

Hands-On Introduction to VEX AIR

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Workshop Goals

- **Fly the VEX AIR Drone!**
 - **Start in the VEX AIR Flight Simulator to complete a mission.**
 - **Apply your simulator experience to complete a mission flying the physical drone.**




Alaina Haws

- Former VEX V5 Robotics Competition (V5RC) Coach
- Museum Education Background
- Passion for bringing the excitement and exploration of informal education into all classrooms
- B.A. in Historic Preservation and Museum Studies
- M.A. in Nonprofit Leadership and Management



The VEX Continuum



VEX 123
Coding Starts Early

Ages 4+



VEX GO
STEM Starts Early

Ages 8+




VEX AIM
Real World Coding

Ages 8+



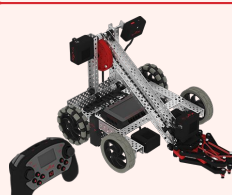
VEX IQ
Applied STEM Learning

Ages 11+



VEX EXP
Real World STEM for Classrooms

Ages 14+



VEX VS
Real World STEM for Competition

Ages 14+



VEX CTE
Workforce Readiness

Ages 14+



VEX AIR
STEM Skills Take Flight

Ages 14+



VEX CODE VR
Virtual Robot Coding

Ages 8+

VEX AIR

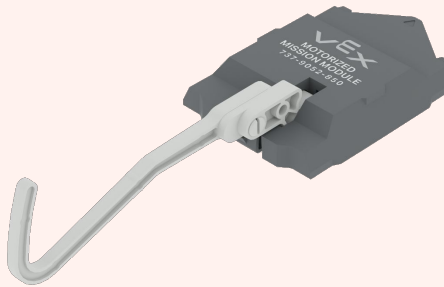
- Durable, indoor-ready design
- Sensors and cameras
- Interchangeable modules



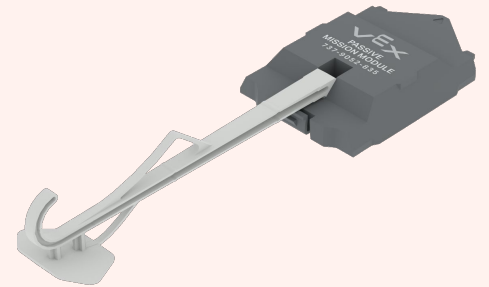
Magnet Module



Motorized Hook Module

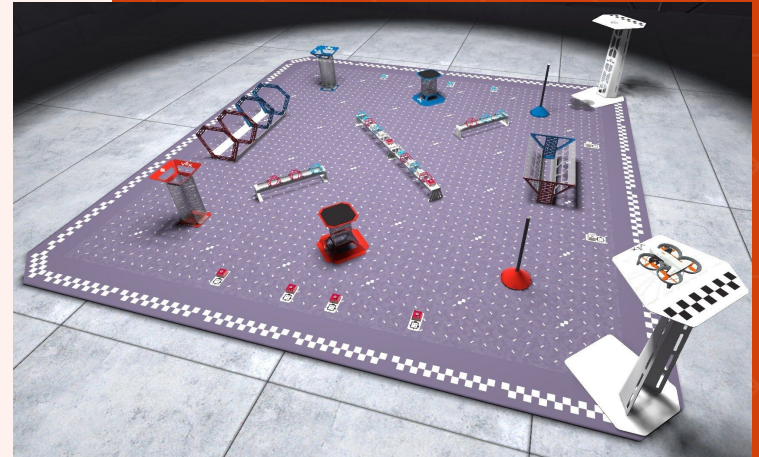


Passive Module

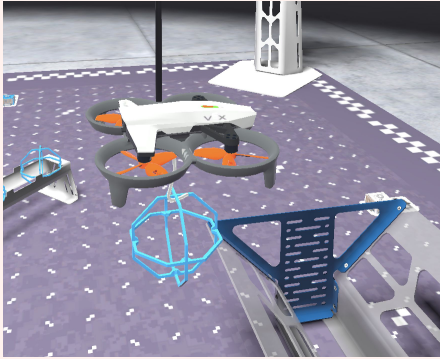


VEX AIR Drone Competition

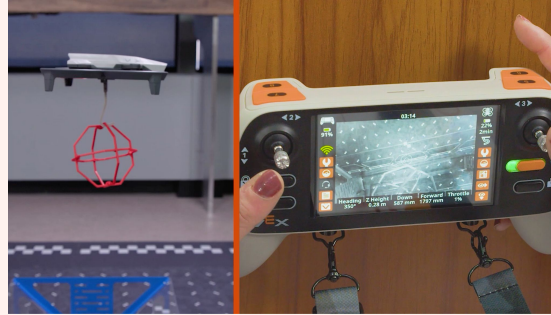
- **Teamwork Matches** — Two teams work together as an alliance to achieve the highest possible score during a timed match.
- **Drone Skills Matches** — A single team competes independently to demonstrate their piloting and coding abilities.



