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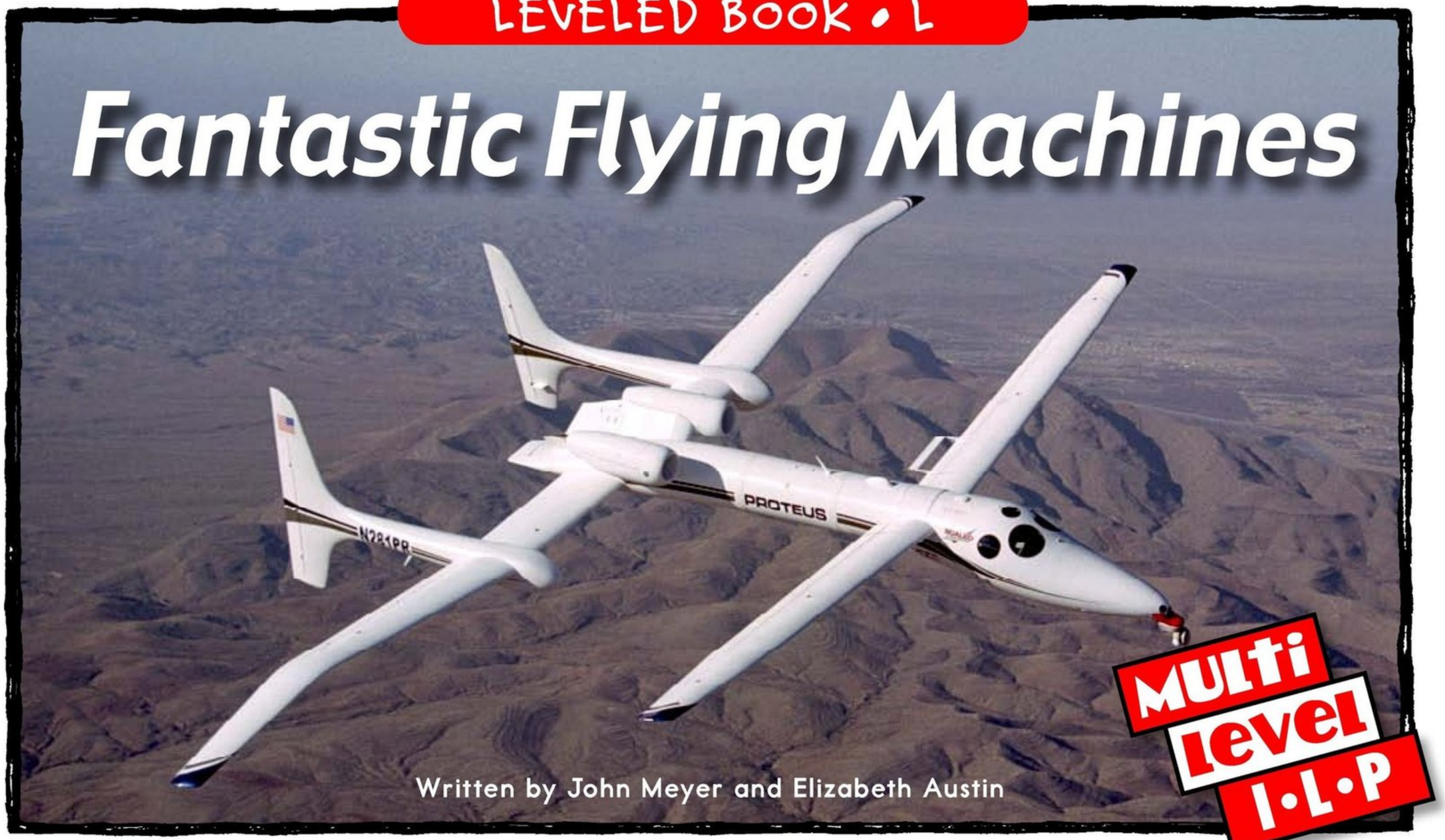
Fantastic Flying Machines



