The Tello Micro-Drone: Activities for the Classroom

An introduction to drones into primary and secondary STEM education

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Why Drone Safety Matters in Schools

Powerful Learning Tools

Drones offer incredible opportunities for STEM education but require careful handling to prevent accidents and ensure positive learning experiences.

CASA Compliance

Civil Aviation Safety Authority regulations emphasize creating safe flying environments and promoting responsible use in educational settings.

Teacher Leadership

As educators, you play a critical role in modeling best practices and enforcing safety protocols to protect students and equipment.

KNOW YOUR DRONE.

CASA Drone Safety Video & Knowledge Check

Watch & Learn

Before flying, always review the official CASA drone safety guidelines and regulations specific to educational environments.
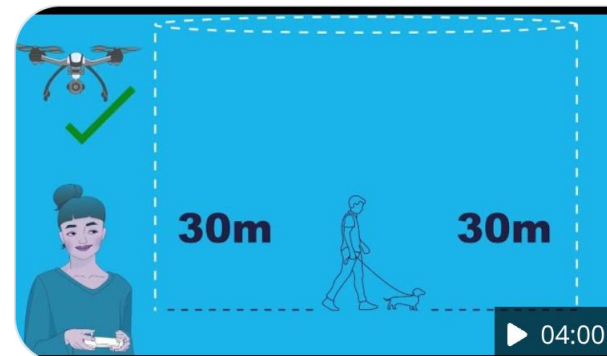
Key topics covered:

- Understanding drone classifications
- Safe flying zones and restrictions
- Privacy and permission requirements
- Emergency procedures
- Incident reporting protocols

Teacher Resources

A comprehensive selection of materials and resources to use:

1. Legal requirements for school drone use
2. Risk assessment procedures
3. Student Quizzes
4. Safety videos

Quiz completion required before hands-on training

YouTube — Drone safety rules – flying for fu
Australians are flying drones in record numbers. More drones in the sky means it's important we all understand the rules that keep us
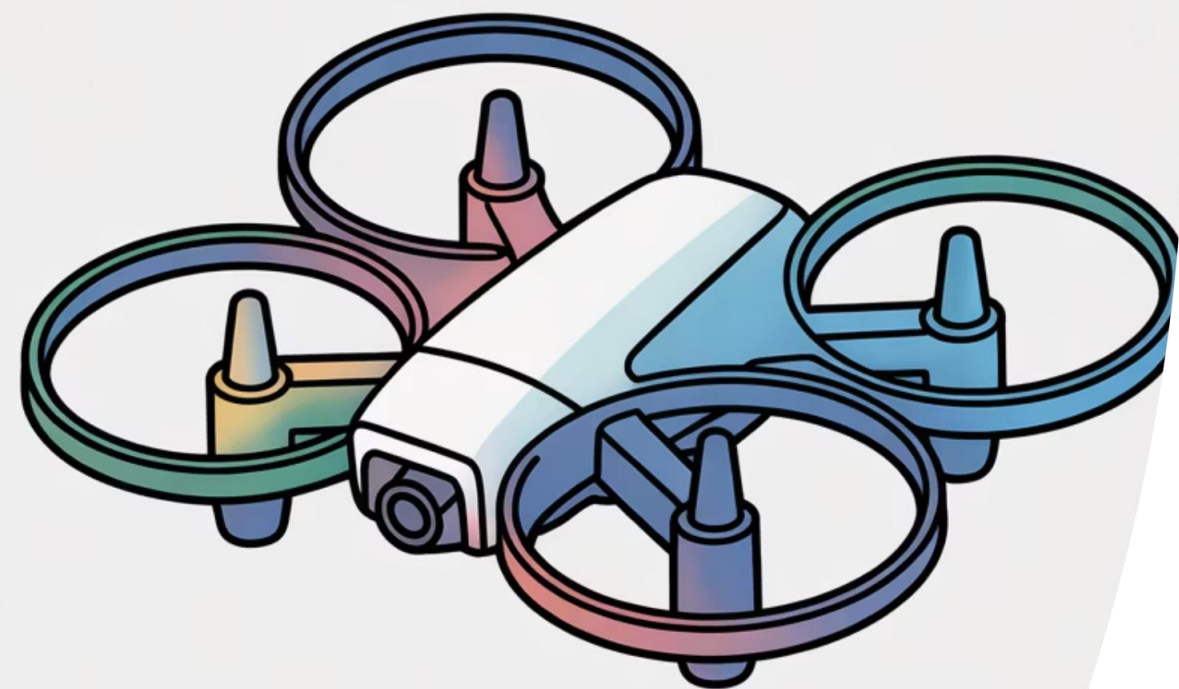30m   30m   ▶ 04:00

Test your knowledge!

