

# *CIVIL AIR PATROL*



## *WISCONSIN WING*

# **CADET PRIVATE PILOT FLIGHT TRAINING SYLLABUS**

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This Flight Training Syllabus is for Civil Air Patrol cadet flight instruction leading to a Private Pilot Certificate. It exceeds the requirements of the Federal Aviation Regulations in several areas that are intended to benefit the cadet learning experience.

Permission is granted to reproduce or replace any lesson plan or diagram deemed necessary to conform to the requirements of your particular airport of operation and / or individual flight-training environment. The two unnumbered pages following Flight Lesson 1 (the airport diagram and aircraft checklist) are replaceable pages.

This syllabus uses three simulator sessions and provides three additional simulator lessons on pages 73, 74, and 75. These Discovery Zone Lessons are used when weather conditions prevent airborne training and for students who want to experience a greater challenge near the completion of their flight training.

As a DISCLAIMER, nothing in this text supersedes any operational document or procedures issued by the Federal Aviation Administration (FAA), the aircraft and avionics manufacturers, the Pilot Operating Handbook (POH), CAPR 60-1, CAP National, Region, or Squadron regulations, directives, or related SOP's.

Further, every effort has been made in the preparation of this material to ensure accuracy. However, this syllabus is made available without warranty either expressed or implied. Neither the authors nor the Civil Air Patrol will be liable for any damages caused or alleged to be caused directly, indirectly, incidentally or consequentially, by the information in this syllabus.

CFIs can email me at [hmoe@charter.net](mailto:hmoe@charter.net) for the answer key to the thirteen exams in this syllabus.

Semper Vigilans!

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## INTRODUCTION

The authors appreciate the assistance both the senior and cadet members of the La Crosse Composite Squadron of the Wisconsin Civil Air Patrol.

Completion of your flight training in 35 to 40 hours is unrealistic. Most individuals take 50+ hours. Many of your 45 lessons will take more than one flight to complete. The format used provides for several flights when necessary, and your CFI will assign additional training as necessary.

The objective is to develop PTS proficiency as quickly as possible.

You can help minimize training time. First, read all study material assigned by your Flight Instructor before each lesson. Second, study ahead by referring to your next flight lesson in this syllabus. Pay particular attention to each "Lesson Objectives" and "Completion Standards".

Below is a list of additional material you will need as training progresses:

GETTING STARTED:	BEFORE SOLO	CROSS – COUNTRY FLYING
1. Private Pilot Manual (1)	1. Aircraft POH	1. E 6 B Computer
2. Sunglasses	2. FAR / AIM	2. Plotter
3. Pilot Log Book	3. Knee Board	3. Sectional Charts
		4. Airport Facilities Directory

(1) There are several good Private Pilot Study manuals available. This syllabus is designed around "Rod Machado's Private Pilot Handbook" (\$34.95) and is available through your Squadron or directly at 1-800-437-7080.

(2) Flight Instructors, request the answer key to the thirteen review exams contained in this syllabus from [hmoe@charter.net](mailto:hmoe@charter.net)

**YOUR FIRST FLYING LESSON**

**FLIGHT LESSON 1 – DUAL**

**LESSON OBJECTIVES:**

In this lesson you will learn how to use a checklist to inspect and start your airplane. You will also learn how to taxi using the rudder pedals, throttle, and brakes to turn and control the speed of your airplane. In the air you'll learn how to use the controls to make the airplane climb, descend, turn, and fly straight and level. After the flight is over, you'll learn how to shut down the systems and engine, move your airplane and secure it.

**INTRODUCTION:**

- Preflight Inspection
- Location of the Fire Extinguisher
- Doors, Safety Belts, and Shoulder Harness
- Engine Starting and Oil Pressure Check
- Taxiing
- Use of Radio
- Before Takeoff Check and Engine Runup
- Normal Takeoff and Climb
- Climbs
- Level off
- Trimming
- Straight and Level
- How an Airplane Tends to Fly Straight and Level on its own
- Medium Bank Turns
- Descents
- Normal Approach and Landing
- After Landing
- Parking and Securing
- Post flight Procedures

**COMPLETION STANDARDS:**

You will have satisfactorily completed this lesson when you can, with your instructors help, start the airplane and taxi it from the parking area to the runway. In flight, you will fly the airplane from the practice area back to the airport.

FLIGHT TIME: \_\_\_\_\_

LANDINGS: \_\_\_\_\_

**THE STUDENT HAS COMPLETED LESSON 1**

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**LEARNING TO CONTROL YOUR AIRPLANE**

**FLIGHT LESSON 2 – DUAL**

**LESSON OBJECTIVES:**

During this lesson, you'll be introduced to the effects of each flight control. The importance of trim is emphasized. The effects of different cockpit controls are explored.

**NEW THIS FLIGHT:**

- Engine Starting on Your Own
- Turn Coordination
- Knowing How Much Back Pressure to Use in a Turn
- Trimming "The Art Of Trimming"
- Normal Takeoff and Climb
- Climbs and Climbing Turns
- Descents and Descending Turns
- Gliding
- Descents With & Without Flaps
- Radio Procedures

**REVIEW:**

- Preflight Inspection
- Taxiing
- Before Takeoff Check
- Left and Right Turning Tendencies
- Level Off
- Straight and Level Flight
- Climbs
- Descents
- Medium Banked Turns
- Parking and Securing Your Airplane

**COMPLETION STANDARDS:**

You'll have completed this lesson when, with minimal assistance from your instructor, you can use your airplane's checklist to perform a preflight inspection, start the engine, check systems before takeoff, and shut down after your flight. You'll also be able to control the airplane from takeoff to landing while making smooth and coordinated turns, climbs, and descents. You'll be able to fly straight and level using outside references.

FLIGHT TIME: \_\_\_\_\_

LANDINGS: \_\_\_\_\_

**THE STUDENT HAS COMPLETED LESSON 2**

STUDENT: \_\_\_\_\_ DATE: \_\_\_\_\_

CFI: \_\_\_\_\_ DATE: \_\_\_\_\_

AERODYNAMICS – The Wing Thing

FLIGHT LESSON 3 – GROUND SCHOOL SESSION

ASSIGNMENT:

Read Chapters 1 and 2 in “Rod Machado’s Private Pilot Handbook”

CONTENT:

- Parts of the Airplane
- The Four Forces Acting on an Airplane
- Flight Controls and Control Surfaces
- Airplane Stability
- Ground Effect
- Four Left Turning Tendencies
- Parasite and Induced Drag
- Total Drag Curve
- Turns and Load Factor
- Stalls and Spins
- Hazards of Frost and Icing

COMPLETION STANDARDS:

You will have completed this lesson when you have an understanding of each of these terms.

**THE STUDENT HAS COMPLETED LESSON 3**

STUDENT: \_\_\_\_\_ DATE: \_\_\_\_\_

CFI: \_\_\_\_\_ DATE: \_\_\_\_\_

DISCUSSION AND REVIEW OF AERODYNAMICS

1. On which wingtip is the **red position light** located?
2. What are the **four primary forces** acting on an airplane in flight?
3. What is the primary purpose of **wing flaps**?
4. Why does the airplane tend to **turn left** when power is applied on takeoff?
5. Why must a pilot add power to maintain airspeed in a turn?
6. In what flight condition must an airplane be placed in order to **spin**?
7. Why is ice or frost on the wings considered hazardous?
8. What is the term that describes the angle between **the wing cord** and the **relative airflow** of the wing?
9. Which way does the **elevator** move to pitch the nose of the aircraft up?
10. What is the primary control for controlling **yaw**?
11. Describe how an airplane **stalls**.

**YOUR FIRST FLIGHT SIMULATOR LESSON**

**FLIGHT LESSON 4 – SIMULATOR**

**LESSON OBJECTIVES:**

The student is introduced to basic maneuvers by instrument reference.

**NEW THIS LESSON:**

- Aircraft Instrumentation and the Simulator
- Straight and Level on Instruments
- Climbing on Instruments
- Descending on Instruments
- Turning using Instruments
- Making a Landing with the Simulator

**COMPLETION STANDARDS:**

The student will understand how basic cockpit instrumentation functions and will interpret the meaning of instrument indicators. The student will understand the relationship of airplane attitude, power, and airspeed.

**SIMULATOR TIME:** \_\_\_\_\_

**LANDINGS:** \_\_\_\_\_

**THE STUDENT HAS COMPLETED LESSON 4**

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**LEARNING MORE ABOUT YOUR AIRPLANE AND AIRPORTS**

**FLIGHT LESSON 5 - DUAL**

**LESSON OBJECTIVES:**

During this flight, you will learn airspeed control and techniques to control the airplane at speeds slower than cruise speed. You will learn more about airport procedures and situations that can actually cause a stall. Also, you will learn what your flight instruments tell you compared to the view outside the airplane.

**NEW THIS FLIGHT:**

- Crosswind Taxi
- Straight and Level Flight (VFR – IFR)
- Constant Airspeed Climbs and Level Off (VFR - IFR)
- Constant Airspeed Descents and Level Off (VFR - IFR)
- Banking and Rolling Out (VFR - IFR)
- Maneuvering During Slow Flight
- Traffic Pattern Communication
- Flying The Traffic Pattern
- Collision Avoidance

**REVIEW:**

- Preflight Inspection
- Engine Starting
- Operating the Radio
- Taxiing
- Before Takeoff Check
- Normal Takeoff and Climb
- Level Flight
- Trimming
- Power Off Descents
- Normal Approach and Landing
- Parking and Securing

**COMPLETION STANDARDS:**

You will have completed this lesson satisfactorily when you can make unassisted takeoffs and demonstrate correct communications and traffic pattern procedures. You will be able to hold our altitude +/- 200 feet for level flight, your heading +/- 20 degrees for straight flight, and control your airspeed +/- 10/-5 knots while maneuvering during slow flight.

FLIGHT TIME: \_\_\_\_\_

LANDINGS: \_\_\_\_\_

**THE STUDENT HAS COMPLETED LESSON 5**

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**THOSE SNEAKY STALLS**

**FLIGHT LESSON 6 – DUAL**

**LESSON OBJECTIVES:**

During this flight, you will develop your best defense against being mugged by one of those sneaky stalls: learning how they look, sound, and feel. Then learn how to control the airplane back to normal flight.

**NEW THIS FLIGHT:**

- Power Off Stall
- Power On Stall
- Steep Constant Altitude Turn
- Level Flight at Slow Airspeeds

**REVIEW:**

- Normal Takeoff and Climb
- Level Flight in Various Configurations
- Turning To Selected Headings
- Approach and Landing

**COMPLETION STANDARDS:**

You have completed this lesson when you accurately preflight the airplane, correctly using the appropriate checklists for ground and flight operations. You will control the airplane in all basic maneuvers with minimal help from your instructor. You will also recognize the approach to a stall and return the airplane to straight and level flight. You will be able to hold altitude +/- 200 feet, heading +/- 15 degrees, and airspeed +10/-5 knots while maneuvering.

Preflight inspections and procedures will be performed and evaluated prior to each flight.

FLIGHT TIME: \_\_\_\_\_

LANDINGS: \_\_\_\_\_

**THE STUDENT HAS COMPLETED LESSON 6**

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**ALL ABOUT AIRPORT OPERATIONS**

LESSON 7 – Ground School Session

ASSIGNMENT:

Read Chapters 7 and 8 in “Rod Machado’s Private Pilot Handbook”

LESSON OBJECTIVES:

Discuss topics relating safe flight operations in and around airports. Discuss flight procedures for airports with and without control towers.

NEW THIS LESSON:

- Aircraft V-speeds
- Everything about Airport Traffic Patterns
- Numbering of Runways
- Wind and Choosing a Runway
- Determining Crosswind Component
- Taxing in a Crosswind
- Neat stuff about Transponders
- Runway and Taxiway Markings
- Visual Slope Indicators
- Wake up to Wake Turbulence
- Collision Avoidance through endless Vigilance
- Airport Beacons
- Airports without Operating Control Towers
- AWOS / ASOS and other coded messages
- Common Traffic Advisory Frequency – CTAF
- More about Radio Communications and Phraseology
- Automatic Terminal Information Service – ATIS
- Ground Control and Clearance Delivery
- Tower Control and Approach Control
- Unicom

COMPLETION STANDARDS:

You have completed this lesson after reading and reviewing Chapters 7 and 8 in your Rod Machado manual. Additionally, you will have a working understanding of each topic in this lesson.

