



INVENTIONS THAT CHANGED THE WORLD

THE

AIRPLANE

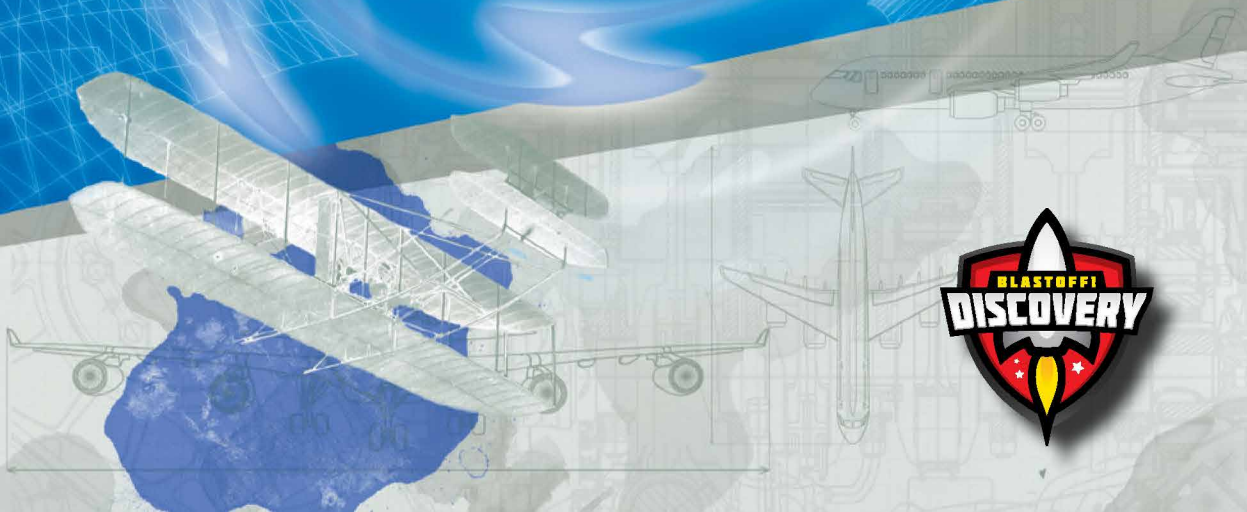




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FALLING INTO FIRE

Orange flames lick the treetops, and smoke billows into the air. Miles away, a firefighter watches as an air tanker dumps red foam over the forest to slow the flames.