Written by John Meyer and Elizabeth Austin

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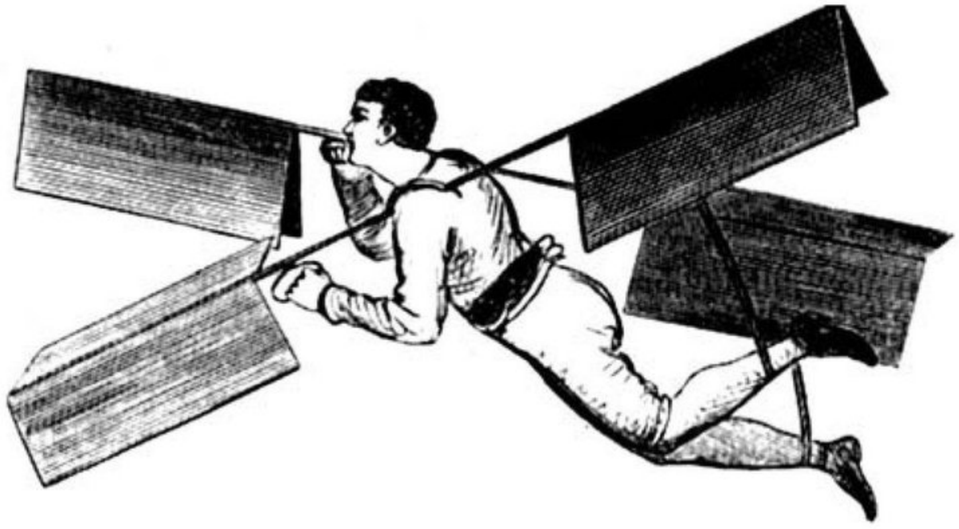
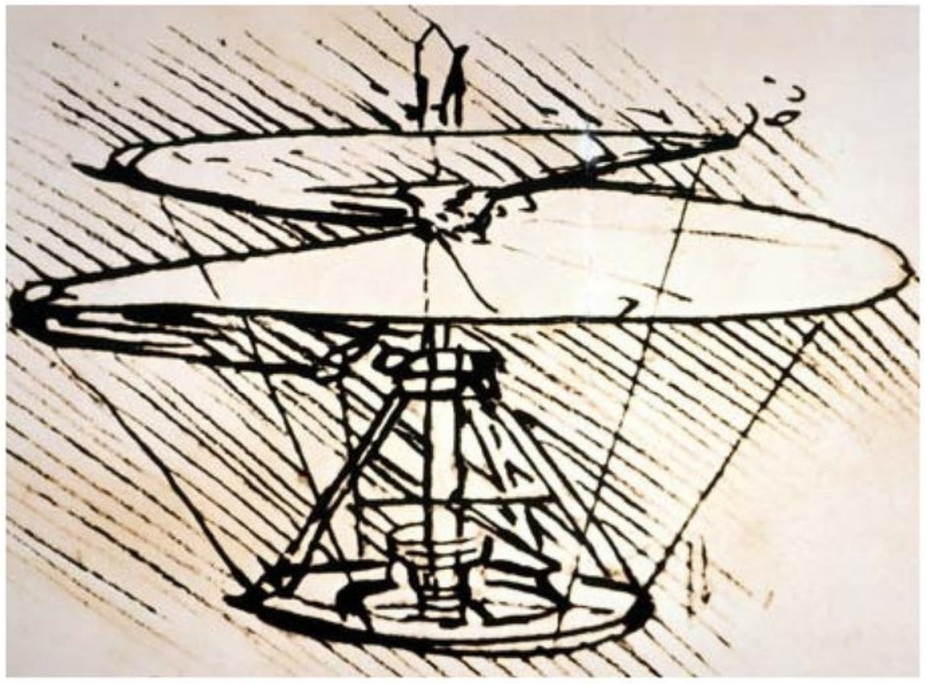
Introduction

Imagine if you could fly like a bird. Where would you go? What would you see? Today, many people can fly thanks to fantastic flying machines.

