

Springboard^{into} Comprehension 5

Main Idea
Plagues
Coral Reefs

Compare and Contrast **Air, Land, and Water Transport – Then and Now**

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Defying Gravity

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Information Report

Air, Land, and Water Transport

Then and Now



Written by Vaishali Batra

Air, Land, and Water Transport

Then and Now

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Introduction

Do you walk to school? Do you ride in a car or a bus, or on a bicycle? If you use any kind of machine, or animal, to move you around, you are using transport.

For thousands of years, people have been finding better and faster ways than walking to get from one place to another. They have come up with many different ways to move people and goods over land and water, and through the air. Over time, people have improved old methods of transport. They have also invented new methods of transport.

In prehistoric times, people usually walked from one place to another. They carried goods on their back or head. Then, they began to use animals to haul goods. Eventually, people built ships. These ships used the power of the wind to move through the water. Later, during the late 1700s and early 1800s, people invented the first engine-powered vehicles.



The horse was an early method of transport, allowing people to move faster than they could on foot.

The car is a more modern method, serving the same purpose.



Today, many people still walk from one place to another. Some people still carry goods on their back or head. Some people still use animals to haul goods, too. Most people, however, use engine-powered transport. For example, people use motor vehicles and trains to haul goods.

Today, people still build ships. Some of these ships use the power of the wind. However, most ships are engine-powered. Today, jet aircraft carry people through the skies at speeds that were unthinkable 100 years ago.

In some ways, modern engine-powered transport has more advantages than many early forms of transport. Engine-powered transport is usually faster and more dependable, and can carry greater loads.

However, unlike many of the earlier forms of transport, modern engine-powered transport is more costly. It needs large amounts of fuel. It also needs additional facilities, such as roads, airports, train stations, docks, and ports.



An early ship needed nothing more than the wind to move.



A modern ship needs to burn fuel to move.

Early Aircraft and Modern Aircraft

Today, modern aircraft can fly across the world in a day. This was impossible for early aircraft, which were much slower and could not fly as far before needing to land.

Many early aircraft used a device with rotating blades, or **propeller**, to fly through the air. An engine drove the propeller. When a propeller turns in the air, it drives the aircraft along. Large modern aircraft have different, more powerful engines. Air enters the engine and is compressed by a fan. The compressed air is mixed with fuel.

The burning fuel produces very hot gases that shoot out the back of the aircraft and push it forwards. An engine like this is called a **jet engine**.

Like modern jet aircraft, early propeller aircraft carried passengers. However, propeller aircraft were smaller. During the 1930s, propeller aircraft could take only about 20 passengers. In comparison, modern jet aircraft are larger. They can carry up to about 550 passengers. Early propeller aircraft could not fly at the same speeds as modern jet aircraft, either.