**THE STUDENT HAS COMPLETED LESSON 7**

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**OPEN BOOK REVIEW EXERCISE**

LESSON 7a - QUIZ

1. The four forces acting on an airplane in flight are
  - A. lift, weight, thrust, and drag.
  - B. lift, weight, gravity, and thrust.
  - C. lift, gravity, power, and friction.
2. When are the four forces that act on an airplane in equilibrium?
  - A. During unaccelerated flight.
  - B. When the aircraft is accelerating.
  - C. When the aircraft is at rest on the ground.
3. What is the relationship of lift, drag, thrust, and weight when the airplane is in straight and level flight?
  - A. Lift equals weight and thrust equals drag.
  - B. Lift, drag, and weight equal thrust.
  - C. Lift and weight equal thrust and drag.
4. The left turning tendency of an airplane caused by P-factor, is the result of the
  - A. clockwise rotation of the engine and the propeller turning the airplane counter - clockwise.
  - B. Propeller blade descending on the right, producing more thrust than the ascending blade on the left.
  - C. Gyroscopic forces applied to the rotating propeller blades acting 90 degrees in advance of the point the force was applied.
5. An airplane said to be inherently stable will
  - A. be difficult to stall.
  - B. require less effort to control.
  - C. Not spin.
6. What is the purpose of the rudder?
  - A. To control yaw.
  - B. To control "over-banking" tendency.
  - C. To control roll.
7. The amount of excess load that can be imposed on the wing of an airplane depends upon the
  - A. position of the CG.
  - B. Speed of the airplane.
  - C. Abruptness at which the load is applied.
8. One of the main functions of flaps during approach and landing is to
  - A. decrease the angle of descent without increasing the airspeed.
  - B. permit a touchdown at a higher indicated airspeed.
  - C. Increase the angle of descent without increasing the airspeed.
9. If the pitot tube and outside static vents become clogged, which instruments would be affected?
  - A. The altimeter, airspeed indicator, and turn and slip indicator.
  - B. The altimeter, airspeed indicator, and vertical speed indicator.
  - C. The altimeter, attitude indicator, and turn and slip indicator.
10. Which instrument becomes inoperative if the pitot tube becomes clogged?
  - A. Altimeter
  - B. Vertical speed
  - C. Airspeed
11. Altimeter setting is the value to which the barometric pressure scale on the altimeter is set so the altimeter indicates
  - A. calibrated altitude at field elevation.
  - B. Absolute altitude at field elevation.
  - C. True altitude at field elevation.

12. The pitot system provides impact pressure for which instrument?
  - A. Altimeter
  - B. Vertical speed indicator
  - C. Airspeed indicator
13. A turn coordinator provides an indication of the
  - A. movement of the aircraft about the yaw and roll axis.
  - B. angle of bank up to but not exceeding 30 degrees.
  - C. attitude of the aircraft with reference to the longitudinal axis.
14. To receive accurate indications during flight from the heading indicator (DG), the instrument must be
  - A. set prior to flight to a known heading.
  - B. calibrated on a compass rose at regular intervals.
  - C. Periodically realigned with the magnetic compass as the gyro precesses.
15. Deviation in a magnetic compass is caused by
  - A. presents of flaws in the permanent magnets of the compass.
  - B. difference in the location between true north and magnetic north.
  - C. magnetic fields within the aircraft distorting the lines of magnetic force.
16. In the Northern Hemisphere, the magnetic compass will normally indicate a turn toward the south when
  - A. a left turn is entered from an east heading.
  - B. a right turn is entered from a west heading.
  - C. the aircraft is decelerated while on a west heading.
17. During flight, when are the indications of a magnetic compass accurate?
  - A. Only in straight and level, unaccelerated flight.
  - B. As long as the airspeed is constant.
  - C. During turns if the bank does not exceed 18 degrees.
18. When taxiing with strong quartering tailwinds, which aileron positions should be used?
  - A. Aileron down on the downwind side.
  - B. Ailerons neutral.
  - C. Aileron down on the side from which the wind is blowing.
19. In what flight condition must the airplane be placed in order to spin?
  - A. Partially stalled with one wing low.
  - B. In a steep diving spiral.
  - C. Stalled.
20. What is ground effect?
  - A. The result of the interference of the surface of the Earth with the airflow patterns about an airplane.
  - B. The result of an alteration in airflow patterns increasing induced drag about the wings of an airplane.
  - C. The result of the disruption of the airflow patterns about the wings of an airplane to the point where the wings will no longer support the airplane in flight.

**CORRECTING FOR THE WIND IN FLIGHT**

FLIGHT LESSON 8 – DUAL

LESSON OBJECTIVES:

During this lesson you will learn to control your airplane's track over the ground by correcting for the wind, so you can fly straight to where you intend to go.

NEW THIS FLIGHT:

Rectangular Course  
Slips  
Turns Around a Point  
S – Turns

REVIEW:

Normal Takeoff and Airport Departure  
Vigilance and Collision Avoidance  
Trimming  
Entering and Flying a Traffic Pattern

COMPLETION STANDARDS:

You will have completed this lesson when you can control the airplane and maintain a specific ground track by correcting for wind drift, and by maintaining altitude +/- 200 feet and airspeed +/- 10 knots during straight and level flight and while maneuvering in turns.

FLIGHT TIME: \_\_\_\_\_

LANDINGS: \_\_\_\_\_

**THE STUDENT HAS COMPLETED LESSON 8**

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**AIRPORT OPERATIONS QUIZ**

Lesson 8a – Quiz

1. The numbers 9 and 27 on a runway indicate what?
  
2. An aircraft is parallel to the runway, going opposite to the direction in which it will land. This is called the \_\_\_\_\_ leg because the direction of flight is with the wind.
  
3. While taxiing can you turn off the ground control frequency briefly to recheck ATIS? If not, why?
  
4. What runway would you expect if ATIS or ASOS reported the wind as 270 @ 15 Knots. What is the crosswind component for the runway you chose?
  
5. The preferred angle of entry into the traffic pattern at an uncontrolled airport is \_\_\_\_\_.
  
6. At uncontrolled airports, what frequency would you use to communicate your intentions?
  
7. The tower says, "Cleared for the option." What does that mean?
  
8. The tower says, "Your number two for the airport." What does that mean?
  
9. What distance from the airport will you initially contact the tower? What information will you provide?
  
10. When flying a Transponder equipped airplane, what is the correct VFR Transponder code?
  
11. What is the purpose of UNICOM frequency? What frequency can you communicate with the local FBO?
  
12. On landing, if you want to come to a complete stop to change your radio frequency over to ground control, where can you do this when turning off the runway?

**AIRPLANE SYSTEMS AND INSTRUMENTS**

FLIGHT LESSON 9 – Ground School Session

**ASSIGNMENT:**

Read Chapters 3, 4, 5 in "Rod Machado's Private Pilot Handbook"

**CONTENT:**

- Airframe Components
- All about Engines
- The Carburetor
- The Fuel System
- Fuel Injection
- Oil System and Dip Sticks
- Engine Cooling System
- The Propeller
- Shocking Truth about Electrical Systems
- Vacuum Systems
- Engine Operations
- The Pitot-Static System
- All the Types of Altitude
- Several types of Airspeed

**COMPLETION STANDARDS:**

You will have completed this lesson when you have a working knowledge of the information presented in chapter 3 and 4 of your ground school manual. Completion of quiz 9a will reinforce your knowledge of the subject.

**THE STUDENT HAS COMPLETED LESSON 9 AND 9A**

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**AIRPLANE SYSTEMS AND INSTRUMENT QUIZ**

LESSON 9A – QUIZ

1. What is the purpose of the vacuum pump on your airplane?
2. What would a hydraulic leak on the brake system look like and where might you find the leak?
3. What happens to the engine RPM if one of the magnetos is turned off?
4. How and when do you use carburetor heat?
5. What color is 100LL Avgas and does it change if it is mixed with jet fuel?
6. If the altimeter is set to the current airport altimeter setting, what altitude will it indicate before you take off?
7. If the battery fails in flight, what will happen?
8. What conditions are likely to cause carburetor icing?
9. Why should you shut off an engine with the mixture control?
10. The regulations require the fuel gauges to be accurate in one condition, what is that condition?
11. The low voltage light is illuminated during idle, is that cause for concern?
12. What is the purpose of the fuel sump drains? Why do some airplanes have as many as 4 per wing?

**FLYING BY INSTRUMENTS**

**FLIGHT LESSON 10 – DUAL**

**LESSON OBJECTIVES:**

During this flight you will practice controlling your airplane using only your airplane instruments. Additionally, you will sharpen your skills with some of the maneuvers that have been previously introduced. For the Progress Check you will have a chance to demonstrate previously learned maneuvers according to the completion standards for this flight. With this lesson, all references to IFR require a view-limiting device.

**CONTENT:**

**NEW THIS FLIGHT:**

Straight and Level Flight (VFR – IFR)  
Climbs and Descents (VFR – IFR)  
Standard Rate Turns (VFR – IFR)  
Turns to Headings (VFR – IFR)  
Normal Takeoff and Landing  
Introduction to Realistic Distractions

**REVIEW:**

Rectangular Course  
S -Turns  
Turns Around a Point  
Spin Awareness Discussion

**COMPLETION STANDARDS:**

You will have completed this lesson satisfactorily when you are able to control the airplane by reference to instruments and maintain +/- 200 feet in altitude, +/- 20 degrees in heading, and airspeed +/- 15 knots.

FLIGHT TIME: \_\_\_\_\_

LANDINGS: \_\_\_\_\_

**THE STUDENT HAS COMPLETED LESSON 10**

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**TAKING OFF AND LANDING**

FLIGHT LESSON 11 – DUAL

LESSON OBJECTIVES:

During this flight, you will learn to control the airplane during crosswind takeoffs and landings. You will also learn the procedure for executing a go-around.

CONTENT:

NEW THIS FLIGHT:

Crosswind Takeoff and Climb  
Crosswind Crab to Landing  
Crosswind Side Slip to Landing  
Faulty Approach and Go-Around

REVIEW:

Normal Takeoff and Landing  
Flying the Traffic Pattern  
Radio Communications  
Vigilance and Traffic Avoidance

COMPLETION STANDARDS:

You will have completed this lesson when, with minimal assistance from your instructor, you can takeoff and fly the traffic pattern correcting for wind drift. Once established on final approach you will be able to land compensating for wind drift. The use of the go-around maneuver will be introduced and the correct response will be demonstrated.

FLIGHT TIME: \_\_\_\_\_

LANDINGS: \_\_\_\_\_

**THE STUDENT HAS COMPLETED LESSON 11**

STUDENT: \_\_\_\_\_ DATE: \_\_\_\_\_

CFI: \_\_\_\_\_ DATE: \_\_\_\_\_

**RULES TO FLY BY: FEDERAL AVIATION REGULATIONS REVEALED**

FLIGHT LESSON 12 – Ground School Session

**ASSIGNMENT:**

Read Chapter 6 in “Rod Machado’s Private Pilot Handbook”

**CONTENT:**

FAR Part 61 Subpart A – General

- A. 61.5 Pilot Certificates
- B. 61.23 Medical Certificates
- C. 61.51 Pilot Logbooks

FAR Part 61 Subpart C – Student Pilots

- A. 61.83 & 61.87 Requirements for solo flight
- B. 61.89 General Limitations

FAR 91 Subpart A – General

- A. 91.3 Responsibility & Authority of Pilot in Command
- B. 91.13 Careless and Reckless Operations
- C. 91.15 Dropping Objects
- D. 91.17 Alcohol or Drugs
- E. 91.19 Carriage of Narcotic Drugs, Marihuana, and Depressant or Stimulant Drugs

FAR Part 91 Subpart B – Flight Rules – General

- A. 91-103 Preflight Action
- B. 91.105 Flight Crewmembers at Station
- C. 91.107 Use of Safety Belts and Shoulder Harnesses
- D. 91.113 Right-of-way Rules
- E. 91.119 Minimum Safe Altitudes
- F. 91.123 Compliance with ATC Clearances and Instructions
- G. 91.129 Operations in Class D Airspace
- H. 91.151 Fuel Requirements
- I. 91.155 Basic VFR Weather Minimums
- J. 91.205 VFR Required Equipment

FAR Part 91 Subpart C – Maintenance, Preventative Maintenance, & Alterations

- A. 91.405 Maintenance Required
- B. 91.409 Inspections, Annual, 100 hour, Progressive
- C. 91.417 Maintenance Records

NTSB Part 830

- A. 830.5 Immediate Notification
- B. 830.10 Preservation of Aircraft Wreckage, Mail, Cargo, and Records

**COMPLETION STANDARDS:**

You will have completed this lesson when you have a satisfactory understanding of the Federal Aviation Regulations that govern how you will operate any airplane you fly.