Inspiring Australia Queensland

Know Your Drone Quiz - Inspiring Australia Queensla

Meet the Tello Drone: Small but Mighty

Lightweight Design

Weighing only 80 grams, the Tello is easy to handle for all ages and classified as a micro-drone, making it ideal for educational environments.

Precision Engineering

Equipped with 4 brushed motors and 4 propellers (2 clockwise, 2 counter-clockwise) for stable, controlled flight patterns.

Flight Performance

Flight time up to 13 minutes, maximum speed 8 m/s, maximum height 30 meters – perfect for classroom demonstrations.

Smart Features

Built-in 5MP camera and advanced sensors including vision positioning system for stable flight and engaging multimedia learning activities.

Installing the Battery: Step-by-Step

Battery

01

Use Genuine Batteries

Only use official Tello batteries (1100 mAh, 3.8V lithium-ion) to ensure safety and optimal performance.

02

Insert Firmly

Slide the battery into the back compartment of the drone until you hear and feel a secure click.

03

Power Off First

Never insert or remove the battery while the drone is powered on—this can damage electronics.

04

Check Charge Level

Always charge batteries fully before flight. A solid blue light on the battery indicates full charge.

Safety Tip: Store batteries at room temperature and never leave them charging unattended. Always have spare batteries ready for extended learning sessions.

Propellers: How to Attach Them Correctly

1

Identify Propeller Types

Tello has 2 types: **CW (clockwise)** with no notch and **CCW (counter-clockwise)** with a notch on the shaft. Camera facing away.

2

Position CCW Propellers

Place CW props (with notch) on the **top-left** and **bottom-right** motors. The notches align with motor shafts.

3

Position CW Propellers

Place CCW props (no notch) on the **top-right** and **bottom-left** motors for proper rotation.

4

Secure & Inspect

Press down firmly and twist to tighten. Before every flight, check that propellers are secure, undamaged, and free from cracks.

Battery

Understanding Tello's LED Lights: What They Mean

The Tello communicates its status through LED light patterns. Knowing what each pattern means is essential for safe operation.

🔴🔵🟢🟡 Alternating Colors

Powering on and running self-check diagnostics. Wait for stabilization.

🟢 Green Blinking (×2)

Vision positioning system active—drone has stable flight capability.

🟡 Yellow Flashing

Vision positioning unavailable. Fly with extra caution or avoid flying.

🔵 Blue Solid

Battery fully charged and ready for flight operations.

🔵 Blue Blinking Slowly

Battery currently charging. Do not attempt to fly.

🟡 Yellow Blinking Fast

Remote control signal lost. Reconnect immediately or drone will auto-land.