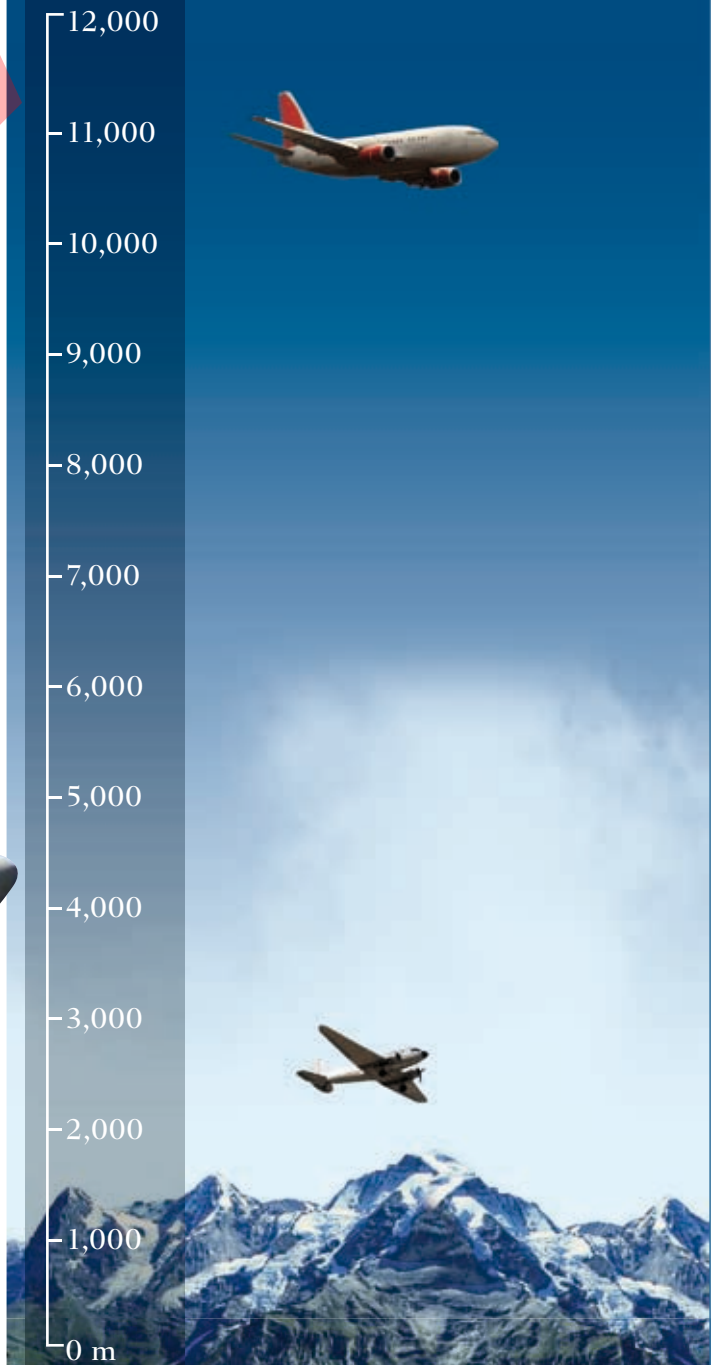
The jet engines are seen under the wings of this modern aircraft.



The blades of the propeller are seen on the nose of this early aircraft.

Propeller aircraft could **not** fly as high as modern jet aircraft. During the 1940s, commercial propeller aircraft **never** flew higher than **about** 3,000 m. This is because air **pressure** is lower at high **altitudes**. Low air pressure means there **is** not enough oxygen for the passengers and pilot. Propeller aircraft had to fly at low altitudes. Unfortunately, the air is very bumpy at low altitudes. This was frightening, and made passengers airsick.

How High Do They Fly?



By contrast, modern jet aircraft use technology that keeps air pressure inside at normal levels. This is called **cabin pressurization**. Cabin pressurization allows modern aircraft to fly higher than early propeller aircraft. They can fly at high altitudes where the air is less bumpy. Unlike early passengers, modern passengers do not usually get airsick.

Early propeller aircraft were noisy. The noise came from the aircraft's engine. Passengers could feel the vibrations from the engine. The aircraft had no air conditioning and little heating. During the summer, the aircraft were hot. During the winter, the aircraft were cold. This made a journey in an early propeller aircraft uncomfortable for passengers.



A modern aircraft is more comfortable for pilots.



Jet engines are also noisy. However, modern jet aircraft cabins are soundproofed. Passengers on modern jet aircraft also enjoy other comforts. The cabins have air conditioning. The journey is smoother and quieter. In addition, passengers enjoy meals, music, and movies while they travel. This makes a journey in a modern jet aircraft more comfortable than a journey in an early propeller aircraft.

Early aircraft travel was very expensive and few people could afford it. Today, aircraft travel is still expensive. Compared to the past, though, it is more affordable. Hundreds of thousands of people travel by air.

In the past, there were fewer aircraft in the skies. Air traffic controllers did not need to be in constant communication with the aircraft. Today, controllers use electronic systems such as radar to monitor at all times the huge numbers of aircraft sharing the skies.

A modern aircraft is also more comfortable for passengers.

