



Drone Exploring: Career Spotlights

Infrastructure Inspection — Club

Overview: Power lines, cell towers, bridges, and wind turbines all need regular checkups, and drones let inspectors examine them up close without anyone having to climb. In this session, youth learn why infrastructure inspection matters and practice a hands-on “inspect the tower” activity using a model structure, photographing it from different angles to spot hidden problems.

OBJECTIVES

- Introduce youth to the career of using drones to inspect infrastructure like towers, bridges, and power lines.
- Explain why inspecting tall or hard-to-reach structures used to require dangerous climbing.
- Practice photographing a model structure from multiple angles to find hidden problems.
- Build awareness of the safety risks drones help reduce for infrastructure workers.

SUPPLIES

- Flip chart or whiteboard and markers
- Building blocks or a tall model structure (representing a tower, bridge, or turbine)
- Small stickers or marks representing damage or problems placed on parts of the structure
- A camera, tablet, or phone to take inspection photos
- Printed handouts: How Drones Help Inspect Infrastructure and Inspection Photo Log

ADVISOR NOTES

- Emphasize that before drones, inspecting a tall tower or bridge often meant a worker climbing with ropes and harnesses — a job with real risks.
- Place a few small “problem” stickers on hard-to-see parts of the model structure before the activity, without telling youth where.
- Discuss how missing a small problem (like a crack or loose bolt) could become a much bigger and more expensive issue later.
- Consider inviting a guest speaker (a utility company inspector, telecom tower technician, or drone inspection contractor) to share their work. See Optional Extensions.
- If no guest speaker is available, Advisors can run the entire session using this outline and the resource links below.

SESSION OUTLINE

- **Welcome and Icebreaker** (10 min)
 - “Tall and Tricky:” Ask youth to name the tallest structure they can think of and guess how someone might inspect it up close.
- **Safety Moment (Why Climbing Is Risky)** (10 min)
 - Climbing towers, turbines, or bridges to inspect them is one of the more dangerous jobs in infrastructure work.
 - Drones let inspectors get a close, detailed view without anyone leaving the ground.
 - Ask: “Why do you think companies are excited about a tool that keeps workers off dangerous heights?”
- **Mini-Lesson: How Drones Help Inspect Infrastructure** (15 min)
 - Explain how drones inspect power lines, cell towers, bridges, pipelines, and wind turbines for cracks, rust, loose parts, or other damage.
 - Discuss how inspection photos and video get turned into a report for the company responsible for the structure.
- **Activity: Inspect the Tower Challenge** (25 min)

- Set up a model structure with a few hidden problem stickers placed on it ahead of time.
 - Teams take photos of the structure from several angles (top, sides, close-up) without touching it directly, then review their photos to find as many hidden problems as possible.
 - Record findings on the Inspection Photo Log.
- **Discussion: What Would Happen If We Missed One?** (10 min)
 - Discuss what might happen if an inspection missed a real problem, and why thoroughness matters.
 - **Wrap-Up Share-Out** (10 min)
 - Groups compare how many hidden problems they found and discuss which angles were most helpful.

REFLECTION SECTION

Advisor Note: Some sample questions are below. They are designed to help the participants apply what they have learned to their own interests. You are welcome to use these questions or develop your own.

Focusing Questions

- What was tricky about finding all the hidden problems on the structure?
- Which angle (top, side, close-up) helped you spot the most issues?

Analysis Questions

- Why is it safer to inspect a tall structure with a drone instead of climbing it?
- How could missing a small problem during an inspection become a bigger issue later?

Generalization Questions

- Where else in life is it important to check something carefully from multiple angles before deciding it's fine?
- What's one type of infrastructure (bridge, tower, pipeline) you'd like to learn more about?

Challenge: This week, notice one piece of infrastructure near you (a bridge, cell tower, or power line) and think about how it might get inspected.

OPTIONAL EXTENSIONS

Guest Speaker: Invite a utility company inspector, telecom tower technician, or drone inspection contractor to share their work, in person or by video call.

Advisor-Led Option: If a guest speaker isn't available, Advisors can run this session using the outline above and the resource links below. No outside expert is required.

Resource Links: Search "drone infrastructure inspection explained" on a video platform for kid-friendly explainer videos.

Group Extension: Build your own model tower or bridge and challenge another group to find hidden problems using only photos.

Handout: How Drones Help Inspect Infrastructure

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Read through the key ideas below before starting the Inspect the Tower Challenge.

Power Lines and Towers

Drones check for damaged insulators, loose hardware, or vegetation growing too close to power lines.

Bridges

Drones inspect the underside and support structures of bridges for cracks or rust that are hard to see from the ground.

Wind Turbines

Drones examine turbine blades hundreds of feet in the air for cracks or wear without anyone needing to climb.

Why It Matters

Catching small problems early prevents bigger, more expensive failures, and keeps inspectors safely on the ground.

Handout: Inspection Photo Log

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As your team reviews your photos, record any problems you find and where.

Photo/Angle #	Problem Found?	Location on Structure
1		
2		
3		
4		