Pre-Flight Safety Checklist

1 **Battery & Power**

Confirm battery is fully charged, firmly installed, and LEDs indicate ready status. Have backup batteries available.
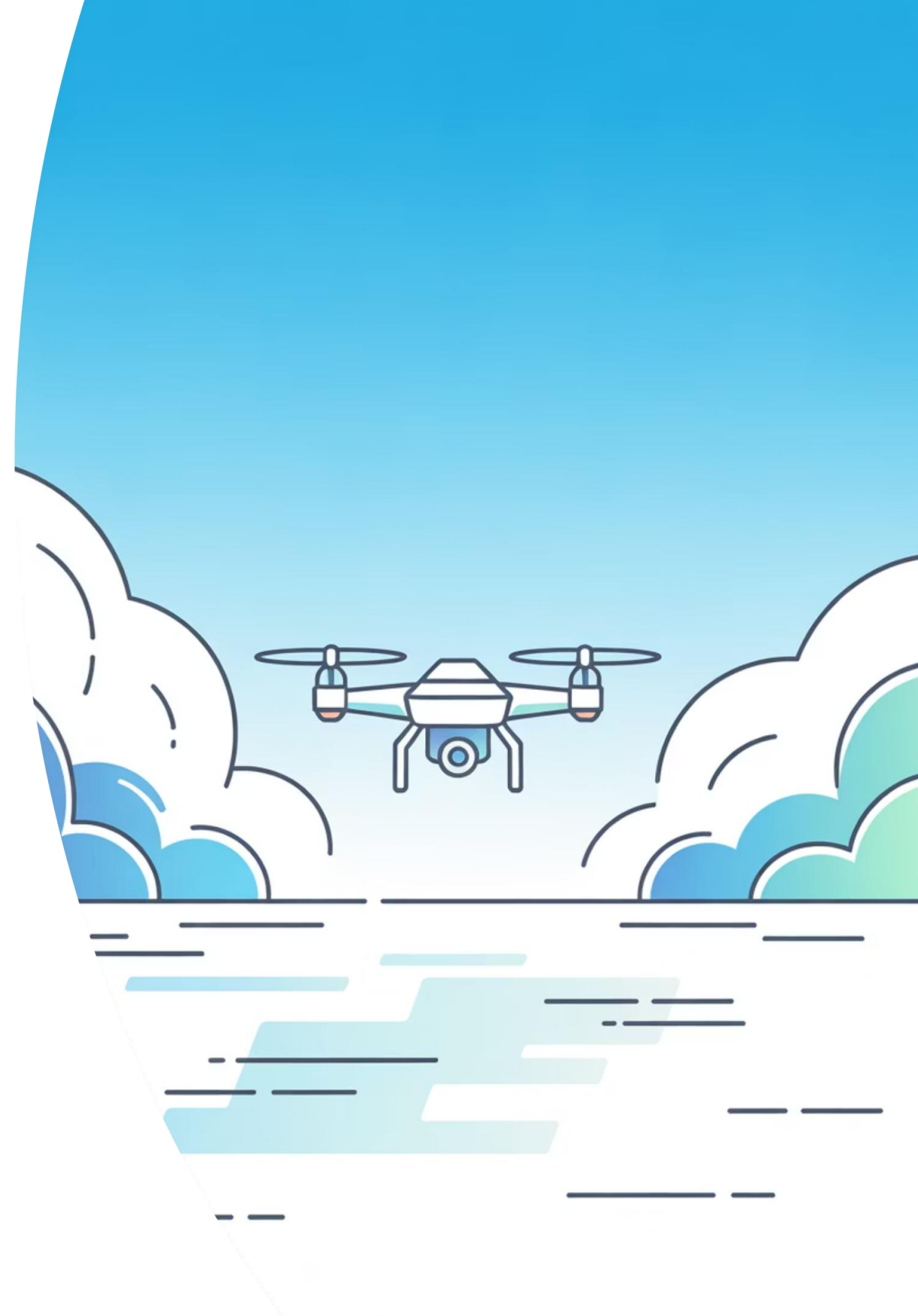
2 **Physical Inspection**

Carefully inspect propellers, propeller guards, and drone body for any damage, cracks, or loose components.

3 **Flying Environment**

Fly only in open areas free of obstacles, crowds, power lines, and electromagnetic interference. Maintain 30m clearance from people.

4 **Surface & Weather**

Avoid flying near water, highly reflective surfaces, or strong electromagnetic sources. Ensure calm weather – no wind, rain, or temperature extremes.

Basic Flight Controls & Tips for Teachers

Connect via App

Download the Tello app, connect to the drone's Wi-Fi network, and ensure strong signal strength.

Start Slow

Always begin in "SLOW" flight mode for safe, controlled beginner handling and gradual skill building.

Visual Line of Sight

Maintain direct visual contact with the drone at all times—never fly beyond your view.

Manual Override Ready

Be prepared to take immediate manual control if automatic flight modes fail or behave unexpectedly.

Teach Emergency Procedures

Ensure students understand drone limits, respect boundaries, and know emergency landing protocols.

Troubleshooting Common Issues

Won't Stay Elevated?

Try recalibrating the IMU (Inertial Measurement Unit) via the app settings. Place drone on a flat, level surface during calibration.

Motors Spin, No Lift?

Check propeller installation direction (CW/CCW positioning) and verify battery charge level is sufficient for flight.

Connection Lost?

Ensure strong Wi-Fi signal strength, check controller/device battery charge, and minimize interference from other wireless devices.

Battery Warnings?

Land immediately when you see battery alerts. Replace or recharge batteries before attempting another flight.

Persistent Problems?

Contact Ryze or DJI support for technical assistance, warranty service, or replacement parts and accessories.

