Module 1 – Foundations of Sustainable Agri-Food Systems & Circular Economy

Think-Pair-Share: Loop Rescue Plan

Red Notes

Lesson B
Grouping: Pairs or small groups (3–4)
Time: 25-30 minutes

Materials:

- Pens/markers for diagramming
- Optional: large chart paper for group sharing

Objective:

Apply feedback-loop thinking to identify where a resource cycle is broken in a linear system and design a practical plan to restore it, creating a closed-loop outcome.

Instructions:

1. Read the "problem brief":
    a. **Problem Brief:**
    Title: "Bottled Water Blues"

    A mid-sized city has recently shut down its public drinking fountain maintenance program due to budget cuts. As a result, many fountains in parks, community centers, and public spaces no longer work. This has led to a major increase in single-use plastic water bottle purchases.

    Current Situation:
    - Visitors and residents have fewer places to refill reusable bottles.
    - Litter from plastic bottles has increased, especially in parks and rivers.
    - The city's recycling program is already struggling to keep up with the added waste.
      Local plastic bottle manufacturing and transport now produce more greenhouse gas emissions.

    Your Challenge:

    Identify where the feedback loop is broken <u>in the water use and packaging system</u>, and design a practical "Loop Rescue Plan" that reconnects it—reducing waste and moving the system toward circularity.
2. On your own, list 2–3 quick ideas to restore or replace the broken loop.
3. In your group:
    a. Identify where the feedback loop is broken
    b. Brainstorm how to reconnect it
    c. List the benefits of closing the loop again
4. Present your plan to the class in the format: Break → Fix → Outcome

Your Task:

Use the graphic organizer below to design your Loop Rescue Plan. Fill in each section clearly, then draw a before-and-after diagram showing how the system changes when your plan is applied.

Step 1: Where is the Loop Broken?
☐ Production
☐ Processing
☐ Distribution / Retail
☐ Consumption
☐ Waste Management
Details:

Reusable water bottle refill points are unavailable because public drinking fountains are broken or out of service. This pushes people toward single-use plastic bottles, which are discarded instead of being reused or cycled back into production.

Step 2: Proposed Fix
Describe how you would reconnect the loop.

Repair and maintain existing public drinking fountains and install new bottle-filling stations in high-traffic areas. Partner with local businesses to offer free bottle refills. Launch a “Refill Here” map app so people can easily find refill points.

Step 3: Outcomes & Benefits
List at least 3 benefits: Environmental, Economic, and Social.

1. **Environmental:** Fewer single-use bottles in landfills and waterways; reduced plastic production and transport emissions.
2. **Economic:** Lower city waste management costs; small businesses get increased foot traffic from refill seekers.
3. **Social:** Improved public access to clean drinking water; increased awareness of waste reduction.

Before – Linear System (Current)
Draw arrows showing “take → make → waste”. Mark where the leak happens.

Water source → bottled water production → store → consumer use → landfill/recycling (many bottles not recycled) → pollution

Leak: Bottles discarded instead of refilled.

After – Circular System (Your Solution)
Draw arrows showing your feedback loop / closed loop. Show how waste cycles back in.

Water source → public fountains/bottle-fill stations → consumer use → refill again (loop continues)

Closed Loop: Reuse replaces single-use; minimal plastic waste generated.

Summary (Break → Fix → Outcome):
Break:

Lack of refill points forces reliance on single-use bottles, creating waste.

Fix:

Repair/install refill infrastructure and promote free refill locations.

Outcome:
Reduced plastic waste, lower emissions, improved community access to water.

Reflection:

1. How did thinking in terms of loops (rather than lines) change the solutions you came up with?

Instead of only focusing on cleaning up litter, the plan addresses the root cause—removing the need for single-use bottles in the first place.

2. Which part of your plan would be easiest to implement in real life, and which part would be the hardest? Why?

Partnering with businesses for refill stations (low cost, quick win).

3. How could your Loop Rescue Plan be scaled up to serve an entire city or region?

A city-wide refill network with standardized signage and national expansion through shared refill apps.

Skills You'll Use:

- Systems thinking
- Problem-solving and creative design
- Understanding of feedback loops and circular economy principles
- Communication and collaboration

Example:

- Problem Brief: School cafeteria waste → landfill
- Where is the Loop Broken? Waste not recovered for reuse or recycling
- Proposed Fix: Install an on-site biodigester
- Outcome & Benefits: Biogas for the kitchen; compost for the school garden; reduced landfill waste and methane emissions