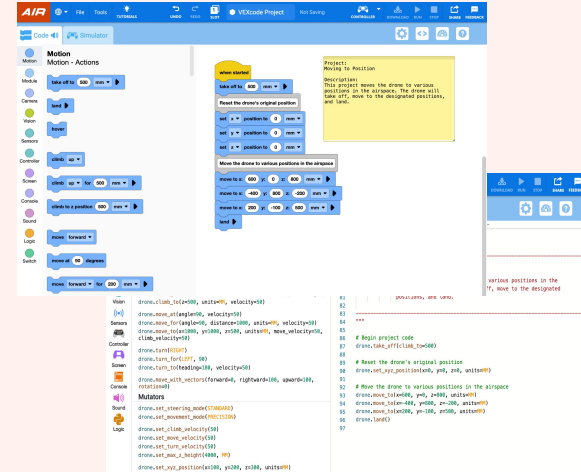
Controlling VEX AIR



VEX AIR Flight Simulator



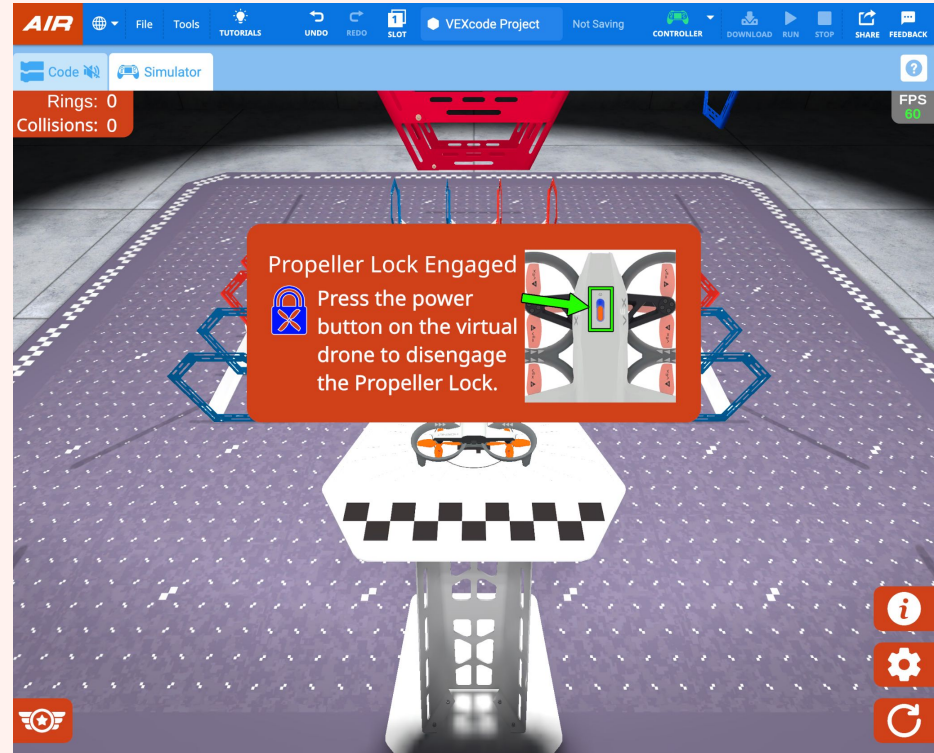
VEX AIR Drone Controller



VEXcode AIR — Blocks & Python

Getting Started with the Simulator

1. Add the joysticks to the Controller.
2. Turn on the Controller.
3. Connect the Controller and device.
4. Open VEXcode AIR.
5. Connect the Controller to VEXcode AIR.
6. Open the Simulator!




Flight School in the Simulator

✕ Flight School Missions

- Practice - Ring Layout
- Practice - Competition Layout
- Takeoff and Land
- Throttle Flight**
- Pitch Flight
- Yaw Flight
- Yellow Ring Challenge
- Roll Flight
- Tunnel Flight
- Red-to-White Ring


Throttle Flight



Goal: Throttle up and down through both white rings.