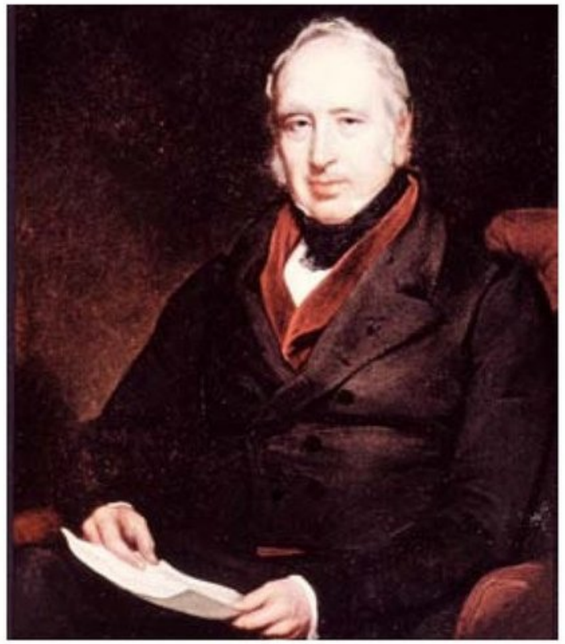


These wings flapped when the person moved his arms and legs.

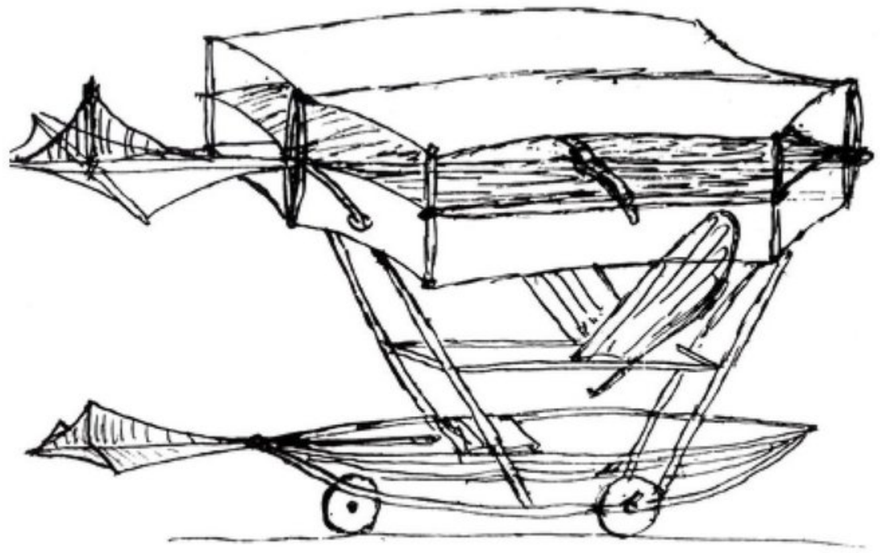


Leonardo da Vinci's helicopter drawing

People have always wanted to fly. They watched birds fly, and some tried tying wings to their arms. Long ago, an artist even drew plans to make a helicopter. He drew his idea, but he didn't build it.



