

VEX AIR Cumulative Pacing Guide

Who is this pacing guide for?

This pacing guide is a starting point for VEX AIR educators to see how the courses are sequenced.

How is this pacing guide organized?

This guide is based on sessions and weeks. Each session is estimated to be one 40-minute class period, and each week is estimated to be five sessions. [Schedule a 1-on-1 in VEX Professional Development Plus \(PD+\) to meet with a VEX Expert and personalize this guide to match your classroom timing and environment.](#)

What can you find inside of this pacing guide?

- [Pacing At A Glance:](#)
 - This table is a two-page overview that organizes course units in sequential order.
 - Summaries of what students will practice and the drone concepts covered are included to help guide your planning.

Note: As additional curricular resources are added to the VEX AIR platform, this pacing guide will grow to accommodate them.

Cumulative Pacing Guide - Pacing At A Glance

VEX AIR VIRTUAL FLIGHT COURSE			WEEKS 1 - 9
Timing	Unit Title	Students will practice...	Drone Concepts
Week 1	Unit 1 - Welcome to VEX AIR Unit 2 - Taking Flight	- Preparing their VEX AIR Drone Controller for the course - Connecting to the VEX AIR Flight Simulator. Taking off, landing, and using throttle controls in the simulator	- Propeller Lock - Drone safety - Takeoff & Land button - Throttle
Week 2	Unit 3 - Beginning Flight Controls	- Using pitch controls to fly the virtual drone forward and backward - Using yaw controls to turn the virtual drone then fly in a path - Flying to complete a mini-challenge using throttle, pitch, and yaw controls	- Pitch - Yaw - Flying in a specific path
Week 3	Unit 4 - Rolling Along	- Using roll controls to fly the virtual drone side to side - Changing the steering mode on the controller - Flying in both standard and headless steering	- Roll - Steering Modes - standard vs. headless
Week 4	Unit 5 - Complex Maneuvering	Using multi-axis movements to combine pitch, roll, yaw, and throttle controls to navigate complex paths in a series of exploration missions	Multi-axis movements
Week 5	Unit 6 - Movement Modes	- Changing the movement mode on the controller - Flying in Precision, Balanced, and Performance modes in the simulator	Movement Modes - Precision, Balanced, Performance

Week 6	Unit 7 - Ring Flight Challenge	- Developing a flight plan - Practicing for an open-ended challenge using their flight plan - Refining a flight plan based on practice - Flying in a challenge mission, applying the skills learned so far in the course	- Apply pilot skills to open-ended challenge - Develop and test a flight plan
Week 7	Unit 8 - Delivering Cargo	Picking up and delivering cargo with the Magnet Module in the Competition layout in the simulator	- Magnet Module - Changing layout in the VEX AIR Flight Simulator
Week 8	Unit 9 - Payload Precision	Picking up and delivering orbit balls with the Motorized Hook Module	- Motorized Hook Module - Changing modules in the simulator
Week 9	Capstone - Capstone Challenge	- Engaging the Propeller Lock with the controller button - Flying an open-ended challenge to score points in a timed mission	- Engaging Propeller Lock with the controller - Applying pilot skills to open-ended challenge - Develop and test a flight plan

VEX AIR CONTROLLER FLIGHT COURSE			WEEKS 10 - 18
Timing	Unit Title	Students will practice...	Drone Concepts
Week 10	Unit 1 - Drone Safety and Setup	- Charging VEX AIR Drone Batteries and controller - Pairing a drone with a controller - Updating firmware - Using an Emergency Stop (E-Stop) - Using a Pre-Flight Checklist for safety - Taking off and landing the drone	- Setting up the drone - Drone safety - Take off & land

Week 11	Unit 2 - Flight Control in Three Dimensions	• Using throttle controls to observe changes on the z-axis • Relating roll, pitch, and throttle to x-, y-, and z-axes • Using pitch controls to fly the virtual drone forward and backward • Using roll controls to fly left and right • Accessing the Drone Dashboard on the controller • Using data to monitor flight information • Applying student roles and responsibilities before, during, and after flight • Using the Pre-Flight Checklist before a flight	• Throttle • Pitch • Roll • Drone safety • Drone Dashboard Data
Week 12	Unit 3 - Point and Pivot	• Using yaw controls to rotate the drone • Using data to determine the drone's heading • Accessing different camera views with the controller • Using camera views for navigation	• Yaw • Heading • Camera Views
Week 13	Unit 4 - Eyes in the Sky	• Capturing images and videos with the drone • Retrieving captured images and videos • Accessing images and videos with a computer • Using captured images and videos to improve flight skills	• Capturing images and videos during flight • Using images and videos to improve flight
Week 14	Unit 5 - Mission Ready Modules	• Identifying all three VEX AIR modules • Attaching and detaching modules from the drone • Describing the purpose and function of the Passive Modules • Moving objects with the drone and Passive Module	• Modules • Passive Module
Week 15	Unit 6- Magnet Moves	• Describing the purpose and function of the Magnet Module • Picking up and dropping objects with the Magnet Module • Inspecting and replacing drone propellers	• Modules • Magnet Module • Drone Maintenance

Week 16	Unit 7 - Hook and Hover	• Describing the purpose and function of the Motorized Hook Module • Picking up and dropping objects with the Motorized Hook Module • Inspecting and replacing landing feet on the drone	• Modules • Motorized Hook Module • Drone Maintenance
Week 17	Capstone - Capstone Challenge (coming soon)	• Making a flight plan • Flying an open-ended challenge to score points in a timed mission	• Develop and test a flight plan • Applying pilot skills to an open-ended challenge
Week 18	Capstone - Capstone Challenge (coming soon)	• Making a flight plan • Flying an open-ended challenge to score points in a timed mission	• Develop and test a flight plan • Applying pilot skills to an open-ended challenge
VEX AIR CODING FLIGHT COURSE <i>Coming Soon</i>			