NAME: GRADE:_____

Stage 10, Lesson 1

At the completion of this lesson, the student will have knowledge of basic private pilot ground maneuvers, emergency procedures, as well as commercial performance maneuvers and the standards associated with them.

READING ASSIGNMENT
Pilots Operating Handbook: PA-28-181
Private Pilot and Commercial Pilot ACS
Airplane Flying Handbook
OU Aviation Student Supplement

STUDY QUESTIONS

E M E R G E N C Y

1. If the PFD fails, what will you use for your flight instrument indications? Are there any limitations?

2. Which features will be inoperative if the ADHARS fails?

3. In the event of an engine fire, what steps will you take?

M A N E U V E R S

4. What is the difference in standards for steep turns for a private pilot and a commercial pilot?

5. What is the purpose of practicing turns around a point?

6. What are the commercial pilot standards for Chandelle

7. Why do we practice slow flight?

NAME: GRADE:_____

Stage 10, Lesson 2

At the completion of this lesson, the student will have knowledge of the airplane systems in a Piper Pilot 100i and a basic knowledge of systems in a complex aircraft. The student will also have knowledge over the standards and purposes of the maneuvers listed on the syllabus ticket for this lesson.

READING ASSIGNMENT

Pilots Operating Handbook: PA-28-181
Pilot Handbook of Aeronautical Knowledge - Chapter 7 "Aircraft Systems"
Airplane Flying Handbook - Chapter 12 "Transition to Complex Airplanes"

STUDY QUESTIONS

AIRCAFT SYSTEMS

1. What model of engine does the Piper Pilot 100i use?
2. In a fuel injection system, the fuel is injected directly into the _____
3. Where is the alternate air source located in the aircraft?
4. What are three advantages of a Fuel Injected System over a carbureted system?

COMPLEX AIRCAFT

5. For an aircraft to be labeled as a "complex aircraft" it must have _____, _____, and _____
6. A constant-speed propeller is more efficient than other propellers because it _____
7. What are the main benefits of having a retractable landing gear system?

NAME: GRADE:_____

Stage 10, Lesson 3

At the completion of this lesson the student will have knowledge over the standards and purposes of the maneuvers listed on the syllabus ticket for this lesson.

READING ASSIGNMENT

OU Aviation Student Supplement
Commercial Pilot ACS
Airplane Flying Handbook - Chapter 5 "Upset Prevention and Recovery Training"

STUDY QUESTIONS

STALLS AND SLOW FLIGHT

1. What condition is being simulated during a power on stall?

2. Why do we practice accelerated stalls?

3. Accelerated stalls must be accomplished at or above _____ ft AGL

4. Power-off stalls must be accomplished above _____ ft AGL, within ±____ degrees heading, and to the _____ indication of a stall (unless otherwise specified by the instructor)

5. Slow flight must be accomplished above _____ ft AGL, ±___ feet, heading ± ____ degrees, airspeed +___/-___ kts airspeed, and a specified angle of bank ±___ degrees

6. What is the recovery procedure for slow flight?

7. What causes the wing to buffet during a stall?

NAME: GRADE:_____

Stage 10, Lesson 4

At the completion of this lesson the student will have knowledge over the standards and purposes of the maneuvers listed on the syllabus ticket for this lesson.

READING ASSIGNMENT
OU Aviation Student Supplement
Commercial Pilot ACS
Airplane Flying Handbook - Chapter 6 "Takeoffs and Departure Climbs"
Airplane Flying Handbook - Chapter 9 "Approaches and Landings"

STUDY QUESTIONS

TAKEOFFS AND LANDINGS

1. What is the objective of a short field landing?

2. What is the objective of a soft field landing?

3. What are three common errors of a soft field takeoff?

4. Why do we remain in ground effect during a soft field takeoff?

5. Short and Soft field takeoffs must be accomplished within ± ____ kts of Vx or Vy, as appropriate, during climb

6. Short field landings must be accomplished within _____ ft beyond or on the specified point.

NAME: GRADE:_____

Stage 10, Lesson 5

At the completion of this lesson the student will have knowledge over the standards and purposes of the maneuvers listed on the syllabus ticket for this lesson, and emergency procedures in the Piper Pilot 100i

READING ASSIGNMENT

OU Aviation Student Supplement
Airplane Flying Handbook - Chapter 10 “Performance Maneuvers"
Piper Pilot 100i POH

STUDY QUESTIONS

PERFORMANCE MANEUVERS

1. What is the description of a chandelle?

2. As speed decreases in a chandelle you must increase _____ rudder due to the _____ turning tendencies created by the propeller. The main turning tendency in this case is _____.

