USDA Forest Service
National Sawyer Training:
Developing Thinking Sawyers

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Introduction

Purpose of "Train the Trainer"

The purpose of this guide is to train U. S. Department of Agriculture (USDA) Forest Service (FS) saw instructors to deliver the "Developing Thinking Sawyers" classroom training materials in the best possible way. As subject matter experts for the Forest Service, instructors have a wide breadth of knowledge and experience to share. This "Train the Trainer" guide will help you, as an instructor, to provide consistent messaging.

What you teach and how you present the material makes all the difference when instructing adult students. Instructional professionals designed this course to be delivered in a way that provides for the most efficient transfer of knowledge from instructors to students.

History of this Course

The National Saw Program Technical Advisory Group (SPTAG) developed this curriculum, the "Developing Thinking Sawyers" course, as a comprehensive chain saw and crosscut saw training program. While developing the course, the advisory group members recognized several issues that can affect sawyer performance and safety, so they designed the course to address those issues. This course incorporates the best parts of previous courses, adds new content to address known gaps, and incorporates new science. For example, the advisory group recognized that in addition to having technical skills, sawyers also need to be aware that human factors play a role in cutting operations. The result is a consistent teaching product that is designed to provide students with the knowledge and opportunity they need to develop the skills of a thinking sawyer.

Given that most students who complete the chain saw and crosscut saw training program will be occasional or intermittent sawyers, the techniques and skills taught in the course are based on safety, teachability, and consistency. To standardize practices taught in the classroom and used in the field, you should follow the format provided, and avoid deviating from the curriculum.

Facilitator Tips and Tricks

Sharpening Your Instructor Skills

Learning is defined as any relatively permanent change in behavior that is not due to maturation or instinct. Training is about **facilitation**, enabling and supporting the process of learning and the exchange of information. This course is designed as a student-centered course. To facilitate this course effectively, you must consider the background of your students, and their participation during the course. Adults need to be **active** students. Your purpose as an instructor is to guide students through the content as it is laid out. This course is designed to support you in that endeavor. Use class activities and ask open-ended questions to obtain feedback and verify that students are retaining the content.

A facilitating trainer:

- Encourages students to learn from other students as well as the trainer.
- Understands the value of student participation in the learning process.
- Will not rush to answer a question. Instead, the facilitating trainer uses the opportunity to engage all students, so they all think more about the issues and use their current understanding. This helps them learn, and gives them a good basis for expanding their knowledge as the course continues.
- Praises students for learning rather than seeing the students' knowledge as competing with their own.
- Becomes increasingly satisfied as students learn more.
- Sees each training course as a learning opportunity (trainers are students themselves).

Key Principles in Adult Learning

Experts in educational psychology tell us adults learn most effectively in certain conditions. The learning environment must:

- **Be safe**. The learning environment must be welcoming and safe.
- **Be active**. An adult must be an active participant in the learning process.
- **Make the need clear**. Adults must feel they need to learn the subject matter.
- **Be physically comfortable**. An ideal learning environment has good lighting, good ventilation, and an efficient seating arrangement.
- **Be two-way**. Learning must be based on a two-way communication channel.
- **Include self-evaluations**. Adult students should be able to evaluate their own progress and see clearly that the training is successful.
- **Relate to the subject**. Adults must be able to relate the subject matter to their previous experience in order to build on it and take it to the next level.

Tying it all Together

The following list briefly explains how a facilitating trainer can work in the classroom to engage adult students with the course content.

- **Role modeling** is an important part of learning new material. You should exemplify the values and competencies that students are expected to acquire. Be a good example for the students.
- **Adjust your style** to meet students' needs. Students vary in their learning style and ability to apply new behavior. Assist your students as they work through any challenges. Hands-on activities for practicing skills and field exercises after classes are completed provide opportunities to support various learning styles and abilities.
- **Be a motivator** and help students stay focused and energized so that they will see the course through to completion.

- **Be a catalyst** to guide and stimulate a reaction called **learning**. Instructors cannot ensure that people learn. They can only arrange learning experiences that increase the probability that people will learn using the materials provided.
- **Manage expectations** by briefly explaining what you will cover and provide time for students to state what they expect to get from the course. Then, explain how the course content relates to the students' expectations. It helps motivate students when they see what is in the course for them.
- **Address issues** related to the environment directly before they become a problem. For example, if the room is too cold or the desk chairs are uncomfortable, make changes early on.
- **Mitigate distractions**. Explain to students that they must immerse themselves in the course to learn most effectively. Encourage them to turn off cell phones and refrain from doing anything work-related during breaks. While in class, curtail any side conversations not related to the content at hand.

