Teacher Activity Cards

DRONES & GIS ACTIVITIES

SHE MAPS

Drones and GIS Activities

PROGRAM OVERVIEW

A bundle of suggested activities with or without drones, linked to learning areas. Discover what is possible! It's not just about coding!

LEARNING OBJECTIVES

- Designing drones for a purpose
- Understanding how drones move
- Using the appropriate language
- Understanding the safety requirements of drones in public
- Using Maps to discover the local environment and community
- Creating drone movement both manually and autonomously

LEARNING AREAS

- Science
- Design and Digital Technologies
- Maths
- Arts
- Literacy
- Geography

ACTIVITIES WITH DRONES

1. Drone physics
2. Obstacle course
3. Battledrones
4. Movie making
5. Graphing Flight

ACTIVITIES WITHOUT DRONES

1. Drones of the future
2. Stepping out code
3. For and Against
4. Follow the Rules
5. Map and Classify

TEACHER NOTES:

These activities are designed to be used in a number of ways.

1. In class lessons
2. STEM Club
3. Immersion Days
4. A valuable lesson at the end of the term.

The list is endless! If you find a new way to use them, please let us know.

Drones of the Future

Learning Area: Design Technologies

- In teams of 2 or more research how drones are used in industry.
- Compare how different drones are designed, depending on their job. Creating a table about multirotor, fixed wing and vertical take off and landing (VToL) drones.
- Make a list of future jobs that drones could be involved in.
- Choose a future job and design a drone of the future with labels and descriptions.

Follow the Rules

Learning Area: Design Technologies

- Study the rules and regulations from CASA.
- Use the app Open Sky to identify areas that are safe to fly in the local area.
- Students can create their own posters, videos or radio ads to inform new drone pilots on the rules of flying drones for fun and for business. They can include information about flying in the local area.

For and Against

Learning Area: Literacy

- There will always be positives and negatives for drone use.
- Create a class list of the positives and negatives of drone use.
- Have students choose for or against and write a short persuasive text supporting their statement. Can be presented as a speech to the class.

Map and Classify

Learning Area: Geography

- Use Google My Maps, to identify real world entities within the local community and create different map layers, from wetlands, grasslands, forest and marine areas to industry, political boundaries etc.
- Create treasure hunts to identify and mark the map to find certain areas within different communities, both local, national and even international.

Stepping Out Code

Learning Area: Design Technologies

- Assign students in teams of 2 or more. They have to get another team from one identified area in their school to another using only block coding language.
- Use a map of the school, either digital or printed. Students plot out their path and then create the block code for another team.
- Teams test their code on each other. If they fail they need to go back and fix the broken code.

Movie Making

Learning Area: Media Arts

- Create a series of scenes using a drone and other recording devices.
- Use editing software to create a short movie.
- Explore how a drone can change what the audience sees and how they react to a scene.
- Choose more than one drone filming angle for the same scene. How does it change the way the scene is perceived?

Drone Battleship

Learning Area: Mathermatics

- Map out human sized ruled grids with a screen placed between a team of players.
- Place your battleship pieces in chosen places on the grid.
- The attacking team calls out a grid coordinate. The defending team then flies their drone to the identified coordinate. If the drone lands on a battleship they call “hit”. If the drone does not land on a battleship then the defending team call “miss”. Then the teams swap.
- A team wins when they HIT all of their opposition's battleships.

Drone Physics

Learning Area: Science

- In their drone teams, play a version of Simon Says - use drone language to instruct pilots to move their drones in a certain direction eg. *pitch to the left, yaw to right*.
- Turn 90 degrees right, increase elevation, decrease elevation.
- When a drone team does not follow the instructions they are eliminated. Last team standing wins!
- Have the teams stand so they cannot copy what the other teams are doing.

Graphing Flight

Learning Area: Mathermatics

- Plot out a drone flight using a line graph.
- Use X axis for time, Y axis for distance.
- Use different payloads to compare flights. Graph and note the differences in time and/or distance.

Obstacle Course

Learning Area: Science

- Obstacle courses can be used in different ways. From challenging students to move their drones in certain directions, to improving speed and problem solving.
- Use gym equipment, pool noodles, hoops, chairs and anything else that a drone can fly around, under, over or through.
- Map out a course and get the students competing on time and accuracy.

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