**THE STUDENT HAS COMPLETED LESSON 12**

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**THE FEDERAL AVIATION REGULATIONS REVIEW**

LESSON 12A – QUIZ

1. Pertaining to aircraft certification, define category and class according to FAR Part 61.
2. What is the definition of “night” according to FAR Part 1?
3. As a student pilot, do you need a current medical certificate to fly solo?
4. When are pilots and passengers required to wear seatbelts and shoulder harnesses?
5. Explain the minimum visibility and ceiling for VFR in Class B, C, D, and E airspace.
6. When must you turn the aircraft position lights on?
7. Where can you find the “official” definition of an aircraft accident or incident?
8. Recovery from practice stalls must occur above what altitude?
9. What is the minimum amount of fuel reserve required by FAR?
10. What is the minimum fuel you will want to have when departing on a local solo flight?
11. What certificates and documents are required on board the airplane?
12. What is Class D Airspace? Where is it found? What does it mean?

**TURNING WITH MORE PRECISION**

**FLIGHT LESSON 13 – DUAL**

**LESSON OBJECTIVES:**

During this flight, you will learn the “look and feel” of steep turns. You will also learn how to steepen your approach without extending the flaps and stay aligned with the runway.

**CONTENT:**

**NEW THIS FLIGHT:**

Steep Turns  
Forward Slip  
Forward Slip to a Landing

**REVIEW:**

Vigilance and Collision Avoidance  
Radio Communications  
Coordination Exercise

**COMPLETION STANDARDS:**

You will have completed this lesson satisfactorily when doing steep turns you control your altitude +/- 200 feet, keep your bank angle at 45 degrees +/- 10 degrees, and roll out on your entry heading +/- 10 degrees. Also, you'll be able to apply the controls to enter a forward slip during an approach to a landing, and with your instructors coaching, be able to keep the airplane aligned with the runway centerline during crosswind takeoffs and landings.

FLIGHT TIME: \_\_\_\_\_

LANDINGS: \_\_\_\_\_

**THE STUDENT HAS COMPLETED LESSON 13**

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**FOCUSING ON TAKEOFFS, TRAFFIC PATTERNS, AND LANDINGS**

FLIGHT LESSON 14 – DUAL

LESSON OBJECTIVE:

You will understand takeoff and landing procedures. You will show continued improvement in takeoffs, traffic patterns, and landings.

CONTENT:

NEW THIS LESSON:

Zero Flap Approach and Landing  
Power-off Approach and Landing  
Crosswind Takeoff  
Forward Slip to a Landing  
Combined Crab and Slip to a Landing  
Forward Slip to a Landing  
Wake Turbulence Avoidance

REVIEW:

Standard Takeoff and Climb  
Powered Approach and Normal Landing  
Collision Avoidance  
Crosswind Crab to a Landing  
Crosswind Slip to a Landing  
Go-Around  
Vigilance and Collision Avoidance

COMPLETION STANDARDS:

You will have completed this lesson as you demonstrate an increased understanding of the techniques required to safely and consistently execute the landing maneuver under changing wind conditions.

FLIGHT TIME: \_\_\_\_\_

LANDINGS: \_\_\_\_\_

**THE STUDENT HAS COMPLETED LESSON 14**

STUDENT: \_\_\_\_\_ DATE: \_\_\_\_\_

CFI: \_\_\_\_\_ DATE: \_\_\_\_\_

**HANDLING THE UNEXPECTED**

**FLIGHT LESSON 15 – DUAL**

**LESSON OBJECTIVES:**

During this flight you will practice takeoffs and landings. You'll analyze simulated emergency situations and apply the procedures you've learned to resolve them safely. You'll also learn how to land if your airspeed indicator or altimeter has failed.

**CONTENT:**

**NEW THIS FLIGHT:**

- Engine Fire During Start
- Off Airport Engine Failure
- Engine Failure in the Traffic Pattern
- Electrical Fire In Flight
- Inadvertent Icing Encounter
- Low-Voltage Light Illuminates
- Flying Without an Airspeed Indicator
- Flying Without an Altimeter
- Emergency Descents
- Emergency Approach and Landing
- Landing with a Flat Tire

**REVIEW:**

- Normal / Crosswind Takeoff and Climb
- Crab and Forward Slips to a Landing
- Go-Around
- Vigilance and Traffic Avoidance

**COMPLETION STANDARDS:**

You will have completed this lesson when you can correctly apply the procedures used during emergency approach and landing.

FLIGHT TIME: \_\_\_\_\_

LANDINGS: \_\_\_\_\_

**THIS STUDENT HAS COMPLETED LESSON 15**

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**GETTING READY TO SOLO**

FLIGHT LESSON 16 – DUAL

LESSON OBJECTIVES:

The student will demonstrate required proficiency in all maneuvers necessary to perform solo flight.

CONTENT:

REVIEW:

- Preflight Inspection
- Operation of the Aircraft Systems
- Engine Starting & Checklist
- Radio Communication
- Taxing
- Before Takeoff Checks
- Normal and Crosswind Takeoff
- Maneuvering During Slow Flight
- Steep Constant Altitude Turns
- Power Off / On Stalls
- Emergency Procedures
- Emergency Descent
- Emergency Approach and Landing
- Emergency Checklist Management
- System and Equipment Malfunction
- Departing / Entering Traffic Patterns
- Normal / Crosswind Approach and Landing
- Go-Around
- Spin Awareness Discussion
- Vigilance and Collision Avoidance
- Wake Turbulence
- Landing at Uncontrolled Airports

COMPLETION STANDARDS:

The student will complete this lesson when he / she understands and performs maneuvers safely and within reasonable tolerances of the PTS standards.

FLIGHT TIME: \_\_\_\_\_

LANDINGS: \_\_\_\_\_

**THE STUDENT HAS COMPLETED LESSON 16**

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

FLIGHT LESSON 16a

**STUDENT PILOT PRESOLO EXAM**

STUDENT NAME: \_\_\_\_\_

DATE: \_\_\_\_\_ CFI: \_\_\_\_\_

1. What is the minimum weather you need to fly solo?
2. Name both airports where you are authorized to fly solo.
3. Describe the east, west, north, and south boundaries of our practice area.
4. While you are in the traffic pattern, the wind suddenly changes from 050 degrees at 5 knots to 340 degrees at 10 knots. What do you do?
5. Your best friend wants to go sight seeing over the local area. Can you take him?
6. The weather is four miles with haze. The temperature is 12 degrees C and the dew point is 10 degrees C. Are you allowed to fly solo? Explain your answer.
7. What does FAR 91.157 allow you to do?
8. The aircraft POH is not in the airplane, but you have your copy with you. Are you legal? Explain your answer.
9. How much fuel must you have to fly solo to the practice area?
10. You wait for a Piper Cherokee to land. When can you start your takeoff?
11. You're on downwind behind a Champ 7EC. How soon after he lands can you land?
12. Besides having the POH in the airplane, what else must you have for the airplane to be legal for flight?
13. What must you have with YOU to be legal to fly solo?
14. On preflight the oil is 4 ½ quarts. What must you do?
15. How many spark plugs does your airplane have? Why is that?
16. Clouds are moving into your practice area and you decide to return to La Crosse. ATIS reports a thunderstorm at the airport. What do you do?
17. The rpm drop during a magneto check exceeds 200 rpm. What should you do?
18. While on downwind you check carburetor heat and notice a drop in rpm followed by an increase in rpm. What has happened? Is it normal? What do you do?

19. From the following list circle the instruments or gauges that will function if you turn the master switch off: airspeed indicator, altimeter, tachometer, radios, engine temperature, RPM gauge, clock.
20. While in the practice area practicing slow flight over the Black River. You notice your altitude is 2,400 feet. Are you legal at that altitude? Are you safe at that altitude?
21. While you're flying solo, an unexpected wind comes up and you encounter considerable turbulence on final approach. What is the best way to deal with this situation?
22. At what outside temperature (OAT) are you most likely to develop carburetor ice?
23. The tower clears you to land. Exactly what does that mean?
24. How much flap can you use and what are flaps for?
25. When flying solo in the practice area you smell smoke, what do you do?
26. What is the VFR transponder code?
27. Where is the fire extinguisher?
28. How much fuel does your airplane carry and how long can you fly?
29. What is the strongest crosswind you can land in?
30. What is the purpose of the rudder?
31. Why do you set the altimeter on "The Before Takeoff" checklist?
32. Prior to starting any maneuver in the practice area, what do the finest pilots always do?
33. While heading to the practice area you see an airplane coming toward you. How can you tell if that airplane is on a collision course with you?
34. What is the minimum altitude you can fly solo in the practice area?
35. What is the minimum altitude required flying over your house?
36. Except for practicing emergencies with your instructor, what is the minimum altitude required in the practice area?
37. Which wing has the green light? When must it be on?
38. What color is the taillight on a Cessna 172?
39. What color is the taillight on a Piper airplane?
40. Why does the rpm drop when you check the carburetor heat?
41. When practicing landings on a runway with a VASI, must you use it?
42. If the rotating beacon is on at your airport during daylight hours, what does it mean?
43. How many sumps does your airplane have and what are they for?
44. Why is it important to always make coordinated turns in flight?
45. When in flight, will the engine continue to run if the master switch is turned off? Explain your answer.

46. What are the names and the values of the following?

DEFINITION:      SPEED:

V<sub>so</sub> \_\_\_\_\_

V<sub>s</sub> \_\_\_\_\_

V<sub>x</sub> \_\_\_\_\_

V<sub>y</sub> \_\_\_\_\_

V<sub>a</sub> \_\_\_\_\_

V<sub>fe</sub> \_\_\_\_\_

V<sub>no</sub> \_\_\_\_\_

V<sub>ne</sub> \_\_\_\_\_

47. If you have occasion to get a DUI violation (while driving your car), will this affect you as a pilot?

48. Can you take an over the counter drug for a head cold and legally fly solo?

49. When you have a serious problem while flying, whom do you tell first?

50. Under what conditions do airplanes produce the strongest wake vortices?

**NOT A VERY BRIEF BRIEFING**

FLIGHT LESSON 17 – Ground School Session

LESSON OBJECTIVES:

This briefing provides a Pre-Solo Briefing to be certain you understand all of the things you need to know for your first solo flight.

**FAR Part 61 Subpart A – General**

- A. 61.5 Pilot Certificates
- B. 61.23 Medical Certificates
- C. 61.51 Pilot Logbooks

**FAR 61 Subpart C – Student Pilots**

- A. 61.83 & 61.87 Requirements for Solo Flight
- B. 61.89 General Limitations

**FAR Part 91 Subpart A - General**

- A. 91.3 Responsibility & Authority of the Pilot In Command
- B. 91.13 Careless and Reckless Operations
- C. 91.15 Dropping Objects
- D. 91.17 Alcohol or Drugs
- E. 91.19 Carriage of Narcotic Drugs, Marihuana, and Depressant or Stimulant Drugs

**FAR Part 91 Subpart B – Flight Rules – General**

- A. 91.103 Preflight Action
- B. 91.105 Flight Crewmembers at Station
- C. 91.107 Use of Safety Belts, and Shoulder Harnesses
- D. 91.113 Right-of way Rules
- E. 91.119 Minimum Safe Altitudes
- F. 91.123 Compliance with ATC Clearances and Instructions
- G. 91.129 Operations in Class D Airspace
- H. 91.151 Fuel Requirements
- I. 91.155 Basic VFR Weather Minimums
- J. 91.205 VFR Required Equipment

**FAR Part 91 Subpart C – Maintenance, Preventive Maintenance, & Alterations**

- A. 91.403 General Information
- B. 91.405 Maintenance Required
- C. 91.409 Inspections, Annual, 100 Hour, Progressive
- D. 91.417 Maintenance Records

**Aircraft Manual – V Speeds**

- A. Vne – Never Exceed Speed
- B. Vno – Maximum Structural Cruising Speed
- C. Va – Maneuvering Speed
- D. Vfe – Maximum Flap Extended Speed
- E. Vs – Stall Speed Clean
- F. Vso – Stall Speed in Landing Configuration
- G. Vx – Best Angle of Climb Speed
- H. Vy – Best Rate of Climb Speed
- I. Vg – Maximum Glide Speed
- J. Maximum Demonstrated Crosswind Velocity

**NTSB Part 830**

- A. 830.5 Immediate Notification
- B. 830.10 Preservation of Aircraft Wreckage, Mail, Cargo, and Records
- C. 830.15 Reports and Statements to be Filed

**Aircraft Manual and Private Pilot Manual - General Information**

- A. Engine
- B. Propeller
- C. Fuel
- D. Oil
- E. Maximum Certificated Weight
- F. Symbols, Abbreviations, and Terminology

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**Aircraft Manual – Limitations**

- A. Airspeed Limitations
- B. Airspeed Indicator Markings
- C. Engine Limitations
- D. Engine Instrument Markings
- E. Maneuver Limits
- F. Flight Load Factor Limits
- G. Fuel Limitations

**Aircraft Manual – Emergency Procedures**

- A. Engine Failures
- B. Forced Landings
- C. Fires
- D. Electrical Power Supply System Malfunctions
- E. Landing With a Flat Main Tire
- F. Landing Without Elevator Control
- G. Emergency Operation in Clouds
- H. Inadvertent Flight into Icing Conditions
- I. Spins
- J. Rough Engine Operations or Loss of Power
- K. Carburetor Icing
- L. Spark Plug Fouling
- M. Magneto Malfunction
- N. Low Oil Pressure

**FAR 61.87 Requirements for Solo Flight**

- A. Completion of a pre-solo written exam
- B. A current 90 day log book endorsement by the instructor giving the pre-solo written exam
- C. A valid third class medical and student pilot certificate with your instructors endorsement
- D. CFI's logbook endorsement for solo flight, with restrictions

The pilot in command is responsible for the operation of the aircraft and the safety of the flight (review 61.89).

