Raccoon

Life Science | Engineering Design Process

Engineering Challenge

Visible Elements in Photo

- A raccoon standing on a weathered tree stump or log
- Water (pond or wetland) in the background
- Dense vegetation and hanging vines along the water's edge
- The tree stump shows deep cracks and decay
- Grassy ground around the base of the stump

Reasonable Inferences

- From raccoon's position on the stump: The animal is using the elevated log as a resting platform and vantage point to observe its surroundings, suggesting it seeks safe, dry places above water level.
- From water + vegetation combination: This is a wetland habitat where animals need stable resting or nesting spots that won't sink or flood; natural platforms like logs are in demand.
- From stump decay: Fallen trees in wetlands deteriorate quickly and become unstable; a more durable structure would better serve the animal's needs.

Engineering Task

K-2 Challenge:

Make a safe platform for a small animal (like a toy raccoon or stuffed animal) to rest above water. Use wood pieces, rocks, or logs to build a dry spot that won't tip over or sink. Test it by placing your toy animal on it.

3-5 Challenge:

Design a wildlife resting platform that floats or sits stably in shallow water and can support the weight of a small animal (simulated with a 2-pound weight). Your platform must be at least 12 inches across, built from natural or recycled materials (branches, bark, cork, foam, or cardboard), remain above the waterline when tested in a bucket or tub, and resist tipping when the weight is placed on one edge. Sketch your design first, build a prototype, test it, and explain how you would improve it.

EDP Phase Targeted

Ask / Define Problem

This photo shows a real animal using found materials to solve a survival problem (staying dry and safe in a wetland). Students should start by asking: "Why does the raccoon rest on logs? What problem does that solve? How could we design something better?" This observation-to-question approach grounds the engineering challenge in authentic need.

Suggested Materials

- Branches, twigs, and bark pieces
- Cork pieces or cork sheets
- Foam scraps or foam blocks

Science In A Snapshot | © 2026 Alex Jones, M.Ed. | AI-Generated Content — Review Before Classroom Use

FOR TEACHER USE ONLY

- Cardboard tubes or flat cardboard (pre-waterproofed with wax or plastic wrap)
- Plastic crate or platform frame (for 3–5 students to modify)
- Waterproof tape or zip ties
- Bucket or shallow tub of water (for testing)

Estimated Time

K-2: 30–45 minutes (including build and one test cycle)
3-5: Two 40-minute sessions (design sketch + planning on Day 1; build, test, and redesign on Day 2)

Why This Works for Teachers

This task directly addresses NGSS ETS1.A (defining engineering problems) by asking students to identify what living things need in their environment and design a structure to meet that need, anchored in observation of a real animal's behavior.