

# Aviation Mentorship Program

## 2 Week High School



**Target Group:** Secondary school aviation class (Ages 14–18)

**Objective:** Provide foundational aircraft knowledge, inspire interest in aviation careers & give hands-on exposure to aircraft systems.

**Format:** 10 learning days + 2 days of assessment/presentations (weekends off)

### WEEK 1 — Foundations & Core Aircraft Systems

Day	Subject Key Topics	Activities / Practical Work
Day 1	Introduction to Aviation & Aircraft Types	History of aviation, Classification (GA, commercial, military), Fixed vs rotary wing Aircraft identification game, Walk-around of training aircraft or model
Day 2	Aircraft Structures (Airframe)	Fuselage, wings, empennage, undercarriage; Materials used Hands-on: label aircraft parts, explore a dismantled airframe if available
Day 3	Aerodynamics	Four forces of flight, Bernoulli's principle, lift generation Paper airplane experiments, wind tunnel demo (if available)
Day 4	Flight Controls	Primary (ailerons, elevator, rudder), secondary (flaps, slats, spoilers) Cockpit control demo, connect control movement to surface movement
Day 5	Aircraft Power plants	Piston vs jet engines, turbofan/turboprop basics, propeller function View cut-away engine or model, engine sound ID game

### WEEK 2 — Systems, Safety & Operations

Day	Subject Key Topics	Activities / Practical Work
Day 6	Aircraft Electrical & Avionics	Basic electrical circuits, instruments (altimeter, airspeed, attitude indicator), radios Simulator session reading basic instruments
Day 7	Aircraft Fuel & Hydraulic Systems	Fuel types, delivery systems, hydraulics for landing gear & brakes Hydraulic pressure demo with small model pump
Day 8	Aircraft Safety Systems	Fire suppression, oxygen systems, evacuation slides, seatbelt design Safety equipment demo, mock pre-flight safety check
Day 9	Aircraft Maintenance & Inspections	Line vs base maintenance, daily checks, defect reporting Perform a mock "transit check" on a static aircraft
Day 10	Human Factors & Careers in Aviation	Pilot & engineer roles, teamwork, communication, safety culture Guest talk from pilot/engineer, Q&A session

## Final Two Days — Assessment & Exposure

Day	Subject Key Topics	Activities / Practical Work
Day 11	Student Group Project	Each group presents on one aircraft system studied, with diagrams or models
Day 12	Field Trip / Airside Visit	Visit an airport maintenance hangar or flying school; Observe live aircraft operations

## Materials Needed

1. Aircraft part mock-ups or old training components
2. Model airplanes / cut-away engine models
3. Aviation charts and posters
4. Basic flight simulator (even PC-based)
5. Safety gear for demonstrations

## Program Outcomes

By the end, students will:

1. Identify main aircraft components & functions.
2. Explain basic aerodynamic principles.
3. Recognize key aircraft systems and their role in safe operation.
4. Perform a basic mock inspection/checklist.
5. Understand possible aviation career paths.

**Payment to: MPesa Till No. 9366385**