The following items should be checked before each flight:

- 1. Airworthiness Certificate
  - 2. Registration Certificate
  - 3. Operating Handbook & Limitations (POH)
  - 4. Weight and Balance Information
  - 5. (Required for Flight Test Only) Aircraft Maintenance Records containing:
    - a. Current annual inspection
    - b. Current 24 month Transponder / Encoder Test
    - c. Current 24 month ELT Battery Logbook Entry
    - d. Current 12 month ELT Operational Check
- A. Pilot's Documents
- 1. Current Medical and Student Pilot Certificate
  - 2. Logbook with current 90 day solo endorsement
- B. General Review
- 1. Practice Area Flights
  - 2. Traffic Pattern Procedures
  - 3. Restrictions to Solo Flight
  - 4. Radio Procedures (including CTAF)

**COMPLETION STANDARDS:**

You have completed your Pre-Solo Exam with a score of 100% and have shown your instructor that you have the ability and knowledge to confidently execute a safe solo flight in the local area.

**STUDENT:** \_\_\_\_\_ **CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_ **FAR 61.87 Review**

**YOUR FIRST SOLO**

**FLIGHT LESSON 18 - DUAL / SOLO**

**LESSON OBJECTIVES:**

During the dual portion of this flight your instructor will review takeoff and landing procedures to determine that you are ready for your first solo flight. During the second portion of the lesson, you will fly your first supervised solo flight in the local traffic pattern.

**REVIEW:**

- Radio Procedures
- Normal / Crosswind Takeoff and Landing
- Traffic Pattern Operations
- Go-Around
- Normal Approach and Landing

**COMPLETION STANDARDS:**

You will have completed this lesson satisfactorily when you have safely completed a supervised solo flight as directed by your instructor.

FLIGHT TIME: \_\_\_\_\_ PIC: \_\_\_\_\_

LANDINGS: \_\_\_\_\_

**THE STUDENT HAS COMPLETED LESSON 18**

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**FIRST SOLO PROGRESS CHECK**

FLIGHT LESSON 19 – DUAL / SOLO

LESSON OBJECTIVES:

The Student will have a chance to demonstrate solo abilities in preparation for future solo flights out of the traffic pattern.

REVIEW:

- Operation of Aircraft Systems
- Engine Starting
- Radio Communications
- Taxing
- Before Takeoff Check
- Normal / Crosswind Takeoff
- Departing the Traffic Pattern
- Maneuvering During Slow Flight
- Steep Constant Altitude Turns
- Power Off / On Stalls
- Spin Awareness Discussion
- Emergency Procedures
- Emergency Approach for a Landing
- Go-Around
- System and Equipment Malfunction
- Traffic Pattern Entry
- Normal / Crosswind Approach and Landing
- Vigilance and Collision Avoidance
- Wake Turbulence
- Landing at Uncontrolled Airports

COMPLETIONS STANDARDS:

You will be able to maintain: Altitude + / - 100 feet, Heading + / - 10° , Airspeed +10 / -5 knots, Bank Angle + / - 10°.

FLIGHT TIME: \_\_\_\_\_ PIC: \_\_\_\_\_

LANDINGS: \_\_\_\_\_

**THE STUDENT HAS COMPLETED LESSON 19**

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**AIRPLANE PERFORMANCE AND WEIGHT & BALANCE**

FLIGHT LESSON 20 – Ground School Session

ASSIGNMENT:

READ CHAPTERS 15 AND 16 in “Rod Machado’s Private Pilot Handbook”

CONTENT:

NEW THIS SESSION:

- Air Density and Density Altitude
- Calculating Density Altitude with your Trusty E6B
- Performance Charts
- Takeoff Distance Charts
- Landing Distance Charts
- Excessive Weight and Structural Damage
- Center of Gravity
- Weight and Balance Computations

**THE STUDENT HAS COMPLETED LESSON 20**

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**AIRPLANE PERFORMANCE AND WEIGHT & BALANCE QUIZ**

FLIGHT LESSON 20a

1. What is the maximum takeoff weight for your aircraft?
  
2. What is density altitude?
  
3. How will high temperature and relative humidity affect your airplanes takeoff and climb performance?
  
4. How do you avoid wake turbulence?
  
5. What fuel flow can you expect in your airplane (gph) at 75% maximum continuous power at 5000 feet pressure altitude on a standard day?
  
6. How much does one gallon of Avgas weight?
  
7. What is the relationship between: weight, arm and moment?
  
8. What hazards are associated with a CG forward of the published limits?
  
9. How do non-standard temperatures affect the fuel flow of your airplane in cruise flight?
  
10. To maximize your range, should you increase or decrease airspeed as fuel weight decreases?
  
11. What is the density altitude at your home airport if the altimeter setting is 30.02, and the temperature is 32° C?

**THE STUDENT HAS COMPLETED LESSON 20**

**STUDENT:** \_\_\_\_\_ **CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**IMPROVING SKILLS ON YOUR OWN**

**FLIGHT LESSON 21 – SOLO**

**LESSON OBJECTIVES:**

During this flight, you will practice familiar maneuvers by yourself to gain confidence and improve your skills.

**IMPROVING YOUR SKILLS:**

- Normal / Crosswind Takeoff and Climb
- Area Departure to the Practice Area
- Solo Flight to the Practice Area
- Rectangular Course
- S – Turns
- Turns Around a Point
- Solo Flight Back to the Airport
- Entering The Traffic Pattern
- Normal / Crosswind Approach and Landing

**COMPLETION STANDARDS:**

You will have completed this training satisfactorily when you have conducted the assigned solo flight. During this lesson, you will meet the Private Pilot Practical Test Standards by holding altitude +/- 100 feet, heading +/- 10 °, and airspeed +10/-5 knots for the assigned maneuvers.

Flight Time: \_\_\_\_\_ PIC: \_\_\_\_\_

LANDINGS: \_\_\_\_\_

**THE STUDENT HAS COMPLETED LESSON 21**

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**FLYING INTO SHORT AND SOFT FIELDS**

FLIGHT LESSON 22 – DUAL

LESSON OBJECTIVES:

During this flight you will learn the procedures to takeoff and land on short and soft runways.

**NEW THIS FLIGHT**

Short Field Takeoff and Climb  
Soft Field Takeoff and Landing  
Short Field Approach and Landing  
Soft Field Approach and Landing  
Radio Communication at Uncontrolled Airports

**REVIEW**

Coordinated Turns  
Spin Awareness Discussion  
Vigilance and Collision Avoidance  
Flight into Uncontrolled Airports  
Go-Around

**COMPLETION STANDARDS:**

You will have completed this lesson satisfactorily when you can recognize the type of runways on which you would use soft field and short field takeoff and landing procedures. Additionally, you will be able to demonstrate the correct procedure to be used in these conditions.

FLIGHT TIME: \_\_\_\_\_

LANDINGS: \_\_\_\_\_

**THE STUDENT HAS COMPLETED LESSON 22**

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**AVIATION WEATHER**

FLIGHT LESSON 23 – Ground School Session

**ASSIGNMENT:**

Read Chapter 12 in “Rod Machado’s Private Pilot Handbook”

**CONTENTS:**

- Heating Effects in the Atmosphere
- Wind
- Air Pressure
- How Clouds Form
- Humidity and Dewpoint
- Lapse Rate and Temperature Inversions
- Highs and Lows on Weather Maps
- Frontal Systems
- Thunderstorms
- Virga
- Turbulence and Wind Shear
- Mountain Waves
- Fog

**THE STUDENT HAS COMPLETED GROUND SCHOOL LESSON 23**

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**AVIATION WEATHER QUIZ**

FLIGHT LESSON 23a – QUIZ

1. What is the normal trend for temperature as altitude increases?
2. What is normal sea level temperature and atmospheric pressure?
3. What kind of visibility (good or poor) would you find under an inversion?
4. What causes wind?
5. What effect does Coriolis force have on wind in the Northern Hemisphere?
6. What direction does air normally flow around a low-pressure system?
7. Why are the winds at the surface normally less than winds aloft?
8. What does the term Dewpoint mean?
9. What is Virga and what, if any, hazard is associated with it?
10. Name the three stages of a typical thunderstorm.
11. What one weather phenomenon always occurs when you fly across a front?
12. What two conditions must be present for structural icing to form?
13. What cloud conditions indicate probable mountain wave effect?
14. List the characteristics of a Cumulus cloud and the front they are associated with?
15. List the characteristics of a Stratus cloud and the front they are associated with?

**STUDENT:** \_\_\_\_\_ **CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**AN INTRODUCTION TO VOR NAVIGATION**

FLIGHT LESSON 24 – SIMULATOR

LESSON OBJECTIVE:

The student will practice flight by reference to instruments and learn how to operate VOR navigational radios.

NEW TO THIS LESSON:

VOR Tuning and Orientation  
VOR Intercepting and Tracking - To and From  
VOR Intercept Patterns  
Using Radar Vectors  
Visually Landing in the Simulator

REVIEW:

Aircraft Instrumentation  
Straight and Level on Instruments  
Climbing / Descending on Instruments  
Turns to Headings  
Using the DME

COMPLETION STANDARDS:

The student shows increased understanding of the assigned maneuvers. His / Her performance continues to improve from previous lessons towards the standards of the PTS.

**THE STUDENT HAS COMPLETED LESSON 24**

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**HERE'S MORE: AVIATION WEATHER CHARTS AND BRIEFINGS**

FLIGHT LESSON 25 – Ground School Session

ASIGNMENT:

Read Chapter 13 in "Rod Machado's Private Pilot Handbook"

CONTENT:

NEW THIS SESSION:

- Reading METARS and TAF'S
- Airmets and Sigmet
- Pilot Reports (PIREP)
- Area Forecast (FA)
- Weather Depiction Chart
- Radar Summary Chart
- Low-Level Significant Weather Chart
- Surface Analysis Chart
- Flight Service Station
- Flight Watch
- ATIS, AWOS, ASOS
- Weather Briefing by Phone, Computer, and Internet
- The 50 State Phone (800 992-7433)

**THE STUDENT HAS COMPLETED GROUND SCHOOL LESSON 25**

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**AVIATION WEATHER CHARTS QUIZ**

FLIGHT LESSON 25a – QUIZ

1. When using the phone to get a weather briefing from a Flight Services Facility, the pilot should provide the following information:
2. List the three types of weather briefings and what they are used for.
3. List four sources to find weather information.
4. Below FL 180, enroute weather advisories should be obtained from a Flight Service Station on what frequency?
5. What frequency can Flight Watch be reached on?
6. Decode the following METAR:  
KLSE 081955Z 32014G20KT 5SM -SHRA OVC 025 13/10 A3004
7. Decode the following TAF:
  - A. KLSE 121720Z 121818 20012KT 3SM HZ BKN030 PROB40 2022 1SM TRSA OVC008CB
  - B. FM2200 33015G20KT P6SM BKN015 OVC025 PROB40 2202 3SM SHRA
  - C. FM0200 35012KT OVC008 PROB40 0205 2SM-RASN BECMG0608 02008KT BKN012
  - D. BECMG 1012 00000KT 3SM BR SKC TEMPO 1214 1/2SM FG
  - E. FM1600 VRB04KT P6SM SKC

- A.
- B.
- C.
- D.
- E.

STUDENT: \_\_\_\_\_ CFI: \_\_\_\_\_ DATE: \_\_\_\_\_

**INTRODUCTION TO NDB NAVIGATION**

FLIGHT LESSON 26 – SIMULATOR

LESSON OBJECTIVE:

The student will practice flight by reference to instruments and learn to operate the NDB navigation radio.

NEW THIS LESSON:

NDB Orientation  
NDB Intercepting, Tracking and Homing  
NDB Intercept Patterns  
Requesting Radar Vectors

REVIEW:

VOR Orientation  
VOR Intercepting and Tracking  
VOR Intercept Patterns  
Flying Radar Vectors  
Landing The Simulator

COMPLETION STANDARDS:

You will have completed this lesson as you continue to show increased understanding of the maneuvers and demonstrate continued improvement consistent with the standards of the PTS.

