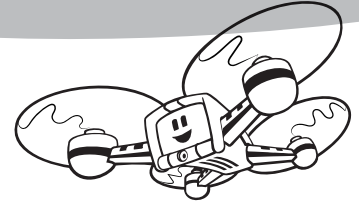


STEM Fundamentals FlyCode Classroom Supplement



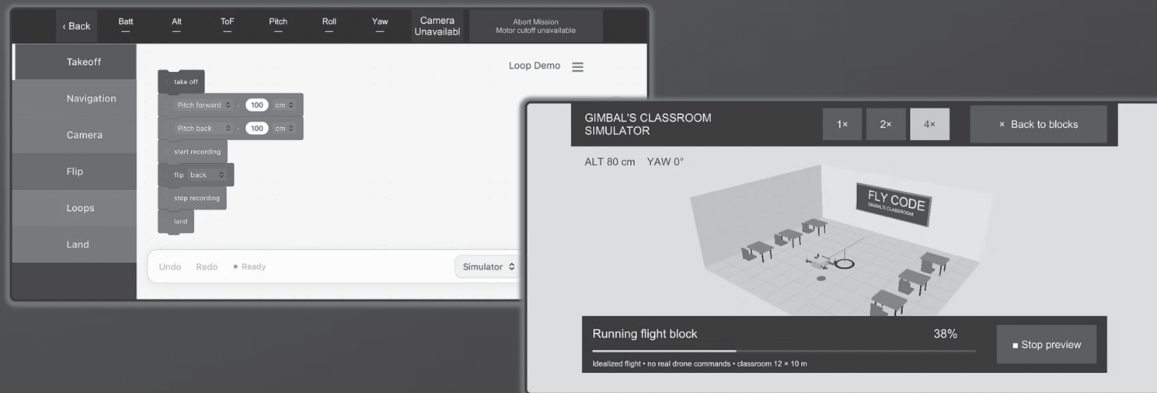
Student Mission Guide v1.6.1 | Issued September 2026

CLASSROOM STANDARD

FlyCode is now the only drone app required for STEM Fundamentals. Use it for manual flight, block coding, simulation, live autonomous missions, photos, videos, saved media, and IMU calibration.

This supplement updates the app workflow in the Student Mission Guide and Operations Manual. It does not change the mission objectives, team roles, safety procedures, building activities, STEM content, or engineering process.

Integrated Tello Coding + Simulator



Build drone missions with FlyCode's integrated block-based coding environment. Students can create Tello flight programs using navigation, camera, loops, flips, and other flight commands, all inside the same app they use to fly.

Before flying a mission, students can run their code in Gimbal's Classroom Simulator. They can watch the flight path, follow the program as each block executes, then return to their code and make changes before taking flight.

Code it. Simulate it. Fly it.

PRINTED GUIDE UPDATE:

When the guide says to open the Tello app, use FlyCode Flight Mode. When it says to open DroneBlocks, open FlyCode and select Code Blocks.

CLASSROOM SETUP

Prepare and Connect FlyCode

Install the current FlyCode release on each classroom device. Then use this setup for every team.

1. Insert a charged battery and place Tello level on its launch pad.
2. Power on Tello and wait for startup to finish.
3. Connect the classroom device to the team's Tello Wi-Fi network. Stay connected if the device reports that the network has no internet.
4. Open FlyCode and approve requested permissions. On iOS, allow Local Network access. If FlyCode does not connect automatically, open the upper-left menu, choose Flight Mode, and select Connect to Drone.
5. Confirm current flight readings and command response. A live camera image alone does not prove that flight commands are working.

