

Introduction to Flying





Lesson 1 History of Flight

Listening 1 Early days of flying

1. Listen to a story and write the numbers 1-10 next to the words a to j to show the order in which you hear them.

- a. airships
- b. flying machines
- c. gliders
- d. accident
- e. wings
- f. mythology
- g. experimenting
- h. ballooning
- i. lighter-than-air
- j. propeller

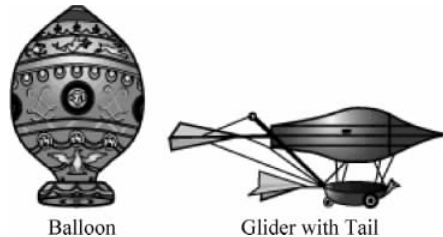


Figure 1.1 Ancient Flying

2. Listen to it again, and fill in the missing information.

Time	People	Works
	Daedalus & Icarus	
in the 15 th century		
	Montgolfier Brothers	
in the 19 th century	Otto Lilienthal	
on the 17 th December, 1903		

Listening 2 The Wright Brothers

1. Listen to the tape, and complete the passage.

The Wright Brothers spent (1) _____ in flight. They noticed that birds soared into the wind and that the (2) _____ the curved surface of their wings (3) _____. Birds change the shape of their wings to (4) _____. They believed that they could use this technique to (5) _____ by warping, or changing the shape, of a portion of the wing. Over the next three years, Wilbur and his brother Orville would design a series of (6) _____ which would be flown in (7) _____ flights. They recognized that (8) _____ would be the most crucial and hardest problem to solve. In 1900, the Wrights successfully tested their new 50-pound (9) _____ glider with its 17-foot (10) _____ and wing-warping mechanism at Kitty Hawk, in both unmanned and piloted flights. In fact, it was the first piloted glider. Based upon the results, the Wright Brothers planned to (11) _____, and build a bigger glideor.



Figure 1.2 The Wright Brothers

2. Work in a group, and discuss the following question.

What kinds of difficulties would the Wright brothers meet in inventing a manned flyer?



3. Listen to the tape, and answer the questions.

(1) What are the problems that occurred when they flew the glider in 1901?

wings	lifting power	forward elevator
controlling the pitch	wing-warping mechanism	spin out of control

(2) How did they solve these problems?



wind tunnel	wing shapes	glider	32-foot wingspan
tail	stabilize		

(3) What are the new elements of the flyer which weighted 700 pounds?

motor	accommodate	weight and vibrations
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(4) Why did they build a movable track?

downhill track	airspeed
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(5) What was the flight record made by the flyer?

sustained flight	piloted flight
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Listening 3 The first flight

Listen to the tape, and take notes about the four trips.

Four trips			
	<i>Time</i>	<i>Pilot</i>	<i>What happened?</i>
First trip			
Second trip			
Third trip			
Fourth trip			

Key terms

aircraft
 airship
 airspeed

coordinate
 crash
 curved surface



elevator
glide
hydrogen gas
landing gear
maneuver
pilot
pitch
propeller-driven plane
roll control

skid
spin
out of control
steam-powered
wingspan
tail
stabilize
motor
vibration

Lesson 2 Aircraft Types and Categories

Listening 1 Boeing Family

1. Complete the missing information.



**Boeing Family**

Product	Size	Seating capacity	Engine number	Maximum range
Boeing 737	mid-size narrow-body		twin-engine	
Boeing 747		around 400		up to 7 670 nautical miles
Boeing 757	mid-size, narrow-body		twin-engine	
Boeing 767		181 to 375	twin-engine	
Boeing 777	wide-body			
Boeing 787			twin-engine	8 500 nautical miles

2. Write T if the statement agrees with the information, and F if the statement contradicts the information.

(1) The 787's design features lighter-weight construction with the choice of Aluminum as usual.

(2) For the engines and fasteners, Boeing 787 applies the material of titanium and steel.

(3) The special design for the external features points to the engine nacelles with noise-reducing serrated edges and the planar wingtips.

(4) The most notable contribution to efficiency is applying electrically powered compressors and pumps.

(5) Another ideal design is to mix the wing ice protection system that uses electro-thermal heater mats with the hot bleed air together efficiently.

