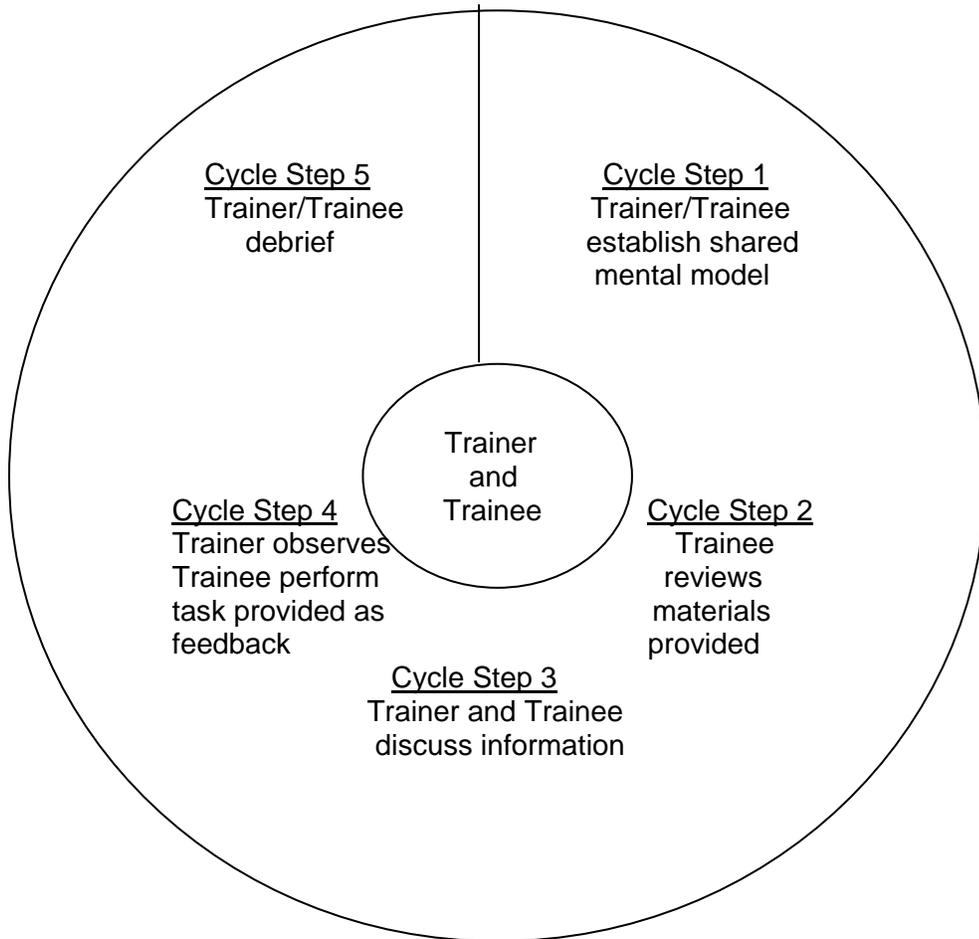


## OJT Training Module Cover Sheet

|  |
|--|
| <b>Title:</b> 1020 Understanding the processes of soil erosion.  |
| <b>Type:</b> <input type="checkbox"/> Skill <input checked="" type="checkbox"/> Knowledge  |
| <b>Performance Objective:</b> Trainee will be able to... <ul style="list-style-type: none"><li>• Understand the geologic processes that are involved in soil erosion.</li><li>• Understand how cultural practices are involved in soil erosion.</li><li>• Recognize the kinds of soil erosion.</li></ul> |
| <b>Target Proficiency:</b><br><input type="checkbox"/> Awareness <input checked="" type="checkbox"/> Understanding <input type="checkbox"/> Perform w/ Supervision<br><input type="checkbox"/> Apply Independently <input type="checkbox"/> Proficiency, can teach others                                |
| <b>Trainer Preparation:</b> <ul style="list-style-type: none"><li>• Trainer should be familiar with the assigned reading/review material in the lesson plan that follows</li></ul>   |
| <b>Special Requirements:</b><br>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.  |
| <b>Prerequisite Modules:</b><br>None   |
| <b>Notes:</b><br>Field reference sites would be beneficial to demonstrate the result of the processes.   |
| <b>Authors:</b><br>Mark Bramstedt<br>Roger Windhorn  |
| <b>Approved by:</b><br>Marc Crouch<br>Craig Ditzler  |