3. What scenario are we simulating for a power-off 180?

EMERGENCY PROCEDURES

4. What actions would you take in response to a complete PFD failure?

5. You notice the heading indicator on both the G3X and G5 standby have been marked with red X’s. What system has failed? What would you use for heading information?

6. While on autopilot, you notice the red PTRIM annunciation and a large pitch down of the nose. What actions do you take?

NAME GRADE:_____

Stage 10, Lesson 6

At the completion of this lesson the student will have knowledge over the airworthiness requirements for aircraft.

READING ASSIGNMENT
AC 91-67 "Minimum Equipment Requirements for GA Operations Under Part 91"
Federal Aviation Regulations - Part 91

STUDY QUESTIONS

A I R W O R T H I N E S S

1. An MEL is a precise list of _____, _____, _____ that allows an aircraft to be operated under _____ with _____.

2. Who would you contact to obtain an MEL for your airplane? _____

3. Can the MEL for N370U be used for N380U? _____

4. What equipment cannot be listed on an MEL?
_____
_____
_____
_____

5. When operating without an MEL and you discover a piece of inoperative equipment: a. The inoperative equipment must be _____ from the aircraft and the cockpit control _____ OR b. The inoperative equipment must be _____ and placarded "_____".

6. While preflighting you notice that the PFD screen in the aircraft will not turn on. Can you legally fly? Why Not?

NAME: GRADE:_____

Stage 10, Lesson 7

At the completion of this lesson the student will have knowledge over the airworthiness requirements for a Piper Pilot 100i, both for VFR and IFR operations.

READING ASSIGNMENT

Federal Aviation Regulations - Part 91
Federal Aviation Regulations - Part 21
Piper Pilot 100i POH Section 2 "Limitations"

STUDY QUESTIONS

PERFORMANCE MANEUVERS

1. List the required aircraft inspections and their frequency:
   A _____ due every _____
   V _____ due every _____
   1 _____ due every _____
   A _____ due every _____
   T _____ due every _____
   E _____ due every _____
   S _____ due every _____

2. A 100 hour inspection may be exceeded by no more than _____ hours while enroute to a place where an inspection can be done.

3. ELT batteries must be replaced (or recharged) when the transmitter has been used for more than _____ cumulative hour(s) or when _____% of their useful life has expired.

4. Who would you contact to obtain a special flight permit? _____

5. What VOR Checks can be accomplished in a Piper Pilot 100i?
6. Prior to flying, you notice that the navigation databases in the Garmin G375 are expired. Are you allowed to fly on VFR day? What about an IFR day?

Stage 10, Lesson 8

At the completion of this lesson the student will have knowledge over the electrical and fuel systems for the Piper Pilot 100i.

READING ASSIGNMENT
Piper Pilot 100i POH - Section 7 “Description and Operation”
Pilot Handbook of Aeronautical Knowledge - Chapter 7 “Aircraft Systems"

STUDY QUESTIONS

FUEL SYSTEM

1. Diagram and Label the Piper Pilot 100i Fuel System

2. What is the purpose of the fuel injector servo regulator?

ELECTRICAL SYSTEM

3. The pilot 100i has a ___ Volt battery and a _____ volt, ____ ampere Alternator.

4. The alternator belt is driven directly from the _____. Once the engine is running and the ALTR switch is activated the alternator becomes the primary _____.

5. When is the Battery used as the primary source of power in the plane?

6. The Voltage Regulator is designed to _____ voltage to _____ volts. If the system exceeds _____ volts, it will remove the alternator from the circuit.

NAME: GRADE:_____

Stage 10, Lesson 9

At the completion of this lesson the student will have knowledge over the systems of a Piper Pilot 100i.

