Let's Grow Together!

K-2

S . 2 . 1

Objectives	**Students will be able to:** • Name elements needed in the farming process. • Define the scientific method. • Identify at least three fruits and three vegetables.
Standards Met	**K-LS1.C.** All animals need food in order to live and grow. They obtain their food from plants or from other animals. Plants need water and light to live and grow. **W.1.8.** With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.

Overview of Fruits and Vegetables

Did you know? Fruits and veggies are a great source of vitamins and minerals!

Fruits and vegetables provide us with vitamins, minerals, fiber and other powerful nutrients that help us stay full for longer and avoid overeating.

Fruits and vegetables are also rich in antioxidants, which are substances that prevent or delay cellular damage in our body and that help reduce the risk of chronic diseases such as diabetes, heart disease and cancer. Examples of antioxidants are: Beta-carotene, lutein, lycopene, and vitamins A, C and E. We can find antioxidants in lemons, blueberries, strawberries, carrots, broccoli and avocado.

Exactly how many fruits and vegetables should we have in a day? Just remember the "5-A-Day" rule. Eat five servings of fruits and vegetables a day – the color way! Eating a variety of colorful fruits and vegetables will help us stay healthy and energetic.

It is important to encourage young students to increase their intake of fruits and veggies and help them understand the long-term benefits of doing so.

For more information on fruits and veggies, go to:

www.mentorprojectfiu.com

M.E.N.T.O.R. Project

This material is based upon work that is supported by the National Institute of Food and Agriculture, U.S. Department of Agriculture, under award number 2015-69001-23241

Make The Connection

Materials

- Worksheet: Let's Grow Together! for Grades K-2
- Supplemental Material: Production of Fruits and Production of Vegetables
- Materials per student: 1 potato, 1 cotton ball, grass seeds, decorating material (eyes, thumb tacks, markers, etc.)

Using the worksheet titled **"Let's Grow Together" for Grades K-2**, help students understand the importance of consuming fruits and vegetables.

1

Engage students in a discussion about fruits and vegetables. Ask them to name fruits and veggies that they like. Then, ask if they know where some of those fruits and vegetables come from.

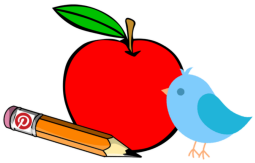
2

After the discussion, briefly explain the farming process to the students. Start by telling them that fruits and vegetables need soil, water and sunlight in order to grow. The first step of farming is preparing the soil to plant the seeds. The second step is to plant the seed. The third step is to water the soil where the seed is planted. After some time (it depends on what was planted), you will be able to harvest the product. The last step is delivering the product to the supermarkets so they can be bought and eaten. For more information, refer to the supplemental sheets titled "Production of Fruits" and "Production of Vegetables."

After explaining the farming process to your students, briefly introduce them to the scientific method. Explain how the scientific method is a series of steps that every investigator follows to determine whether a hypothesis, or educated guess, is true or not. The first step of the scientific method is to determine the **problem** that is to be addressed. Second, formulate a **hypothesis** or educated guess of the answer to the original question. Third, define and carry out the **procedures** to find out whether or not the hypothesis is true. These procedures include a series of steps that often involve detailed research from validated scientific sources, experiments, etc. Then, collect the **data** from the investigation, and organize it and interpret it as part of the **results.** Lastly, draw your **conclusions** based on whether you proved or accepted the hypothesis, or whether you disproved or rejected the hypothesis.

3

Lastly, do an overview of the **"Let's Grow Together!" worksheet for Grades K-2.** Explain to students that they need to perform an experiment at home under adult supervision and that the experiment should be brought to school once it is completed. Explain the activity and clarify any questions the students may have.



M.E.N.T.O.R. Project

USDA United States Department of Agriculture National Institute of Food and Agriculture FIU

This material is based upon work that is supported by the National Institute of Food and Agriculture, U.S. Department of Agriculture, under award number 2015-69001-23241

Supplemental Material

For the Teacher: Production of Fruits

General Production Steps	
Planting	The first step to growing any plant based food is planting the seed in the soil. Low-growing crops such as strawberry and pineapple are usually managed in beds containing several rows, or in less formal matted rows.
Pruning	Pruning is the removal of parts of a plant to increase growth and fruitfulness. It is an important fruit-growing practice primarily on the first few years. The principal reasons for maintenance pruning are: (1) to permit efficient spraying and harvesting operations, (2) to maintain satisfactory light exposure for most of the leaves, and (3) to create a satisfactory balance between flowering and leaf surface.
Pollination	Pollination is the process when pollen is transferred from the anthers to the stigmas in the plants. This is done by insects or by movement in air. Thanks to pollination flowers become fruits.
Thinning	Thinning is the removal of flowers or young fruits to let the remaining fruits grow rapidly and to prevent a large crop. Thinning could be done by hand or by machines.
Harvesting	The proper time to harvest varies between each fruit, and it also depends on how much time it is going to spend in storage. Most fruits are harvested close to the time they are eaten.
Packaging	This last step is only necessary for commercial purposes. Once the fruits have been planted, pruned, pollinated, thinned, harvested, and stored, they can finally be packaged, marketed, and sold to consumers.