[Open Mission Log](#)

[Start Mission](#)



Throttle Flight

Silver

Date: 4/6/2026

Time: 0:33.02

Score: 0 **Collisions**

Distance: 6.89m

Alaina

Simulator Mission

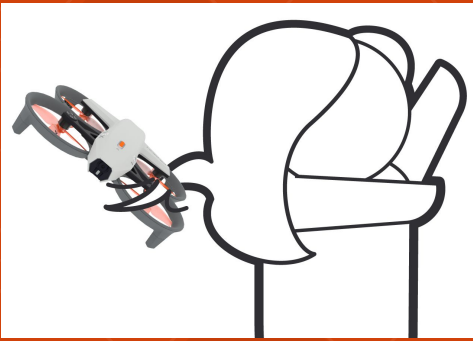
Yellow Ring Challenge



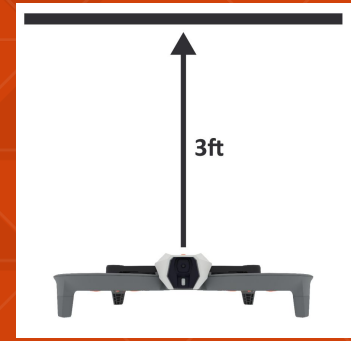
What felt harder than expected while flying?

What helped you improve?

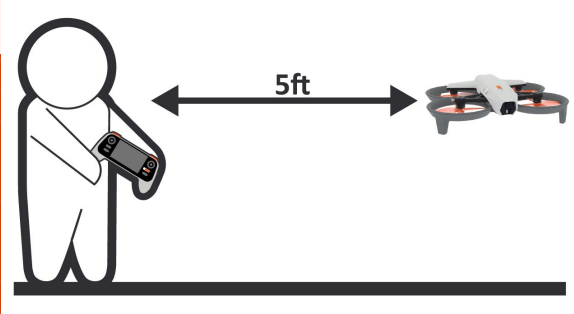
Why start in the simulator?



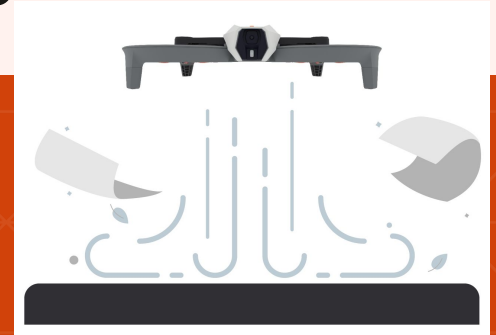
**Tie back
long hair**



Flight Safety



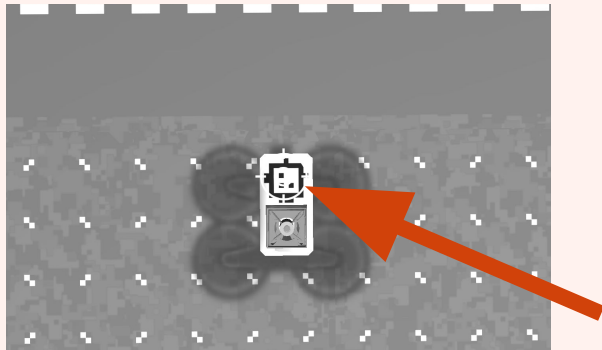
Keep space clear



Move lightweight objects

Simulator Mission

Five Cargo Delivery



Pro Tip: Align the reticle above the AprilTag ID!

Physical Flight Mission

Lap Flight

Goal:

- Take Off
- Fly Across the Field
- Land Back on the Platform



The screenshot shows the AIR VECode Project simulator interface. The left sidebar contains a 'Motion - Actions' menu with various drone control options. The main workspace displays a sequence of blocks:

- when started** block
- take off to 500 mm** block
- Reset the drone's original position** block
- set x position to 0 mm** block
- set y position to 0 mm** block
- set z position to 0 mm** block
- Move the drone to various positions in the airspace** block
- move to x: 600 y: 0 z: 800 mm** block
- move to x: -400 y: 800 z: -200 mm** block
- move to x: 200 y: -100 z: 500 mm** block
- land** block

A yellow text box on the right provides the following information:

Project: Moving to Position
Description: This project moves the drone to various positions in the airspace. The drone will take off, move to the designated positions, and land.

Coding the Drone Demo

The screenshot shows the AIR VECode Project simulator interface with the code editor open. The code is generated from the block-based programming and is as follows:

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VEX AIR Courses

Virtual

Virtual Flight



Launch your journey into the world of drones with VEX AIR's Virtual Flight course, where you'll learn the basics of drone operation in a safe, simulator-based environment.

[View Course >](#)

Controller

Controller Flight



Move from simulation to reality as you take the controls of your own VEX AIR Drone, putting your piloting skills to the test in the real world.

[View Course >](#)

Coding

Coding Flight



Trade joysticks for code as you program your VEX AIR Drone to fly autonomously, complete missions, and showcase the power of automation in the skies.

[View Course >](#)

Stay Connected

Let's Connect!

Tag me in the **VEX PD+ Community!** @AlainaHaws

Want to Learn More? Join VEX PD+ as an All-Access Member!

Schedule a **1-on-1 Session** in VEX PD+