READING ASSIGNMENT
Piper Pilot 100i POH - Section 7 “Description and Operation”

STUDY QUESTIONS
PITOT-STATIC SYSTEM

1. Independent pressure lines from the pitot-static head connect to the _____ behind the instrument panel and to the _____.

2. In the event of a static blockage, open the _____. The _____, _____, and _____ will now be using cabin air for static pressure. The Vent Fan must be _____, cabin vents must be _____, and cabin heater/defroster must be _____.

INSTRUMENTATION

3. What does the ADAHRS stand for?

4. The ADAHRS combines functions of the _____ and _____

5. The Air Data Computer provides _____, _____, _____, and _____ to the display system.

6. The AHRS uses _____, _____, _____, and _____ to provide the pitch and roll attitude, sideslip and heading to the display system.

7. **True or False**: In the event of a blockage of the ram air port on the pitot-static head, the Garmin G3X airspeed will show incorrectly, but the Garmin G5 airspeed will continue to show the correct airspeed.

NAME: GRADE:_____

Stage 10, Lesson 10

At the completion of this lesson the student will have knowledge of weight and balance calculations and will have planned a VFR cross country to an appropriate location.

READING ASSIGNMENT

Pilot's Handbook of Aeronautical Knowledge - Chapter 9 "Weight and Balance"
Piper Pilot 100i POH

STUDY QUESTIONS

WEIGHT AND BALANCE

1. Match the following terms with their definition:

_____ Useful Load	A. Distance between reference datum and an item
_____ Basic Empty Weight	B. Weight multiplied by the arm
_____ Payload	C. Passengers, Cargo, Baggage
_____ Arm	D. Point where an aircraft would balance if suspended
_____ Moment	E. Weight of empty airplane plus optional equipment
_____ Center of Gravity	F. Passengers, Baggage, Usable Fuel and Crew

2. List three effects of a CG that is forward of C.G. limits.

3. What is the location of the Reference Datum on the Piper Pilot 100i?

CROSS COUNTRY PLANNING

The student will have a completed paper nav log with VFR checkpoints to their destination. They will also have a received a weather briefing prior to arriving for their flight

NAME: GRADE:_____

Stage 10, Lesson 11

At the completion of this lesson the student will have knowledge of aeromedical factors affecting pilots during nighttime flying. The student will also have familiarity with the rules and regulations surrounding nighttime flight.

READING ASSIGNMENT

Aeronautical Information Manual - Chapter 8 "Medical Facts for Pilots"
Federal Aviation Regulations - Part 1
Federal Aviation Regulations - Part 61
Federal Aviation Regulations - Part 91

STUDY QUESTIONS

RULES AND REGULATIONS

1. The definition of "Night" is the time between _____
   _____

2. For the purpose of night currency, a person carrying passengers from the period beginning _____ and ending _____ must have completed 3 takeoffs and landings during that time period, within the preceding ___ days.

3. Position lights must be equipped and turned on from _____ to _____.

AEROMEDICAL FACTORS

4. For maximum protection against hypoxia, pilots are encouraged to use oxygen above _____ feet during the day and _____ at night

5. A pilot who detects the odor of exhaust or experiences symptoms of _____, _____, or _____ while using the heater should suspect carbon monoxide poisoning.

6. You are flying at night and focusing intently on a point of light in the distant sky. It's only a star, but it appears to move because you are experiencing what visual illusion? _____

7. What is empty field myopia?
   _____

NAME:

GRADE:_____

Stage 10, Lesson 12

At the completion of this lesson the student will have knowledge of aeromedical factors affecting pilots during nighttime flying, as various definitions relating to runway incursions.

READING ASSIGNMENT

Airplane Flying Handbook - Chapter 11 "Night Operations"
Pilot Handbook of Aeronautical Knowledge - Chapter 14 "Airport Operations"

STUDY QUESTIONS

AEROMEDICAL FACTORS

1. The eye is able to create picture through the use of two main types of cells, _____ which sit closer to the center of the retina and perceive detail, and _____ which sit in the periphery of the retina and sense light

2. The "Night blind spot" appears under conditions of low ambient light due to the absence of _____ in the _____ (Center part of the retina). This affects that central ____ to _____ degrees of the visual field.

