

# Programs Aboard the Mobile Food Lab

## Grades K-2 (2 hour program)

**Activity 1 - The Sense of Taste** - Why does ice cream taste delicious and old sour milk taste awful? Scientists believe that taste evolved to help us identify foods that are good for us and foods that could cause us harm. Students will conduct an investigation of the sense of taste; experience the basic tastes and their tongue's detection of sweet, sour, salty, bitter and umami (savory) tastes. The instructor will lead a discussion about how foods and drinks often have a combination of flavors; and that the sense of taste is connected to the sense of smell.

**Activity 2 - The Sense of Smell** - Much like taste, the sense of smell allows us to detect chemicals in the environment. Smells are very important to help us identify things that are good for us and things that could cause harm. Smell and taste often work together to help us gather information about our world. Students will conduct an investigation of the sense of smell by learning to "waft" the scent of four fruity smells to their noses and identify the smell. They will learn how our sense of smell works and then use "Smelly Paint" (one envelope of Kool-Aid and 1 teaspoon of water) in the flavors they have smelled to create a "scratch and Sniff" bookmark.

**Activity 3 - Young Chefs Creators: Cooking with Fresh Herbs and Spices** - In the mobile teaching kitchen, students will experiment with seeds as they predict the volume of popcorn produced after cooking kernels and then compare the results. Students will explore using fresh herbs and spices to create 4 different flavor profiles. By learning about taste and fresh ingredients, students are introduced to becoming young chefs of their own culinary creations. Students will eat what they make.

NGSS & NJSLA-S: K-L-S-1-1, K-E-S 3-1, K-E-SS3-2, 2-LS2-1, 2-LS2-2

## Grades 3-5 (2 hour program)

Schools can choose the Activity (1A or 1B) that best fits into their curriculum

**Activity 1A - Garden in a Bottle** - Can plants grow without soil? Using hydroponics, plants get the nutrients they need from a water solution. Terrestrial plants may be grown with only their roots exposed to the mineral solution. Students will work in teams to construct a simple hydroponic wick system in a plastic bottle; plant different seeds; take them back to school to conduct an experiment to test which plants grow best without soil.

**Activity 1B - pH and Taste** - Who has tasted pure lemon juice? Lemons taste sour because they contain a chemical called citric acid. Citric acid is used as an ingredient in many foods and drinks because it enhances other flavors and can keep foods fresh longer. Students will taste several ingredients in food and then add in a pH indicator (red cabbage juice) and see a color change. Through this color change, they will be able to identify the approximate pH of common ingredients in the foods they eat.

**Activity 2 - Using Different Parts of Plants; Make Your Own Tea Bag** - These words are often said together: "flavored with herbs and spices." What's the difference between them? All the parts of plants are used as herbs and spices. Their aromatic properties make them ideal examples to learn about plants; the relationship between them and food preparation and medicine; and the sense of smell. Students will make their own herbal tea bags using the blend of herbs and spices they choose from the assortment provided on the Mobile Lab.

**Activity 3 - The Improv Chef: Cooking with Herbs and Plants** - In the mobile teaching kitchen, students will be encouraged to improvise while learning to use fresh herbs and spices to flavor popcorn. Students will develop an understanding of taste and ways to make the recipe their own. Students will eat their creations.

NGSS & NJSLA-S, 3-ESS3-1, 4-LS1-1, 5-LS1-1, 5-PS1-3, 5-PS1-4, 5-ESS3-1, 3-5-ETS1-1

## Grades 6-8 (2 hour program)

Schools can choose two Activities from the list below (A, B, C) that best fits into their curriculum. All students will do Exploring Flavor and Food Science: Cooking with Herbs and Plants as their third activity.

