

AVIATION MERIT BADGE WORKSHEET

Based off the 2023 BSA Aviation Merit Badge Book. [Omits 2b Preflight, 3a R/C build & fly, 4b FAA facility.]
“Always check www.scouting.org for the latest requirements” and always consult your Troop leaders/counselors!
**extra* not required for this course, but encouraged*

Name _____

Date _____

Troop (Unit) _____

Counselor’s Information _____

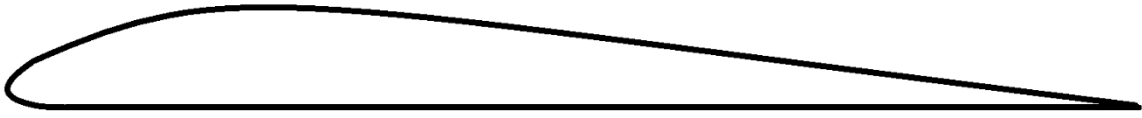
1) Do [all] of the following:

1a) Define “aircraft” _____

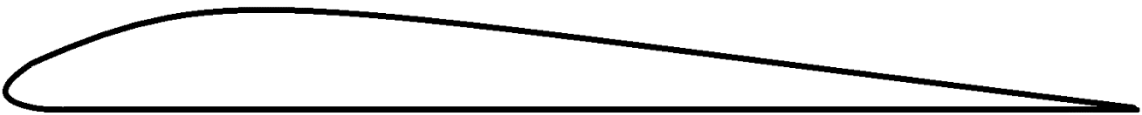
Describe some kinds and their uses:

1c) Explain how an airfoil generates lift

First, draw the air flowing around the airfoil:

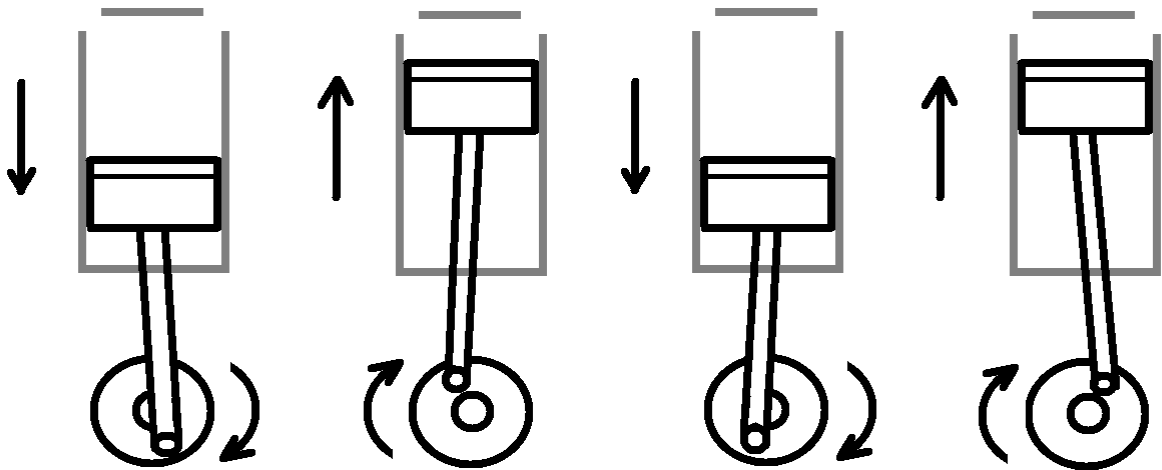


Now, draw the air flow direction, and the two forces acting on the airfoil:



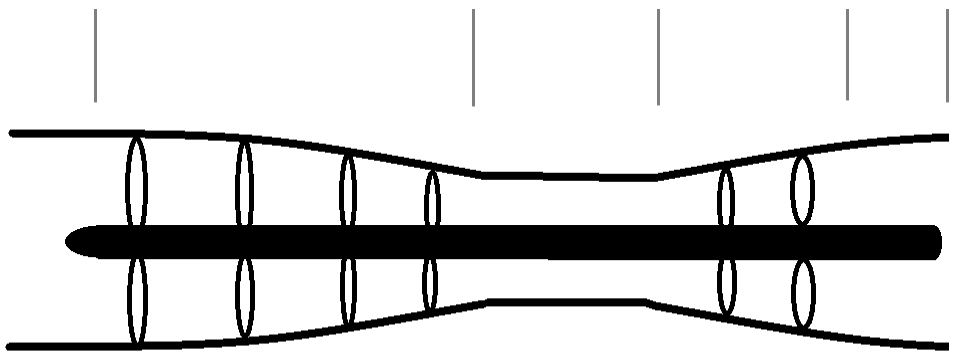
1a continued) Explain the operation of piston, jet, and turboprop engines.

