



Aviation Merit Badge Worksheet

This workbook can help you but you still need to read the merit badge pamphlet. The work space provided for each requirement should be used by the Scout to make notes for discussing the item with his counselor, not for providing the full and complete answers. Each Scout must do each requirement. No one may add or subtract from the official requirements found in **Boy Scout Requirements** (Pub. 33216 – SKU 34765). The requirements were last issued or revised in 2007 • This workbook was updated in June 2012.

Scout's Name: _____
Unit Number: _____

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*****Complete all required Fields before the Event. Please do requirements 1a,b,c,d,e 2d and 5 at Home. This must be completed before the event and signed off by your Scout Master. Scout must bring this completed sheet and blue card to Event for Merit Badge Credit.*****

- 1. Do the following:
 - a. Define "aircraft."

Describe some kinds and uses of aircraft today.
Kind: Uses:

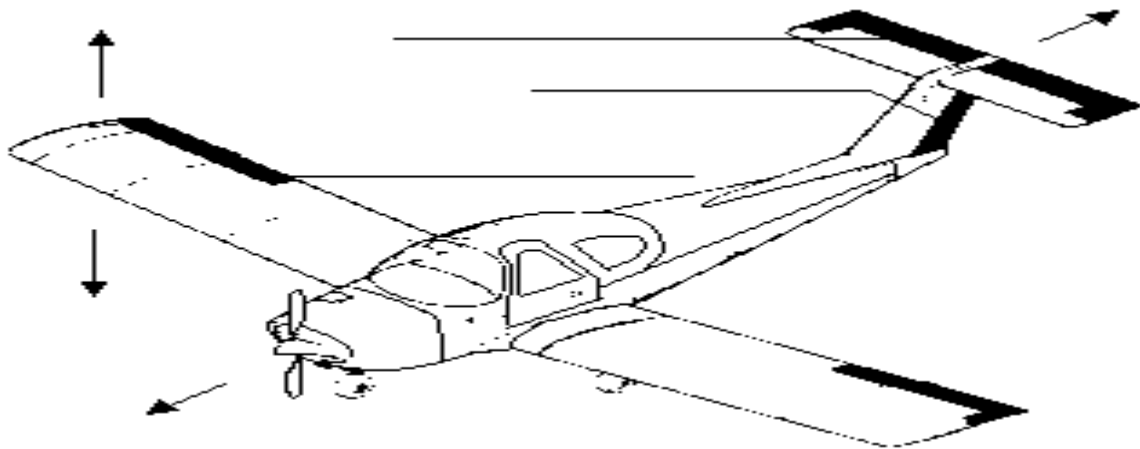
Explain the operation of piston, turboprop, and jet engines.

Piston:

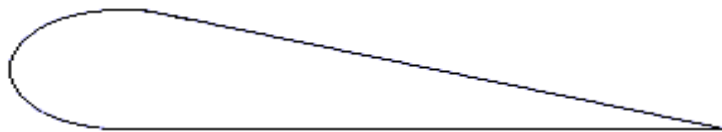
Turboprop:

Jet:

b. Point out on a model airplane the forces that act on an airplane in flight.



c. Explain how an airfoil generates lift, how the primary control surfaces (ailerons, elevators, and rudder) affect the airplane's attitude, and how a propeller produces thrust.



Airfoil:

Ailerons:

Elevators:

Rudder:

Propeller:

d. Demonstrate how the control surfaces of an airplane are used for takeoff, straight climb, level turn, climbing turn, descending turn, straight descent, and landing.

	Ailerons	Elevators	Rudder	Flaps
Takeoff				
Straight climb				
Level turn				
Climbing turn				
Descending turn				
Straight descent				
Landing				

e. Explain the following: recreational pilot and the private pilot certificates; the instrument rating.
Recreational pilot certificate:

Private pilot certificate:

Instrument rating:

2. Do two of the following:

a. Under supervision, perform a preflight inspection of a light airplane. (Done at Event)

b. Obtain and learn how to read an aeronautical chart. (done at Event)

Measure a true course on the chart.

Correct it for magnetic variation, compass deviation, and wind drift.

Arrive at a compass heading.

c. Using one of many flight simulator software packages available for computers, "fly" the course and heading course you have plotted.

d. Explain the purposes and functions of the various instruments found in a typical single-engine aircraft: attitude indicator, heading indicator, altimeter, airspeed indicator, turn and bank indicator, vertical speed indicator, compass, navigation (GPS and VOR) communication radios, tachometer, oil pressure gauge, and oil temperature gauge.

Attitude indicator:

Heading indicator:

Altimeter:

Airspeed indicator:

Turn and bank indicator:

Vertical speed indicator:

Compass:

Navigation (GPS and VOR):

Communication radios:

Tachometer:

Oil pressure gauge:

Oil temperature gauge:

3. Do the following:

.(Done at Event) Build a model FPG-9. Get others in your troop or patrol to make their own model, then organize a competition to test the precision of flight and landing of the models.

Tell safety rules for use of glue, paint, dope, plastics, fuel, and battery pack.

4. Do the following: (Done at Event)

a. Visit an airport. After the visit, report on how the facilities are used, how runways are numbered, and how runways are determined to be "active."

Martin State Airport

How the facilities are used

How runways are numbered,

How runways are determined to be "active."

5. Find out about three career opportunities in aviation.

1. _____

2. _____

3. _____

*Pick one and find out the education, training, and experience required for this profession.

Education:

Training:

Experience:

Discuss this with your counselor, and explain why this profession might interest you.