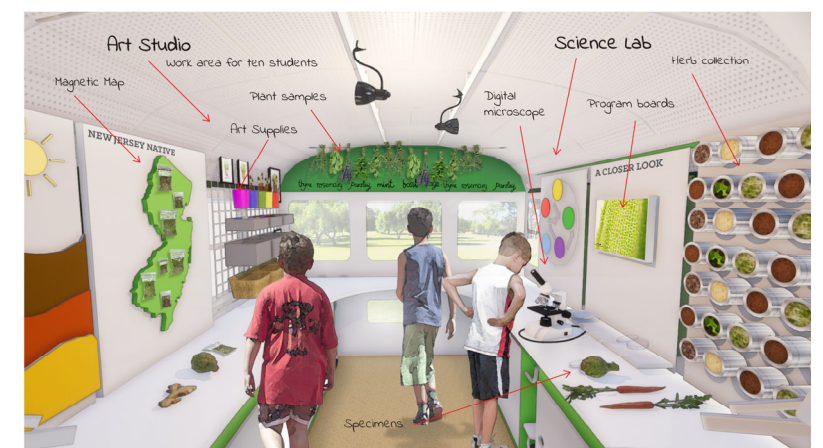
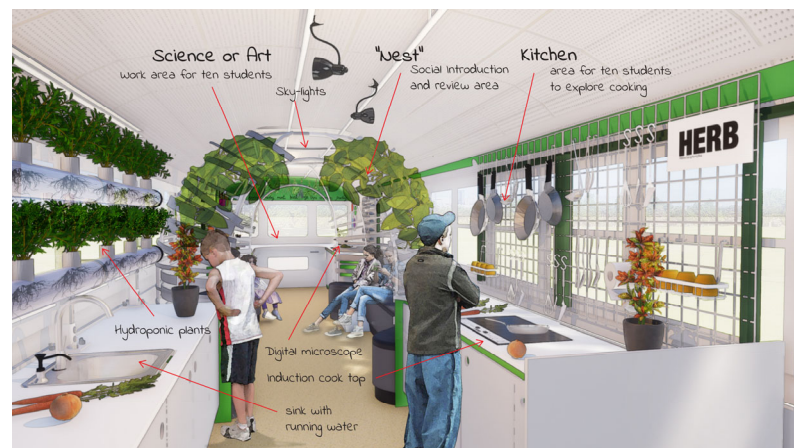
**Activity A - Garden in a Bottle Hydroponic Growth Rate Experiments** - Can plants grow without soil? Using hydroponics, plants get the nutrients they need from a water solution. Terrestrial plants may be grown with only their roots exposed to the mineral solution. Students will work in teams to construct a simple hydroponic wick system in a plastic bottle; plant basil seeds; design a set of experiments to test which conditions yield the best growth rates; take the systems back to school to conduct the experiments they designed.

**Activity B - Testing for Vitamin C in Liquids** - Many students know that vitamins are important to their health. Ascorbic acid, commonly known as Vitamin C, is important to the human diet. It helps the body form connective tissue, bone, teeth, blood vessel walls, and assists the body in assimilating iron and amino acids. A diet deficient in Vitamin C may cause a person to develop scurvy. Symptoms of this disease, which include joint stiffness, nose bleeds, swollen and bleeding gums, livid spots on skin, and prostration (extreme physical weakness), can be prevented by adding Vitamin C to one's diet. Humans do not make vitamin C; we get it from foods we eat. Oranges, limes, lemons, broccoli, potatoes, leafy greens, and tomatoes are rich in vitamin C. Students will work in teams to analyze and compare the amount of Vitamin C in fresh orange Juice and orange soda.

**Activity C - Leaf Skeletons and Plant Circulation** - The venous system in our bodies move blood from our tissues and organs to our heart. The venous system in the leaves of vascular plants move nutrients and water to cells to support photosynthesis and move the sugar produced by photosynthesis to the rest of the plant. The leaf venation also provides structural support to the leaf. Students will treat leaves and remove the soft tissue - all that remains will be the delicate system of veins that provide support (skeleton); and move the chemicals necessary for photosynthesis and the product of photosynthesis to the rest of the plant (circulation).