FlyCode by Activity

Activity	Open in FlyCode	Purpose
Manual piloting	Flight Mode	Joysticks, takeoff, landing, flips, altitude, camera, and flight status
Build autonomous code	Code Blocks	Create, edit, save, open, import, and share block missions
Preview code	Simulator	Run an idealized classroom preview without sending commands to a drone
Fly autonomous code	Live flight	Validate and run the mission on the connected Tello
Photos and videos	Gallery	Browse, play, save to the device, or delete captured media
IMU calibration	Settings	Open Drone calibration and complete all six positions

Standard Coding Workflow

6. Open Code Blocks from the FlyCode menu. Landscape orientation provides more workspace.
7. Build one connected stack. Begin a flight mission with Take off and place the final Land block after any loop.
8. Name and save the mission. Editing and running do not save automatically.
9. Choose Simulator, tap Run, observe the path, and return to the blocks to revise the program.
10. Connect the intended Tello, select Live flight, and tap Run only after the Safety approves the flight area.
11. Watch the highlighted blocks and mission progress until landing is confirmed.

MISSION-BY-MISSION UPDATE

Introduction Through Mission 10

All activities below use FlyCode. The middle column identifies the FlyCode workspace students should open.

Guide section	FlyCode Workspace	Updated direction
Introduction: Hello Tello	Flight Mode	Connect in FlyCode and use its joysticks and controls when identifying altitude, pitch, roll, and yaw. Follow Gimbal's tutorial and the selected Control Style.
Mission 1: Flight Training	Flight Mode	Complete Search and Find without Yawing and Search and Find with Yawing in FlyCode. All takeoff, landing, safety, and role instructions remain the same.
Mission 2: Fighting Fires	Flight Mode	For Flipping Tello, Flame-Thrower, and Rising Flames, use FlyCode's forward, back, left, and right flip controls. Do not perform diagonal flips.
Mission 3: Manual Finding Fumaroles	Flight Mode	Read altitude from FlyCode and use its live camera feed to locate each fumarole during the manual mission.
Mission 3: Measure Takeoff Height and Code	Code Blocks	Build the first autonomous mission in FlyCode. Save it, measure automatic takeoff height, preview it in Simulator, then run it through Live flight.
Mission 4: Protect the Shore	Flight Mode	Use FlyCode for manual shoreline flight, the camera feed, and the 360-degree yaw signal.
Mission 4: Shoreline Watch and Refactor	Code Blocks	Plan, build, save, simulate, run, revise, and refactor the autonomous shoreline mission in FlyCode.
Mission 5: Venom Rescue	Flight Mode	Complete the manual engineering-design challenge and launch the medicine with a forward flip in FlyCode.
Mission 5: Autonomous Venom Rescue	Code Blocks	Build, save, simulate, run, test, and improve the autonomous delivery mission in FlyCode.
Mission 6: Bouncing Bees	Flight Mode	Use FlyCode for the manual pollination mission, precision movement, landing, and role rotation.
Mission 6: Autonomous Bees and Refactor	Code Blocks	Use FlyCode for autonomous pollination, coordinates, simulation, code revision, and refactoring.
Mission 7: Dronie Time and Fly the Course	Flight Mode	Use FlyCode for manual flight and all required pictures and videos. Confirm the files appear in Gallery before the team finishes.
Mission 7: Autonomous Course Mapping	Code Blocks	Code, save, simulate, and run the course-mapping flight in FlyCode. Use Camera blocks for coded media steps available in the current release.
Mission 8: Manual Crater Scans	Flight Mode	Use FlyCode to enter the craters, view the camera feed, photograph the aliens, and return to the launch pad.
Mission 8: Coded Crater Scans and Refactor	Code Blocks	Code, simulate, and run the autonomous scan in FlyCode. Refactor repeated movements with Loops or a compatible imported project that retains advanced block families.
Mission 9: Big Picture	Flight Mode	Use FlyCode for manual cinematic flight and big-picture photos and videos. Confirm each file in Gallery before returning Tello to the docking station.
Mission 9: Close-Ups	Code Blocks	Code, simulate, and run the close-up shots in FlyCode with loops and coordinates. Store final media on the assigned classroom device.
Mission 10: Cinematography	FlyCode	Review the team's source media in Gallery and use FlyCode to recapture any manual or coded shots. Complete post-production as directed in the Student Mission Guide.

CRITICAL REPLACEMENTS

How to Read the Printed Guide Now

- 12.** Every direction to open the Tello app now means open FlyCode and use Flight Mode.
- 13.** Every direction to open DroneBlocks now means open FlyCode and select Code Blocks.
- 14.** Before every real coded flight, save the mission and run it in Gimbal's Classroom Simulator.

