

Visible Elements in Photo



- A white egret (large wading bird) standing on stacked wooden logs
- Gray-blue agave plant with thick, pointed leaves in the background
- Scattered rocks and pebbles forming a garden bed
- Green decorative frog sculpture on a wooden log
- Various shrubs and flowering plants (yellow and green foliage)
- Wooden fence structure and garden setting

Reasonable Inferences

- From the egret's posture and habitat: Wading birds need stable, elevated resting spots above water or wet ground to avoid predators and stay dry while hunting.
- From stacked logs and rocks: The garden uses natural materials to create perches and drainage zones, suggesting a design that supports wildlife while managing water flow.
- From dense vegetation nearby: Birds require nearby shelter and vegetation for food sources and protection from weather.

Engineering Task

K-2 Challenge:

Build a Safe Landing Spot for Birds

Your job is to design and build a platform where birds can rest and stay dry. Use natural materials like sticks, small logs, and pebbles to create a sturdy perch. Your platform must be tall enough to keep a bird (or a toy bird) above the ground, and strong enough that it doesn't wobble when you gently tap it. Test it by placing a toy bird on top and checking if it stays balanced!

Success looks like: Your platform stands at least 6 inches tall, doesn't tip over, and a toy bird can stand on it without sliding off.

3-5 Challenge:

Design a Waterfront Refuge Platform for Wading Birds

Wading birds like egrets need safe resting spots in wet environments. Your challenge: design and build a platform using natural materials (sticks, logs, stones, bark) that:

- Height: Raises a model bird at least 8 inches above the ground (to stay above water level)
- Stability: Withstands a gentle 10-second "wind test" (light shaking) without tilting more than 15 degrees
- Drainage: Includes gaps or spaces so water can drain through, preventing pooling
- Footprint: Uses a base no larger than 12 inches x 12 inches

Test your design by placing a small weighted object (tennis ball in a cup) on top and documenting what happens during the wind test. Modify your design if it fails, and re-test.

Success criteria: Platform is stable, drains water, and supports the weight of your test object.

EDP Phase Targeted

Ask / Define Problem

This phase fits because the photo shows a real environmental need (birds needing safe, stable resting places in wet habitats) without showing an existing solution strategy. Students must first understand why the problem matters before jumping to building. The visible egret and logs invite the question: "Why does this bird need that spot?" rather than "How do we copy this design?"

Suggested Materials

- Small branches and twigs (collected from outdoors or craft bundles)
- Wooden craft sticks or popsicle sticks
- Small rocks, pebbles, and gravel
- Small logs or bark pieces (available at garden centers)
- Plastic toy bird or weighted test object (tennis ball, small cup of sand)
- Ruler or measuring tape
- Water spray bottle (for drainage test, grades 3-5 only)

Estimated Time

- K-2: One 40-minute session (design + build + test)
- 3-5: Two 35-minute sessions (design + build in session 1; test, modify, re-test in session 2)

Why This Works for Teachers

This task directly addresses NGSS ETS1.A (Define the problem) and ETS1.B (Develop possible solutions) by asking students to identify a real organism's need and prototype a structure that solves it, grounding engineering in observable, natural systems.