RUNWAY INCURSIONS

3. How does the FAA define "runway incursion"?
   _____
   _____
4. What are three causal factors the FAA has identified for runway incursions?
   _____
   _____
   _____
5. What is a "Hot Spot" and how would you identify it on an Airport Taxi Diagram?
   _____
   _____
6. If you are unfamiliar with an airport, what can you ask for to get ATC to give you step-by-step taxi instructions? _____
7. What does it mean if ATC tells you "Line up and wait"?
   _____

NAME: GRADE:_____

Stage 10, Lesson 13

At the completion of this lesson the student will have knowledge of factors affecting high altitude operations, and the terms associated with pressurized aircraft.

READING ASSIGNMENT

Federal Aviation Regulations - Part 91
Pilot Handbook of Aeronautical Knowledge - Chapter 7 "Aircraft Systems"
OU Aviation Student Resources - "Pressurization Systems"

STUDY QUESTIONS

SUPPLEMENTAL OXYGEN

1. Required crew of non-pressurized aircraft must use supplemental oxygen after 30 minutes when flying above _____ MSL.
2. Required crew of non-pressurized aircraft must use supplemental oxygen at all times when flying above _____ MSL.
3. Required crew of non-pressurized aircraft must use supplemental oxygen at all times and passengers must be provided with supplemental oxygen when flying above _____ MSL.
4. What is a cannula?

   _____
5. What is special about "aviator's breathing oxygen"?

   _____

PRESSURIZED AIRCRAFT

6. What are two benefits of flying at higher altitudes?

   _____

   _____
7. On a pressurized aircraft, air from within the pressure vessel is released through a device called an _____ valve.
8. Match the term with its definition:

_____ Cabin Altitude	A. Difference between cabin and ambient pressure
_____ Differential Pressure	B. Pressure of air immediately surrounding aircraft
_____ Aircraft Altitude	C. Cabin pressure in equivalent altitude above sea level
_____ Ambient Pressure	D. Height of the actual aircraft above sea level
9. A _____ gauge indicates the difference between inside and outside pressure, a _____ indicates the equivalent altitude of the air inside the cabin, and a _____ instrument indicates the rate of change of the equivalent altitude within the cabin.

NAME: GRADE:_____

Stage 10, Lesson 14

At the completion of this lesson the student will have knowledge of all of the standards associated with commercial pilot performance and ground maneuvers.

READING ASSIGNMENT

Commercial Pilot ACS
Airplane Flying Handbook - Chapter 10 “Performance Maneuvers"
Airplane Flying Handbook - Chapter 7 “Ground Reference Maneuvers”

STUDY QUESTIONS

PERFORMANCE MANUEVERS

1. For a commercial pilot, steep turns must be accomplished at ____ angle of bank ± ____, ±_____ feet of altitude, ±_____ of heading on rollout, and ± _____ kts of airspeed.

2. For steep spirals, you must select an altitude sufficient to complete_____ turns prior to reaching _____ ft AGL

3. At the conclusion of chandelles, you must be ± _____ heading from your 180° point, just above _____ speed.

4. Lazy eights must be completed at ± _____ feet from entry altitude, ± _____ kts from entry speed, and ± ____ from the 180° point heading.

GROUND REFERENCE MANUEVERS

5. In steep spirals, you may not exceed _____ angle of bank, and maintain a _____ radius around your selected point. You must maintain ± ____ kts from best glide, and rollout ± _____ heading

6. Eights on pylons must be completed at _____ altitude, which can be calculated using the following formula _____

7. Eights on pylons must be accomplished not exceeding _____ angle of bank, and maintaining pylon position using appropriate pivotal altitude, avoiding _____ and _____

NAME: GRADE:_____

Stage 10, Lesson 15

At the completion of this lesson the student will have knowledge of all of the relevant regulations relating to aircraft maintenance and alteration.

READING ASSIGNMENT

Federal Aviation Regulations - Part 43

STUDY QUESTIONS

M A I N T E N E N C E

1. The holder of a _____ certificate issued under part 61 may perform _____ maintenance on any aircraft _____ and _____ by that pilot, which is not operated under part ____, _____, or _____ of this chapter.

