

# USS Hornet (CV 12)



## Boys Scouts Of America Aviation Merit Badge

### Course Outline

1. Aviation Deck Operations
2. Aviation Merit Badge elements covered on USS Hornet
3. USS Hornet History
  - a. World War II
  - b. Korea and Viet Nam
  - c. The Apollo Years
4. Types and Uses of Aircraft
5. Newton's Laws of Motion
  - a. First Law
  - b. Second Law
  - c. Third Law
6. The Four Forces acting on an airplane
  - a. Airplane Weight & Lift
  - b. Airplane Drag & Thrust
7. Simplified Aircraft Motion
8. Airfoil Lift - Incorrect Theory
9. Airfoil Lift – Correct Theory
10. Airfoil Aerodynamics
11. Factors that Affect Lift
12. Aircraft Engines: Reciprocating
13. Aircraft Piston Engines
  - a. The 4 cycle aircraft piston engine – how it works
  - b. How the piston engine produces thrust
14. The Aircraft Propeller – How it works
  - a. Propeller Propulsion

- 15. Gas Turbine Propulsion**
  - a. Turbojet Engine
  - b. Turboprop Engine
  - c. Turbofan Engines
  
- 16. Aircraft Engines Turbojet & Turboprop**
  
- 17. Aircraft Engines Turbofan and Thrust Augmentation**
  
- 18. Airplane Parts & Control Surfaces**
  - a. Ailerons
  - b. Horizontal Stabilizer & Elevator
  - c. Vertical Stabilizer & Rudder
  - d. Flaps & Slats
  
- 19. Douglas TA4J Sky Hawk Walk Around**
  
- 20. FPG-9 Foam Plate Glider – Team Exercise**
  
- 21. Cockpit Instruments**
  - a. The Control Instruments
  - b. The Avionics: Navigation & Communication
  - c. The Engine Instruments
  - d. The Attitude Indicator - why we need one
  - e. Attitude Indicator – examples
  - f. The Horizontal Situation Indicator: HSI
  - g. The Airspeed Indicator
  - h. The Altimeter
  - i. The Turn & Slip Indicator
  - j. Turn & Slip Indicator examples
  - k. The Vertical speed Indicator – VSI
  
- 22. Aviation Careers**
  
- 23. The Student Pilot**
  - a. Eligibility requirements
  - b. General limitations
  
- 24. The Recreational Pilot: privileges and limitations**
  
- 25. The Private Pilot: privileges and limitations**
  
- 26. The Instrument Rating: Privileges & Requirements**