ADVENTURE CAMPS

DRONE RACING CAMP

STAFF TRAINING PACK

ADVENTURE TECH CAMPS | AGES 11–17

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Camp overview

- Age Group: 11–17 years
- Skill Level: Beginner to Intermediate
- Duration: 5 Days (Mon–Fri)
- Format: Hands-on, project-based

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Welcome to drone camp

This staff training manual is designed to prepare you for delivering an exciting, hands-on week of drone innovation, flight skills, and creative engineering with young tech enthusiasts aged 11–17. Whether it's teaching soldering skills, guiding FPV flights, or helping campers build light-up racing gates, your role is crucial in inspiring the next generation of makers, flyers, and coders.

CORE VALUES

Safety First - Every tool, wire, and flight has a safety-first mindset.

Empowerment Through Making - Campers take ownership of building their drones and their skills.

Tech for All - No prior experience required. We meet every child where they are.

Innovation in Action - We don't just learn tech, we build with it, race with it, and showcase it.

OUR MISSION

To ignite curiosity, encourage resilience, and foster practical tech skills through unforgettable, project-based experiences.

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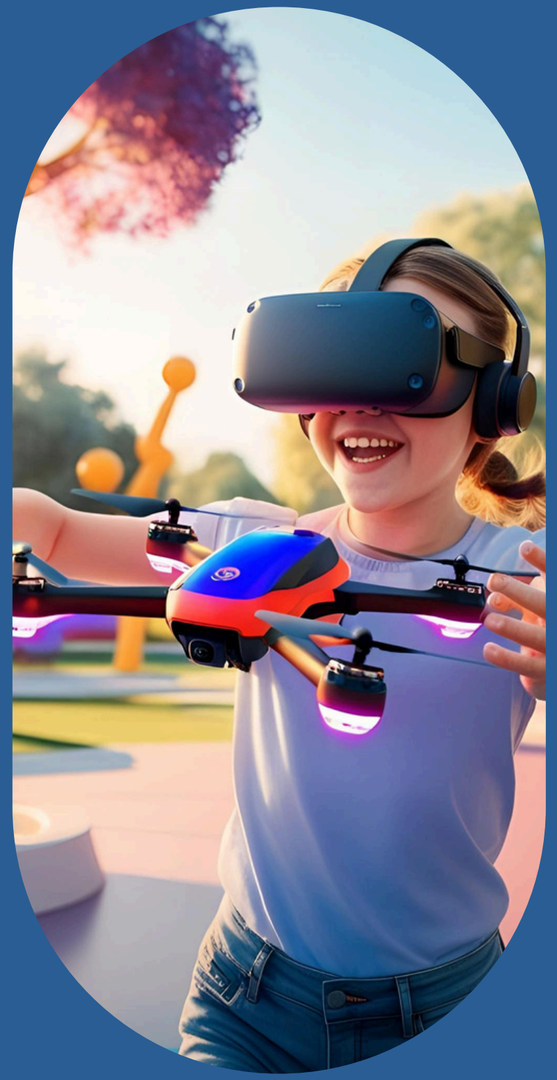
"How We Teach" Learning Philosophy:

Learn by Doing
Fail Forward
Collaborate and Create



YOUR ROLE

You’re more than an instructor — you’re a coach, guide, safety officer, and role model. You are expected to:

- Model enthusiasm and professionalism at all times.
- Maintain high safety standards, especially during soldering, charging, and flying.
- Provide clear, calm instructions and break down complex concepts.
- Encourage creative thinking and collaboration.
- Adapt lessons to individual camper needs and abilities.
- Document progress and feedback to support camper development.

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Equipment Checklist

DRONE KITS (1 per student)

1. Carbon fiber frame
2. Brushless motors (x4)
3. ESCs (Electronic Speed Controllers) (x4)
4. Flight controller (e.g., F4/F7)
5. Propellers (multiple sets, both CW and CCW)
6. FPV camera (analog or digital)
7. Power distribution board (if separate)
8. Antennas
9. Screws, nuts, standoffs, zip ties
10. Remote controller transmitter
11. FPV Goggles (1 per student)
12. LiPo Batteries and Chargers

Soldering kits (5–10 stations):

1. Soldering irons with safety stands
2. Lead-free solder wire
3. Solder sucker/wick
4. Heat shrink tubing
5. Wire cutters/strippers

Small tools (10+ sets):

1. Precision screwdrivers (Phillips, hex)
2. Tweezers
3. Pliers
4. Hot glue guns (optional for securing parts)

PROGRAMMING AND SETUP

1. Laptops or PCs (1 per 2 students) with:
   a. Betaflight configurator installed
   b. USB-C and micro USB cables
   c. Simulators (e.g., Liftoff or VelociDrone) if needed
2. MicroSD cards (for DVR if supported)
3. Flash drives (for sharing firmware/config files)

COURSE RACING MATERIAL

1. Flexible PVC tubing (1/2" outer diameter)
2. LED strip lights (5/16")
3. Power drill with appropriate drill bits
4. Telephone cord or strong twine
5. Stable wood base
6. 3-cell LiPo battery or 9V battery
7. T-fittings matching the PVC tubing
8. Heat gun or hair dryer
9. Soldering materials

Administration:

1. Registration & medical forms
2. Printed schedules & activity guides
3. Drone build instructions & schematics
4. Pens, clipboards, notebooks
5. Name badges, lanyards, storage tubs
6. Certificates & Awards

SAFETY EQUIPMENT

1. Safety goggles for all soldering tasks
2. Fireproof battery bags and containers
3. First aid kit (fully stocked)
4. Safety cones, nets, and barriers
5. Clearly marked no-fly and spectator zones
6. Printed safety and emergency protocols
7. Fire extinguisher (LiPo compatible)

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LEARNING OUTCOMES

- Engineering & Mechanics
- Remote Piloting Skills
- Programming & Tuning
- Drone Safety & Risk Awareness
- Teamwork & Racing Strategy

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Typical Daily Schedule

TIME	ACTIVITY
09:00 - 09:30	Registration & Briefing
09:30 - 10:45	Workshop/Theory
10:45 - 11:00	Break
11:00 - 12:30	Project Work
12:30 - 1:30	Lunch
1:30 - 14:45	Flight Training
14:45 - 15:00	Break
15:00 - 16:45	Flight Training
16:15 - 16:30	Wrap-up

DAILY FLOW

Daily briefings take place at 08:30 and 16:45.
Use the staff WhatsApp group for key updates.
Document incidents using the Adventure Camps digital log system.
Maintain a friendly, professional tone when speaking with parents/guardians.

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BY THE END OF THE WEEK

- Understand drone mechanics and flight principles.
- Build, program, and tune their own racing drone.
- Develop safe flying habits and piloting confidence.
- Construct and customise a working LED race gate to take home.
- Participate in a structured drone race, applying their new skills.
- Celebrate personal achievements with certificates and awards.

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End-of-Week Showcase

- Camper prep for race and gate display
- Flight demos and troubleshooting support
- Awards ceremony: Fastest Lap, Best Pilot, Best Gate
- Take-home gate and drone pack-up

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