SIMULATOR TIME: \_\_\_\_\_

LANDINGS: \_\_\_\_\_

**THE STUDENT HAS COMPLETED LESSON 26**

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**USING YOUR RADIO WHEN THE UNEXPECTED HAPPENS**

FLIGHT LESSON 27 – DUAL

LESSON OBJECTIVES:

During this flight, you will practice flight by reference to instruments, and practice navigation by using VOR radios to locate your position and to follow those highways in the air. You will also practice navigating by using the NDB navigation radios.

NEW THIS LESSON:

REVIEW:

VOR Orientation and Tracking  
NDB Orientation and Homing  
NDB Intercept and Tracking  
Emergencies while flying Instruments  
Requesting Radar Vectors  
Lost Procedures Discussion using VOR radios

Aircraft Instrumentation  
Straight and Level on Instruments  
Climbs / Descents on Instruments  
Turning using Instruments

COMPLETION STANDARDS:

You will have completed this lesson as you demonstrate continued understanding of the use of the NDB Navigation Radio and VOR navigation.

FLIGHT TIME: \_\_\_\_\_

INSTRUMENT: \_\_\_\_\_

LANDINGS: \_\_\_\_\_

**THE STUDENT HAS COMPLETED LESSON 27**

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

## PLANNING A CROSS-COUNTRY FLIGHT

### FLIGHT LESSON 28 – GROUND SCHOOL

#### ASSIGNMENT:

Read Chapters 9, 10, 11, and 14 IN “Rod Machado’s Private Pilot Handbook”

#### CONTENT:

- Airspace and Special Use Airspace
- Charts
- Valid Checkpoints
- Converting Nautical and Statute Miles
- Time, Distance, and Speed Computations
- Completing the Flight Log
- Pilotage and Dead Reckoning
- Enroute Navigation
- Radio Navigation
- Lost Procedures
- Adverse Weather Conditions
- Alternate Airport
- Pilot’s Equipment Checklist
  - A. Current navigation charts (Sectionals)
  - B. Aircraft Flight Manual
  - C. Airport Facilities Directory
  - D. Clipboard and pencils
  - E. Flight Computer
  - F. Plotter
  - G. Airsick bags
  - H. Flashlight
  - I. Headset
  - J. Fuel tester
  - K. Fire extinguisher
  - L. Medical and Student Pilot Certificate
  - M. Logbook with instructor’s endorsement for the flight
- Airplane Preparation
  - A. A.R.O.W.
  - B. Fuel Topped Off
  - C. Aircraft Lights – Operational
  - D. Engine Oil Full (extra quart if necessary)
  - E. Tires proper inflation
  - F. Windshield cleaned
  - G. Instrument Panel Lights Operational
- Preflight Planning
  - A. Navigation Log complete
  - B. Weather – Visibility, Forecast, Winds Aloft
  - C. Aircraft weight and Balance calculated
  - D. Aircraft Takeoff and Climb Performance
  - E. Fuel availability at destination and alternates (Airport Facilities Directory)
  - F. Flight Plan Filed
  - G. ATC Radar and Flight Service Station Frequencies
  - H. Alternate airport availability
  - I. Special Airspace considerations
- Losing Track of Your Position:
  - A. If you lose track of your position remain calm. Continue on your original heading and recheck your calculations. If your calculations are correct, you should be within a reasonable distance of your planned checkpoint. Look for recognizable landmarks that should be within a 5 or 10 mile radius of your planned checkpoint.
- Pilotage
  - A. Maintain your original heading
  - B. Check your original flight plan and check heading calculations
  - C. Check that you are flying the correct heading.
  - D. Check you heading indicator (DG) with your magnetic compass for precession.
  - E. Scan for prominent landmarks to identify your position.
  - F. Check that the compass heading of the road, river, or canyon you are following matches it’s direction on the Sectional Chart. Make chart references as north, south, east, or west.
  - G. Fly over airports and water towers to read the names of the city or town.
  - H. Common sense tells me what? Take action.

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Radio Navigation

- A. Check the to / from indicator.
- B. Check the VOR frequency and signal reception (Station Identification Code).
- C. Check that your compass heading and VOR course agree.
- D. Get a cross-fix from two VOR stations using FROM indications.
- E. Tune the ADF to an identifiable NDB Navigation Station.

Confess

- A. Contact the nearest Air Traffic Control or Flight Service Station for assistance.
- B. ATC and FSS frequencies are listed on the Sectional Chart, the Airport Facilities Directory, and Airport Guide Books.
- C. If you still are unable to locate your position or receive help, consider making an alternate landing while adequate fuel and daylight still remain.
- D. Consider selecting frequency 121.5 and ask for help.

**THE STUDENT HAS COMPLETED LESSON 28**

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**PLANNING A VFR CROSS-COUNTRY FLIGHT QUIZ**

FLIGHT LESSON 28a – QUIZ

1. What is the length, in nautical miles, of one degree of latitude?
2. How should you enter a left hand traffic pattern at a non-towered airport?
3. What is the visual indication of a two bar VASI?
4. Define Dead Reckoning:
5. How do you convert your local time to UTC?
6. If your airplane burns 6.5 gallons per hour, how much fuel will you need to fly one hour and 36 minutes and still have a one-hour fuel reserve?
7. If your planned true course is 337°, and the forecast wind aloft is 039° @ 24 knots, will your groundspeed be more or less than your TAS?
8. Are cloud bases on Area Forecasts given in AGL or MSL?
9. How do you open and close a VFR flight plan?
10. To fly inbound on the 150° radial from your destination VOR, what should you enter in the OBS to fly directly to the station?
11. How do you positively, absolutely identify a VOR station?
12. While in flight, to plot your present location do you use the To or From indication on your VOR?
13. How many “proofs” do you need to positively identify a checkpoint (landmark) on the ground?
14. Why is it a good idea to wear sunglasses when you fly?
15. During a solo cross-country flight, at what point and under what conditions will you give ATC full control of your airplane?

**STUDENT:** \_\_\_\_\_ **CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**OPEN BOOK REVIEW: CROSS-COUNTRY FLIGHT PLANNING**

FLIGHT LESSON 28b

STUDENT NAME: \_\_\_\_\_

DATE: \_\_\_\_\_ CFI: \_\_\_\_\_

1. List the following capacities of your airplane:  
Total Fuel \_\_\_\_\_ Usable Fuel \_\_\_\_\_  
Oil \_\_\_\_\_ Minimum Safe Oil \_\_\_\_\_

2. How long will your airplane fly on full tanks?

3. How much fuel does your airplane burn per hour?

4. What is the recommended power setting for takeoff?

5. What is the Maximum baggage allowed (in pounds) ?

6. What (4) documents must be in your airplane?

7. What (2) documents should you have with you while flying your airplane?

8. How far away from your home airport can you fly to practice solo maneuvers?

9. What is the minimum flight visibility required for student pilots? Day \_\_\_\_\_ Night \_\_\_\_\_

10. Can you fly to another airport within 25 miles and practice solo takeoff & landings?

11. Can a student pilot fly without visual reference to the ground?

12. How often must your instructor endorse your logbook for solo flight?

13. How long is a student pilot certificate good?

14. Can a student pilot fly under "Special VFR" rules?

15. When are you required to turn on your navigation lights?

16. When are you required to turn on your anti-collision light?

17. Match the following light signals with the correct meaning:

\_\_\_\_\_ Steady Green

\_\_\_\_\_ Flashing Green

\_\_\_\_\_ Steady Red

\_\_\_\_\_ Flashing Red

\_\_\_\_\_ Alternating Red and White

\_\_\_\_\_ Flashing White

A. Taxi clear of runway or airport unsafe, do not land

B. Return to starting point

C. Cleared to takeoff or land

D. Exercise extreme caution

E. Stop or give way to other aircraft and continue circling

F. Cleared to taxi or return for landing

18. What are the minimum lighting requirements to operate an airplane between sunset and sunrise?

19. How much fuel are you required to carry for a daytime VFR flight?

20. How much fuel are you required to carry for a night VFR flight?

21. What altitudes should you fly on an easterly heading when more than 3,000 feet above the ground?

22. Which aircraft has the right-of-way over all other air traffic?
- A balloon.
  - An aircraft in distress.
  - An aircraft on final approach to land.
23. Two-way radio communication must be established with the Air Traffic Control facility having jurisdiction over the area prior to entering which class airspace?
- Class C
  - Class E
  - Class G
24. What minimum pilot certificate is required for operation within Class B airspace?
- Recreational Pilot Certificate.
  - Student Pilot Certificate with appropriate logbook endorsements.
  - Private Pilot Certificate with an instrument rating.
25. What aircraft inspections are required for rental aircraft that are also used for flight instruction?
- Annual and 100 hour inspections.
  - Biannual and 100 hour inspections.
  - Annual and 50 hour inspections.
26. If an aircraft is involved in an accident that results in substantial damage, the nearest NTSB field office should be notified
- Immediately.
  - within 48 hours.
  - Within 7 days
27. Where does wind shear occur?
- Only at high altitudes.
  - Only at low altitudes.
  - At all altitudes, in all directions.
28. Which initial action should a pilot take prior to entering Class C airspace?
- Contact approach control on the appropriate frequency.
  - Contact tower & request permission to enter.
  - Contact FSS for traffic advisories.
29. When taking off or landing at an airport where heavy aircraft are operating, one should be particularly alert to the hazards of wingtip vortices because this turbulence tends to
- rise from a crossing runway into the takeoff or landing path.
  - rise into the traffic pattern area surrounding the airport.
  - Sink into the flight path of aircraft operating below the aircraft generating the turbulence.
30. In which type of airspace are VFR flights prohibited.
- Class A
  - Class B
  - Class C
31. What minimum visibility and clearance from clouds are required for VFR flight in Class G airspace at 700 feet AGL or below during daylight hours?
- 1 mile visibility and clear of clouds
  - 1 mile visibility, 500 feet below, 1,000 feet above, and 2,000 feet horizontal clearance from clouds.
  - 3 miles visibility and clear of clouds
32. What minimum flight visibility is required for VFR flight on an airway (class E airspace) below 10,000 feet MSL?
- 1 mile
  - 3 miles
  - 4 miles
33. The basic VFR weather minimums for operating an aircraft within Class D airspace are
- 500 foot ceiling & 1 mile visibility.
  - 1,000 foot ceiling & 3 miles visibility.
  - Clear of clouds and 2 miles visibility.
34. A special VFR clearance allows the pilot of an aircraft to operate VFR within Class D airspace when the visibility is
- less than a mile and ceiling of 1,000 ft.
  - at least 1 mile and clear of clouds.
  - At least 3 miles and clear of clouds.

**GOING ON YOUR FIRST CROSS-COUNTRY**

**FLIGHT LESSON 29 – DUAL**

**LESSON OBJECTIVE:**

During this flight, you will use the airplane as it is intended – to go somewhere! You will learn cross-country procedures and what you should do when you fly out of your local training area. This flight prepares you to make cross-country flights on your own.

**NEW THIS FLIGHT:**

- Navigation Log
- Fuel Requirements
- Obtaining Weather Information
- Opening and Closing VFR Flight Plan
- Dead Reckoning
- Pilotage
- VOR Navigation
- Diversion to an Alternate Airport
- Lost Procedures
- Controlled and Uncontrolled Airports
- GPS Navigation (if installed)

**REVIEW:**

- Charts and Airspace
- Airports and Airport Operations
- Flight Planning
- Wake Turbulence and Collision Avoidance
- VOR Orientation and Tracking
- Communication, using all Available Services
- Fuel Mixture Control
- Area Departure
- Estimates of Groundspeed and ETA

**COMPLETION STANDARDS:**

You will have satisfactorily completed this lesson when you demonstrate that you can safely plan and fly a solo cross-country flight. You will get weather information and make the decision to fly or not based on the weather over your planned route of flight.

FLIGHT TIME: \_\_\_\_\_

X-C TIME: \_\_\_\_\_

LANDINGS: \_\_\_\_\_

**THIS STUDENT HAS COMPLETED LESSON 29**

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**IMPROVING SKILLS ON YOUR OWN**

FLIGHT LESSON 30 – SOLO

LESSON OBJECTIVE:

During this flight, you will practice familiar maneuvers by yourself to gain confidence and improve your skills.

