

# Aviation Merit Badge Worksheet

## Hiller Aviation Museum

This workbook is not required but is designed to help you complete the Aviation Merit Badge requirements. No one can add to or subtract from the Boy Scout Requirements #33216. Requirements effective 1 January 2014. Worksheet updated September 2014

The Hiller Aviation Museum program addresses sufficient requirements to complete the Aviation Merit Badge. Only those requirements included in the Hiller Aviation Museum program are included, and are referenced by number and letter. Other requirements may be used to meet BSA requirements for the Aviation badge, but are not included on this worksheet.

Scout's Name: \_\_\_\_\_

Unit: \_\_\_\_\_

Counselor: \_\_\_\_\_

Hiller Aviation Museum  
(650) 654-0200

1. Do the following:

**A: Define "Aircraft"**

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Describe some kinds of aircraft and their uses.

**Aircraft Type**

**Uses**

|       |       |
|-------|-------|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

Explain the operation of three different types of aircraft engines.

PISTON: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

TURBOPROP: \_\_\_\_\_

\_\_\_\_\_

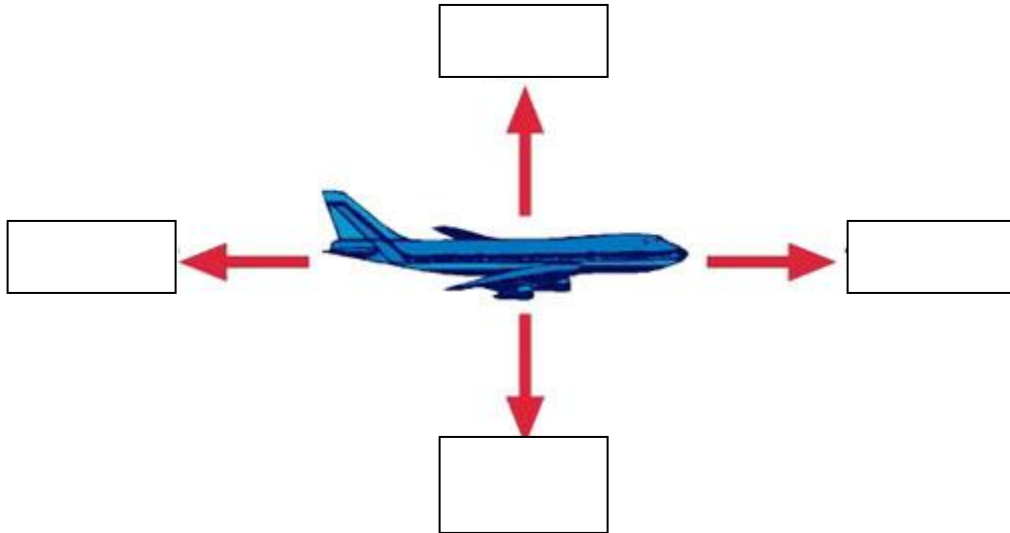
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JET: \_\_\_\_\_

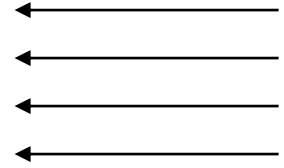
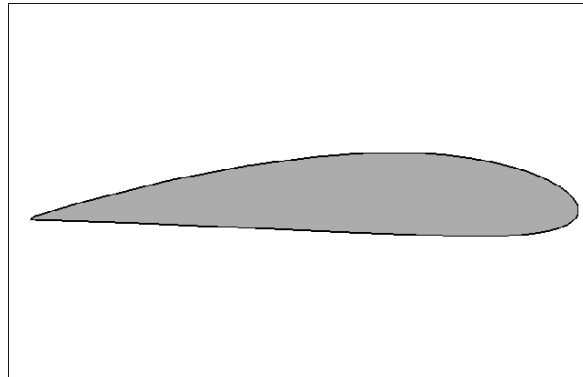
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\_\_\_\_\_

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



C: Explain how an airfoil generates lift.



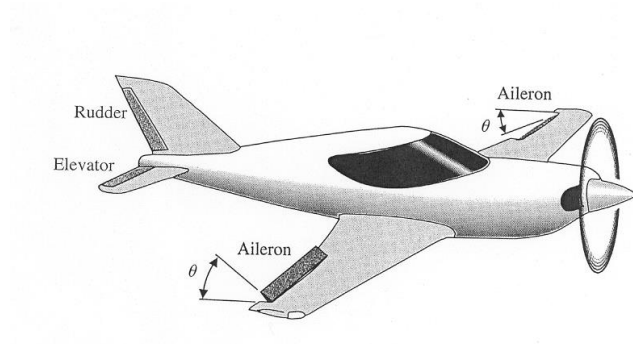
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Explain how the primary control surfaces (ailerons, elevators and rudder) affect the airplane's attitude.



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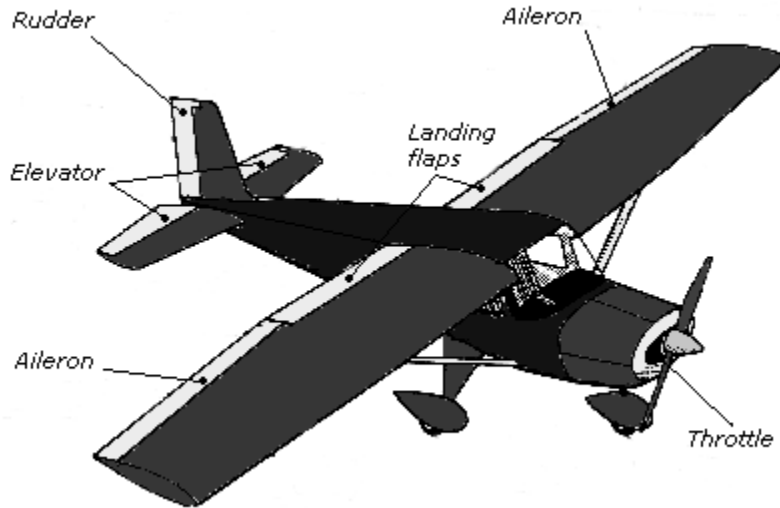
Explain how an airplane's propeller produces thrust.