2. Major or Minor alterations to an aircraft must be done by a(n) _____

3. A list of items considered major or minor alterations can be found in _____ to part 43

4. While preflighting for a solo flight in a rental aircraft, you notice that the oil level is a bit low, are you allowed to add oil to the engine?

5. What type of maintenance would this be?

6. After flying your Pilot 100i you notice a large hole in the front seat, you have a friend who tells you he has an extra seat from his 100i that he can give you. Are you allowed to replace the seat yourself?

7. Your transponder has been acting a bit wonky recently and you decide to replace it. Upon ordering the replacement and reading the manual, you notice that the installation process is very simple and only requires simple tools. Can you perform the replacement?

NAME: GRADE:_____

Stage 10, Lesson 16

At the completion of this lesson the student will have knowledge of aircraft performance and the aerodynamic factors impacting it.

READING ASSIGNMENT

Pilot Handbook of Aeronautical Knowledge - Chapter 5 "Aerodynamics of Flight"
Pilot Handbook of Aeronautical Knowledge - Chapter 11 "Aircraft Performance"

STUDY QUESTIONS

AIRCRAFT PERFORMANCE

1. Pressure altitude is defined as the height above the _____ datum plane.

2. Density altitude is defined as _____ corrected for _____.

3. _____ density altitude refers to thin air, while _____ density altitude refers to dense air.

4. High temperatures and low altimeter settings _____ density altitude, while low temperatures and high altimeter settings _____ density altitude.

AERODYNAMICS

5. The two types of drag are _____ drag, which increases as your speed increases, and _____ drag, which increases as your speed decreases

6. What are the three types of parasite drag?

7. Whenever an airfoil is producing lift, _____ drag occurs and _____ are created.

8. Wingtip vortices are greatest when the generating aircraft is _____, _____, and _____

9. Write the lift equation and label each variable.

NAME: GRADE:_____

Stage 10, Lesson 17

At the completion of this lesson the student will have knowledge of aeronautical decision making, and the factors affecting it.

READING ASSIGNMENT

Pilot Handbook of Aeronautical Knowledge - Chapter 2 "Aeronautical Decision Making"

STUDY QUESTIONS

AERONAUTICAL DECISION MAKING

1. List the five hazardous attitudes.

   _____
   _____
   _____
   _____
   _____

2. What is the difference between a "hazard" and a "risk"?

   _____
   _____
   _____

3. One of the best ways single pilots can mitigate risk is to use the _____ checklist to determine physical and mental readiness for flying, it stands for:

   _____
   _____
   _____
   _____
   _____
   _____

4. "SRM" stands for _____ and is defined as

   _____
   _____.

5. Aeronautical Decision Making (ADM) is defined as a systematic approach to

   _____.

6. CFIT stands for _____.

NAME: GRADE:_____

Stage 10, Lesson 18

At the completion of this lesson the student will have knowledge of systems in a Piper Pilot 100i and their operation.

READING ASSIGNMENT
Piper Pilot 100i POH - Section 1 “General”
Piper Pilot 100i POH - Section 7 "Description and Operation”

STUDY QUESTIONS
S Y S T E M S

1. What is the purpose of magnetos? How many does the 100i have?

2. How much horsepower is produced by our engine?

3. What type of engine do we have?
   L _____
   4 _____
   H _____
   A _____
   N _____
   D _____
4. In your own words, explain how the starter system works in the Piper Pilot 100i.

5. How many GPS receivers are there in the Piper Pilot 100i?

6. During preflight you notice that when you turn on the master switch, your avionics are dim and flickering. When you try to start the engine, the prop begins to turn extremely slowly, and the engine will not start. What do you think is happening? How could you remedy it?

7. What is Vaport Lock? When can you expect it to be an issue?

NAME: GRADE:_____

Stage 10, Lesson 19

At the completion of this lesson the student will have knowledge of ELTs and their operation, as well as proper phraseology to use when communicating with ATC.

