

Individual Strategy Scenario

Individual Strategy #3

Strategy: Frames Type II

Content: Upon the conclusion of a presentation on the operating principles of the Four-Stroke Otto Cycle Engine, students are given a Frame Type II with partially filled in slots.

Title: Four-Stroke Otto Cycle Engine

Time Required: 60 Minutes

Number of Participants: 10-15

Target Audience: Aircraft A&P mechanics

Goal of Activity: To initiate the active participation of the learners following a presentation on the operating principles of the Four-Stroke Otto Cycle Engine, which integrates and synthesizes the information they just viewed.

Learning Outcomes:

Gagne's Taxonomy - Verbal Information, Intellectual Skills

Bloom's Taxonomy - Knowledge, Comprehension, Application and Synthesis

Learner Characteristics: The learners are students attending an aircraft maintenance school. They will primarily be males from 18 to 55 years old. These students are mostly high school graduates with little to no college. Approximately half of the students are already trained in the field. The remaining population will be new to the field and seeking their certification as an A&P aircraft mechanic.

Entry Skills: The learners are characteristically mechanically inclined and highly motivated to learn this instruction.

Setting: Classroom

Media: Computer with presentation hardware and Powerpoint software. Followed by a handout with the following Frame Type II:

Student Handout:

Four-Stroke Otto-Cycle Engine Operation

	Intake Valve Position	Exhaust Valve Position	Piston Position
Intake Stroke	OPEN	CLOSED	DOWN
Compression Stroke			
Power Stroke			DOWN
Exhaust Stroke	CLOSED		

Completed Handout:

Four-Stroke Otto-Cycle Engine Operation

	Intake Valve Position	Exhaust Valve Position	Piston Position
Intake Stroke	OPEN	CLOSED	DOWN
Compression Stroke	CLOSED	CLOSED	UP
Power Stroke	CLOSED	CLOSED	DOWN
Exhaust Stroke	CLOSED	OPEN	UP

Process:

1. The instructor will begin with a brief lecture to explain the ensuing activities (presentation followed by a fill-in-the-blank, i.e. Frame Type II) to the learners.
2. The instructor will then open a PowerPoint presentation on the operating principles of the Four-Stroke Otto Cycle Engine. As the instructor proceeds with the presentation he will encourage questions and discussion about the material being covered.
3. Immediately following the presentation the instructor will issue the handout containing the Frame Type II, more as a means to integrate and synthesize the information as opposed to an assessment. The learners will be told early in the program that the handout is not a test for grade.

Strategy Assessment: Although the students are told the Frame Type II is not a test for grade, it nonetheless serves very well as an assessment for the validity of the strategy used.

Author: William Beam

Reference: West, C.K., Farmer, J.A., & Wolff, P.M. (1991). Instructional Design: Implications from Cognitive Science, Boston: Allyn and Bacon