Introduction to Drones
Curriculum Program Module

Program Overview: CrossFlight's Intro to Drone Curriculum and TRUST Certification Program. This module is designed to help teachers fill gaps and leverage other STEM areas. Students will be learning about and applying knowledge for aviation science and technology careers. Upon completion of the program students attain a TRUST recreational UAS pilot certification.

The module is a gateway program that can lead to a FAA Part 107 certification and licensure in follow-on courses. The program combines various STEM/STEAM attributes with primary emphasis on aviation and aerospace sciences with hands-on flight training. Teacher notes and support tools for conducting the training are included in the program.

- **Course Introduction:** 1.00 hour. General understanding about the goals of the course, uses of drones and the opportunities available.
- **Unit 1: Intro to Aviation Sciences:** 3.00 hr. Understanding the foundations of aviation.
- **Unit 2: Intro to Airspace and Regulations:** 3.00 hrs. Understand types of airspace, airspace restrictions and latitude / longitude for Aeronautical sectional charts.
- **Unit 3**: **Intro to Unmanned Aircraft Systems:** 2.00 hrs. Understanding pilot responsibilities, flight safety, unmanned aircraft systems, and rules for recreational flyers.
- **Unit 4**: **Intro to Applications and Flight - Hands-on Flight:** 3.00 hrs. Understanding unmanned aircraft systems, pre-flight checklists and basic flight.
- **Unit 5: Intro to Applications and Flight - Autonomous Flight:** 2.00 hrs. Apply procedures for recreational flight of unmanned aircraft systems - autonomous flight training for students.
- **Unit 6: Intro to Drone Training Review and TRUST:** 1.00 hr. TRUST Examination

STUDENT RESULTS: STEM/STEAM knowledge and advancement with a knowledge of various careers in aviation or those that leverage aviation technology within their area of expertise such as public safety, land management, forestry, various sciences, and surveying and engineering. The capstone of the program provides the opportunity for the student to take The Recreational UAS Safety Test (TRUST) FAA certification.

Notes: Applications: Use Drone Blocks for coding, drone photography, aerial imaging.

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Learning Objectives- Mapping to Success Metrics/Outcomes

Learning Objectives	Module- Unit	Success Metrics	Student Outcomes
Students will learn about the goals of the course and basics of drone aviation.	**Course Introduction** 1:00 hour	Students can describe the course and its goals.	General understanding of drone aviation and the opportunities available.
Students will learn about Aviation and Aerospace	**1 Intro to Aviation Sciences** 3:00 hour	Students can describe the foundations of aviation and the principles of flight.	Introduction to Aviation and Aerospace.
Students will learn about Airspace Regulations and Aeronautical Charts.	**2 Intro to Airspace and Regulations** 3:00 hours	Students can describe types of airspace, airspace restrictions and latitude / longitude for Aeronautical sectional charts.	Exposure to airspace, Aviation Regulations and aeronautical sectional charts.
Students will learn about Unmanned Aircraft Systems and Use	**3 Intro to Unmanned Aircraft Systems** 2:00 hours	Students can describe pilot responsibilities, flight safety, unmanned aircraft systems, and rules for recreational flyers.	Exposure to flight safety and rules and regulations for the recreational flyer.
Students will learn flight planning and basic flight.	**4 Intro to UAS Applications - Hands-on Flight** 3:00 hours	Students understand preflight checklists and basic flight.	Exposure to UAS applications and basic flight actions.
Students will learn how to safely fly drones in a controlled environment	**5 Intro to UAS Applications - Autonomous Flight** 2:00 hours	Students apply procedures for autonomous flight.	Students learn to safely operate a small UAS utilizing autonomous flight.
Students will learn how to enroll in and pass the UAS Trust Certification for Recreational flying	**6 Intro to Drone Review and TRUST** 1:00 hours	Student passes the TRUST examination through CrossFlight	Students earn a Certification to fly drones in recreational sites authorized by the FAA.

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Teacher Support Tools:
- Online Learning Management System (LMS) Curriculum support for teachers
- Unlimited number of student enrollments
- Master Instructor Support for delivering training
- Online LMS and Certification tools for TRUST examination for students

Recommended Supply List:

- Drones (1-6 per classroom, one type acceptable)
    - Drone Maker kit -Pitsco.com $75.00 per drone (if you want to build a drone)
    - DJI Mini 3- dji.com (more expensive option, but can be flown outside & remote ID compliant)
    - Ryze Tech Tello Boost Combo - amazon.com $149 (no remote ID, cannot be flown outside)
    - Echo Drone - Pitsco.com $175 (no remote ID, cannot be flown outside)

- Drone arena and field elements - Pitsco.com (*Pitsco/SkillsUSA has dimensions for field elements if you want to use local hardware store my.crossflightskysolutions.com/2024-skillsusa*)

- Classroom Supplies:
    - Various types of paper (copy, construction, newspaper, etc)
    - Popsicle sticks
    - String
    - Rubber bands
    - Straws
    - Masking tape
    - Heavy washers (to be used as weights in unit 3)
    - Compass (directional)
    - Ping pong balls (Colored, red and blue)
    - Spray paint (to color code ping pong balls, or get colored ping pong balls)