NEW THIS FLIGHT:

- Normal Takeoff and Climb
- Traffic Pattern Entry and Exit
- Pilotage to and from the Practice Area
- Steep Constant Altitude Turns
- Slow Flight
- Rectangular Course
- S – Turns
- Turns Around a Point
- Normal / Crosswind Approach and Landing
- Short Field Approach and Landing
- Vigilance and Collision Avoidance

COMPLETION STANDARDS:

Bank Angle: + / - 10°

Heading: + / - 10°

Airspeed: + / - 5 knots

Altitude: + / - 100 feet

FLIGHT TIME: \_\_\_\_\_ PIC: \_\_\_\_\_

LANDINGS: \_\_\_\_\_

**THE STUDENT HAS COMPLETED LESSON 30**

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**YOUR FIRST NIGHT FLIGHT**

**FLIGHT LESSON 31 – DUAL**

**LESSON OBJECTIVES:**

During this flight you will learn how different things can look at night, and that there are some special safety considerations. Special emphasis will be placed upon the additional planning and flight considerations for flying at night. Eight night landings will be performed, both with and without a landing light.

**NEW THIS FLIGHT:**

- Night Equipment Needs
- Airport Lighting
- Night Vision
- Night Flying
- Night Illusions
- Normal Takeoff and Landing
- Approach and Landing with / without Landing Light
- Emergencies at Night
- Night Regulations

**REVIEW:**

- Normal Takeoff and Climb
- Slow Flight
- Recovery from Unusual Attitudes (VFR-IFR)
- Steep Constant Altitude Turns
- VOR Navigation
- Go-Around

**COMPLETION STANDARDS:**

You will have completed this lesson when you have completed 8 night takeoffs and landings to a full stop as sole manipulator of the controls. You will not exceed PTS standards of:

Airspeed: + / - 5 knots

Heading: + / - 10°

Altitude: + / - 100 feet

Bank Angle: + / - 10°

FLIGHT TIME: \_\_\_\_\_

NIGHT TIME: \_\_\_\_\_

LANDINGS: \_\_\_\_\_

**THE STUDENT HAS COMPLETED LESSON 31**

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**NIGHT CROSS-COUNTRY BRIEFING**

FLIGHT LESSON – 32 Ground School Session

LESSON OBJECTIVE:

This briefing is a review of all the factors that go into making a safe night x-country flight. The preflight discussion and planning will include preparing a flight log with special emphasis on altitude selection and a pilot's night flight checklist.

CONTENT:

Cross-Country Review Including:

- A. Gathering weather information
- B. Weather analysis
- C. Completion of a navigation log
- D. Filing, activating and closing a VFR flight plan
- E. Use of Comm / Nav radios including selection of correct frequencies
- F. Enroute airspace
- G. VFR weather minimums
- H. Required fuel reserves and visibility

Cross-Country Night Emergency Procedures

- A. Adverse weather
  - a. Visibility
  - b. Ceilings
  - c. Wind
  - d. Turbulence
  - e. Thunderstorms
- B. Icing conditions
- C. Lost procedures
- D. Low fuel
- E. Loss of Comm / Nav
- F. Flight instrument failures
- G. Engine instrument failures
- H. Electrical system failures

Pilot's Equipment Checklist

- A. Current Sectional Chart
- B. Aircraft Flight Manual (POH)
- C. Airport Facilities Directory
- D. Clipboard and Pencils
- E. Plotter
- F. Flashlight (spare batteries)
- G. Headset
- H. Fuel tester
- I. Fire extinguisher
- J. Medical and Student Pilot Certificate

Special Considerations for Night Flight

- A. Physiological aspects of night flight
- B. Maintaining visual orientation under night VFR conditions
- C. Demonstrating good operating practices for pre-flight, taxi and checklist usage
- D. Review required aircraft equipment
- E. Airport lighting
- F. Night navigation vs. visual orientation

**THE STUDENT HAS COMPLETED LESSON 32**

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CROSS-COUNTRY FLIGHT AT NIGHT**

FLIGHT LESSON 33 – DUAL

LESSON OBJECTIVES:

You will effectively apply VFR navigation skills to operate safely at night. Special emphasis will be placed on learning the additional planning requirements necessary when flying cross-country at night.

NEW THIS FLIGHT:

- Flight Planning
- Navigation Log
- Fuel Requirements
- Opening and Closing VFR Flight Plan
- Obtaining Weather Information
- VFR Navigation
- The 180° Turn, and when to use it
- Diversion to an Alternate Airport
- Lost Procedures
- Estimates of Groundspeed and ETA
- Wake Turbulence and Collision Avoidance
- Night Equipment Requirements
- Airport Lighting
- Night Vision and Illusion
- Emergencies at Night
- Flight to Unfamiliar Airports
- Go-Around
- Establishing On Course

COMPLETION STANDARDS:

You will complete this lesson when you have successfully flown a dual night cross-country of at least 100 nm total distance as sole manipulator of the controls. You will also maintain the following standards:

- Altitude: + / - 100 feet
- Airspeed: + / - 10 knots
- Heading + / - 10°

FLIGHT TIME: \_\_\_\_\_

NIGHT: \_\_\_\_\_

CROSS-COUNTRY: \_\_\_\_\_

LANDINGS: \_\_\_\_\_

**THE STUDENT HAS COMPLETED LESSON 33**

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**GOING ON YOUR SECOND DUAL CROSS-COUNTRY**

**FLIGHT LESSON 34 – DUAL**

**LESSON OBJECTIVE:**

During this flight you will demonstrate greater confidence at unfamiliar airports as well as deciding how to best use your radios to meet your needs. You will sharpen your cross-country navigation skills as you continue to fly out of the local training area.

**NEW THIS FLIGHT:**

- Charts and Airspace
- Airports and Airport Operations
- Flight Planning
- VOR Orientation and Tracking
- High Density Airport Operations
- Power Settings and Mixture Control
- Requesting Flight Following
- Position Fix by Navigation Facilities
- Flight on Federal Airways
- Lost Procedures
- Controlled and Uncontrolled Airports

**REVIEW:**

- Airport Departure to on Course
- Vigilance and Collision Avoidance
- Using Clearance Delivery
- Using Approach & Departure
- Fuel Requirements
- Obtaining Weather Information
- Opening & Closing VFR Flight Plan
- VOR Navigation
- Diversion to an Alternate Airport
- Estimates of Groundspeed & ETA
- Using an Airport Diagram

**COMPLETION STANDARDS:**

You will complete this lesson as you demonstrate cross-country pilot proficiency to include thorough preflight planning, weather interpretation, adherence to your flight plan, and effective use of VFR navigation techniques. Estimates of ETA's will be within 10 minutes and any diversion decision will be made in a timely manner.

FLIGHT TIME: \_\_\_\_\_

LANDINGS: \_\_\_\_\_

**THIS STUDENT HAS COMPLETED LESSON 34**

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CROSS-COUNTRY BRIEFING**

LESSON 35 – Ground School Session

LESSON OBJECTIVE:

We will discuss requirements for an effective cross-country flight. In addition to pre-solo flight training, a student pilot must have received training in the following areas of FAR Part 61.93:

CONTENT:

- A. Pilotage and dead reckoning, using aeronautical charts and the magnetic compass.
- B. Learning to obtain weather reports from Flight Service, DUATS, and Enroute
  - 1. 1-800 WX-BRIEF and 122.0 MHz
  - 2. Synopsis (FA, TWEB, Depiction Chart)
  - 3. Current Weather including Pilot Reports (SA, METAR, AWOS, PIREPS)
  - 4. Enroute Forecast (FA,TWEB)
  - 5. Destination Forecast (FT, TAF, FA, TWEB)
  - 6. Winds & Temperature Aloft (FD, Milabar Charts, PIREPS)
  - 7. Adverse conditions (AIRMETS, SIGMETS, NOTAMS)
  - 8. Synopsis (FA, TWEB, Weather Depiction Chart)
- C. Aircraft Performance Charts
- D. Estimating visibility in flight and recognizing critical weather situations
- E. Emergency procedures including:
  - 1. Lost Procedures
  - 2. Adverse weather conditions
- F. Simulated precautionary off-airport approaches and landing procedures
- G. Traffic pattern arrival and departures at unfamiliar airports
- H. Operational problems associated with the terrain features of the planned route
- I. Proper operation of the instruments and equipment in the aircraft to be flown
- J. Short field takeoff and landings
- K. Soft field takeoff and landings
- L. Crosswind takeoff and landings
- M. Simulated instrument conditions including:
  - 1. Climbs, turns, descents
  - 2. Straight and level flight
  - 3. Radio navigation and radar vectors
- N. The use of radios for VFR communications and navigation

**AIRPLANE PREPARATION**

- A. A.R.O.W.
- B. Fuel Topped Off
- C. Aircraft Lights – Operational
- D. Engine Oil Full – extra quarts if needed
- E. Tires properly inflated
- F. Windshield cleaned
- G. Instrument Panel Light Operational

**PREFLIGHT PLANNING**

- A. Navigation Log Complete
- B. Weather (Visibility, Forecast, Winds Aloft)
- C. Aircraft Weight and Balance Calculated
- D. Aircraft Takeoff and Climb Performance
- E. Fuel availability at destination and alternates (Airport Facility Directory)
- F. Flight Plan Filed
- G. ATC Radar and Flight Service Station Frequencies
- H. Alternate Airport Availability
- I. Special Airspace Considerations (MOA & TFR)
- J. Logbook and Student Pilot Endorsement

**LOSING TRACK OF YOUR POSITION**

- A. Pilotage
- B. Radio Navigation
- C. Confess

**THE STUDENT HAS COMPLETED LESSON 35**

**STUDENT:** \_\_\_\_\_ **CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CROSS-COUNTRY REVIEW EXERCISE**

FLIGHT LESSON 36 - EXAM

1. What is an important airspeed that is not color coded on airspeed indicators?
  - A. Never Exceed Speed
  - B. Maximum Structural Cruising Speed
  - C. Maneuvering Speed
2. An airplane has been loaded in such a manner that the CG is located aft of the CG limit. One undesirable flight characteristic a pilot might experience with this airplane would be
  - A. A longer takeoff roll.
  - B. Difficulty in recovering from a stalled condition
  - C. Stalling at higher than normal airspeed.
3. Which combination of atmospheric conditions will reduce aircraft takeoff and climb performance?
  - A. Low temperature, low relative humidity, and low density altitude.
  - B. High temperature, low relative humidity, and low density altitude.
  - C. High temperature, high relative humidity, and high density altitude.
4. What effect does high density altitude have on aircraft performance?
  - A. It increases engine performance.
  - B. It reduces climb performance.
  - C. It increases takeoff performance.
5. What effect, if any, does high humidity have on aircraft performance?
  - A. It increases performance.
  - B. It decreases performance.
  - C. It has no effect on performance.
6. On a flight in your airplane, what would you do if you inadvertently entered overcast?
7. When flying HAWK N666CB, the proper phraseology for initial contact with Green Bay FSS is:
  - A. "Green Bay Radio, HAWK Six Six Six Charlie Bravo, receiving Lone Rock VORTAC, over."
  - B. "Green Bay Station, HAWK Six Six Six Cee Bee, receiving on Lone Rock VORTAC, over."
  - C. "Green Bay Flight Service Station, HAWK November Six Charlie Bravo, receiving Lone Rock VORTAC, over."
8. For information about parachute jumping and glider operations in you area, refer to:
  - A. Notes on the border of the Sectional Chart.
  - B. The Airport Facility Directory.
  - C. The notices to airmen (NOTAM) publication.
9. Which items are included in the empty weight of an airplane?
  - A. Unusable fuel and undrainable oil.
  - B. Only the airframe, power plant, and optional equipment.
  - C. Full fuel tanks and engine oil to capacity.
10. An airplane is loaded 110 pounds over maximum certificated gross weight. If fuel (gasoline) is drained to bring the airplane within limits, how much fuel should be drained?
  - A. 15.7 gallons.
  - B. 16.2 gallons.
  - C. 18.4 gallons.
11. FAA advisory circulars containing subject matter specifically related to Airmen are issued under which subject number?
  - A. 60
  - B. 70
  - C. 80

12. Given:	Weight:	Arm:	Moment:
Empty weight	1,495.0	101.4	151,593.0
Pilot & passengers	380.0	64.0	-----
Fuel (30 gal usable)	-----	96.0	-----

The CG is located how far aft of datum?