READING ASSIGNMENT

Aeronautical Information Manual - Chapter 6 "Emergency Procedures"
Pilot/Controller Glossery

STUDY QUESTIONS

EMERGENCY PROCEDURES

1. ELTs operate at _____ MHz, _____ MHz and the newer _____MHz

2. The newer digital ELT may be encoded with
   _____

3. Analog ELTs should only be tested during the first _____ minutes after any hour. Digital ELTSs should only be tested _____

4. ELTs must be inspected every _____. Their batteries must be replaced or recharged after _____or _____

5. What does 14 CFR 91.3 allow the pilot-in-command to do? _____
   _____

COMMUNICATIONS

6. In a distress situation, the pilot's radio call should begin with _____. In an urgency situation, a pilot's radio call should begin with _____.

7. What is the difference between "ROGER" and "WILCO"?
   _____
   _____

8. When traffic is pointed out by an air traffic control facility, the two appropriate responses are either "_____ _____ _____" if you see the traffic, or "_____ _____" if you do not.

NAME: GRADE:_____

Stage 10, Lesson 20

At the completion of this lesson the student will have knowledge of potentially hazardous weather conditions, and the warnings associated with them.

READING ASSIGNMENT

Aeronautical Information Manual - Chapter 7 "Meteorology"
Pilot's Handbook of Aeronautical Knowledge - Chapter 12 "Weather Theory"

STUDY QUESTIONS

WEATHER CONDITIONS

1. Air in a low pressure system moves _____, _____, and _____
2. _____ weather is usually associated with high pressure systems, with _____ winds, and _____ air.
3. A warm front occurs when a _____ mass of air advances and replaces a body of _____ air.
4. What weather conditions do we usually see prior to the passage of a warm front?

5. What weather conditions do we usually see prior to the passage of a cold front?

WEATHER REPORTS

6. What are the three types of AIRMETS and what does each warn of?

7. How often are SIGMETS published? How long are they valid for?

8. What conditions do convective SIGMETS warn of?

9. How often are Convective SIGMETS published, how long are they valid for?

Stage 10, Lesson 21

At the completion of this lesson the student will have knowledge of the privileges and limitations of a commercial pilot certificate

READING ASSIGNMENT

AC 120-12A
Federal Aviation Regulations - Part 61
Federal Aviation Regulations - Part 119

STUDY QUESTIONS

COMMERCIAL PILOT PRIVELEGES

1. A person who holds a commercial pilot certificate may act as pilot in common of an aircraft—
   _____
   _____

2. What limitations are there on a person who holds a commercial pilot certificate without an instrument rating?

3. What is the four part definition for holding out?

4. What is the most direct means of holding out?

5. Commercial Pilots without an operator's certificate are allowed to engage in what type of carriage?

6. What operations are considered exceptions to common carriage?

   _____ _____ _____
   _____ _____ _____
   _____ _____ _____
   _____ _____ _____

7. **Scenario**: You are approached by a man who owns his own Bonanza, and offers to pay you to fly him and his wife to Colorado every weekend, so that they can stay in their mountain home. Can you legally do this? Why or why no?

Stage 10, Lesson 22

At the completion of this lesson the student will have knowledge of the privileges and limitations of a commercial pilot certificate, as well as the difference between wet and dry lease operations.

READING ASSIGNMENT

AC 91-37B
AC 61-142
Federal Aviation Regulations - Part 110

STUDY QUESTIONS

DRY V.S. WET LEASE

1. A lease in which only the aircraft, and no other services are provided, is considered a _____ lease.

2. A lease in which a person agrees to provide an entire aircraft, and at least one crewmember is considered a _____ lease.

3. In a Dry Lease, the _____ exercises operational control of the aircraft. Conversely, in a Wet Lease the _____ exercises operational control.

4. When engaging in a wet lease you are engaging in _____ carriage.

5. Can commercial pilots engage in wet lease operations on their own?

6. **Scenario:** Your cousin has tickets to a concert for a popular country artist in Dallas. You don't like country music, and tell them you won't go to the concert, but that you can fly them down in the plane you own. They offer to pay you $100 for your services. As a commercial pilot can you legally do this?

7. What type of lease is this?

8. Assume the same scenario as written above, but this time your cousin offers to pay the pro rata share. Can you legally do this? Why or Why not?

9. **Scenario:** Your friend says she wants to fly to Chicago this weekend, but does not own an aircraft. You have access to a rental service nearby and offer to fly her in one of the rental planes, provided she pays the hourly cost of the plane. Is this legal?

10. What type of lease is this?