Mission 2: Replace the 8-D Flip Instructions

Replace the printed 8-D Flips menu and swipe directions with FlyCode's four directional flip controls.

- 15.** Confirm at least 1 meter of clear space above, below, and around Tello.
- 16.** Connect in Flight Mode and take off only after the Safety gives approval.
- 17.** Select the required forward, back, left, or right flip control.
- 18.** For Flame-Thrower and medicine payload launches, use Forward Flip.
- 19.** Do not attempt diagonal flips. Land and rotate roles as directed in the mission.

Mission 3: Altitude Readings

- 20.** Use FlyCode's altitude reading whenever the manual-flight instructions request an altitude from the Tello app.
- 21.** Record the displayed altitude and convert it to the units required by Mission Notes before using the value in a calculation.
- 22.** Measure automatic takeoff height with a short FlyCode coded mission. Do not assume the manual and autonomous takeoff readings will be identical.

Current Code Block Palette

New projects show Takeoff, Navigation, Camera, Flip, Loops, and Land. Some compatible imported FlyCode projects may retain Logic, Math, Variables, Functions, Sensing, Text, and Lists. When an advanced family is not visible, use the available flight and Loop blocks or an educator-provided compatible FlyCode project. No second coding app is required.

ONE APP CLASSROOM REFERENCE

Photos, Videos, and Saved Media

- 23.** In Flight Mode, short-press the capture control for a photo. Hold to begin recording, then press or release again to stop.
- 24.** Use FlyCode Camera blocks for coded media steps supported by the current release.
- 25.** After each flight, open Gallery and confirm every required file. Simulator photos do not create real images.
- 26.** Keep the same classroom device with the team through Missions 9 and 10. Projects and media are stored on that device unless shared or saved elsewhere.

Classroom Simulator

- 27.** The simulator sends no commands to a real drone. It previews blocks, altitude, heading, progress, and the flight trail.
- 28.** Use 1x, 2x, or 4x playback, then return to the blocks and revise one value at a time.
- 29.** The preview is idealized and does not model real drift, sensors, or physics. A successful preview does not prove that a real flight path is safe.

LIVE FLIGHT BATTERY: Block Lab requires at least 30 percent battery. Missions containing flips require at least 50 percent.

IMU Calibration in FlyCode

Connect in Flight Mode with motors off. Leave Code Blocks, then open Settings > Drone calibration > Start IMU calibration. Follow Gimbal through six positions on a firm surface. Wait for final confirmation, restart Tello when requested, reconnect, and select I've restarted - reconnect. Flight remains locked until recovery is complete.

CLASSROOM SUPPORT

Quick Troubleshooting

Land Tello before changing connections, permissions, settings, or networks.

Problem	What to do
FlyCode does not connect	Confirm the device is on the intended Tello Wi-Fi network. On iOS, check Local Network permission. Restart Tello and FlyCode after landing.
Camera is delayed or missing	Check Wi-Fi and camera status. Try Classroom video mode for constrained bandwidth and keep visual contact with Tello.
Blocks will not run	Connect one main stack, remove stray blocks, complete all inputs, and read the validation details. Check imported project compatibility.
Live preflight fails	Read the exact message. Check level and landed state, fresh readings, 30 percent battery, and cleared calibration recovery.
Simulator reports an error	Keep the route inside the classroom, below the ceiling, above the floor, and away from low furniture. Revise distances or turns.
Mission or media is missing	Check Saved projects or Gallery. Saving is explicit. Import a shared mission backup if needed.
Landing is unconfirmed	Keep FlyCode open, check mission activity, and use bottom Stop. Resolve recovery before another run.

Information to Record Before Requesting Support

Record the device and operating system, FlyCode version or build, Tello SSID, mission number, exact message, and the steps immediately before the issue. Include a screenshot, mission JSON, or activity details when available.

Downloads and Support

FlyCode information and downloads: dronelegends.com/flycode

FlyCode support: flycodesupport@dronelegends.com