- A. CG 92.44
  - B. CG 94.01
  - C. CG 119.8
12. What is the crosswind component for landing on Runway 18 when ATIS reports the wind as 220 degrees at 30 knots?
- A. 19 knots
  - B. 23 knots
  - C. 30 knots
13. With reference to question 12, can we land on Runway 18?
- A. Yes
  - B. No
  - C. CFI only can
14. When are you required to wear your seat belt while flying?
- A. Below 1,000 feet AGL.
  - B. In all Climbs and Descents.
  - C. At all time while in flight.
15. What are the altitude restrictions while flying over a congested area, except for landing and takeoff?
- A. 1,000 feet MSL
  - B. 1,000 feet AGL
  - C. 1,000 feet above the highest obstacle
16. When flying VFR cross-country, what code would you have in your transponder?
- A. 7700
  - B. 7500
  - C. 1200
17. What color are taxiway lights at night?
- A. Blue
  - B. Green
  - C. White
18. What color are the runway end lights?
- A. Yellow
  - B. Orange
  - C. Red
19. How can you determine if fuel is available at your destination?
20. How can you determine your position by using your VOR Navigation radio?
21. What will happen if you forget to close your VFR flight plan?

21. How will you get a weather update while in the air?
  
22. What would you do if your fuel gauges indicate a fuel level much lower than your planning called for?
  
23. What is the minimum fuel reserve required for your cross-country flight?
  
24. Your airplane has less time before an inspection than your cross-country flight is expected to take, what will you do?
  
25. If you have a mechanical problem away from your home airport, what will you do?
  
26. How can you get important NOTAMS before your flight?
  
27. How do you determine the best runway to use at an uncontrolled airport? On the ground and in the air:
  
28. What is a DF steer, what are they used for, how can you get one?
  
29. Can a student pilot request radar vectors on a solo cross-country?
  
30. If the control tower tells you to land on 36 and hold short of 31, what would you do if you don't believe you can actually land and stop short of runway 31?

**THE STUDENT HAS COMPLETED LESSON 36**

**The student has completed the FAA Written Exam**

**The student has not completed the FAA Written Exam**

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**YOUR FIRST SOLO CROSS-COUNTRY**

FLIGHT LESSON 37 - SOLO

LESSON OBJECTIVES:

You will gain proficiency by practicing cross-country flight skills.

REVIEW:

- Sectional Charts
- Flight Publications
- Route Selection
- Weather Information
- Fuel Requirements
- Performance and Limitations
- Navigation Log
- FAA Flight Plan
- Radio Navigation
- Pilotage / Dead Reckoning
- Unfamiliar Airports
- Estimates of ETA
- Aeromedical Factors

COMPLETION STANDARDS:

You will safely complete a solo cross-country flight by yourself with at least one landing 50 nautical miles from the departure airport. A completed navigation log will be reviewed with the flight instructor before and after the flight.

PIC: \_\_\_\_\_

CROSS-COUNTRY: \_\_\_\_\_

LANDINGS: \_\_\_\_\_

**THE STUDENT HAS COMPLETED LESSON 37**

STUDENT: \_\_\_\_\_ DATE: \_\_\_\_\_

CFI: \_\_\_\_\_ DATE: \_\_\_\_\_

**YOUR LONG SOLO CROSS-COUNTRY**

FLIGHT LESSON 38 – SOLO

LESSON OBJECTIVES:

You will gain confidence and proficiency by practicing cross-country flight skills.

REVIEW:

- Sectional Charts
- Flight Publications
- Route Selection
- Weather Information
- Fuel Requirements
- Performance and Limitations
- Navigation Log
- FAA Flight Plan
- Radio Navigation
- Pilotage / Dead Reckoning
- Unfamiliar Airports
- Estimates of ETA
- Aeromedical Factors

COMPLETION STANDARDS:

You will have completed this lesson satisfactorily when you have safely conducted the assigned cross-country flight of 150 nm total distance, including landings at three airports with one landing 50 nm from the departure airport. At the completion of this flight, your instructor will review your navigation log. The revised in-flight ETA at each checkpoint should not vary from the ATA's by more than +/- 10 minutes.

PIC: \_\_\_\_\_

LANDINGS: \_\_\_\_\_

**THE STUDENT HAS COMPLETED LESSON 38**

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**SOLO IMPROVEMENT**

FLIGHT LESSON 39 – SOLO

LESSON OBJECTIVES:

During this solo flight, you will increase your confidence and skill by practicing familiar maneuvers.

IMPROVING YOUR SKILLS:

- Steep Turns
- Slow Flight
- Power On Stalls
- Power Off Stalls
- Rectangular Course
- S – Turns
- Turns Around a Point
- Short Field Takeoff and Landing
- Soft Field Takeoff and Landing

COMPLETION STANDARDS:

You will gain proficiency and confidence by practicing each maneuver.

PIC: \_\_\_\_\_

LANDINGS: \_\_\_\_\_

**THE STUDENT HAS COMPLETED LESSON 39**

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**HUMAN FACTORS PRINCIPALS**

FLIGHT LESSON 40 – Ground School Session

ASSIGNMENT:

Read Chapter 17 in “Rod Machado’s Private Pilot Handbook”

CONTENT:

- IM SAFE Checklist
- Hypoxia
- Hyperventilation
- Motion Sickness
- Carbon Monoxide
- Excess Nitrogen after Scuba Diving
- Spatial Disorientation
- Vestibule Disorientation
- Autokinesis
- False Horizons
- Landing Illusions
- Flicker Vertigo
- Vision in Flight
- Dark Adaptation
- Situation Awareness
- Cockpit Management
- Risk Management
- Crew Resource Management

**THE STUDENT HAS COMPLETED LESSON 40**

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**HUMAN FACTORS PRINCIPALS QUIZ**

FLIGHT LESSON 40a – QUIZ

1. Explain the term autokinesis.
2. How would you treat a passenger who is suffering from hyperventilation?
3. What is hypoxia?
4. What is empty field myopia?
5. What is your first priority when anything goes wrong during flight?
6. If you have a cold, how could this affect your flying?
7. What are the tools that you can use to elevate your fitness to fly?
8. If you have a known medical condition that would adversely affect your ability to act a PIC, can you continue flying even if you have a current medical certificate?
9. What happens to the overall percentage of oxygen in the atmosphere as you increase altitude?
10. What is the IM SAFE Checklist and why do we use it?
11. Explain why a crew briefing is critical before takeoff?
12. What are five things to include in your passenger briefing?
13. What affect does smoking have on night flying?
14. When encountering vertigo, what action should you take?
15. Can breathing oxygen be legally carried in an unpressurized airplane?

**THE STUDENT HAS COMPLETED LESSON 40a**

**STUDENT:** \_\_\_\_\_ **CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**INSTRUCTOR EVALUATION**

FLIGHT LESSON 41 – DUAL

LESSON OBJECTIVE:

Your flight instructor will evaluate your proficiency to determine areas that may need extra work.

IMPROVING YOUR SKILLS:

- Rectangular Course
- S – Turn across a Road
- Turns Around a Point
- Steep Turns
- Constant Airspeed Climbs (IFR)
- Constant Airspeed Descents (IFR)
- Power Off Stall (approach to landing stall) (VFR – IFR)
- Power On Stall (takeoff and departure stall) (VFR – IFR)
- Recovery from Unusual Attitudes (IFR)
- Emergency Descents and Climbs using Radio Aids or Simulated Radar Vectors (IFR)
- Using Radio Communications, Navigation Systems / Facilities, and Radar Services (IFR)
- Short Field Takeoff and Landing
- Soft Field Takeoff and Landing
- Crosswind Takeoff and Landing
- Forward Slips to a Landing
- Go – Around
- Emergency Flight Operations
- Rectangular Course
- Recovery from Unusual Attitudes (IFR)
- Simulated Forced Landing
- Power-Off Approach and Landing
- Zero Flap Approach and Landing
- Aborted Takeoff
- VOR Navigation
- NDB Navigation
- GPS Navigation

COMPLETION STANDARDS:

All maneuvers will be completed in accordance with the Private Pilot Practical Test Standards. Any maneuvers that do not meet these standards will be reviewed and assigned for solo practice.

FLIGHT TIME: \_\_\_\_\_

LANDINGS: \_\_\_\_\_

**THE STUDENT HAS COMPLETED LESSON 41**

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**FLYING THE SIMULATOR IN THE DISCOVERY ZONE**

**FLIGHT LESSON 42 – SIMULATOR**

**LESSON OBJECTIVES:**

In this session you will fly the simulator to challenge your skills in preparation for you FAA Check Ride.

**IMPROVING YOUR SKILLS:**

- Normal Start and Run-up
- Area Departure and Climb
- Turns to Headings
- 180 Constant Altitude Turns
- Steep Constant Altitude Turns
- Maneuvering at Slow Flight
- Slow Flight at Various Speeds and Configurations
- Power on Stall
- Victor Airway Intercept and tracking
- NDB orientation and Tracking
- Climbs and Descents while Navigating to a VOR
- Introduction to an ILS
- Simulator Landing

**COMPLETION STANDARDS:**

You will have completed this lesson in preparation for your FAA Check Ride. Deficiencies will be discussed and corrections made on the next flight.

**SIMULATED INSTRUMENT:** \_\_\_\_\_

**LANDINGS:** \_\_\_\_\_

**THE STUDENT HAS COMPLETED LESSON 42**

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**PREPARING FOR THE FAA PRACTICAL TEST**

**FLIGHT LESSON 43 – SOLO**

**LESSON OBJECTIVE:**

You will practice the maneuvers, putting particular emphasis on the deficient areas assigned by your flight instructor.

**REVIEW:**

- Steep Constant Altitude Turns
- Slow Flight
- Power Off Stalls
- Power On Stalls
- S – Turns Across a Road
- Turns Around a Point
- Short Field Takeoff and Landing
- Soft Field Takeoff and Landing
- Crosswind Takeoff and Landing
- Go-Around
- Forward Slips to Landing

**COMPLETIONS STANDARDS:**

The student will self evaluate and correct any deficiencies.

PIC: \_\_\_\_\_

LANDINGS: \_\_\_\_\_

**THE STUDENT HAS COMPLETED LESSON 43**

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**FINALLY: THE FINAL ORAL – EXAM**

FLIGHT LESSON 44 – Ground School Session

CONTENTS:

Certificates and Documents

- A. A.R.O.W.
- B. Required Maintenance and Inspections
- C. Personal Pilot required Records

Weather Information

Cross-Country Flight Planning and Navigation

Aeronautical Charts

The Airspace System

VFR Weather Minimums

Performance and Limitations

Types of Altitude and Airspeeds

Weight and Balance Computation

Aircraft System Operation

Engine (Type, Size, and Ignition System)

Fuel and Oil System

Electrical System

Hydraulic System

Flight Controls

Vacuum System (Components and Operation)

Flight Instruments

Pitot Static System

Minimum Equipment (Day VFR / Night VFR)

Night Operations

Emergency Operations

Stall and Spin Awareness

Instructor Endorsement / Form 8710-1

FAR Part 1 – Definitions

- A. Categories, Class, Make, Model
- B. Visual Flight Rules (VFR)
- C. Instrument Flight Rules (IFR)
- D. Night
- E. Pilot In Command

FAR Part 61 – Certification of Pilots

- A. 61.3 Requirements for Certificates
- B. 61.23 Duration of Medical Certificates
- C. 61.31 General Limitations – High Performance, Complex, Pressurized, Tailwheel
- D. 61.53 Flight Review
- E. 61.57 Recent Flight Experience – Pilot In Command Day & Night
- F. 61.60 Change of Address
- G. 61.87 Solo Requirements for Student Pilots
- H. 61.89 Student Pilot General Limitations
- I. 61.93 Student Pilot Cross Country Flight Requirements
- J. 61.103 Private Pilot Requirements
- K. 61.107 Private Pilot Flight Experience
- L. 61.113 Private Pilot Limitations – Pilot In Command
- M. 61.118 Private Pilot Limitations – Pilot In Command

FAR Part 91 – General Operating Rules

- A. 91.3 Responsibility and Authority of Pilot in Command
- B. 91.7 Civil Aircraft Airworthiness
- C. 91.9 Civil Aircraft Flight Manual, Markings, and Placard Requirements
- D. 91.15 Dropping Objects
- E. 91.103 Preflight Action
- F. 91.105 Flight Crewmembers at Stations
- G. 91.107 Use of Safety Belts

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- H. 91.111 Operating Near Other Aircraft
- I. 91.113 Right of Way Rules: Except Water Operations
- J. 91.117 Aircraft Speed Restrictions
- K. 91.119 Minimum Safe Altitude
- L. 91.121 Altimeter Settings
- M. 91.123 Compliance With ATC Clearances and Instructions
- N. 91.125 ATC Light Signals
- O. 91.133 Restricted and Prohibited Airspace
- P. 91.151 Fuel Requirements for VFR Conditions
- Q. 91.157 Special VFR Weather Minimums
- R. 91.159 VFR Cruising Altitudes
- S. 91.207 Emergency Locator Transmitters (ELT)
- T. 91.209 Aircraft Lights
- U. 91.211 Use of Supplemental Oxygen
- V. 91.215 Use of Transponder and Altitude Reporting Equipment
- W. 91.303 Aerobatic Flight
- X. 91.307 Parachutes and Parachuting
- Y. 91.313 Restricted Category Civil Aircraft: Operating Limitations
- Z. 91.319 Aircraft Having Experimental Certificates: Operating Limitations
- AA. 91.403 Aircraft Maintenance: General
- BB. 91.407 Operations After Maintenance, Preventative Maintenance, Rebuilding or Alteration
- CC. 91.409 Inspections
- DD. 91.413 ATC Transponder Test and Inspections
- EE. 91.417 Maintenance Records

National Transportation Safety Board Regulations (NTSB 830)

- A. 830.2 Definitions
- B. 830.5 Immediate Notification
- D. 830.15 Reports and Statements to be Filed

Aeromedical Factors

- A. Hypoxia
- B. Hyperventilation
- C. Middle Ear & Sinus Problems
- D. Motion Sickness
- E. Spatial Disorientation
- F. Carbon Monoxide Poisoning
- G. Excess Nitrogen after Scuba Diving
- H. IM SAFE Checklist

Areas Needing Improvement:

**THE STUDENT HAS COMPLETED LESSON 44**

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**PTS PROGRESS CHECK**

FLIGHT LESSON 45 – DUAL

LESSON OBJECTIVE:

Your instructor will evaluate your readiness for the FAA Private Pilot Practical Test.

