

AVIATION MERIT BADGE WORKBOOK

This Scoutmaster Bucky Merit Badge Workbook is based off the current *Scouts BSA Requirements*.

Consider also using the Aviation merit badge class preparation page for clarification and expectations when participating in a Scoutmaster Bucky merit badge opportunity ([online](#) or [in-person](#)).

<https://scoutmasterbucky.com/merit-badges/aviation/>

Scout's
Name:

REQUIREMENT 1: Do the following:

REQUIREMENT 1 A: Define "aircraft." Describe some kinds and uses of aircraft today. Explain the operation of piston, turboprop, and jet engines.

Define "aircraft."

Describe some kinds and uses of aircraft today

Explain the operation of piston engines

Explain the operation of turboprop engines

Explain the operation of jet engines

REQUIREMENT 1 B: Point out on a model airplane the forces that act on an airplane in flight.

REQUIREMENT 1 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.

How an airfoil generates lift

How the primary control surfaces affect the airplane's attitude

How a propeller produces thrust

REQUIREMENT 1 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.

Completed

REQUIREMENT 1 E: Explain the following: the sport pilot, the recreational pilot, and the private pilot certificates; the instrument rating.

Explain the sport pilot certificate

Explain the recreational pilot certificate

Explain the private pilot certificate

Explain the instrument rating

REQUIREMENT 2: Do TWO of the following:

REQUIREMENT 2 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.

REQUIREMENT 2 B: Under supervision, perform a preflight inspection of a light airplane.

Completed

REQUIREMENT 2 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.

Completed

REQUIREMENT 2 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.

Completed

REQUIREMENT 2 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.

Attitude indicator

Heading indicator

Altimeter

Airspeed indicator

Turn and bank indicator

Vertical speed indicator

Compass

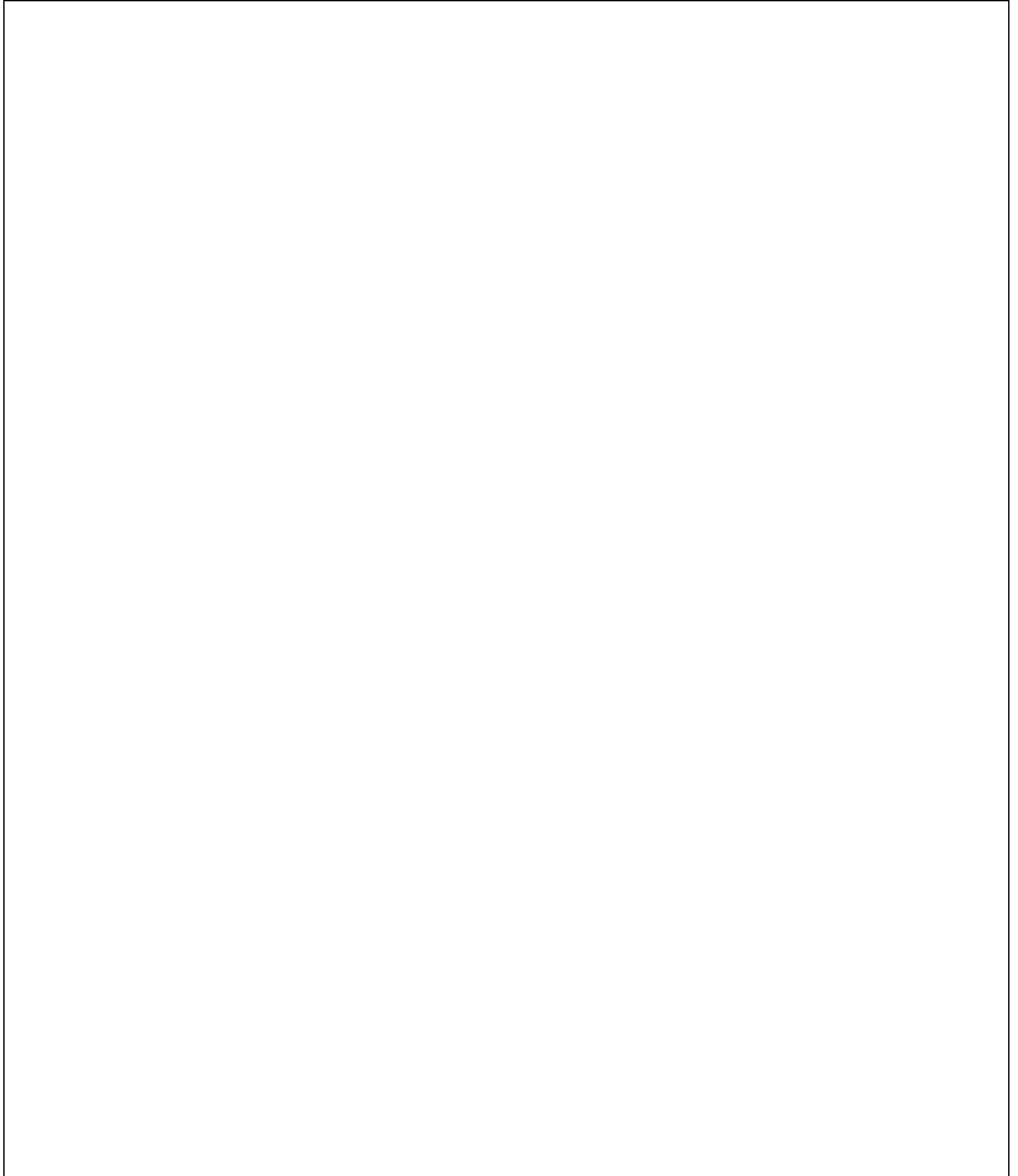
Navigation (GPS and VOR) and communication radios

Tachometer

Oil pressure gauge

Oil temperature gauge

REQUIREMENT 2 F: Create an original poster of an aircraft instrument panel. Include and identify the instruments and radios discussed in requirement 2e.



REQUIREMENT 3: Do ONE of the following:

REQUIREMENT 3 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.

Safety rules for building and flying model airplanes

Safety rules for use of glue, paint, dope, plastics, fuel, and battery pack

REQUIREMENT 3 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.

Completed

REQUIREMENT 4: Do ONE of the following:

REQUIREMENT 4 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."

REQUIREMENT 4 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.

REQUIREMENT 4 C: Visit an aviation museum or attend an air show. Report on your impressions of the museum or show.

REQUIREMENT 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.

Three career opportunities in aviation

Education, training, and experience required for one profession