



arm

Autonomous Drones

Lesson 25



arm School Program

Objectives

- Identify the practical uses of autonomous vehicles
- Produce a table of examples
- To create a recovery helicopter suitable to protect a Lego Minifig

Drones

- Unmanned aerial vehicles, or **drones**, have been used by the military for some time to gather intelligence and as a weapon to protect combat soldiers
- Drones are now being developed for a wide range of commercial and agricultural purposes such as:
 - Delivery service – Amazon and Amazon Air offering drone delivery services suggesting click to delivery in 13 minutes
- Consider the technology currently available – eg micro:bit's built in technology or add on boards
 - GPS
 - Accelerometers
 - High power/low drain batteries
 - Light and line following technology
 - Collision avoidance technology
 - Laser guided technology
 - Facial recognition

What is a Drone

- Drones are made of light composite materials, so the vehicle to have a reduced mass and are more maneuverable
- Drones can be equipped with different 'state of the art' equipment and technology including heat and infrared cameras and GPS
- Because there is no requirement for a human pilot the drone can be compacted to a very small size
- Drones can be controlled from a remote control system or pre-programmed to follow a set route and return to its starting point

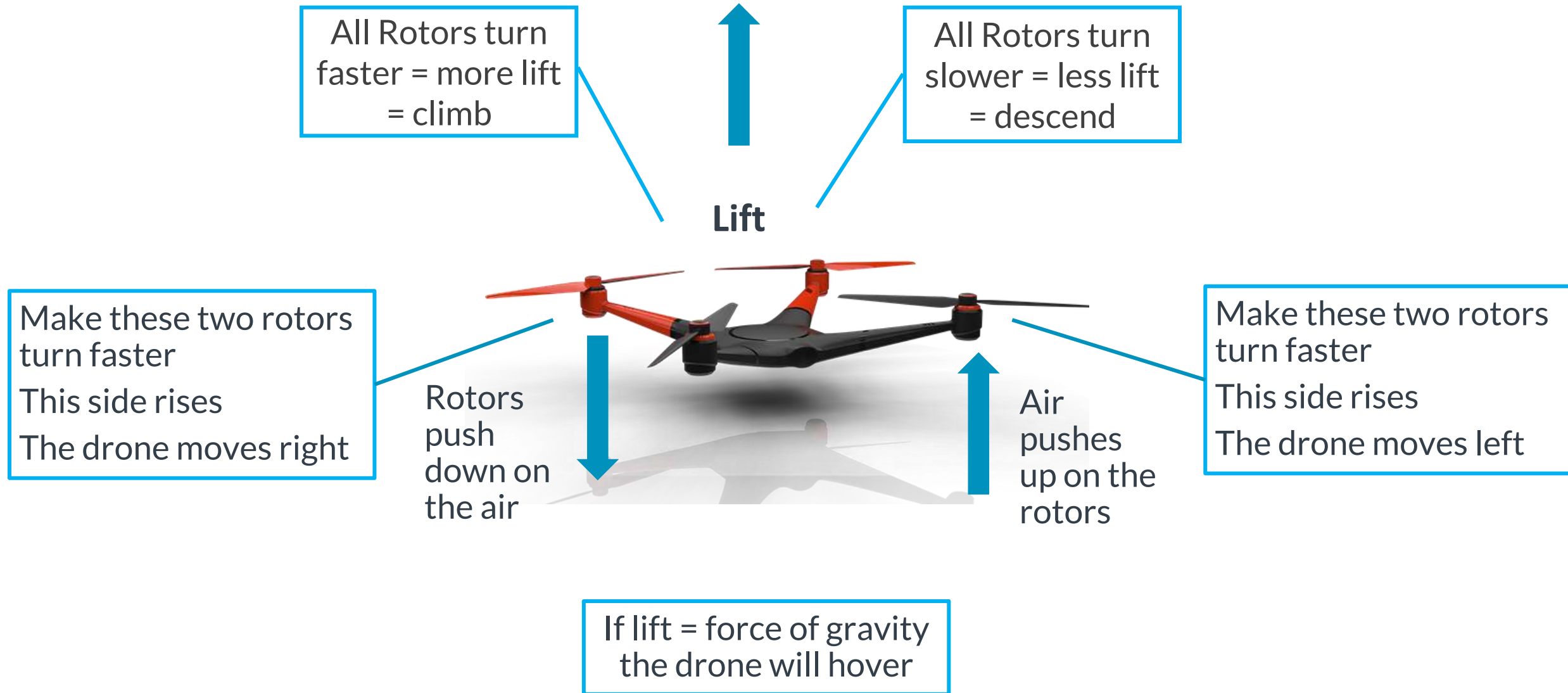


How Drones Fly

- Drones use rotors for propulsion and control
- A rotor works like a fan pushing the air down. As all forces come in pairs, when the rotor pushes down on the air pushes up on the rotor. This is called lift.
- By controlling the upward and downward forces by spinning the rotors faster or slower we can control lift



How Drones Fly



Success Criteria

- Identify the practical uses of autonomous vehicles
- Using the build instructions and template, create a recovery helicopter suitable to protect a Lego Minifig
- Identify the optimal build for a recovery helicopter



Thank You

Danke

Merci

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Gracias

Kiitos

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