TESTING YOUR SKILLS:

Preflight Preparation

1. Certificates and Documents
2. Weather Information
3. Cross – Country Planning
4. The Airspace System
5. Performance and Limitations
6. Operation of Systems
7. Minimum Equipment List
8. Aeromedical Factors

Cross – Country Flying

1. Pilotage and Dead Reckoning
2. Radio Navigation
3. Diversion to an Alternate Airport
4. Lost Procedures

Basic Piloting Skills

1. Preflight Inspection
2. Cockpit Management
3. Engine Starting
4. Taxing
5. Before Takeoff Check
6. Radio Communications
7. Collision Avoidance Precautions
8. Airport and Runway Markings and Lighting
9. Normal and Crosswind Takeoffs and Climbs
10. Short Field Takeoff and Landing
11. Soft Field Takeoff and Landing
12. Straight and Level Flight (VFR – IFR)
13. Constant Airspeed Climbs and Descents (VFR – IFR)
14. Turns to Headings (VFR – IFR)
15. Recovery from Unusual Attitudes (VFR – IFR)
16. Emergency Descents
17. Navigation Systems
18. Maneuvering During Slow Flight
19. Power Off Stall
20. Power On Stall
21. Steep Turns
22. Night Operations
23. S – Turns Across a Road
24. Turns Around a Point
25. Rectangular Course
26. Forward Slips to Landing
27. Aborted Takeoff
28. No Flap Landing
29. Go – Around
30. Post Flight Procedures

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Personal Equipment Checklist

1. View Limiting Device
2. Current Sectional Charts
3. E6B Flight Computer
4. Calculator
5. Plotter
6. Knee Board and Pencils
7. Current Copy FAR / AIM
8. FAA Flight Plan Form
9. Completed Flight Log Form
10. Aircraft Manual (POH)
11. Aircraft Log Books

Document Checklist

1. Valid Student Pilot and Medical Certificate with Current Make and Model Endorsement
2. 40 Hour Minimum Total Time
3. Logbook with Instructor's Endorsement to Take the Test
4. Notice of Disapproval (if retesting)
5. 90 Day Solo Logbook Endorsement
6. Completed Student Pilot Syllabus
7. Airmen Written Test Report (AC 8080-2)
8. Completed FAA Form 8710-1 *with* Instructor's Endorsement
9. Examiner's Fee

COMPLETION STANDARDS:

The student will demonstrate proficiency that meets or exceeds the FAA Private Pilot Practical Test Standards. Additional instruction will be assigned, if necessary, to meet the completion standards.

***THE STUDENT IS PERMITTED TO TAKE THE FAA FLIGHT CHECK***

FLIGHT TIME: \_\_\_\_\_

LANDINGS: \_\_\_\_\_

**THIS STUDENT HAS COMPLETED LESSON 45**

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**Student Pilot Flight Time Summary**

	<b>Date Flown</b>	<b>Time Logged</b>	<b>Comments</b>
3 Hours Cross Country	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
3 Hours Night Flight	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
10 Night Takeoffs & Landings	_____	_____	_____
	_____	_____	_____
100 nm Night Cross Country	_____	_____	_____
3 Hours Instrument Flight	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
10 Hours Solo	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
5 Hours Solo Cross Country	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
150 nm Solo Cross Country	_____	_____	_____
3 Hours Within 60 Days ( Flight Test Prep )	_____	_____	_____
	_____	_____	_____
	_____	_____	_____

Applicant \_\_\_\_\_ Date \_\_\_\_\_

**Aircraft Data Sheet**

**Airplane:**

Make \_\_\_\_\_ Model \_\_\_\_\_ N Number \_\_\_\_\_  
 Voltage \_\_\_\_\_ Alt. Amperage \_\_\_\_\_ Horsepower \_\_\_\_\_  
 Gross Weight \_\_\_\_\_ Useful Load \_\_\_\_\_ Empty Weight \_\_\_\_\_  
 Useable Fuel \_\_\_\_\_ Fuel Burn \_\_\_\_\_ Endurance \_\_\_\_\_

Item	Weight	Arm	Moment/1000
Empty Weight (with oil)	_____	_____	_____
Pilot / Passenger	_____	_____	_____
Rear Passenger(s)	_____	_____	_____
Baggage Area 1	_____	_____	_____
Baggage Area 2	_____	_____	_____
Useable Fuel _____ (gal)	_____	_____	_____
Ramp Weight	_____	_____	_____
Start, Taxi, Runup	_____	_____	_____
Takeoff Weight	_____	_____	_____
Category	_____		

**Performance:**

Barometric Pressure \_\_\_\_\_  
 Pressure Altitude \_\_\_\_\_  
 Temperature \_\_\_\_\_  
 Density Altitude \_\_\_\_\_

**V Speeds:**

Vso \_\_\_\_\_  
 Vsl \_\_\_\_\_  
 Vr \_\_\_\_\_  
 Vx \_\_\_\_\_  
 Vy \_\_\_\_\_  
 Vfe \_\_\_\_\_ (10)  
 Vfe \_\_\_\_\_ (20 – 30)  
 Va \_\_\_\_\_  
 Vno \_\_\_\_\_  
 Vne \_\_\_\_\_

**Takeoff Data – 5 Knot Headwind:**

Ground Run Pavement \_\_\_\_\_  
 Ground Run Grass \_\_\_\_\_  
 50' Obstacle Pavement \_\_\_\_\_  
 50' Obstacle Grass \_\_\_\_\_

**Landing Data – 5 knot Headwind:**

Ground Run Pavement \_\_\_\_\_  
 Ground Run Grass \_\_\_\_\_  
 50' Obstacle Pavement \_\_\_\_\_  
 50' Obstacle Grass \_\_\_\_\_

Normal Approach \_\_\_\_\_  
 Short Field Approach \_\_\_\_\_  
 Best Glide \_\_\_\_\_

**Applicant Name:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Aircraft Documents**

Aircraft Airworthiness Certificate

Aircraft Registration

Operating Limitations

Weight and Balance Data for the Aircraft

**Aircraft Maintenance Records**

A) Current annual / 100 inspection (airframe and engine)      DATE \_\_\_\_\_

B) Current 24 Month Transponder / Encoder entry              DATE \_\_\_\_\_

C) Current 24 Month ELT battery Logbook entry                DATE \_\_\_\_\_

D) Current 12 Month ELT Operational check                    DATE \_\_\_\_\_

E) Current 30 day VOR check    DATE \_\_\_\_\_

**DISCOVERY ZONE – THE VOR APPROACH**

CHALLENGE LESSON 46 – SIMULATOR

LESSON OBJECTIVE:

You will discover the VOR approach and confidently fly a basic VOR approach and the missed approach procedure.

NEW THIS FLIGHT:

Flying a Basic VOR Approach  
Flying and Executing a Missed Approach  
Obtaining Position Passing Abeam a VOR  
Obtaining Position using One & Two VOR's

REVIEW:

VOR Intercepting and Tracking  
Selecting and Flying an Airway  
Radar Vectors  
IFR Charts and Approach Plates

COMPLETION STANDARDS:

The student will fly a complete VOR approach and execute a missed approach upon reaching MDA or MAP.

SIMULATED INSTRUMENTS: \_\_\_\_\_

LANDINGS: \_\_\_\_\_

**THE STUDENT HAS COMPLETED SKILL DRILL 46**

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**DISCOVERY ZONE – THE ILS APPROACH**

**CHALLENGE LESSON 47 – SIMULATOR**

**LESSON OBJECTIVE:**

You will discover what an ILS is and confidently fly an ILS approach to a landing and / or missed approach.

**NEW THIS LESSON:**

Navigate to and fly the entire ILS Approach  
Fly a Missed Approach from the ILS  
Navigate from an Airway to the Approach

**REVIEW:**

Fly a basic VOR Approach  
Executing a Missed Approach  
Radar Vectoring for Landing

**COMPLETION STANDARDS:**

The student will have a basic understanding of ILS approaches and fly to the MDA and DH and execute a missed approach or normal descent to a landing.

**SIMULATED INSTRUMENTS:** \_\_\_\_\_

**LANDINGS:** \_\_\_\_\_

**THE STUDENT HAS COMPLETED SKILL DRILL 47**

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**DISCOVERY ZONE – INSTRUMENT FLIGHT AND ATC**

**CHALLENGE LESSON 48 – SIMULATOR**

**LESSON OBJECTIVE:**

You will experience what IFR flying is all about. This lesson will enable you to takeoff, fly an instrument trip with an approach to a landing.

**NEW THIS LESSON:**

IFR Flight Planning Requirements  
Filing an IFR Flight Plan  
Copying an IFR Clearance  
IFR Navigation  
Radar Vectors to the IAF

**REVIEW:**

ILS / VOR Approaches  
Instrument Scan techniques  
Vertigo in Flight  
Radar Vectors to the Approach  
Landing from an Approach

**COMPLETION STANDARDS:**

The student will understand the IFR environment and explore IFR flight planning. Upon successful completion the student will be encouraged to pursue a future instrument training.

**SIMULATED INSTRUMENTS:** \_\_\_\_\_

**LANDINGS:** \_\_\_\_\_

**THE STUDENT HAS COMPLETED SKILL DRILL 48**

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CFI:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

Congratulations on becoming a member of the pilot fraternity. This achievement is no small task and not attained by all who take up the challenge. To enable others to better understand what you have accomplished, complete the following Home Study Training Review. Successful completion assures the recognition and respect you now so richly deserve. As you already have learned, a pilot is always learning.

***Private Pilot Qualification Examination***

**(Read carefully ... Answer all questions ... Time limit: 4 hours ... Begin immediately)**

1. HISTORY – Describe the history of the papacy from its origins to the present day, concentrating especially, but not exclusively, on its social, political, economic, religious and philosophical impact on Europe, Asia, America and Africa. Be brief, concise and specific.
2. MEDICINE – You have been provided with a razor blade, a piece of gauze and a bottle of Scotch. Remove your appendix. If your appendix has already been removed, re-insert it. Do not suture until your work has been inspected. You have 15 minutes.
3. PUBLIC SPEAKING – 4,500 riot-crazed aborigines are storming your office. Calm them. You may use any ancient language except Greek.
4. BIOLOGY – Create life. Estimate the differences in subsequent human culture if this form of life had developed 500 million years earlier, with special attention to its probable effect on the English parliamentary system. Prove your thesis.
5. MUSIC – Write a piano concerto. Orchestrate and perform it with flute and drum. You will find a piano under your seat.
6. PSYCHOLOGY – Based on your knowledge of their works, evaluate the emotional stability, degree of adjustment and repressed frustrations of each of the following: Alexander of Aphrodisiacs, Rameses II, Gregory of Nicia, and Hannibal. Support your evaluation with quotations from each man's work, making appropriate references. It is not necessary to translate.
7. SOCIOLOGY – Estimate the sociological problems which might accompany the end of the world. Construct an experiment to test your theory.
8. ENGINEERING – The disassembled parts of a high-powered rifle have been placed on your desk. You will also find an instruction manual, printed in Swahili. In 10 minutes a Bengal tiger will be admitted to the room. Take whatever action you feel appropriate. Be prepared to justify your decision.
9. POLITICAL SCIENCE – A red telephone has been placed on the desk beside you. Start World War III. Report at length on its sociopolitical effect, if any.
10. EPISTEMOLOGY – Take a position for or against truth. Prove the validity of your stand.
11. GENERAL KNOWLEDGE – Describe in detail. Be objective and specific.

