



Aviation Merit Badge Guide  
Winter Camp 2023  
Saturday, December 16, 2023, 8:30 a.m. to 3:00 p.m.  
at  
Goose Creek Airport  
2020 Lawyers Road  
Indian Trail, NC 28079  
704 614 3084

Airport website: <https://sites.google.com/avtechemail.com/goosecreekairport/home>

Here is a link to a Google map for finding Goose Creek Airport:  
<https://goo.gl/maps/5GNo63tn9gCsSfoR7>

**All Aviation Merit Badge Scouts should arrive at Goose Creek Airport by 8:30 a.m. All Scouts must bring their own food for lunches and snacks and water, blue cards, pen and paper, and written homework assignments. All Aviation Merit Badge Scouts should depart Goose Creek Airport by 3:00 p.m.**

If **Day Camper Scouts** traveling from home participate in **Aviation Merit Badge**, they should **NOT** come to Belk Scout Camp to check-in before going to Goose Creek Airport that morning. They should go directly from home to Goose Creek Airport to attend the Aviation Merit Badge class.

If **Overnight Camper Scouts** camping with their troops at Belk Scout Camp participate in **Aviation Merit Badge**, they must provide their own transportation to and from Belk Scout Camp.

**Day Camper Scouts** should have BSA Health and Medical Record forms Parts A, B1, and B2 with them and show them to the counselor but should keep these forms themselves and return home with them.

**All Aviation Merit Badge Scouts** must plan to depart from Goose Creek Airport by 3:00 p.m. to return home or back to Belk Scout Camp.

Mr. Tim Beavers, an airline pilot and registered merit badge counselor, will serve as Aviation Merit Badge Counselor.

## Requirements

[https://filestore.scouting.org/filestore/Merit\\_Badge\\_ReqandRes/Aviation.pdf](https://filestore.scouting.org/filestore/Merit_Badge_ReqandRes/Aviation.pdf)

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### 1. Do the following:

- a. Define “aircraft.” Describe some kinds and uses of aircraft today. Explain the operation of piston, turboprop, and jet engines.
- 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.
- 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.
- e. Explain the following: the sport pilot, the recreational pilot, and the private pilot certificates; the instrument rating.

### 2. Do TWO of the following:

- a. Take a flight in an aircraft, with your parent’s permission. Record the date, place, type of aircraft, and duration of flight, and report on your impressions of the flight.
- b. Under supervision, perform a preflight inspection of a light airplane.
- c. 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.
- d. Using one of many flight simulator software packages available for computers, “fly” the course and heading you established in requirement 2c or another course you have plotted.
- e. 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) and communication radios, tachometer, oil pressure gauge, and oil temperature gauge.
- f. Create an original poster of an aircraft instrument panel. Include and identify the instruments and radios discussed in requirement 2e.

### 3. Do ONE of the following:

- a. Build and fly a fuel-driven or battery-powered electric model airplane. Describe safety rules for building and flying model airplanes. Tell safety rules for use of glue, paint, dope, plastics, fuel, and battery pack.
- 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.

### 4. Do ONE of the following:

- 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.”
- b. Visit a Federal Aviation Administration facility—a control tower, terminal radar control facility, air route traffic control center, or Flight Standards District Office. (Phone directory listings are under U.S. Government Offices, Transportation Department,

Federal Aviation Administration. Call in advance.) Report on the operation and your impressions of the facility.

c. 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 experience required for this profession. Discuss this with your counselor, and explain why this profession might interest you.)

### **Homework for all Merit Badges before class:**

Please read the Merit Badge Homework Guide.

Please read the BSA merit badge book.

### **Homework for Aviation Merit Badge before class:**

Mr. Tim Beavers, the Merit Badge Counselor, has posted this document

<https://docs.google.com/document/d/1VVQNSfx-PDrVzsvlWSiN7qYZoQ7Y240YjMChYA17mWWM/edit>

for all Scouts to read and to study before class.

Optional homework before class:

Scouts may review Aviation Merit Badge PowerPoint presentation or pdf files for learning and teaching posted at

[http://bsa344.com/Troop\\_Programs.html](http://bsa344.com/Troop_Programs.html)

**Requirement 1 acde:** Please write out answers.

**Requirement 2:** Scouts will complete **part b** during their visit to Goose Creek Airport. Scouts should write out definitions of each item in **part e**.

**Requirement 3 b:** Scouts will build a model during class to complete this requirement.

**Requirement 4 a:** The course will take place at Goose Creek Airport, qualifying Scouts for completion of this requirement.

**Requirement 5:** Please research and write out information about 3 career opportunities to review with your merit badge counselor during class. Please consider education and training opportunities and their durations and costs, certification requirements, starting salaries, and career paths.