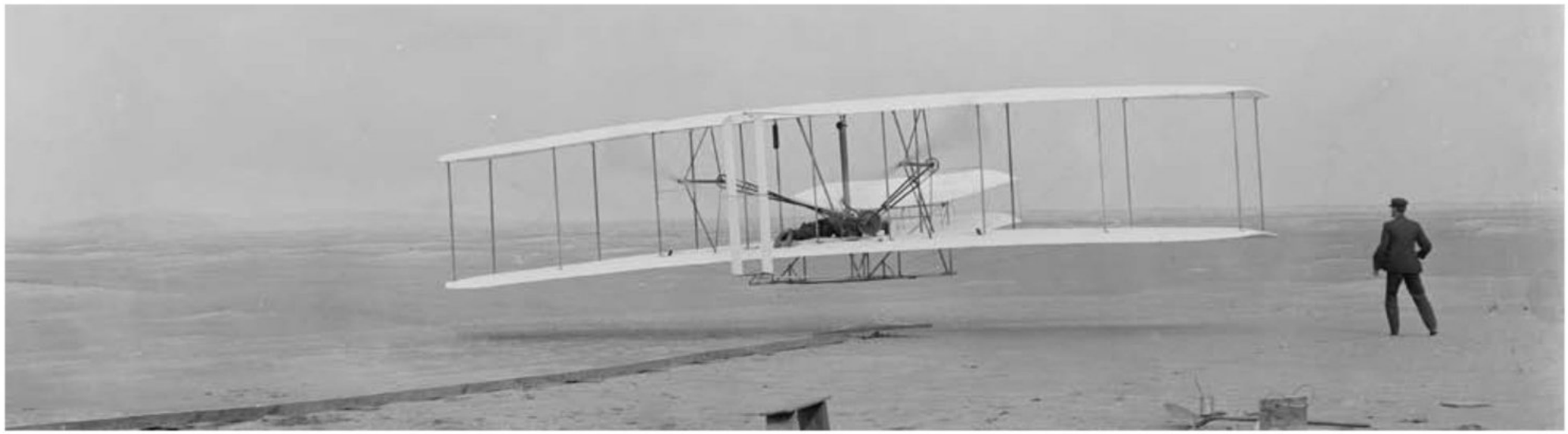
George Cayley built the first glider that carried a person.



A sketch of one of Cayley's first gliders

History of Flight

People kept trying to fly. Two French brothers made the first hot-air balloon. Another man made the first glider that worked. Later, someone made a better glider that could sail in the air for a long time.



Wilbur Wright watches his brother Orville make his famous flight.

Brothers named Orville and Wilbur Wright studied all of these ideas. They thought about how some ideas worked and why some didn't work. They tested their own ideas. Finally, they designed an airplane that worked. One day, Orville flew the plane for one full minute. It flew for 260 meters (850 ft). People could fly!

This commercial airplane carries hundreds of passengers around the world every day.

Airplanes

Airplanes have changed a lot since the early days of flight. Today's large airplanes carry about 450 people on trips. They also carry people's bags and cargo. Has your family flown on one?

A Navy jet fighter takes off from an aircraft carrier.

Jet gases form streaks of cloud in the sky.

Many modern planes that are built to fly high or fast use jet engines. A jet engine forces hot gases in a stream behind it. That force pushes a plane forward.

A Navy plane with four propeller engines

Many planes have propeller engines. Propeller blades spin like a fan's blades.

Planes carry things quickly over long distances. Cargo planes and mail planes fly around the world. Big military planes carry trucks, food, and troops.

This plane can hold 132,000 kilograms (291,000 lbs) of cargo.

Helicopters

Helicopters can land almost anywhere. They can also fly backward and sideways. They can even stop in midair!

A helicopter lands on top of a building.

Troops board a military helicopter.

A large helicopter carries a big bucket of water over a wildfire.

Some helicopters are designed to lift heavy loads. These helicopters need two rotors on top. Firefighters sometimes use these types of helicopters to fight forest fires.

A helicopter ambulance transports sick and injured people.

Helicopters are much faster than cars. They can be used as ambulances. Police use them to chase criminals. Helicopters help rescue people who are lost, too.

Beautiful balloons dot the sky.

Hot-air balloon passengers ride in a basket.

Blimps and Balloons

Hot-air balloons are pushed by the wind. They fly slowly and are very quiet. Many balloons have fun and colorful designs.

Blimps are often used to film sporting events.

Riding in a blimp gives an amazing view.