M.E.N.T.O.R. Project
USDA United States Department of Agriculture
National Institute of Food and Agriculture
FIU
This material is based upon work that is supported by the National Institute of Food and Agriculture, U.S. Department of Agriculture, under award number 2015-69001-23241

Supplemental Material

For the Teacher: Production of Vegetables

General Production Steps	
Planting	The first step to growing any plant based food is planting the seed in the soil. Different soil types suit different crops, but in general in temperate climates, sandy soils dry out fast but warm up quickly in the spring and are suitable for early crops, while heavy clays retain moisture better and are more suitable for late season crops.
Cultivating	Cultivation refers to stirring the soil between rows of vegetable plants. Whatever system is used for growing crops, cultivation follows a similar pattern: preparation of the soil by loosening it, removing weeds, adding fertilizers, sowing seeds or planting young plants, control pests, provide sufficient water.
Harvesting	Harvesting is the period of gathering the crops. When a vegetable is harvested, it is cut off from its source of water and nourishment. The period required for vegetables to be harvested varies, but it could take from 25 to 180 days. Harvesting can be done by hand or by machines.
Storing	During storage, vegetables undergo different changes such as water loss, conversion of starches to sugars, conversion of sugars to starches, flavor changes, color changes, toughening, vitamin gain or loss, sprouting, rooting, softening, and decay. A large proportion of vegetables and perishable foods are lost after harvest during the storage period. These losses may be as high as thirty to fifty percent in developing countries where adequate cold storage facilities are not available. The main causes of loss include spoilage caused by moisture, molds, and micro-organisms.
Packaging	The product is placed in bags made of transparent film, trays or cartons overwrapped with transparent film, or mesh or paper bags.

M.E.N.T.O.R. Project
USDA United States Department of Agriculture National Institute of Food and Agriculture
FIU
This material is based upon work that is supported by the National Institute of Food and Agriculture, U.S. Department of Agriculture, under award number 2015-68001-23241

Name:_____ Date: _____

Let's Grow Together!

K-2

Home Activity:

1) Let's do an experiment! You need: 1 potato, 1 knife, 1 shallow platter, 1 cotton ball, fast growing seeds (E.g. grass seeds) and decorations to create a face.

With help from adults, create a Mr. Potato Head.

1. Grab a potato and have an adult help you cut the top and the bottom.
2. Use a spoon to scoop out the top of the potato.
3. Put the cotton ball inside of the potato.
4. Decorate your potato to make it look like Mr. Potato Head.
5. Place your potato in a shallow dish with water, just enough to cover the bottom of the potato. Set him near a window so he can receive sunlight.
6. Sprinkle seeds on the cotton ball (at the top of the potato).
7. After one (1) week, bring your Mr. Potato Head to class.

M.E.N.T.O.R. Project

This material is based upon work that is supported by the National Institute of Food and Agriculture, U.S. Department of Agriculture, under award number 2015-69001-23241

Name:_____ Date: _____

Let's Grow Together!

K-2

In Class Activity:

Part 1: Before the experiment

Hypothesis: What do you think will happen to Mr. Potato Head after you do the experiment?

_____

_____

_____

_____

What are the three elements that are most important for Mr. Potato Head?

_____

_____

_____

_____

Part 2: After the experiment

Do you accept or reject your hypothesis?

_____

_____

M.E.N.T.O.R. Project

USDA United States Department of Agriculture National Institute of Food and Agriculture FIU

This material is based upon work that is supported by the National Institute of Food and Agriculture, U.S. Department of Agriculture, under award number 2015-69001-23241

Name:_____ Date: _____

Let's Grow Together!

K-2

ANSWER KEY

In Class Activity:

Part 1: Before the experiment

Hypothesis: What do you think will happen to Mr. Potato Head after you do the experiment?

Mr. Potato Head will grow hair.

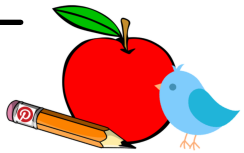
What are the three elements that are most important for Mr. Potato Head?

1. Water
2. Sunlight
3. Soil

Part 2: (After the experiment)

Do you accept or reject your hypothesis?

I accept my hypothesis.



M.E.N.T.O.R. Project

USDA United States Department of Agriculture National Institute of Food and Agriculture FIU

This material is based upon work that is supported by the National Institute of Food and Agriculture, U.S. Department of Agriculture, under award number 2015-69001-23241