



Air Activities Badge



Requirement 3

Main Parts of an Aircraft

The Leader or a Cub Scout for a detailed explanation of the main parts of an aircraft may use this briefing sheet.

(This activity briefing is for Badge Requirement 3 c.)

AILERON	The ailerons are joined by wires, so that when one goes up, the other goes down. Moving them makes one wing rise and the other drop.
COCKPIT	The pilot's compartment of an aircraft, also called the cabin.
ELEVATORS	A typical aircraft is guided and steered by three main sets of control surfaces, a rudder, two elevators on the tailplane, and two ailerons on the wings. Elevators tilt upward to make the plane ascend; elevators tilt downward to make the plane descend.
ENGINE	A machine that uses heat energy to develop mechanical power.
FLAPS	Most large aircraft have extra movable parts called flaps on their wings. Flaps are used during takeoff to produce extra lift with low drag. When landing the aircraft, flaps are used to produce extra lift with extra drag.
FUSELAGE	The "body" of the airplane. The body of a Jet Airliner is built from hundreds of metal struts, circular hoops and lengthwise stringers. These are covered with a "skin" of lightweight metal such as aluminium. In many jets, the passengers' seats are in the top part, with the area below used for storage.
LANDING GEAR	The wheels, floats, skis, and all of the attachments, which support the airplane when it is resting on the ground or water.
PROPELLER	The first aircraft propellers were made from wood, but as aircraft became faster they had to be replaced with stronger materials such as steel. A propeller is used to propel the aircraft forward. As the propeller turns, its blades pull air in from the front and push it out the back. At the same time, these blades also work like spinning wings, because they have an airfoil shape. Instead of lifting upward, however, they thrust the aircraft forward.
RUDDER	The movable vertical control surface used to rotate the airplane about its vertical axis. Moving the rudder to the right turns the aircraft's nose to the right. Moving it to the left turns the nose to the left.
TAIL WING	The combination of the rudder, elevator and fixed horizontal and vertical stabilizing surfaces.
	Most aircraft are heavier than air and can fly only because they have wings. Wings are curved more above than below, this special shape is called an airfoil. Airfoils are important because an upward force called lift is created by the way air flows around them. Winged aircraft can only fly when there is enough lift to overcome their weight. In addition, they must be moving fast enough to create lift by keeping air flowing past the wings.

