

Teaching Tips/Notes



Preparing Job Operation Sheets (JOS) for Laboratory Instruction

Introduction

Having a hands-on laboratory section component to a college course can be both a blessing and a curse. The difference can be what resources are in the instructor's teaching tool box. Providing your students with an opportunity to apply knowledge (cognitive domain of learning) absorbed in the lecture classroom can make the difference between the light bulb turning on in the mind of the student — a sign that they “get it”— and a student who is “lost” because they struggle to make a connection between what they already know (previous knowledge) and what they need to know (new knowledge). The application-stage of learning (psychomotor domain of learning), also referred to as skill development, engages the student to involve multiple senses (sight, sound, smell, and touch) as they complete a task, and the option to reflect on their learning experiences. When the “a-ha” moment is achieved, and student learning is successful, this can have a positively effect on the affective domain of learning (value). This is the “blessing” of the laboratory component. The curse of the hands-on laboratory section component can include extended planning, time to prepare and setup each laboratory meeting, facilitation and supervision of the lab, student engagement, and student safety, responding to individual student needs, assignment assessment and activity closure. If there is no graduate assistance or a preceptor to aid in grading, the supervision and management of the laboratory section can be a daunting task, especially if the instructor attempts to provide one-on-one supervision while other students are requesting assistance.

Job Operation Sheets (JOS)

The Job Operation Sheet (JOS) is a document provided to the student following the demonstration of a performance skill in the laboratory and precedes the student engaging in the directed task. An example is the student is to perform a task such as lighting and adjusting the flame on an oxyacetylene cutting outfit. Following the *Three-Step Demonstration* (see *Effective Demonstrations* Teaching Tip, June 2011), the students are tasked to complete the performance skill at their work station. The JOS for lighting and adjusting the flame on the oxyacetylene cutting outfit are distributed to the students. Information found in a JOS includes a description of the skill or activity, Performance Objective, a list of Tools/Materials, and the Steps of Completion. The JOS contains the steps of procedure for completing the skill or activity and includes key points for the student to consider. These may be safety precautions, or visible signs the student needs to take notice that effect the successful completion of the skill or task. A column for a photograph (easy to incorporate with digital pictures from cell phones), illustration, diagram, or text reference for additional information is a third component of the JOS. A well-constructed JOS will serve as a guide for the instructor performing the *Three-Step Demonstration* to the group of students.

Steps to Complete

The first step to developing the JOS sheet is to identify a suggested sequence for completion:

1. Identify the skill or task to complete.
2. List the performance objectives.
3. Describe and list the tools, equipment and materials needed for the student to complete the task.

4. List the Steps to complete task.
5. Identify and include Key Points (how to do it, such as safety points) at each Step.
6. Include pictures, diagrams, or illustrations for clarity.
7. List reference sources for additional information.
8. Create a self-evaluation scoring rubric for students to complete and submit with the completed skill.

Next, attempt to complete the task following the sequence you developed. A useful exercise is to write the steps of making a peanut butter & jelly sandwich and attempting to complete the task by following your sequence of steps.

JOS Template

The following is a suggested format for a JOS.

JOB OPERATION SHEET		
UNIT: JOB	OR	EXERCISE:
<u>TOOLS & EQUIPMENT</u>	<u>MATERIALS REQUIRED</u>	<u>REFERENCES</u>
<u>WHAT TO DO (STEPS)</u>	<u>HOW TO DO IT (KEY POINTS)</u>	

The format for the JOS can be adjusted to fit the needs of the instructor. Distribute to the students at the completion of the Three-Step Demonstration, when students are to begin work. A well-constructed JOS will provide enough information to minimize students asking questions about steps of the procedure. Attach a scoring rubric for each skill or activity. List the scoring criteria and point values for how you will weigh the scoring of the completed task. Include a column for students to complete a self-assessment of their work next to a column for the instructor's column. Be sure to include safety practices to follow, including wearing safety glasses and any other personal protective equipment (PPE)!

Submitted by:

Edward A. Franklin
 Department of Agricultural Education
 The University of Arizona