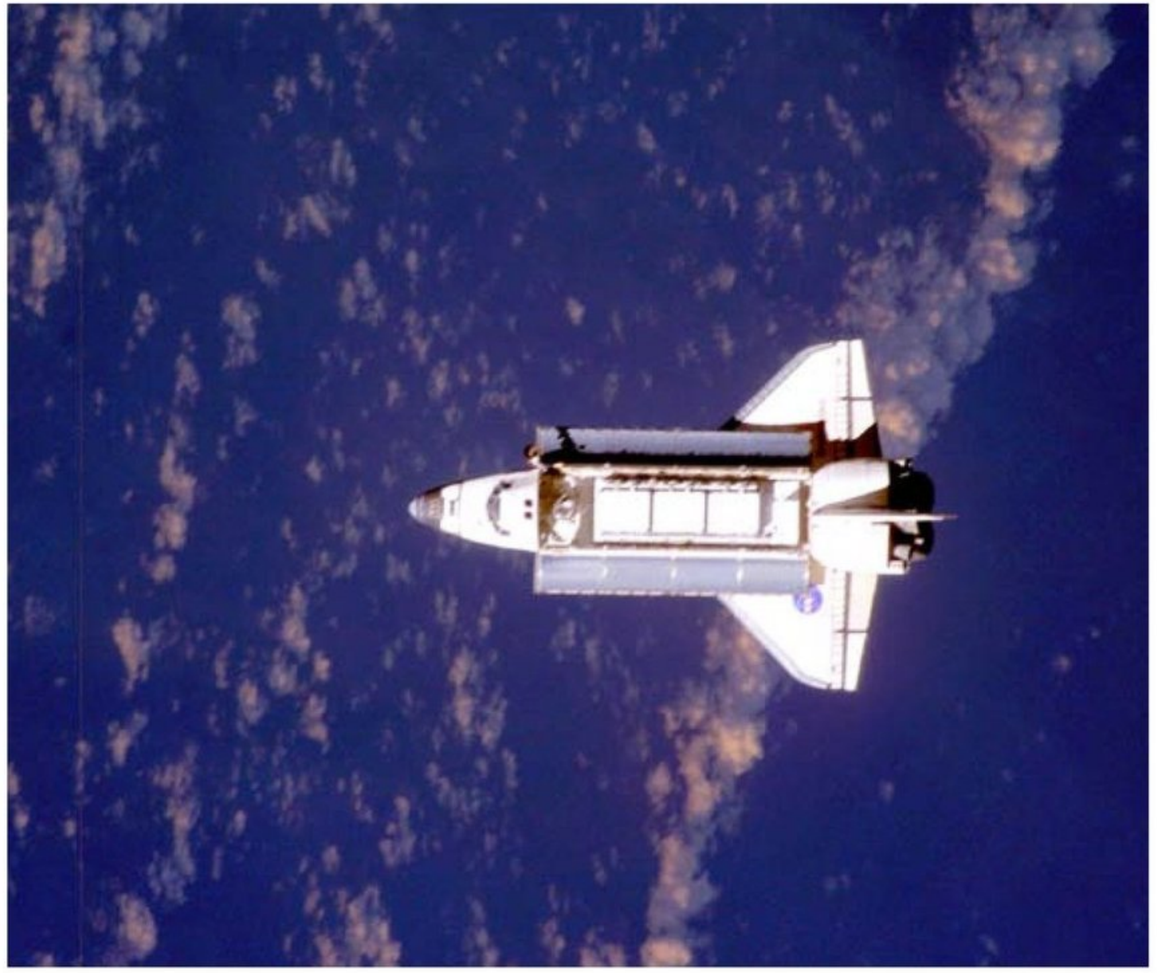
Most blimps have two small propeller engines.
Pilots steer them where they want to go.
Some blimps are used to take photos of sporting events.

Rockets and Spaceships

Powerful rockets work like big engines. Rocket engines force hot air and gas out the back to create thrust. Rockets helped people fly to the Moon and back.

The Saturn V rocket carried astronauts to the Moon.

A space shuttle uses rockets to lift off.



A space shuttle in orbit

A space shuttle rides a rocket into space. When it comes back to Earth, its wings let it land like an airplane.

Other Ways to Fly

Once, people only dreamed of flying like birds. Now, hang gliders drift on air. You can ride in a hot-air balloon. Airplanes fly everywhere. Where would you like to fly?

A hang glider soars over a beach.

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Front cover: The Proteus, a very high-flying observation airplane

Back cover: A military helicopter

Title page: The Lockheed Constellation, used to carry the U.S. president in the 1950s

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