Stimulus-Response-Feedback

Stimulus-Response-Feedback (SRF) are the three smallest elements in an instructional sequence.

Stimulus

A stimulus is anything that an instructor presents to the students. The only way you will ever know if the students understand the stimulus is by eliciting responses.

Response

A response is anything a student does or says in reaction to the stimulus. It serves two purposes:

- Provides an opportunity to see how well the student understands and can apply new concepts.
- Improves retention and transfer of learning. In order to respond, the student must internalize the new knowledge, skill, and/or attitude before formulating a response.

Feedback

Feedback is any information the student receives during training that reinforces their response the next time they encounter the same situation. For example, in group discussions students receive feedback from other students and their instructor.

Using Questions Effectively

Questions are one of an instructor's most useful tools. The purpose of asking questions is to obtain information. You must learn to use them effectively.

Here are some of the more common ways to use questions as a tool:

- **To test understanding.** Use questions when you need to get a reading on a student's or the class's understanding.
- **To make a point.** Ask a question to encourage your students to think a certain way.
- **To lead students to discover.** Use questions when teaching deductively. For example, ask: "What are some of the pitfalls you may encounter when addressing a hung-up tree?"
- **To stimulate creative thinking.** Ask questions when brainstorming.
- **To assess the needs of students**. Use questions when deciding how much to teach or how deep to go. For example, ask: "How many of you have helped a sawyer address a hung-up tree blocking a trail?"
- **To arouse interest in the topic.** Use a question to elicit a guess.
- **To steer a group**. Ask questions when participants are going astray.
- **To poll the group**. Ask questions to reach consensus or get feedback.
- **To summarize and get closure.** Use a question to wrap up a class.

Summary

Use these facilitator tips and tricks to sharpen your teaching skills as you follow the classroom materials created for the "Developing Thinking Sawyers" course.

Course Overview

About This Course

The use of saws on National Forest System (NFS) lands is prohibited except by an individual who has completed training, been evaluated, and received a national sawyer certification card.

"Developing Thinking Sawyers" is a module-based training focused on developing skills that emphasize risk management, human factors, and sawyer safety. Completing the training program does not guarantee certification. The evaluation process may be separate from the training in order to give sawyers time to practice their skills under the supervision of an approved sawyer instructor.

Audience

The intended audience for this course includes Forest Service employees, volunteers, and cooperators who use chain saws and/or crosscut saws during the course of their job duties.

Purpose of the Course

Forest Service Manual (FSM) 2358, "National Saw Policy" requires all sawyers to be trained, evaluated, and certified through an approved training program. This course presents the operational procedures that are considered best practices designed for protecting sawyers from accidental injury or death during saw operations.

Course Goal

"Developing Thinking Sawyers" is designed to provide Forest Service employees, volunteers, and cooperators who are intermediate chain saw and crosscut saw users with the technical knowledge to use these tools safely and effectively.

After the student completes the training, a sawyer evaluator will conduct a field evaluation to determine whether the student demonstrates safe saw handling skills and a basic knowledge of the course content. The field evaluation is based on the student's ability to apply knowledge and skills in front of an approved evaluator, and determines the level of certification at which the student is authorized to perform saw work.

Course Contents

The "Developing Thinking Sawyers" course includes the following materials:

- Student guide
  - Prework
  - Classroom guide
- Instructors guide
- Field station instructions

Before entering the classroom, students are expected to review the prework documents. The "Developing Thinking Sawyers" prework introduces basic knowledge that is expounded upon later in the classroom. Completing the prework decreases the amount of classroom time for each lesson.

The instructor materials for this course consist of an instructors guide used in conjunction with PowerPoint presentations that contain various elements, such as videos, hands-on classroom activities, and topics for group discussion. The PowerPoint presentations create a sense of formality in the classroom, display key information covered during lectures, and help support different learning styles.

Students will follow along in class using their student guides. The student guide is a resource that provides teaching and administrative support to students as they progress through the course.

Table 1 provides a brief explanation of the various elements included in the training modules.

Table 1—Module elements.

