

## **Lesson Plan: Exploring Hydroponic Farming in Culinary Arts**

**By: Dennis Green**

**(10 pts)**

### **Purpose:**

Students will learn what hydroponic farming is and how it connects to food, farming, and sustainability. They will visit a local hydroponic farm and grow herbs in class using a small hydroponic system.

### **Background Connection:**

Hydroponics is a way to grow plants without soil. It uses water and nutrients to help plants grow faster and cleaner. Many chefs use hydroponic herbs and greens in their kitchens because they are fresh and easy to grow year-round.

### **Learning Objectives:**

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

- Explain what hydroponic farming is in simple terms
- Identify at least 3 benefits of hydroponic farming
- Set up and care for a small hydroponic system in class
- Use herbs grown in hydroponics in a simple recipe

### **Materials, Equipment Needed, and Teacher Preparation**

**(10 pts)**

#### **Materials Needed:**

- Small classroom hydroponic kits (e.g., AquaTree or Kratky method jars)
- Seeds (basil, mint, lettuce)
- Nutrient solution
- Water containers
- Grow lights (if natural light is limited)
- Student journals or worksheets
- Permission slips for farm visit
- Transportation plan for field trip

#### **Teacher Prep:**

- Schedule and confirm visit to a local hydroponic farm
- Prepare a short video or slideshow introducing hydroponics
- Set up one demo hydroponic system before class
- Print student worksheets and recipe cards
- Review safety and hygiene procedures for farm visit and plant handling

### **Activities and Procedures**

**(10 pts)**

#### **Day 1: Introduction to Hydroponics**

- Watch a short video or slideshow on hydroponic farming
- Discuss how hydroponics is used in restaurants and kitchens
- Students complete a worksheet with key vocabulary (e.g., nutrients, roots, water, grow light)

### Day 2: Field Trip to Hydroponic Farm

- Tour the farm and talk with a grower
- Students take notes and photos
- Discuss how hydroponic farming helps save space and water

### Day 3: Classroom Hydroponic Setup

- Students work in small groups to set up hydroponic kits
- Label plants and record setup steps in journals
- Begin daily care routine (checking water, light, and growth)

### Day 4–10: Plant Care and Cooking Connection

- Students track plant growth in journals
- Discuss how chefs use herbs in cooking
- Harvest herbs and prepare a simple recipe (e.g., mint lemonade or basil pasta)

### Wrap-Up Activity:

- Students present what they learned in a short poster or slideshow
- Reflect on how hydroponics connects farming and cooking

### Assessment Criteria for Student Projects

Criteria	Points	Description
Participation & Teamwork	/10 pts	Actively contributed to group setup and care of hydroponic system
Journal Entries	/10 pts	Completed daily observations with notes on plant growth and care
Recipe Integration	/10 pts	Used harvested herbs in a recipe and explained its culinary value
Final Presentation	/10 pts	Poster or slideshow clearly explained hydroponics, benefits, and student experience
Vocabulary & Concepts	/10 pts	Demonstrated understanding of key terms and hydroponic farming basics