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**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.**



| Maneuver         | Ailerons | Elevator | Rudder |
|------------------|----------|----------|--------|
| Takeoff          |          |          |        |
| Straight Climb   |          |          |        |
| Level Turn       |          |          |        |
| Climbing Turn    |          |          |        |
| Descending Turn  |          |          |        |
| Straight Descent |          |          |        |
| Landing          |          |          |        |

**E: Explain the following: the sport pilot, recreational pilot and private pilot certificates; instrument rating.**

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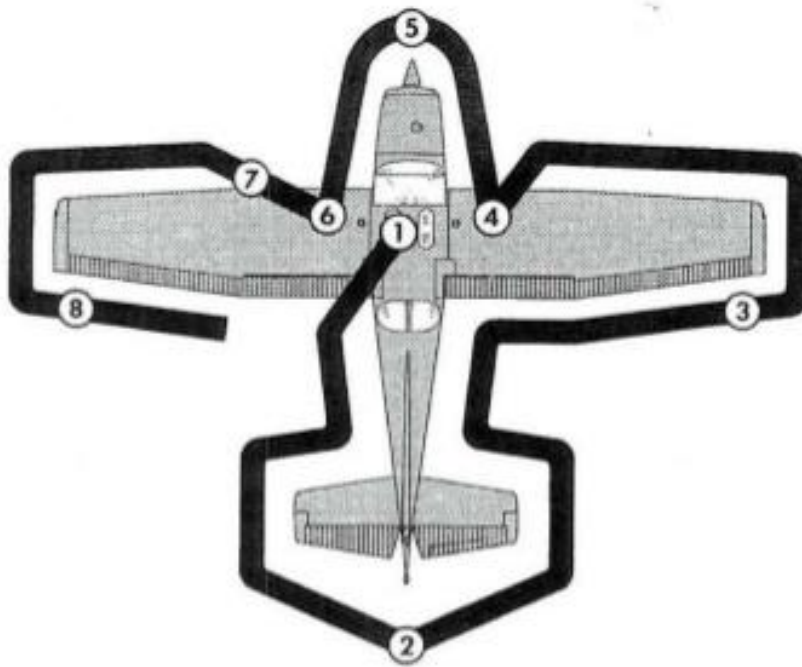
2. Do TWO of the following (only requirements completed at Hiller Museum shown):

B: Under supervision, perform a preflight inspection of a light airplane.

Hiller Aviation Museum Scouts will preflight a Cessna Cardinal.

SECTION 4  
NORMAL PROCEDURES

CESSNA  
MODEL 172N



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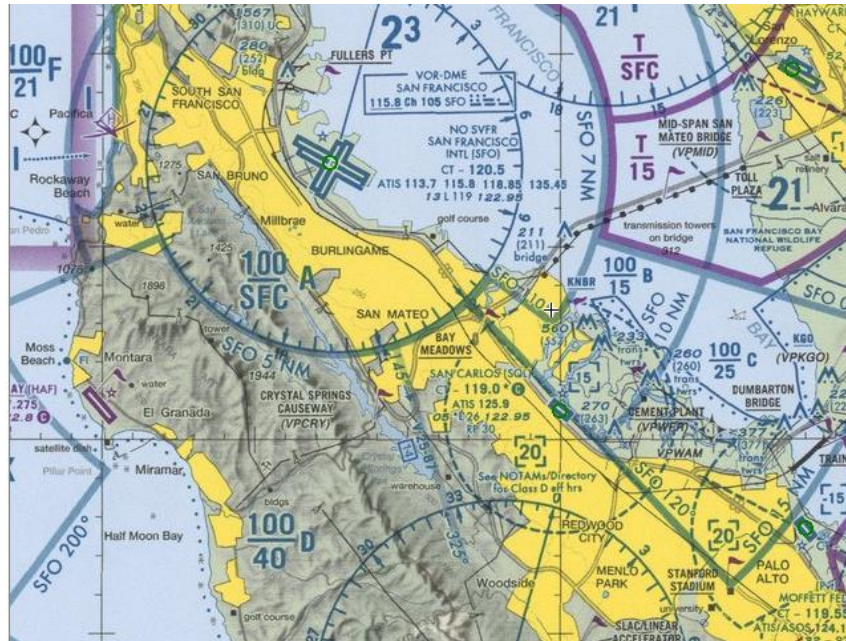
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**D: Using one of many flight simulator software packages available for computers, fly a course that you have plotted.**

Hiller Aviation Museum Scouts will use Microsoft Flight Simulator 9 to fly a Cessna 172 on a series of flights between San Carlos Airport (SQL) and San Francisco International Airport (SFO).



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**3. Do ONE of the following (only requirement completed at Hiller Museum shown):**

**B: 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.**

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**4. Do ONE of the following (only requirement completed at Hiller Museum shown):**

**C: Visit an aviation museum or attend an air show. Report on your impressions of the museum or air show.**

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5. Find out about three career opportunities in aviation.

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Pick one and find out the education, training and experience required for this profession. Discuss this with your counselor, and explain why this profession might interest you.

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