Module element	Description
Prework review	Reviewing the prework provides you, as an instructor, with an opportunity to ask direct questions, and highlight important information and concepts introduced in the prework. It is also an opportunity for you to assess how much of that knowledge the students retained.
Activity	Course activities are designed to engage adult students with the content and provide an experience to associate with specific information. Activities may include videos and group discussions.
Group discussion	Group discussions provide an opportunity for active debate and interaction between students. Group discussions allow students to learn from their peers as well as from the instructor.
Video debrief	Video debriefs are question and answer sessions that provide the class with an opportunity to review concepts presented on film. You can ask questions and encourage group discussion to verify that students grasp the important concepts presented in each video.
Knowledge check	Knowledge checks provide an opportunity for you to make sure that students understand the key points covered in each section or module before moving on to another topic or more complex concept. During a knowledge check, students answer the questions in their student guide, and then discuss their answers with the class. This provides you with immediate feedback on how well students understand the material.

Module element	Description
Summary and additional questions	Conclude each module by reviewing the objectives and reinforcing the topics presented. Then, open it up for a short discussion to cover any additional questions the class may have.
Glossary	The glossary lists definitions for terms used throughout the course. The glossary is in appendix A of the student guide and appendix B of the instructors guide.

Course Evaluation

Meaningful input from students is essential for improving course training materials. A course evaluation survey is one of the most common indirect assessment methods. In addition to providing useful information to instructors, course evaluations provide an opportunity for students to reflect on their learning experience and provide feedback.

Levels of Evaluation

The purpose of evaluating the "Developing Thinking Sawyers" course is to hear students' reactions and verify that course objectives were met.

Table 2—Levels of evaluation.

Level	Answers the question	Tool used	Time period
Level 1: Reaction	Did students like the program?	End of course evaluation survey	Immediately after the class is completed
Level 2: Learning	Did they learn the skills taught?	Knowledge checks, exercises, simulations and/or observation activities	During and after class

After completing "Developing Thinking Sawyers", ask the students to complete a Level 1 evaluation in the classroom (table 2)

Level 1 evaluations provide the following information:

- Relevance of the materials to the job
- Appropriateness of the training materials
- Instructor evaluation
- Training facility evaluations
- Overall reaction to the course

Level 1 evaluations are essential for tailoring the course to meet students' needs. Over time, they can help Forest Service staff identify concepts and elements of the course that have changed or are no longer applicable. The course evaluation is in appendix A of both the instructors and student guides. Instructors complete level 2 evaluations (table 2) using the knowledge checks at the end of each module and during field exercises held after the course.

Course Outline

For the purposes of this training, the terms **saw** or **saw program** refer to both chain saws and crosscut saws, unless otherwise specified.

☐ **Module 1: Introduction to Saw Operations**

The "Introduction to Saw Operations" module covers National Saw Program policy and legal requirements, sawyer safety, situational awareness, identification of risk, risk management, and developing a standardized OHLEC (objective, hazards, leans/binds, escape route, cut plan) size-up process.

☐ **Module 2: Chain Saw**

The "Chain Saws" module contains three sections: "Chain Saw Basics," "Bucking and Limbing," and "Felling." The section(s) the students require will depend on the certification level they pursue. Refer to the Lesson Plans contained in Appendix A of the Instructor Guide.

☐ **Module 3: Crosscut Saws**

The "Crosscut Saws" module contains three sections: "Crosscut Saw Basics," "Bucking and Limbing," and "Felling." The section(s) the students require will depend on the certification level they pursue. Refer to the Lesson Plans contained in Appendix A of the Instructor Guide.

☐ **Module 4: Ax Basics, Maintenance, and Use**

The "Ax Basics, Maintenance, and Use" module covers ax basics, maintenance, safety, and use.

☐ **Module 5: Fireline Operations**

The "Fireline Operations" module covers fireline safety, the sawyer/swamper team, cutting area control, saw team tasks and tactics, and terminology.

☐ **Module 6: Wedges**

The "Wedges" module covers wedge design and the mechanical advantage wedges provide, various wedge types, proper wedge placement and use, and how to calculate the amount of lift using tree diameter and height.

☐ **Module 7: Hung-up Trees**

The "Hung-up Trees" module defines the term "hung-up trees" and identifies the hazards associated with them, discusses avoiding hung-up trees, explains the OHLEC process for them, and provides techniques for mitigating or removing them.

Instructor Expectations

The material in this training package was developed, reviewed, and produced for the purpose of developing thinking sawyers. You should not deviate from the content. The intent is to provide students with consistent training materials. Any changes, additions, or deletions to the text could result in dangerous misunderstandings that might impact the safety of future sawyers. The expectation is that you will present the material as written, including completing the activities and showing only the videos embedded in the course PowerPoint slides. Drawing from relevant experience and supplying relatable examples or stories is valuable to the learning experience, but consider what you share as it can distract from the intent of the course and impact allotted timeframes. Stick to the techniques covered in the course. Presenting content and techniques outside the topics included in the training is not advised. Take time to practice your delivery of the curriculum. Keep time management in mind as you choose a few well-placed stories to engage the students and make a particular concept more memorable.

