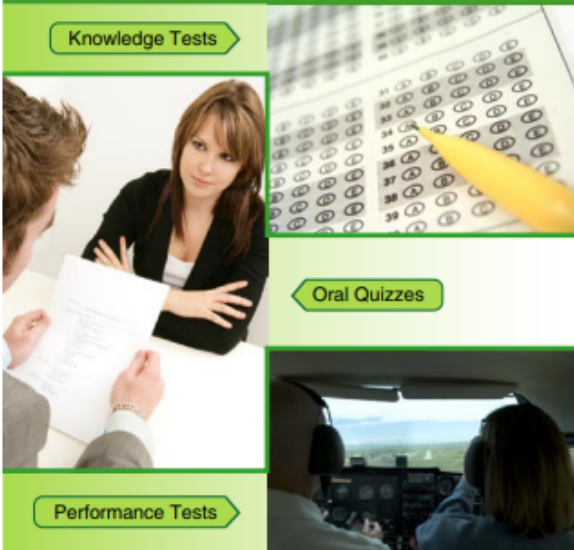# Student Evaluation, Assessment, and Testing

Objective	
To ensure the applicant learns the important concepts related to assessment and critique of student performance.	
Purpose	
All CFIs must assess student performance in order to make decisions about when to progress to the next stages of training, issue endorsements, and recommend students for checkrides. CFIs must also know how to provide effective and constructive critique to students to improve their performance without hurting the student's motivation.	

Schedule	**Equipment**
● **Ground Lesson**: 15 minutes ● **Student Q&A**: 10 minutes	● Whiteboard / Markers (optional)
Student Actions	**Instructor Actions**
● Ask any questions, receive study material for the next lesson. ● Watch linked video. ● Review listed references.	● Deliver the ground lesson (below). ● Answer student questions.

Completion Standards

● Student can explain the following concepts:
    ● Purpose of assessment, qualities of an effective assessment
    ● Types of Assessment
    ● Characteristics of Effective Questions, Questions to Avoid
    ● Risks involved in delivering an assessment or critique
    ● Purpose and Elements of Critique, Types of Critique

References
- FLY8MA.com Flight Training - "CFI ORAL EXAM: Part 1 | FOI"   - YouTube - https://www.youtube.com/watch?v=4IxiQeh0FFI   - FAA-H-8083-9B (Aviation Instructor's Handbook) - Chapter 6 [Assessment]   - FAA-S-ACS-25 (CFI ACS) - Area I Task D   - FAA-S-8081-9D (CFII PTS) - Area I Task E

Ground Lesson Outline

- Assessment
  - Purpose of Assessment - Determine Student Progress
    - Provides critical information to both instructor and student about progress, practical and specific feedback for the student
    - Assessment of Piloting Ability
  - Characteristics of Effective Assessment
    - Objective, Flexible, Acceptable, Comprehensive, Constructive, Organized, Thoughtful, Specific
  - Traditional Assessment
    - Written testing - true/false, multiple choice, fill-in-the-blank, generally rigid format.
  - Authentic Assessment
    - Learner-centered assessment - Four types of open-ended questions
    - Real world tasks, meaningful application of skills and concepts
    - Maneuver or Procedure Grades - Describe, Explain, Practice, Perform
    - Assessing Risk Management Skills - Explain, Practice, Manage-Decide
  - Oral Assessment
    - Fact questions, Higher Order Thinking Skills questions
  - Characteristics of Effective Questions
    - Brief and Concise, Focused on One Idea, Tailored to the Student's Current Level
  - Types of Questions to Avoid
    - Puzzle, Oversized, Tossup, Bewilderment, Trick Questions, Irrelevant Questions
  - Risks involved in delivering an assessment - learner emotional reactions, defense mechanisms
- Critique
  - Considers good and bad aspects of performance, individual parts, relationships between them, and overall picture
  - Purpose and Types of Critique
    - Instructor/Student Critique
    - Student-Led Critique
    - Small Group Critique
    - Individual Student Critique by Another Student
    - Self-Critique
    - Written Critique
- Evaluation vs. Critique
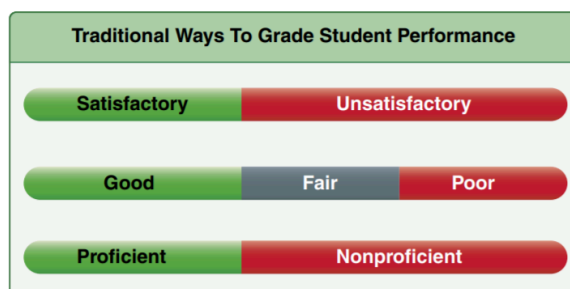
Ground Lesson Content

- **Assessment**

- ○ **Purpose of Assessment** - Determine Student Progress
    - ■ Provides critical information to both instructor and student about progress, practical and specific feedback for the student
    - ■ **Evaluating Student Pilot Ability** - Ultimately, our job as CFIs is to assess piloting ability.
        - ● **Established Standards Tailored To Experience Level** - Evaluate students to established standards for each lesson (state up front), but those standards should be tailored to the students current level.

