



Module 3: Soil Science & Soil Health

Think-Pair Share Activity A: Soil Infiltration

Lesson A

Grouping: Pairs or small groups (3–4)

Time: 25–30 minutes

Materials:

- Excerpt/diagram from NRCS “Soil Infiltration” PDF
- Access to the two short YouTube explainers (or teacher summary if no internet)
- Student notebooks or worksheet copy

Objectives:

Students will investigate how soil structure and management practices affect water infiltration and link these outcomes to soil functions and SDGs (clean water, climate resilience, biodiversity).

Your task:

You will explore how soil structure and management practices influence water infiltration and ecosystem services. First, review the infiltration diagram and video examples. Then, identify one factor that improves infiltration and one factor that reduces it. In pairs, discuss a practice that could be applied in your school garden or community to increase infiltration and connect it to one soil function. Finally, share your group’s idea with the class and link it to a Sustainable Development Goal (SDG).

Instructions:

Step 1: Think (Individual)

Write your own ideas before discussing with a partner.

1. One factor that improves infiltration: _____
2. One factor that reduces infiltration: _____
3. Why infiltration matters for both farmers and ecosystems: _____

Step 2: Pair (Discussion)

Discuss with your partner and record your group’s ideas.

1. Do your factors match or differ? Summarize: _____
2. One practice you would recommend to increase infiltration: _____
3. Which soil function does this practice support? _____

Step 3: Share (Class Discussion)

Fill in during class share-out.

Practice Shared	Soil Function Supported	SDG Link
_____	_____	_____
–	–	–
_____	_____	_____
–	–	–

_____	_____	_____
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Reflection Prompt

- Which practices seem easiest to apply in a school garden? _____
- Which practices would be hardest to scale on a large farm? _____
- Why? _____

Skills you'll use:

- Observation & Data Interpretation – noticing soil structure, cover, and infiltration differences.
- Systems Thinking – connecting soil practices to water, nutrients, microbes, and ecosystem services.
- Collaboration & Communication – comparing ideas with a partner and sharing with the class.
- Evidence-Based Reasoning – linking practices to soil functions and Sustainable Development Goals (SDGs).
- Problem-Solving – suggesting realistic soil management strategies for gardens and farms.

Example:

Scenario: A team observes that one garden bed has bare soil and another is covered with mulch and plant residues.

- Factor Improving Infiltration: Mulched bed → organic matter protects the soil, reduces crusting, and allows water to soak in.
- Factor Reducing Infiltration: Bare bed → surface compaction and raindrop impact cause crusting, leading to runoff.
- Proposed Practice: Apply mulch or plant a cover crop in the bare bed.
Supported Soil Function: Regulate water (improved infiltration reduces runoff and erosion).
Linked SDG: SDG 6 (Clean Water) — because better infiltration keeps water clean and reduces sediment pollution.