



Plant Breeding Grades 1-2 Lesson Plan

Grade: 1-2

Time: 30-45 minutes

NGSS Standard:

1-LS1-2. Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.

Common Core Writing Standard:

SL.2.1.B Build on other's conversations by linking their comments to the remarks of others.

Essential Questions:

- What do you know about plants?
- How can we help fruits and vegetables stay healthy and survive?

Objective:

- Students will identify modern day farming challenges and solutions.
- Students will understand that plants can become stronger through a process called gene editing.

Vocabulary:

attribute: something that helps us know what it is (color, shape, size)

gene editing: changing an attribute in a plant to make it better

plant breeder: a person who helps farmers grow food for us to eat

Materials:

“One Bean” by Anne Rockwell

Fruits and vegetables students recognize

Magnifying glasses

Pencils

White paper

LEGO's

Student Observation Sheet



Engage:

To engage students, facilitate a group discussion about what students know about plants and where they think fruits and vegetables come from. Next, read the book called “One Bean” by Anne Rockwell. This story explores how seeds sprout into plants.

Explore:

*Check for food allergies prior to this activity if using real fruit and vegetables.

Before class, place easily recognized fruit and vegetables around the room. For example, oranges, apples, and bananas. Students will embark on a walking field trip around the room. Students make observations about the plant life they see around them. The teacher will visit each group and ask questions about their observations. For example, what is your favorite fruit? Where do vegetables come from? How can we help plants grow bigger? How can we help plants stay healthy?

Students will record their observations by drawing and coloring their observations on the Student Observation Sheet (See **Appendix 1**).

Explain:

Students share their observations with the class or a science buddy.

Explain that farmers grow the fruits and vegetables that we eat. Sometimes farmers need help growing their food. Sometimes the plants get sick or don't grow very big. A person called a plant breeder will help the farmer find ways to solve these problems.

Next, show the students the following ASTA video:

[Mom, Gardner, Plant Breeder](#)

Check for understanding by facilitating a group discussion about the video.

Suggested questions:

- What is a plant breeder?
- How does she help farmers solve plant challenges?

Elaborate:

After the video, facilitate a class discussion about growing plants (teacher should include a story of their own to help guide students to think about their own experiences). Ask students to draw a picture describing their experiences with growing plants. Include challenges and solutions they experienced with their plants.

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Next, explain that plants need to be healthy and strong for us to eat them. Sometimes, weather or disease can make the plants sick. This means we might not have enough food to eat. Scientists can help plants stay healthy by using a technology called gene editing. Similarly, to moving LEGO's into different places to make a strong LEGO house, scientists can move an attribute inside a plant to make it stronger. This means the plant can be healthier and continue to grow even when the weather is bad.

Show the students the following ASTA video:

[Saving the Orange](#)

After video, check for understanding.

Suggested Questions:

- What happens to the orange if it gets sick?
- Explain how the scientist helps the oranges?
- How can gene editing help the oranges and other plants?

Evaluate:

Students will use LEGO's to build a structure such as a fruit or vegetable. As they remove pieces and attach new pieces, mention to the students that they are simulating how scientists use gene editing to create bigger and more robust plants as a solution for future farming.

Appendix 1

Student Observation Sheet

Name: _____

Directions: Draw and color 2 different types of plants you see in the room.

Plant #1

Drawing of the plant that you see:

Plant #2

Drawing of the plant that you see:

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Resources

www.innovature.com

www.betterseed.org

“One Bean” By Anne Rockwell