        - ● **Consider All Elements of Performance Individually** - Some elements of the performance may be good and some bad, consider each individually, not just the whole
        - ● **Keep Student Informed of Progress** - Ensure students are well informed about their progress so that they know the items that they must improve before moving forward

- **Allow Minor Errors to Play Out** - Students can learn from making mistakes, and errors that don't create a safety issue should be allowed to 'play out' to give the student a chance to recognize and correct the errors.
  - **Characteristics of Effective Assessment**
    - **Objective** - Should be based on clear standards of performance
    - **Flexible** - Should be adapted to student's current level, environment, etc.
    - **Acceptable** - Student must accept the instructor and the instructor's expertise
    - **Comprehensive** - Assessment must deal with all elements of the student's performance.
    - **Constructive** - Should be useful and actionable by the student, praise is useful when appropriate.
    - **Organized** - Should be logical and well-organized.
    - **Thoughtful** - Respect student's self-esteem and need for approval. Don't ridicule, make fun of performance, etc.
    - **Specific** - Must deal with detailed aspects of the performance, can't just be "fly better", etc.
  - **Traditional Assessment**
    - **Written testing** - true/false, multiple choice, fill-in-the-blank, generally rigid format.

Traditional Ways To Grade Student Performance

Satisfactory	Unsatisfactory
Good	Fair	Poor
Proficient	Nonproficient

  - **Authentic Assessment**
    - **Learner-centered assessment** - Authentic assessment is centered on the learner. The instructor leads the student through a "collaborative critique" of their performance using four open-ended questions:
      - **Replay** - Ask the student to verbally replay the flight or procedure. The instructor pays close attention to areas where the replay seems inaccurate, and the instructor discusses these discrepancies with the student.
      - **Reconstruct** - Ask the student what they could have, should have, or would have done differently.
      - **Reflect** - Ask the student questions like: What was the most important thing you learned today? What part of the session was easiest or hardest for you?
      - **Redirect** - Ask the student to connect this experience to similar ones during training. Ask questions like: How does this experience relate to previous lessons? What might be done to mitigate a similar risk in the future?
    - **Real world tasks** - Evaluate the student while performing real world skills, maneuvers, etc.
    - **Meaningful application of skills and concepts** - Requires students to apply knowledge from various subjects in meaningful ways

- **Assessing Flight Training Maneuvers (Maneuver or Procedure Grades)** - Use the following rubric:

Rubric for Assessing Flight Training Maneuvers				
	Describe	Explain	Practice	Perform
Steep Turns Slow Flight Stalls Emergencies	Pilot can describe physical characteristics/ cognitive elements of the maneuver.	Pilot can explain the maneuver's underlying concepts, principles, and procedures.	Pilot can plan and execute the maneuvers, with coaching and assistance to correct deviations and errors.	Pilot can plan and execute the maneuver to ACS standards without assistance or coaching. Pilot identifies and corrects errors and deviations.

Maneuver	Performance	Comments
Steep Turns		
Slow Flight		
Stalls		
Emergencies		

- **Assessing Risk Management Skills** - Similar to the above rubric, when assessing risk management skills, we look to whether the student is able to:
  - **Explain** - The learner can verbally identify, describe, and understand the risks inherent in the flight scenario.
  - **Practice** - The learner can identify, understand, and apply SRM principles to the actual flight situation. Coaching, instruction, and/or assistance can correct minor errors. The student is an active decision maker.
  - **Manage and Decide** - The learner manages all aspects of the risk management process, and instructor intervention is not required for safe completion of the flight.
- **Oral Assessment**
  - **Fact questions** - "What is <X>?", "Why does <X>?"
  - **Higher Order Thinking Skills questions** - "What would you do if <X> occurred?"
- **Characteristics of Effective Questions**
  - **Brief and Concise** - Questions should not be long or drawn out, requiring excess explanations
  - **Focused on One Idea** - Questions should center on one idea, not be vague and general
  - **Tailored to the Student's Current Level** - Don't ask commercial-level questions to pre-solo student pilots, etc.
- **Types of Questions to Avoid**
  - **Puzzle** - "Here is a scenario, what is wrong with this picture?"
  - **Oversized** - "How do airplanes fly?"
  - **Tossup** - "Is it better to use pitch or power for airspeed?"
  - **Bewilderment** - "You're at <X> airport, flying <Y> airplane, the weather is <Z>, what is the purpose of the airspeed indicator?"
  - **Trick Questions** - "What are the VFR weather minimums in Class F airspace?"

- **Irrelevant Questions** - "What size screws are used to attach the engine cowling?"
    - ○ **Risks involved in delivering an assessment** - Instructions must tread carefully when conducting assessments. Students may display negative emotional responses, especially in cases of poor performance. Remember the Defense Mechanisms (*See Area I Task A - Effects of Human Behavior and Communication on the Learning Process*) and how to overcome them.
- **Critique**
    - ○ Considers good and bad aspects of performance, individual parts, relationships between them, and overall picture
    - ○ **Purpose of Critique** - Critique helps students master the knowledge and skills we are trying to share with them. Instruction without proper critique, such as failing to correct minor problems, will allow poor habits (remember: *The Law of Primacy*) to take root and hamper skill development.
    - ○ **Types of Critique**
        - ■ **Instructor/Student Critique** - Instructor leads a focused group discussion
        - ■ **Student-Led Critique** - Instructor sets parameters and asks student to provide the critique
        - ■ **Small Group Critique** - Break into small groups, instructor provides criteria, groups create critiques and share
        - ■ **Individual Student Critique by Another Student** - Instructor should remain firmly in control, but invite students to critique another student as a means of sharing ownership of the critique
        - ■ **Self-Critique** - Supervised by the instructor, students critique own performance
        - ■ **Written Critique** - Instructor writes and delivers a detailed critique
- **Evaluation vs Critique** - In the initial stages of learning a skill, students will benefit more from practical suggestions than a grade. They are, after all, still developing the cognitive and motor skills necessary to perform the training task.
    - ○ During early stages of learning, evaluation is geared towards the instructor–"Am I getting through? Are my techniques working?"
    - ○ During later stages of training, it is important that students perform their tasks correctly, and therefore grades, as well as constructive criticism, are more appropriate.