

# Michigan State University Extension

## Tollgate Farm and Education Center

### SPRING INTO FARMING: PLANTS AND THEIR PARENTS

**Big Ideas:** Organisms, such as plants and animals, have unique and diverse life cycles but all have in common birth, growth, reproduction, and death. These organisms also have traits inherited from parents and that variation of these traits exists in a group of similar organisms. These traits can be influenced by the environment. Variations in traits can provide advantages in survival and mating. Some organisms survive better in a particular environment and not at all in other environments.

**Big Questions:** How are plants and animals alike and different from their parents? What do plants and animals need to survive?

#### Michigan NGSS Performance Expectations:

3-LS1-1	Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.
3-LS3-1	Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms.
3-LS3-2	Use evidence to support the explanation that traits can be influenced by the environment.
3-LS4-2	Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing.
3-LS4-3	Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.

#### Common Core ELA and Math Standards:

ELA-LITERACY.SL .3.1a-d	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher- led) with diverse partners on grade 3 topics and texts, building on others' ideas and expressing their own clearly. a. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion. b. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion). c. Ask questions to check understanding of information presented, stay on topic, and link their comments to the remarks of others. d. Explain their own ideas and understanding in light of the discussion.
----------------------------	--

ELA-LITERACY.SL .3.3	Ask and answer questions about information from a speaker, offering appropriate elaboration and detail.
Math.Content.3 .MD.4	Represent and interpret data. 4. Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters.

**Content Outcomes:**

- Understand what plants need to survive and to grow.
- Understand how plants change the world around them to survive.
- Understand the structures of plants and their functions.

**Rotations:**

- Forest and Ecosystem *Forest*
- How Do Your Plants Grow? Plants and Their Parents *EduGarden*
- Strawberry DNA Forever *Outside Greenhouse*
- Animals: Heredity and Traits *Animal Barn*
- Plant Propagation *Orchard*
- Wagon Ride Plant Habitats

**Assessment:**

Are students able to describe how plants and their parents are alike and different? Can they describe how plants inherit traits from their parents? And how the environment influences these traits? Revisit the big question at the end of the program and discuss, in pairs, small groups, or as a large group. What new understandings have students gained?

**Program Introduction:** Welcome to the farm! Today we are going to explore plants and their parents on the farm. We'll discover how plants and animals are alike and different from their parents and what plants and animals need to survive.

**Tollgate would like to acknowledge that the land we are meeting on today is the original homelands of the Anishinaabe tribal nations. We owe a debt of gratitude to the people who first lived on this land. We honor and respect the many diverse indigenous peoples still connected to this land on which we gather.**

**Teacher Resources:**

Background Information:

- [Genetics Activity: Create the Kids](#)

- [Variation of Traits: Plant Investigation](#)
- [First Peas to the Table Teacher's Guide](#)
- [https://www.youtube.com/watch?v=\\_aL2Wd6V8yw](https://www.youtube.com/watch?v=_aL2Wd6V8yw)
- [What is DNA for Kids?](#)

Children's Literature:

- [Quiet in the Garden](#) by Alikei
- [Forest Explorer: A Life-Size Field Guide](#) by Nic Bishop
- [From The Woods: Incredible Wood](#) by Sanford S. Smith, and Lee R. Stover
- [Tree: A Peek-Through Picture Book](#) by Britta Teckentrup
- [Because of an Acorn](#) by Lola M. Schaefer
- [A Tree for All Seasons](#) by Robin Bernard
- [First Peas to the Table](#) by Susan Grigsby

References:

Strawberry DNA Forever is adapted from [Science Behind our Food](#) by UGA Extension