Piston:



1c continued) How does a propeller produce thrust? _____

Jet:



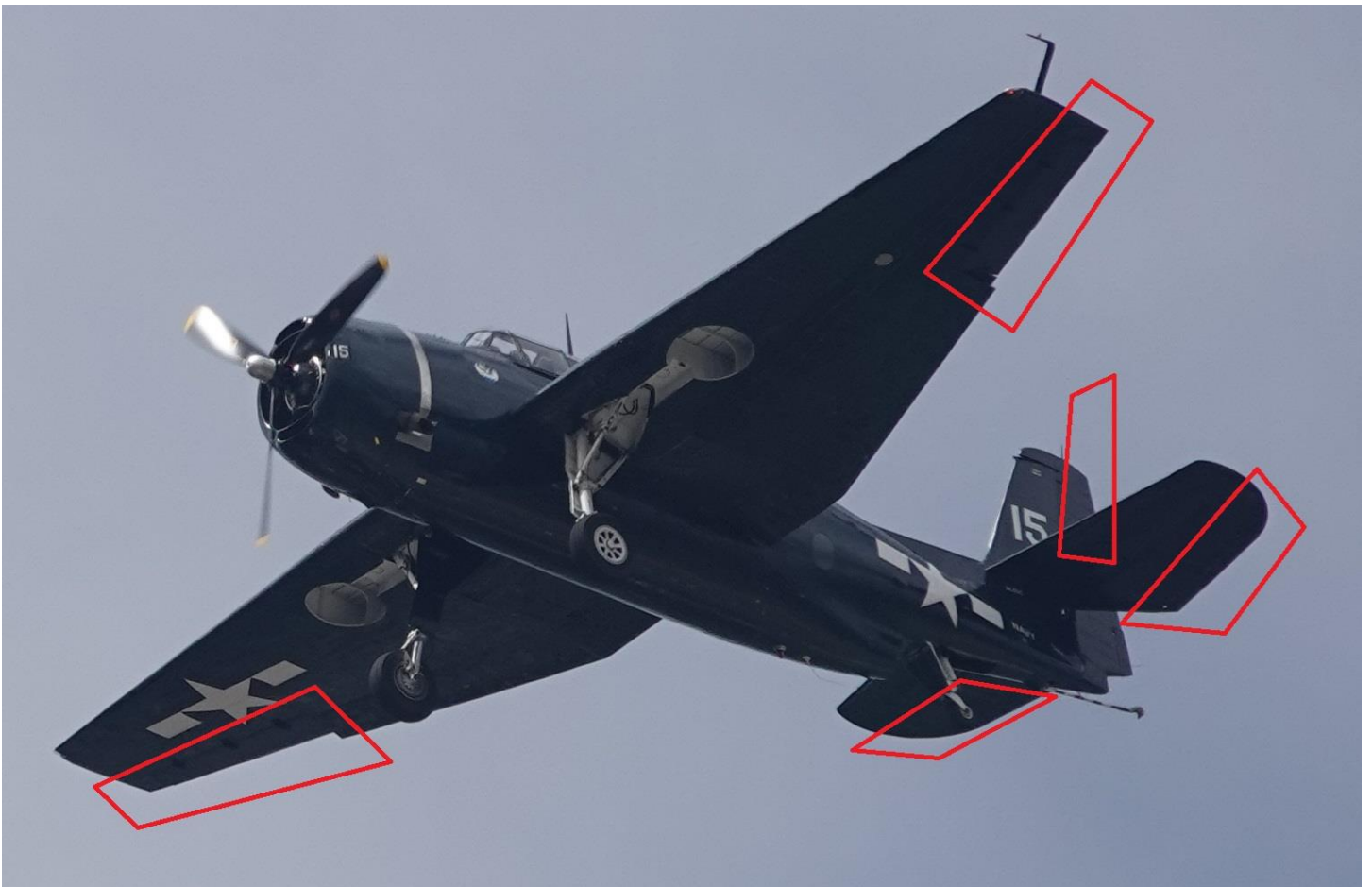
Turboprop:

1b) Point out on a model airplane the forces that act on an airplane in flight.



1c continued) Explain how the primary control surfaces affect the airplane's attitude

Ailerons	
Elevators	
Rudder	



1d) Demonstrate how the control surfaces of an airplane are used for the following conditions:

Flight Conditions:	Control Surfaces:		
	Ailerons	Elevators	Rudder
Takeoff			
Straight Climb			
Level Turn			
Climbing Turn			
Descending Turn			
Straight Descent			
Landing			

1e) Explain these certificates/ratings:

Sport Pilot	
Recreation Pilot	
Private Pilot	
Instrument Rating	



2) Do TWO of the following:

2a) *extra* Take a flight in an aircraft, with your parent's permission . Record the date, place, type of aircraft, and duration flight, and report on your impressions.

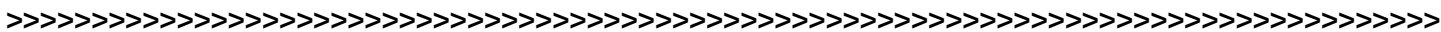
2c) *extra* Obtain and learn how to read an aeronautical chart. Measure a true course on the chart. Correct it for magnetic variation, compass deviation, and wind drift to determine a compass heading.

	Definition/Use
Aeronautical Chart	
True Course	
Magnetic Variation	
Compass Deviation	
Wind Drift	

2d) Using one of may flight simulator software packages available for computers, fly the course and heading you established in 2c or another course you have plotted.

4a) 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.”

4c) Visit an aviation museum or attend an air show. Report on your impressions of the museum or show.



5) Find out about three career opportunities in aviation. Pick one and find out the education, training, and experiences required for this profession. Discuss this with your counselor, and explain why this profession might interest you.

#1 _____

#2 _____

Requirements for Profession

Education

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Training

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Experience

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