## **Drones in the Classroom**

# **Drone mechanics**

How do drones work?

1. How do you think drones work? What is the science behind their ability to fly? (There are multiple drone types; choose one model, then describe it.)

2. Draw an image showing what you understand about how drones fly. Use labels and arrows to show direction and meaning. Write any vocabulary words that make sense. Add detail to the drone in terms of what **powers** the drone, how is it **controlled**, what do the **props** look like and how they **move**.

3. Complete research on your own to find out more about how drones work. Jot any notes here, and adjust your drawing as needed.

\*This document may be reproduced for educational purposes, but it may not be reposted or distributed without crediting GrowNextGen and The Ohio Soybean Council and soybean checkoff.



### **Drones in the Classroom**

- **4.** Check out the image found here: <u>https://phantompilots.com/attachments/1561113362226-png.112200/</u>. Add any additional ideas to your information above and/or drawing
- 5. Watch the presentation here: <u>https://docs.google.com/presentation/d/10Kt--</u> <u>130JjqOGDdiL\_gxHQzX5DCjfP-9t3UN-fs6NfY/edit?usp=sharing</u> Take notes below.

#### Knowledge check:

What is the difference between pitch and yaw?

- a. pitch is movement from front to back; yaw is around a center point
- b. pitch is movement from left to right; yaw is front to back
- c. pitch is movement around a center point, yaw is left to right

Match the terms to the definitions

Thrust	relative mass or quantity of matter
Weight	force that acts against the weight of the aircraft, taking it up in the air
Drag	force generated to move upward
Lift	a mechanical force that opposes the motion of any object through a fluid

- 5. Observe the drone type you have in your classroom. Examine the props and the direction they move by blowing lightly on each prop and make a diagram of the props and rotation of each.
- 6. Visit the programming app your class will use. Practice connecting your drone to the app.



### **Drones in the Classroom**

7. Create a potential program to instruct the drone to lift off, fly a short distance, then return and land.

- 8. SAFETY: When flying drones, the following guidelines need to be followed:
  - a. Be sure you have a clear space in which to fly.
  - b. If your hair is long, pull it back or put it up with a hairband or rubberband.
  - c. Wear eye protection.
  - d. Communicate your flight plan to others in the area.

