

## OJT Training Module Cover Sheet

**Title: 418 How to do particle-size analysis in the soil survey office.**

**Type:**      Skill      Knowledge

**Performance Objective:** Trainee will be able to ...

- Prepare soil samples for particle-size analysis.
- Run the modified Day procedure for hydrometer method of particle-size analysis.
- Use calculations and summation curve plots to determine sand, silt, and clay fractions in a soil.

**Target Proficiency:**

- Awareness    Understanding    Perform w/ Supervision  
 Apply Independently    Proficiency, can teach others

**Trainer Preparation:**

- Trainer should be familiar with the assigned reading/review material in the lesson plan that follows.
- Provide laboratory equipment and soil samples for exercise.

**Special Requirements:**

Initiate an external learning request with a SF-182 in Aglearn for this activity. Instructions and a template are located on the training webpages for OJT modules.

**Prerequisite Modules:**

None

**Notes:**

None

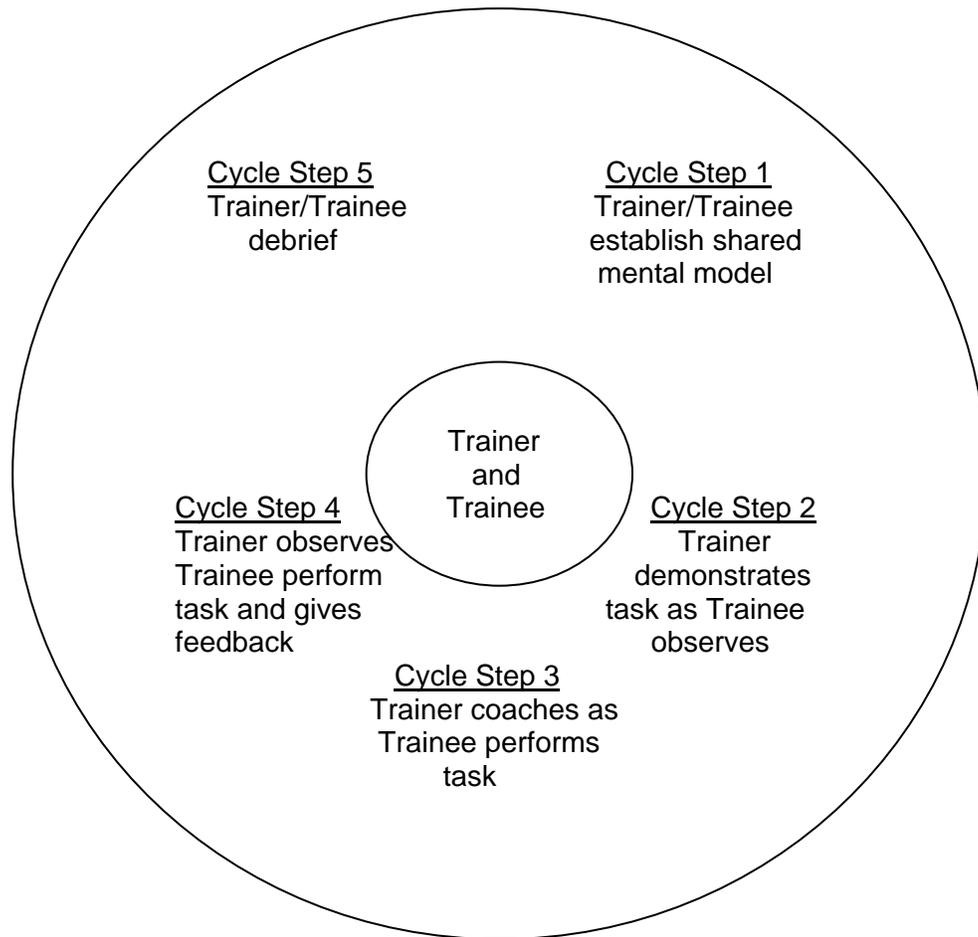
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# The Five-Step OJT Cycle for Procedural Training (Skill)



## OJT Module Lesson

**Title: 418 How to do particle-size analysis in the soil survey office.**

WHAT	WHY, WHEN, WHERE, HOW, SAFETY, QUALITY
Cycle step 1	<p>Trainer and trainee access via the internet and read/review:</p> <ul style="list-style-type: none"> <li>• <b>Soil Survey Field and Laboratory Methods Manual, SSIR #51:</b> <ul style="list-style-type: none"> <li>○ Particle-Size Distribution Analysis           <ul style="list-style-type: none"> <li>• <b>Hydrometer Method</b> (modified Day procedure)</li> </ul> </li> </ul> </li> </ul> <p>Trainer should highlight all safety considerations and any interferences of this method associated with local soils.</p>
Cycle step 2	<p>Trainer demonstrates the procedures for preparing the sample for PSA, including any necessary treatments for removal of carbonates, organic matter, and iron oxides. Trainer discusses time intervals needed for PSA readings and demonstrates how to read the hydrometer and record observations. Demonstrate calculations needed to plot a summation curve and how to interpret the readings using the curve.</p>
Cycle step 3	<p>Trainer asks the trainee to prepare and measure a separate sample for PSA. Coaching as needed, have the trainee perform the PSA test, complete the required calculations and plot the hydrometer readings to determine the percentages of sand, silt, and clay.</p>
Cycle step 4	<p>Begin Measurement of Learning below.</p>
Cycle step 5	<p>Answer any questions. Repeat any steps as necessary. To add interest, the trainer may choose to discuss additional methods for determining PSA available in <b>SSIR #51</b>.</p>

## OJT Module Lesson Measurement of Learning

**Title: 418 How to do particle-size analysis in the soil survey office.**

<b>WHAT</b>	<b>WHY, WHEN, WHERE, HOW, SAFETY, QUALITY</b>
<p>Give trainee a selected sample from which to obtain PSA data. The trainee must:</p> <ul style="list-style-type: none"><li>• Process the sample by sieving and weighing.</li><li>• Provide any treatments necessary for removal of carbonates, organic matter, and iron oxides.</li><li>• Complete hydrometer measurements accurately.</li><li>• Complete necessary calculations and plot readings on summation curve to determine sand, silt, and clay fractions.</li></ul>	<p>Trainee must be able to perform tasks independently and explain steps taken to achieve goals.</p>

### **SF-182**

Trainee and/or supervisor access Aglearn to verify completion of the module via its SF-182.