



# Royal Rangers

Merit Requirements: **Green-Bordered Merit**

## AVIATION

**Note:** This merit may be earned by successfully completing a private pilot ground school course (solo flight not required) OR by completing the following requirements:

1. Read a book on aviation.
2. Identify from a video presentation, photographs, or actual in-flight observations at least seven types of aircraft, using their proper names.
3. Make a sketch of an airfoil and explain the principle that produces lift.
4. Using a model airplane, explain the effect of drag, lift, thrust, weight, and gravity on an airplane in flight.
5. Make a list of ten major working parts of an airplane and explain the purpose of each. Make a profile drawing of an airplane and show the position of each part.
6. Explain the difference between these types of aircraft engine: piston, jet, and rocket.
7. Explain the purpose and importance of the following instruments on an instrument panel: compass, oil pressure gauge, attitude indicator, altimeter, bank and turn indicator, airspeed indicator, tachometer, and temperature gauge.
8. Explain in detail the proper procedure for each of the following: takeoff, banking and turning, and landing.
9. Do TWO of the following:
  - a. Visit an airport and make a list of five types of equipment and facilities used.
  - b. Take a flight in any aircraft. Provide information about your flight such as the type of aircraft, the origin and destination of the flight, and your observations during the flight.
  - c. Build and fly a fuel-powered model airplane.
10. List at least ten different job opportunities in aviation. Choose one career and describe the job qualifications for the job, and the approximate salary range.