Empowering Safe, Fun Drone Learning

🚀 Inspire Creativity

With proper setup and safety awareness, Tello drones unlock creativity, problem-solving, and hands-on STEM skills for students of all ages.
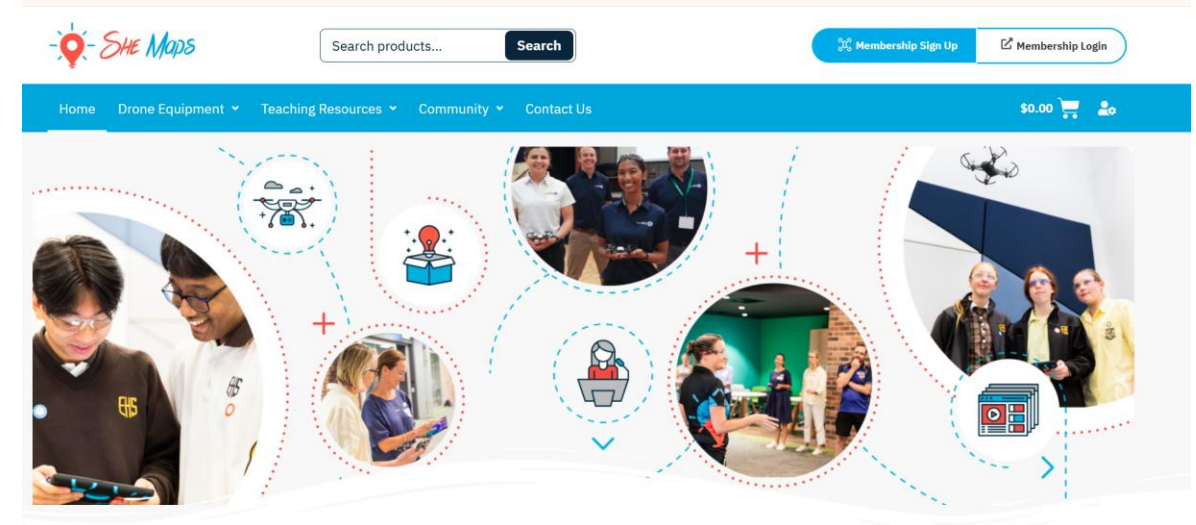
🖼️ Teacher Champions

You are the frontline safety champions. Model best practices, reinforce protocols, and create a culture of responsible drone operation.

✈️ Fly Smart & Safe

Let's fly with confidence, responsibility, and joy—unlocking the full educational potential of drones while prioritizing student safety.

> "Safe drone education today creates the innovators, engineers, and responsible citizens of tomorrow."

We make teaching with drones in schools easy

And help you engage more students in HASS & STEM subjects

She Maps

https://shemaps.com/

Your Missions!

0 **Form Teams**
Organize into small groups of 5-6 members.

1 **Mission 1**
Put your drone together and connect via its wifi

2 **Mission 2**
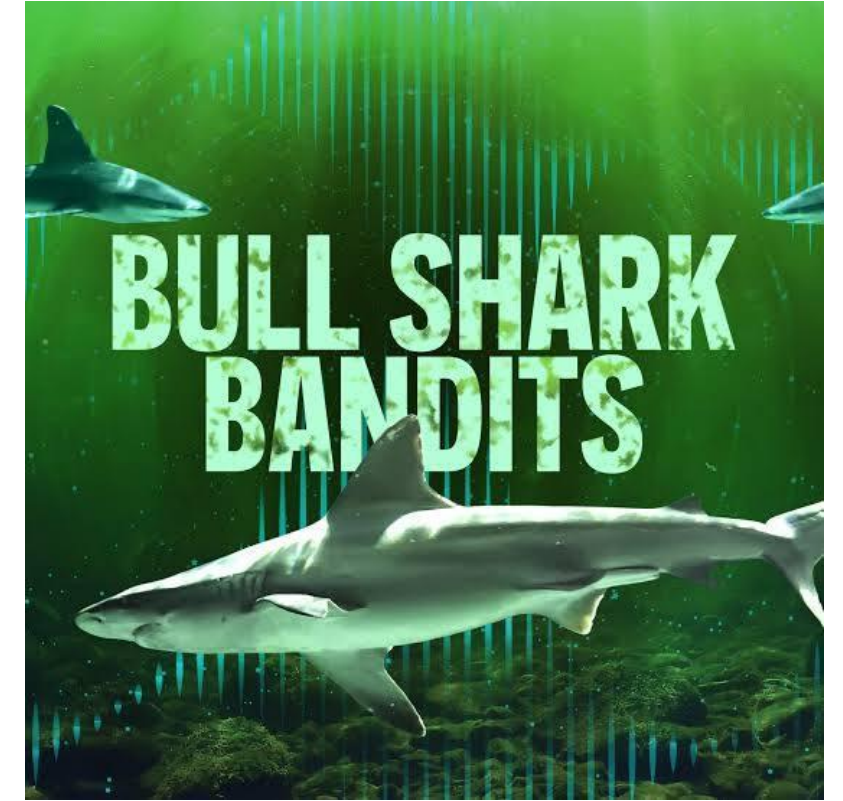Flying autonomously – all members to have a turn

3 **Mission 3**
Obstacle course

4 **Meet Dr Johan Gustafson & Dr Mariel Familiar-Lopez aka 'Bullshark Bandits'**
Drones in research exemplar. (10:20-10:30am)

The catch…you have two batteries and 13 mins (max) per each for fly-time…..use your time wisely!

Drones and Marine Research