

Name _____ Date _____

Quadcopter 1 Worksheet

1. Here are two quadcopter prototypes. Place a battery in each and turn the switches on to start the propellers.
2. Do all of the motors run and all the propellers spin?
3. Determine which motor is causing the problem.
4. Once you know which motor is broken, enter the Workbench to troubleshoot the problem.
5. What is missing from the motor that could be preventing it from working? Point at the motor to see its parts.
6. Is the motor working and are all propellers spinning?
7. Change the polarity of the battery. What happens to the rotation of the propellers?

8. Real-world challenge question: Which direction of rotation (clockwise or counterclockwise) would give a quadcopter lift so it could fly? Explain your reasoning.

Further Discussion: Careers in Drone Technology

Optionally, discuss careers affiliated with drones (examples follow).

Drone Pilots: Operate drones for various purposes, such as aerial photography, surveying, mapping, and surveillance.

Aerial Photographers/Videographers: Use drones to capture high-quality photos and videos for applications such as real estate, filmmaking, advertising, and environmental monitoring.

Drone Engineers: Design, build, and maintain drones, including their mechanical, electrical, and software components.

Drone Technicians: Repair and maintain drones, troubleshoot technical issues, and perform routine inspections to ensure proper functionality and safety compliance.

Drone Software Developers: Create software applications for drone control, navigation, data processing, and analysis.

Geographic Information System (GIS) Analysts: Process and analyze drone-collected data to create maps, 3D models, and spatial datasets for urban planning, land management, infrastructure inspection, and natural resource management.

Drone Educators and Trainers: Provide training and education on drone operation, safety, regulations, and applications.

Researchers: Study and develop new drone technologies, applications, and methodologies in fields such as robotics, artificial intelligence, sensors, materials science, and aerodynamics.

Electronics Technicians: Repair drone components such as circuit boards, motors, sensors, and communication systems.

Quality Assurance Technicians: Conduct inspections, tests, and quality control checks on drones and components to ensure they meet performance standards, reliability requirements, and safety regulations.