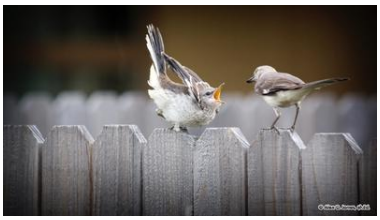
Parent_and_offspring

Life Science | Engineering Design Process

Engineering Challenge

Visible Elements in Photo



- Two small birds perched on a wooden fence
- Wooden fence posts with flat tops and weathered surface
- Bird on left has wings raised and yellow/orange mouth visible (inference: likely a young bird)
- Bird on right standing calmly on fence
- Blurred natural background suggesting outdoor setting

Reasonable Inferences

- From wing position & yellow mouth: The left bird appears to be a young fledgling learning to balance and move, while the right bird is an adult or older offspring—suggesting a parent-teaching-offspring scenario.
- From fence structure: The fence posts provide distinct landing spots and are spaced at regular intervals, creating natural perches for birds of different sizes.
- From outdoor setting: This is a natural habitat where birds need safe resting places during flight or foraging.

Engineering Task

K-2 Challenge:

Your job is to build a safe landing spot where birds can rest. Use wooden blocks or sticks to create a fence post that is tall enough for a bird to stand on. The top should be flat so the bird doesn't slip. Test it by placing a toy bird on top—does it balance? Can you add more posts in a row?

3-5 Challenge:

Design and build a wooden fence or rail system with at least three perches at different heights (6 inches, 9 inches, and 12 inches from the ground). Each perch must support a 2-ounce mass (representing a bird) for at least 30 seconds without tipping or cracking. The perches should be spaced 4-6 inches apart horizontally. Success criteria: All three levels hold the weight, posts remain vertical, and the structure doesn't wobble when you gently push it sideways.

EDP Phase Targeted

Ask / Define Problem

Why: The photo shows a real-world scenario (birds using a fence as a resting structure) where students can observe a natural need. Asking "Why do birds need places to land?" and "What makes a good perch?" helps students identify the engineering problem before designing. This grounds the challenge in observable nature rather than jumping straight to building.

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

FOR TEACHER USE ONLY

Suggested Materials

1. Wooden craft sticks, dowels, or popsicle sticks (for posts and crossbars)
2. Wood glue or hot glue gun (for assembly)
3. Small weights or washers (to simulate bird mass for testing)
4. Ruler or measuring tape (to ensure level and spacing)
5. Sandpaper or file (to smooth edges so perches don't splinter)

Estimated Time

- K-2: 30–40 minutes (single session, includes testing)
- 3-5: 45–60 minutes (single session with design planning, building, and iterative testing)

Why This Works for Teachers

This task aligns with NGSS ETS1.B (Developing Possible Solutions) by having students design a structure that meets specific constraints (height, spacing, weight tolerance) inspired by how nature solves the problem of providing resting places for animals of different sizes.

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

FOR TEACHER USE ONLY