(6) We have got two head-up displays (HUDs) in the cockpit of Boeing 787.

(7) Like other Airbus airliners, the 787 will use a side-stick as a new try.

(8) The airplane's control, navigation, and communication systems are networked with the passenger cabin's in-flight internet systems.

(9) Passengers could get access into these systems when emergency situation happens.

(10) In order to prevent data transfer, the design contains the air gaps and firewalls.



Figure 2.1 The Boeing 787 cockpit



Listening 2 Airbus Family

1. Fill in the blanks.

The advanced Airbus product line incorporates a high degree of commonality between family members.

The Airbus A300 was the first aircraft developed, manufactured and marketed by Airbus. In _____ the “A300” label began to be applied to a proposed seat, _____.

The A320 is a _____ range twin-engine subsonic _____ transport aircraft introduced as the first _____ aircraft to the Airbus family. The _____ varies between about _____ and _____ passengers.

The A330 is a third-generation, twin-engine _____ aircraft with typically 335 seats in a two-class arrangement. It offers a range of _____ nautical miles with a full complement of _____.

The A380 is a _____ (VLR), subsonic, civil transport aircraft. The A380 has a full-length _____ fuselage. The two passenger decks are referred to as the main and upper deck. Both decks are connected by _____ and _____. The _____ is located between these two decks. Airbus is in tight competition with Boeing every year for aircraft orders. A380, for example, is designed to be larger than the 747.

2. Complete the aircraft profile.

Aircraft profile

- First flight Time: _____
Place: _____
- Served with: _____
- Two-version description: _____
- Control system: _____



Figure 2.2 The first completed A380 at the “A380 Reveal” event



Listening 3 Ultralight Vehicles and Light Sport Aircraft

1. Please give the definition of ultralight vehicles.

Ultralight Vehicles:

recreational	knots	level flight	gallons
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Figure 2.3 A typical ultralight vehicle, which weighs less than 254 pounds.

2. List the basic series of Light Sport Aircraft.

Light Sport Aircraft (LSA)	Gyroplane	Weight-Shift Control	Glider
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Figure 2.4 Gyroplane

Key terms

airliner

cargo

body width

cabin



configuration	jetliner
category	knot
deck	parachute
freighter	privilege
fuselage	subsonic
galley	ultralight
gyroplane	vehicle
in tandem with	gallon
jet	wing-mounted

Lesson 3 Air Law and Airspace

Listening 1 Federal Aviation Administration (FAA)

1. Give the definition of FAA.

FAA: _____



Figure 3.1 Seal of the Federal Aviation

2. Fill in the blanks.

The Federal Aviation Administration's major roles include:

Regulating U. S. (1) _____ space transportation;

Regulating air (2) _____ facilities' geometry and flight inspection standards;

Encouraging and developing civil (3) _____, including new aviation technology;

Issuing, suspending, or revoking (4) _____;

Regulating (5) _____ to promote safety, especially through local offices called Flight Standards District Offices;

Developing and operating a system of (6) _____ and navigation for both civil and (7) _____ aircraft;

Researching and developing the National Airspace System and civil aeronautics;

Developing and (8) _____ programs to control aircraft noise and other environmental effects of civil aviation.



Listening 2 Federal Aviation Regulations (FARs)

1. Match the words 1-10 with the definitions a-j.

- | | |
|--------------------|---|
| (1) certificate | a. document, or agreement is legally or officially acceptable |
| (2) command | b. a special advantage that is given only to one person or a group of people |
| (3) valid | c. someone's ability to do something |
| (4) issue | d. official permission to do something, or the document giving this permission |
| (5) privilege | e. an official paper stating that you have completed study or passed an examination |
| (6) territory | f. be easy to reach or get into |
| (7) identification | g. give document or things to people by government officially |
| (8) authorization | h. to control something |
| (9) capacity | i. land that is owned or controlled by a particular country, ruler, or military force |
| (10) accessible | j. official papers or cards that prove who you are |

2. Give the definition of FAR.

FAR: _____

3. Answer the questions.

(1) List the pilot certificates.

TYPE1 _____
TYPE2 _____
TYPE3 _____



Figure 3.2 Pilot Certificate

(2) Fill in the blanks.

For TYPE1, experience requirements include at least _____, including _____ of flight with an instructor and _____.