchling must have: (1) a shelter area that maintains moisture (stays damp), (2) a basking zone where it can warm up under a heat source, (3) easy access in and out, and (4) protection from predators (overhead cover). You may use soil, sand, clay, sticks, leaves, and fabric. Test your design by monitoring humidity levels in the shelter zone over 3 days and observing if a toy model would be safe from disturbance.

EDP Phase Targeted

Ask / Define Problem

This phase fits best because the photo reveals an animal in its natural context, prompting students to identify a real need: What does a young reptile need to survive safely? The visible details (small size, delicate condition, environmental vulnerability) naturally lead students to ask questions before designing solutions. This approach mirrors how biologists and wildlife engineers work—observing nature first, then designing interventions.

Suggested Materials

- Soil, sand, and clay (or aquarium substrate)
- Sticks, twigs, and small branches
- Leaves and dry grass
- Small rocks and pebbles
- Spray bottle (for moisture testing)
- Fabric scraps or shade cloth
- Toy reptile or small waterproof object (as a model)
- Thermometer and humidity meter (optional, for 3-5)

Estimated Time

- K-2: 45–60 minutes (one session: planning + building + initial testing)
- 3-5: Two 40-minute sessions (Session 1: design & build; Session 2: test over 3 days and refine)

Why This Works for Teachers

This task directly addresses NGSS ETS1.A (Defining and Delimiting Engineering Problems) by having students identify what animals need to survive and then engineer a solution that balances protection, comfort, and access—real constraints wildlife managers face.