



AVIATION

Requirement 1

Define *aircraft*: _____

Describe some kinds and uses of aircraft in use today:

Kind of aircraft: _____

Description: _____

What it is used for: _____

Kind of aircraft: _____

Description: _____

What it is used for: _____

Kind of aircraft: _____

Description: _____

What it is used for: _____

Kind of aircraft: _____

Description: _____

What it is used for: _____

Explain the operation of:

Piston engines: _____

Turboprop engines: _____

Jet engines: _____

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



Explain how an airfoil generates lift: _____

Explain how the primary control surfaces (ailerons, elevator, and rudder) affect the airplane's attitude: _____

Explain how a propeller produces thrust: _____

In preparation to demonstrate the following to your counselor, describe how the control surfaces of an airplane are used for:

Take off: _____

Straight Climb: _____

Level Turn: _____

Climbing Turn: _____

Descending Turn: _____

Straight Descent: _____

Landing: _____

Explain the recreational pilot certificate: _____

Explain the private pilot certificate: _____

Explain the instrument rating; _____

Requirement 2

Select and complete **TWO** of the following seven options.

OPTION A:

Take a flight in an aircraft.

Date: _____ Place: _____ Duration: _____

Type of aircraft: _____

Report on your impressions of the flight: _____

OPTION B:

Perform a preflight inspection of a light aircraft.

OPTION C:

Obtain and learn to read an aeronautical chart.

Measure a true course on the aeronautical chart. Describe the course: _____

Correct your course for magnetic variation, compass deviation and wind drift. Describe how you did this:

What is the final compass heading that you arrived at? _____

OPTION D:

Use a computer flight simulator to 'fly' the course and heading you established in OPTION C or another course you have plotted.

OPTION E:

On a map, mark a route for an imaginary airline trip to at least three different locations. Start from the commercial airport nearest your home. From timetables, decide when you will get to and leave from all connecting points. Create an aviation flight plan and itinerary for each destination.

List the connecting points and times for your trip below:

| | | |
|-----------------|---------------------|-----------------------|
| Location: _____ | | Departure Time: _____ |
| Location: _____ | Arrival Time: _____ | Departure Time: _____ |
| Location: _____ | Arrival Time: _____ | Departure Time: _____ |
| Location: _____ | Arrival Time: _____ | Departure Time: _____ |
| Location: _____ | Arrival Time: _____ | Departure Time: _____ |
| Location: _____ | Arrival Time: _____ | Departure Time: _____ |
| Location: _____ | Arrival Time: _____ | Departure Time: _____ |

OPTION F:

Explain the purposes and functions of these instruments found in a typical single-engine aircraft:

Attitude Indicator: _____

Heading Indicator: _____

Altimeter: _____

Airspeed Indicator: _____

Turn and Bank Indicator: _____

Vertical Speed Indicator: _____

Compass: _____

Navigation Radio: _____

Communication Radio: _____

Tachometer: _____

Oil Pressure Gauge: _____

Oil Temperature Gauge: _____

OPTION G:

Create an original poster of an aircraft instrument panel. Include and identify the instruments and radios discussed in OPTION F.

Requirement 3

Select and complete **ONE** of the following two options.

OPTION A:

Build and fly a fuel-driven or battery-powered electric model airplane.

Describe the safety rules for building and flying model airplanes: _____

Tell safety rules for use of:

Glue: _____

Paint: _____

Dope: _____

Plastics: _____

Fuel: _____

Battery packs: _____

OPTION B:

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

Requirement 4

Select and complete **ONE** of the following three options.

OPTION A:

Visit an airport.

Report on how the facilities are used, how runways are numbered, and how runways are determined to be 'active'.

OPTION B:

Visit a Federal Aviation Administration facility – a control tower, terminal radar control facility, air route traffic control center, flight service station, or Flight Standards District Office. Report on the operation and your impressions of the facility.

OPTION C:

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

Requirement 5

Identify three career opportunities in aviation.

Career #1: _____

Career #2: _____

Career #3: _____

Choose one of those careers. What education, training, and experience are required? _____

Why might this career interest you? _____