Instructor Guide Layout

First, before you begin to look at the content for the class, let's review the table of contents for the instructors guide to become familiar with the manual's layout. Module 1 begins with a section called "About this Course" that gives you an overview of the content and shows you the format for instructors guide. Modules 2 through 7 are laid out in the same way as module 1, though the course elements in each module may differ. For example, one module may include an activity while the next contains only lectures. See the lesson plans in appendix A of the instructors guide for a quick review of the objectives and elements included in each module.

Instructor Checklist

This highly informative checklist tells you everything you need to know in order to successfully plan and execute this course. Follow the tasks indicated in the table.

Classroom Lecture

Each header in the instructors guide corresponds with the same header in the student guide. In your instructors guide, you will see a thumbnail of each PowerPoint slide with text indicating what you should say or ask while discussing each slide (figure 1).
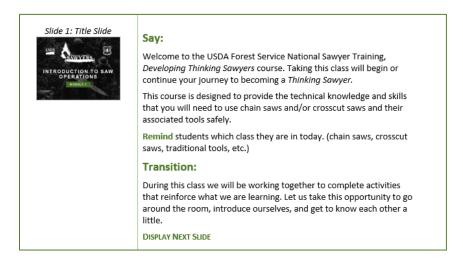
Figure 1— Classroom lecture screencap.

Summary and Additional Questions

Conclude each module by reviewing the objectives and reinforcing the topics presented. Then, open it up for a short discussion to cover any additional questions the class may have.

Appendix A

Appendix A of the instructors guide includes a tentative course agenda for each sawyer type, lesson plans for each module, and the saw stations for module 2.

Appendix B

Appendix B of the instructors guide contains your copy of the instructor evaluation form. You can see the items students will be rating you and your facilitation skills on. These evaluation sheets will be delivered to the regional Saw Program manager. The regional Saw Program manager then organizes the evaluations and delivers them to the National Saw Program. Each year, a subset of Saw Program Technical Advisory Group members reviews the evaluations and addresses any potential needs for curriculum updates.

Appendix C

Each qualification requires a specific set of modules. The modules you complete will depend on your qualification goals. Refer to the table in Appendix C or Module 1 prework to determine which modules you require.

The prework for module 1 refers to the levels of sawyer certification. Appendix C also contains charts matching the concepts covered in module 6. The course glossary is in appendix C of both the instructors and student guides.

Student Guide Layout

The student guide has two sections for most modules: "Student Guide: Prework" and "Student Guide: Classroom." Prework must be delivered to students before the scheduled class so they have time to read it before attending the training. The decision to include prework was intended to cut down on time spent in the classroom.

Student Guide: Prework

The prework for each module introduces topics you will expand upon in the classroom. At the beginning of each class, take a few minutes to review the information provided in the prework.

Student Guide: Classroom

As you teach a concept using the PowerPoint slides and instructors guide, refer students to the related information in their student guide. Answer student questions as necessary. These questions will often indicate whether students are learning and understanding the material you are presenting.

Appendix A

In Appendix A of the student guide contains a tentative course agenda for each desired sawyer qualification.

Appendix B

Appendix B of the student guide contains the instructor evaluation form. On the last day of the course, give students the last 10 minutes of class to complete an evaluation. Request that they answer the questions honestly and concisely.

Appendix C

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Saw Stations

This course provides sawyers with an opportunity to practice key behaviors that will enhance learning transfer. Learning transfer occurs when a person has the ability to apply knowledge in other situations or settings. For example, a student watches a video on spring poles and later encounters a spring pole in the field and knows how to deal with it. Course topics with associated field stations for practice include:

- Five-point safety check
- Starting procedures

- Chain break
- Boring
- Reactive forces
- Cutting
- Spring poles
- Limbing
- Bucking

Summary

To sum it all up, as a valued Forest Service instructor, your subject matter expertise is essential for providing a role model and training for current and future Forest Service sawyers. However, it is not only your expertise that will make you a successful instructor for adult students. This "Train the Trainer" guide is designed to support you in the classroom as you teach the knowledge and concepts that are essential for Forest Service sawyers to have on the job.

The field exercises following classroom sessions will solidify the knowledge transfer and help develop and refine the students' skills.

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