

# Lesson Plan: The Super-Powered Garden Team!

## Materials Needed:

- Whiteboard or large sheet of paper
- Markers or crayons
- **For Activity Option A (Garden Design):** Paper (or a paper plate for a "Pizza Garden"), colored pencils/markers.
- **For Activity Option B (Ecosystem in a Jar):** A clear glass jar with a lid, small pebbles or gravel, activated charcoal (from a pet store), potting soil, small plants or moss, a small spray bottle with water.
- Optional: Pictures or short video clips of food forests or permaculture gardens.

## Learning Objectives:

By the end of this lesson, you will be able to:

1. Explain what permaculture means in your own words.
2. Identify at least three "layers" of a food forest ecosystem.
3. Design a mini-ecosystem where different parts work together as a team.

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## Lesson Activities

### 1. Introduction (10 minutes)

#### Hook: The Lazy Gardener's Secret

Let's start with a puzzle. Imagine two gardeners. Gardener A works super hard every day—digging, watering, pulling weeds, and fighting bugs. Gardener B seems lazy; they hang out in a hammock a lot, but their garden is bursting with fruit and vegetables, with very few weeds or pests. What do you think Gardener B's secret is?

*(Allow for discussion and ideas. Guide the conversation toward the idea of "working smarter, not harder" or "getting nature to help.")*

#### Setting Our Goals

That's exactly what we're going to learn about today! Gardener B's secret is **Permaculture**. It's like creating a super-powered team of plants, bugs, and soil that all work together to take care of the garden. Today, we're going to learn the rules of this amazing game so you can design your very own super-powered garden team!

### 2. Body: Building Our Super Team (25 minutes)

#### Part 1: What is Permaculture? (I Do - 5 mins)

Permaculture is a big word for a simple idea: **working with nature, not against it**. Instead of planting

straight rows of one type of plant, like a cornfield, a permaculture garden looks more like a wild forest. In a forest, nobody has to water the plants or pull weeds, right? Everything takes care of itself. That's our goal!

The first rule is that everything in the garden should have more than one job. A tree isn't just for apples; it also gives shade to smaller plants, its leaves fall and make food for the soil, and its branches are a home for birds that eat pesky bugs.

The second rule is that everything works together in layers, just like a forest. Let's draw it out!

*(On the whiteboard, draw and explain the main layers of a "food forest"):*

- **The Canopy:** The big, tall fruit or nut trees.
- **The Understory:** Smaller dwarf fruit trees that live in the shade of the big guys.
- **The Shrub Layer:** Berry bushes like blueberries or raspberries.
- **The Herbaceous Layer:** Helpful plants and flowers like mints or comfrey.
- **The Groundcover:** Things that spread across the ground, like strawberries, to keep weeds away.
- **The Rhizosphere:** The "root zone," where things like potatoes and carrots grow.
- **The Vertical Layer:** Climbers and vines, like grapes or beans, that grow up the trees.

See? It's like a skyscraper of food where every floor is a different neighbor helping out!

## Part 2: Finding the Teamwork (We Do - 10 mins)

Let's look at an example. *(Show a picture or short video of a permaculture garden or food forest).* Let's be detectives and find the teamwork.

- **Think:** Where can you spot one of the layers we just talked about? Can you see a tall tree? A berry bush? Something crawling on the ground?
- **Pair/Share:** Point out a plant and let's brainstorm together what jobs it might be doing. For example, "I see big sunflowers. What could their job be? (Answer: Making seeds, providing shade, and their strong stalks can be a pole for beans to climb!)."
- **Discuss:** How is this different from a normal farm field with just corn? Why might this type of garden be healthier and easier to take care of?

**Formative Assessment (Quick Check):** Ask, "Can you name two layers of our food forest skyscraper? What's one example of a plant that has more than one job?"

## Part 3: Design Your Own Mini-Ecosystem! (You Do - 15 mins)

Now it's your turn to be the garden designer! You get to create your own mini-ecosystem where every part is a team player. You can choose one of two projects:

### Option A: Design a Permaculture "Pizza Garden"

On a round piece of paper (like a pizza), design a garden where you can grow everything you need for a pizza! You must include at least three different types of plants that help each other.

- **Step 1:** Draw your "pizza slices" to be different garden beds.
- **Step 2:** Choose your plants. You'll need tomatoes (fruit/vine), basil (herb), onions or garlic (root), and maybe some oregano (groundcover).
- **Step 3:** Draw your plants in the garden and label them. Next to each plant, write down at least one job it does for the team (e.g., "Basil keeps the tomato hornworm bugs away," or "Oregano

covers the ground so weeds can't grow.").

**Success Criteria:** Your design has at least three plants, shows how they are helping each other, and is clearly labeled.

#### **Option B: Build an Ecosystem in a Jar**

We'll create a tiny, living world that takes care of itself! This is called a terrarium, and it works just like a permaculture system.

- **Step 1 (The Drainage Layer):** Add a thin layer of pebbles to the bottom of the jar. This gives extra water a place to go so the plant roots don't rot.
- **Step 2 (The Filter Layer):** Add a very thin layer of activated charcoal. This keeps the water clean and the tiny ecosystem healthy.
- **Step 3 (The Soil Layer):** Add a layer of potting soil. This is the food and home for your plants.
- **Step 4 (The Living Layer):** Gently place your small plants or moss into the soil. Think about how you arrange them, just like in a real forest!
- **Step 5:** Lightly spray the inside with water, then seal the lid. Place it in a spot with indirect sunlight.

**Success Criteria:** You can name each layer in your jar and explain its job (e.g., "The pebbles are for drainage, the soil is for food...").

### **3. Conclusion (5 minutes)**

#### **Show and Tell**

Let's share what you made! If you designed the garden, explain your plant team. If you built the jar, explain how your mini-world will take care of itself.

#### **Recap and Reflection**

So, what was the "lazy" gardener's secret? It was permaculture! Instead of doing all the work, they designed a system where nature does the work for them.

- What does permaculture mean? (Working with nature).
- What's one cool thing you learned about how plants can work together?
- How could you use these ideas in a real garden, a balcony pot, or even just in how you think about nature?

Great job today! You've learned how to think like an ecosystem designer and create a team where everyone—and everything—wins.

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### **Differentiation and Extensions**

- **For Scaffolding/Support:** Provide a pre-drawn garden template with circles for plants, or a list of specific "plant partners" (like tomatoes and basil) to choose from. For the jar, have all materials pre-measured.
  - **For Extension/Advanced Learners:** Challenge the student to research a real "plant guild" (like the "Three Sisters": corn, beans, and squash) and create a detailed diagram explaining how each plant helps the others. They could also calculate how much water their Pizza Garden would need
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or research beneficial insects to add to their design.

### **Summative Assessment:**

The student's final "Show and Tell" presentation of their Pizza Garden design or Ecosystem in a Jar serves as the summative assessment. Success is determined by their ability to clearly explain their choices using the key concepts from the lesson (e.g., layers, teamwork, multiple jobs for each element), meeting the success criteria outlined in the "You Do" activity.