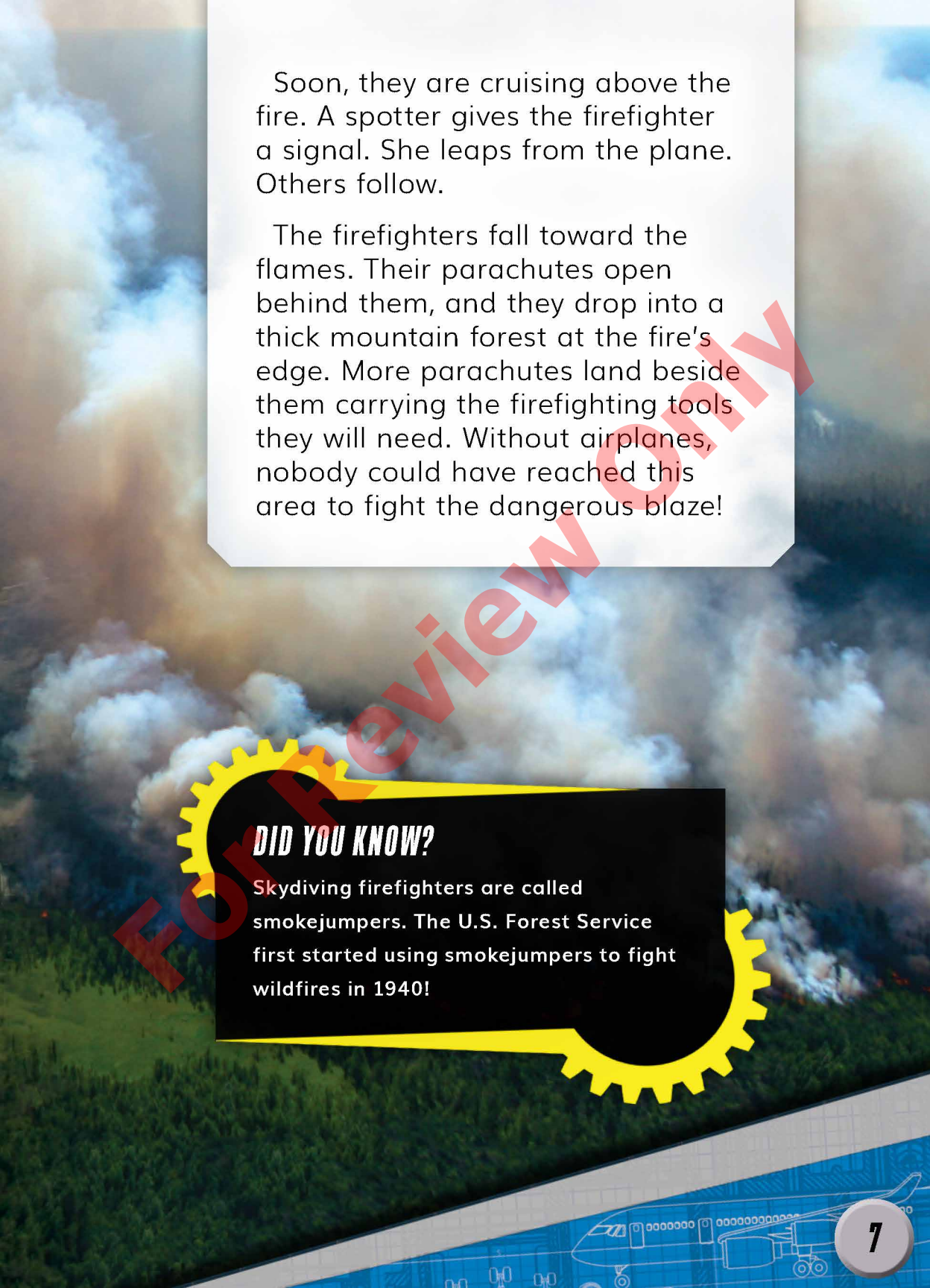




A siren sounds, and the firefighter pulls on her **parachute**, helmet, and other gear. She checks that everything is on tight. Then, she boards a small airplane with other firefighters. It is their turn to tackle the flames.



For Review Only



Soon, they are cruising above the fire. A spotter gives the firefighter a signal. She leaps from the plane. Others follow.

The firefighters fall toward the flames. Their parachutes open behind them, and they drop into a thick mountain forest at the fire's edge. More parachutes land beside them carrying the firefighting tools they will need. Without airplanes, nobody could have reached this area to fight the dangerous blaze!

DID YOU KNOW?

Skydiving firefighters are called smokejumpers. The U.S. Forest Service first started using smokejumpers to fight wildfires in 1940!

FIRST IN FLIGHT

People have studied human flight for centuries. Early flying machines had flapping wings like birds. In the 1400s, Leonardo da Vinci drew plans for one of these **ornithopters**. But they were unsuccessful.

Leonardo da Vinci's
ornithopter





Otto Lilienthal

By 1800, British inventor George Cayley suggested fixed wings for flying machines. His **aerodynamics** research led to new designs throughout the century. Otto Lilienthal created an aerodynamic wing design. Later, Samuel Langley created the aerodrome. It was the first self-powered flying machine!

AIRPLANE TIMELINE

1505

Leonardo da Vinci designs a flying machine based on birds' wings



1903

The Wright brothers' Flyer I completes the first-ever powered, controlled, and piloted flight



1914

The first commercial flight travels between Tampa and St. Petersburg, Florida



1804

Sir George Cayley is the first to successfully build and test a glider



1908

The Wrights' Flyer III carries the first passenger



1929

The first flight using only instruments for guidance is made

1969

The spacecraft Apollo 11 reaches the moon

2019-

Future developments

2013

Airplane powered by solar energy flies across the United States

1939

Germany's Heinkel He 178 introduces the jet engine