**Activity 3 - Exploring Flavor and Food Science: Cooking with Herbs and Plants** - In the mobile teaching kitchen, students will cook, eat and learn. Students will explore and cook with plants while learning to use herbs to flavor a delicious seasonal fresh garden salad. By creating their own vinaigrette, students will understand the concept of viscosity, Hydrophobic and hydrophilic liquids, emulsion and stabilization in the creation of flavor profiles. Students will eat their creations.

NGSS & NJSLA-S: MS LS1-1; LS1-2; LS1-6, MS LS2-1; LS2-3, MS ESS2-1, MS ESS3-3 MS ETS1 -1 ; ETS1 -2 ; ETS1 -3 ; ETS1 -4



The Mobile Food Lab is a fun, multi-sensory educational experience on wheels. Activities led by professional educators in science, art, and cooking, teach kids K-8 where food comes from, how it nourishes and impacts us, and how it shapes our world.

Book a Mobile Food Lab visit to your school today!

#### IMPORTANT INFORMATION

- 2 classes must be reserved for each day
- Maximum 30 students per class
- \$21/student cost
- Charges apply to a minimum of 20 students/class (Minimum daily charge for 2 classes = \$800 with a 50% non-refundable deposit due prior)
- Each class receives 2 hours of programming
- Zero transportation costs for your students
- Includes all food lab activities
- Time: 9:30 - 2:30 (Mobile Food Lab will arrive early)
- Permission slip for each child required
- Arrangements for bus parking required
- The Mobile Food Lab is nut-free

For more information or to register, please call 201-460-4623 or email

[mdaly@ramapo.edu](mailto:mdaly@ramapo.edu)

The Mobile Food Lab is a joint initiative of diverse partners united in a mission to support learning, innovation, and unique employment opportunities.



Supported by:

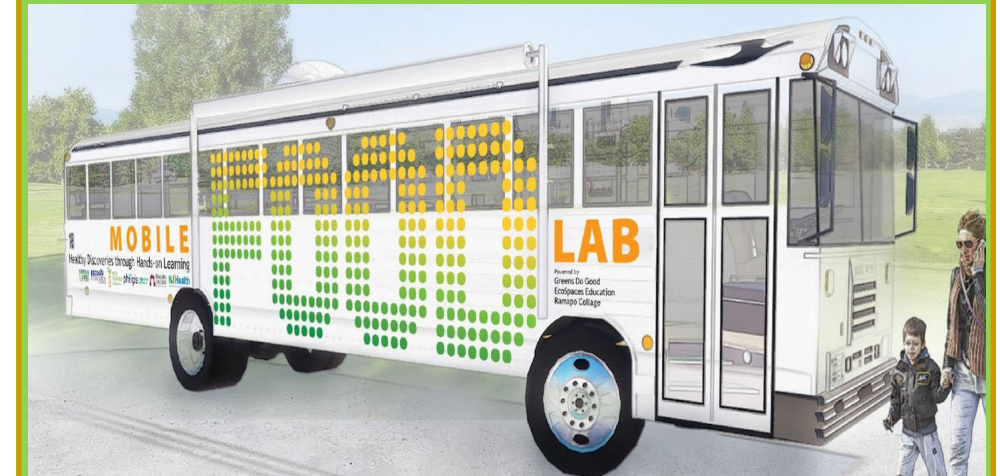


**Meadowlands  
Environment Center**

AN NJSEA FACILITY  
Operated by  
RAMAPO COLLEGE OF NJ

Three DeKorte Park Plaza  
Lyndhurst, NJ 07071  
Phone: 201-460-8300 Fax: 201-842-0630

# Mobile Food Lab School Visits



**Healthy Discoveries Through Hands-On Learning**

**A FUN, MULTI-SENSORY EDUCATIONAL  
EXPERIENCE ON WHEELS**

By booking the Mobile Food Lab, you are  
also supporting job opportunities  
for adults with autism.