



Drone Exploring: Career Spotlights

Entertainment — Club

Overview: Drones now light up the night sky in dazzling choreographed shows, race each other at high speed in front of cheering crowds, and capture footage for concerts and sporting events. In this session, youth explore how drone light shows are programmed in advance (not flown live, one at a time), learn the basics of FPV (first-person view) drone racing, and practice designing their own simple light-show formation.

OBJECTIVES

- Introduce youth to careers in drone entertainment: light shows, FPV racing, and live event coverage.
- Explain how drone light shows are pre-programmed rather than flown live by hand.
- Practice designing a simple drone light-show formation through a hands-on activity.
- Build awareness of the safety planning (exclusion zones, backups) behind every drone show.

SUPPLIES

- Flip chart or whiteboard and markers
- Graph paper and colored pencils or markers
- Glow sticks or flashlights (optional, for a nighttime formation demo)
- Printed handouts: How a Drone Light Show Works and Design a Formation

ADVISOR NOTES

- Clarify that drone light shows use dozens to hundreds of drones flying a pre-programmed, GPS-guided pattern. No one is manually steering each one during the show.
- FPV (first-person view) racing drones are different: pilots wear video goggles and fly by hand at high speed through a marked course.
- Emphasize that every real drone show has a safety plan, including a no-fly exclusion zone for the audience.
- Consider inviting a guest speaker (a local drone light-show operator, FPV racer, or event videographer) 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)
 - “Best Show Ever:” Ask youth to describe the coolest fireworks show, concert, or light display they’ve seen.
- **Safety Moment (Why Shows Need an Exclusion Zone)** (10 min)
 - Every drone show plans a clear no-fly zone between the drones and the audience.
 - Shows are tested and rehearsed in advance so operators know exactly what each drone will do.
 - Ask: “Why do you think it matters to test a show before flying it in front of a real crowd?”
- **Mini-Lesson: How a Drone Light Show Works** (15 min)
 - Explain that a computer program tells each drone exactly where to fly and what color to show, all at the same time, to create a picture or pattern in the sky.
 - Briefly introduce FPV drone racing: pilots fly by hand using video goggles, racing through gates at high speed.
- **Activity: Design a Formation** (20 min)
 - Using graph paper, small groups plan a simple shape or picture (a star, a heart, a smiley face) by plotting drone positions as dots on a grid.
 - Groups connect their dots to reveal the shape and pick a color for each section.

- **Activity: Human Formation (Optional)** (10–15 min)
 - If space allows, have youth physically stand in their planned formation (holding glow sticks or flashlights if available) to see the shape come to life.
- **Wrap-Up Share-Out** (10 min)
 - Groups share their formation designs and describe what event they'd want to see it performed at.

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 planning a formation on the grid?
- What event would you most want to see a drone light show at?

Analysis Questions

- Why do you think drone shows are programmed in advance instead of flown live by many pilots at once?
- What's the difference between a drone light show and FPV drone racing?

Generalization Questions

- Where else does careful planning and rehearsal matter before a live performance or event?
- What's one thing you'd like to learn next about drones in entertainment?

Challenge: This week, search for a video of a drone light show or an FPV drone race and be ready to describe one thing that impressed you.

OPTIONAL EXTENSIONS

Guest Speaker: Invite a local drone light-show operator, FPV racer, or event videographer to share their work and answer questions, 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 light show behind the scenes" or "FPV drone racing explained" on a video platform for kid-friendly explainer videos.

Group Extension: Choreograph a longer formation sequence (3–4 shapes in a row) and present the story it tells.

Handout: How a Drone Light Show Works

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Read through the key ideas below before starting the Design a Formation activity.

Pre-Programmed Flight

Every drone in a show follows a computer-programmed path and light pattern, all launched and controlled together.

Rehearsal and Testing

Shows are tested many times in advance, often in an empty field, before ever flying in front of an audience.

Exclusion Zones

A clear, marked no-fly area keeps the audience safely separated from the drones at all times.

FPV Racing (A Different Career)

Unlike a light show, FPV racing pilots fly a single drone by hand at high speed, wearing video goggles to see through the drone's camera.

Handout: Design a Formation

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Plot at least 8 points on your grid to form a simple shape. List the color you'd want each section to glow.

Point #	Grid Position (x, y)	Color
1		
2		
3		
4		