# The Five-Step OJT Cycle for Declarative Training (Knowledge)



## OJT Module Lesson

| Title: 1020 Understanding the processes of soil erosion. |  |
|--|--|
| WHAT   | WHY, WHEN, WHERE, HOW, SAFETY, QUALITY   |
| Cycle step 1   | Review the objectives. Relate that the main objective is to learn and understand the physical and cultural processes of soil erosion caused by the forces of wind and water.   |
| Cycle step 2   | <p>Trainer and trainee access via the internet and read/review:</p> <ul style="list-style-type: none"> <li>• <b>Soil Survey Manual</b>, Chapter 3: <ul style="list-style-type: none"> <li>○ <b>Erosion</b></li> </ul> </li> <li>• <b>Soil Quality Information Sheet:</b> <ul style="list-style-type: none"> <li>○ Soil Quality Resource Concerns <ul style="list-style-type: none"> <li>▪ <b>Soil Erosion</b></li> </ul> </li> </ul> </li> <li>• <b>“Global Dimensions of Vulnerability to Wind and Water Erosion”</b> by Paul Reich, Hari Eswaran, and Fred Beinroth</li> <li>• <b>Understanding Soil Risks and Hazards:</b> <ul style="list-style-type: none"> <li>○ <b>Erosion by Wind and Water</b></li> <li>○ <b>Erosion and Sedimentation on Construction Sites</b></li> <li>○ <b>Erosion of Streambanks</b></li> </ul> </li> </ul> <p>Optional, if bulletins are available:</p> <ul style="list-style-type: none"> <li>• “Soil Erosion by Water”, 1987, USDA SCS Agriculture Information Bulletin 513</li> <li>• “Soil Erosion by Wind”, 1989, USDA SCS Agriculture Information Bulletin 555</li> </ul> |
| Cycle step 3 & 4   | <p>Discuss the overall processes of soil erosion. Define the difference between geologic erosion and accelerated erosion.</p> <p><u>Geologic Erosion</u><br/>Discuss mass-wasting and gravitational forces involved in geologic erosion.</p> <p><u>Accelerated Erosion</u></p> <ul style="list-style-type: none"> <li>• Erosion by Water<br/>Discuss processes of detachment, transport, and deposition.<br/>Discuss sheet, rill, gully, and ephemeral erosion.</li> <li>• Erosion by Wind<br/>Discuss saltation, creep, and suspension.</li> <li>• Discuss cultural practices that affect accelerated erosion.</li> </ul> <p>Conduct a soil erosion demonstration / experiment (optional).</p>  |

|              |  |
|--------------|--|
|              | <p><u>Field Trip</u><br/>Conduct a field trip of the local area to see the results of the different processes of soil erosion.</p>   |
| Cycle step 5 | <p>Evaluate the understanding of the trainee. Trainee should be able to define the processes of accelerated erosion and to demonstrate their knowledge by showing local examples in the field.</p> |

## **OJT Module Lesson Measurement of Learning**

|   |   |
|---|---|
| <b>Title: 1020 Understanding the processes of soil erosion.</b> |   |
| <b>WHAT</b>   | <b>WHY, WHEN, WHERE, HOW, SAFETY, QUALITY</b> |
| Complete provided quiz  | See quiz below. Answers are attached.         |

### **SF-182**

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

## Quiz

1. Geologic erosion is a form of natural erosion.
  - a. True
  - b. False
2. Accelerated erosion is largely a product of human activity.
  - a. True
  - b. False
3. The thickness of an "A" horizon (topsoil) can be used as a standard in all cases for how much soil has been added or lost on a particular soil.
  - a. Yes
  - b. No
4. Match the following indicators of erosion that you could use to estimate soil surface stability or loss.

1. Visual
2. Physical
3. Chemical
4. Biological

- a. Decreased microbial biomass \_\_\_\_\_
- b. Measurement of aggregate stability \_\_\_\_\_
- c. Decreases in soil organic carbon content \_\_\_\_\_
- d. Changes in cation-exchange capacity (CEC) \_\_\_\_\_
- e. Changes in soil horizon thickness \_\_\_\_\_
- f. Deposition of soil at field boundaries \_\_\_\_\_
- g. Increasing depth of channels and gullies \_\_\_\_\_
- h. Presence of moss and algae crusts in arid soils \_\_\_\_\_
- i. Comparison of aerial photographs taken over time \_\_\_\_\_
- j. Increase in calcium carbonate at surface (if it exists in subsurface layers) \_\_\_\_\_
- k. Lower rate of respiration \_\_\_\_\_
- l. Slower decomposition of plant residues \_\_\_\_\_

5. Match the following signs of erosion with the kind of erosion it is associated with.

1. Wind erosion
2. Water erosion

- a. Small rills and channels on soil surface \_\_\_\_\_
- b. Soil accumulation along fence lines or snow banks \_\_\_\_\_
- c. Dust clouds \_\_\_\_\_
- d. Pedestals of soil supporting pebbles and plant material \_\_\_\_\_
- e. A drifted appearance of the soil surface \_\_\_\_\_
- f. Soil deposited at the base of slopes \_\_\_\_\_
- g. Sediments in lakes and streams \_\_\_\_\_