Unit 3: Drones - Next Level Robotics

Content Area: **Applied Technology**
Course(s):
Time Period: **Marking Period 1**
Length: **10 Days**
Status: **Published**

Summary

Drones are one of many useful tools to teach STEM topics in the classroom. Flying these devices provides real examples of the laws of physics. Building and repairing drones teach students about electronics. Constructing drones allows students to take their engineering and robotics skills to the next level. Students will also use their drones to work on solving real world problems, such as delivering medical supplies to remote areas as they explore local and global issues and use collaborative technologies to work with others to investigate solutions.

Revision Date: June 2026

9.2.8.CAP.1	Identify offerings such as high school and county career and technical school courses, apprenticeships, military programs, and dual enrollment courses that support career or occupational areas of interest.
9.4.8.CI.4	Explore the role of creativity and innovation in career pathways and industries.
9.4.8.CT.2	Develop multiple solutions to a problem and evaluate short- and long-term effects to determine the most plausible option (e.g., MS-ETS1-4, 6.1.8.CivicsDP.1).
5.2	Utilize positive communication and social skills to interact effectively with others
TECH.K-12.1.7.d	explore local and global issues and use collaborative technologies to work with others to investigate solutions.
8.2.8.ED.1	Evaluate the function, value, and aesthetics of a technological product or system, from the perspective of the user and the producer.
8.2.8.ED.2	Identify the steps in the design process that could be used to solve a problem.
8.2.8.ED.3	Develop a proposal for a solution to a real-world problem that includes a model (e.g., physical prototype, graphical/technical sketch).
8.2.8.ED.4	Investigate a malfunctioning system, identify its impact, and explain the step-by-step process used to troubleshoot, evaluate, and test options to repair the product in a collaborative team.

Essential Questions/Enduring Understandings

Essential Questions:
How are drones used in real-world situations?

What careers are available for drone operators?

What obstacles can be tackled with the use of drones?

How do governments regulate the use of drones?

Enduring Understandings

There are many challenges facing communities throughout the world that can be alleviated through the use of drone devices.

Drones come in a variety of styles that meet the differing needs of the users.

Drones can help solve critical issues around access to essential supplies, such as medicine.

Objectives

Students will know drone based vocabulary terms.

Students will know that drones can help solve critical issues around access to essential supplies.

Students will know how drones can assist in real world problems, from home delivery systems to access to remote communities throughout the world.

Students will know how to use the Engineering Design Process to create a solution to a problem they select.

Students will know the role that technology can play in humanitarian efforts.

Students will be skilled at operating drones.

Students will be skilled at working with others to create drone obstacle courses.

Learning Plan

Basic Construction and Operating: At the start of this unit, students will become comfortable with the pieces of the drone, repairing the drone, options for constructing the drone, and doing simple flying operations with the drones, such as moving forward, backward, up, down, and landing.

Engineering and Design Your Own Course: Students will be tasked with creating a simple course to operate their drones through. Students will be encouraged to create a course that has hoops, various height levels for the drone to maneuver through, and sharp turns.

Healthcare in the Himalayas: Access to reliable healthcare is a real barrier in many remote regions of the word, including in Nepal. Healthcare providers and patients may be faced with the challenge of walking for hours or even longer along steep, treacherous paths between their village and the nearest healthcare facility. Drones can help solve some of these critical issues around access to essential medical supplies. Students will simulate the transport of medical supplies to remote villages. Students will research which regions are in need of the assistance of a drone delivery system as they calculate distance, think about weather obstacles, and discuss ways they can help empower local citizens to tackle this problem. Students will develop their own course and will complete a reflection on their findings and data in their work portfolio.

Drone Delivery Solutions for Communities in Need: Students will complete this unit by working with a partner or small group to research their own problem in the world or their local community that can be solved or alleviated through the use of a drone delivery system. Students will complete a work portfolio in which they detail the community's need and their proposal for a solution.

Students will work with their partner or team mates to create a final course for their drone to go through. Students will also research local laws pertaining to drone usage and discover what drone delivery systems are already being used in the area.

Assessment

Formative:

Do Nows

Google Forms

Basic introduction to constructing and operating the drone

Summative:

Healthcare in the Himalayas project

Work portfolio and reflection

Benchmark:

Exit tickets

Worksheets

Engineering and Designing Your Own Course project

Alternative:

Checklists

Verbal Discussions

Drone Delivery Solutions for Communities in Need project

Materials

Chromebook

Projector

YouTube

Google Forms

Google Docs

Google Slides

Document camera

Safety equipment

Lab goggles

Pen/pencil

Rulers/meter sticks/tape measurer

Drones

Various building supplies (cardboard, dowels, string, rope, wood blocks, etc.)

Various types of tape

Plastic cups

Straws

Plastic bags

Integrated Accommodation and Modifications, Spec Ed Students, ELL, At-Risk, G&T, 504's

See attached document:

https://docs.google.com/spreadsheets/d/1elkfGwG4CoxIRxyxZ6eem_INsnuGIXXiG4CkOug9_wg/edit?usp=sharing