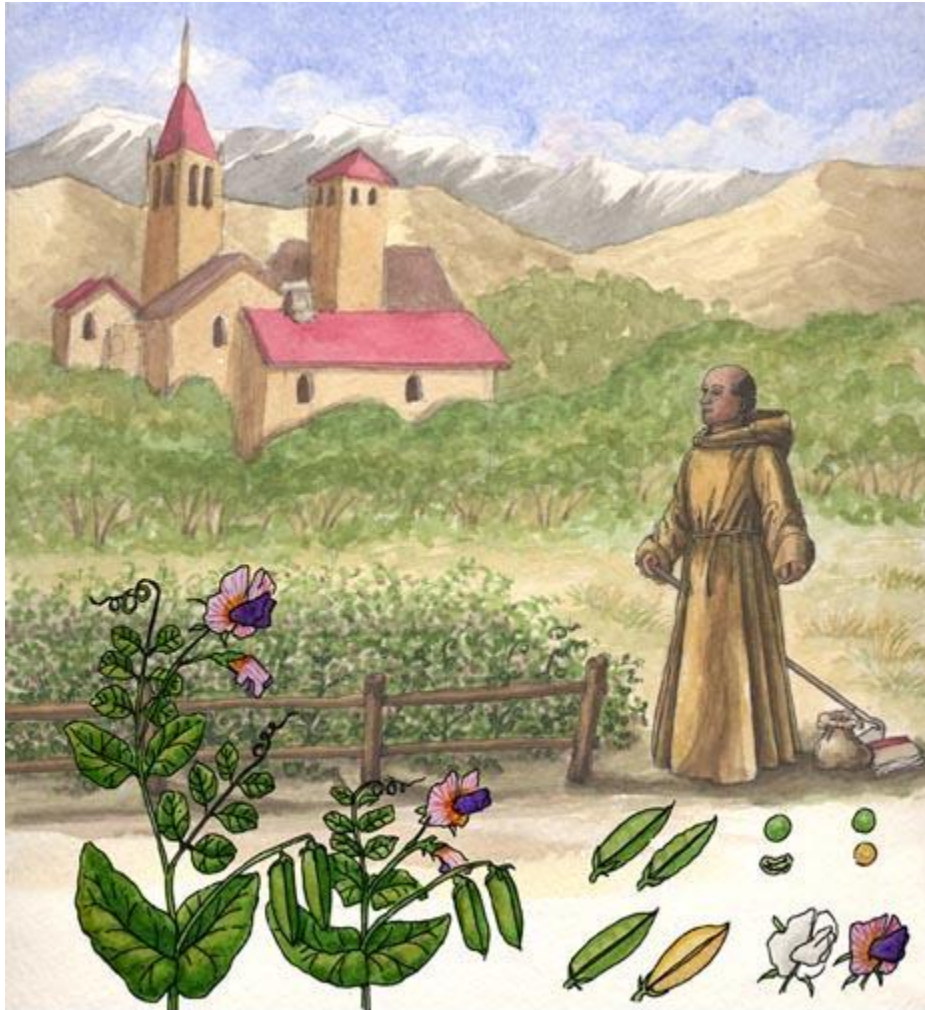
# CURIOSITY PHOTOS

Following are photographs and questions intended to inspire curiosity and wonder throughout the days leading up to your Tollgate visit.

*What is biodiversity?*



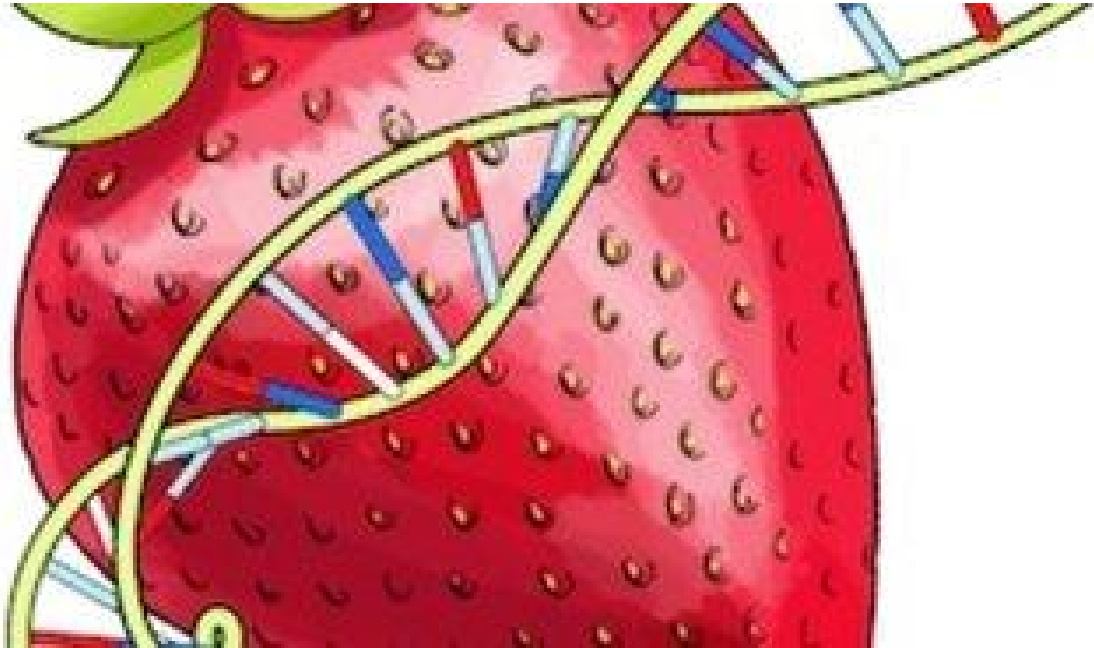
***What is a trait? Are all traits passed down from parent to offspring?***



©Sheri Amsel

[www.exploringnature.org](http://www.exploringnature.org)

*What is DNA? How are traits inherited?*



***What traits do animals inherit from their parents?***



***How do plants make more plants?***



MSU is an affirmative-action, equal-opportunity employer. Michigan State University Extension programs and materials are open to all without regard to race, color, national origin, gender, gender identity, religion, age, height, weight, disability, political beliefs, sexual orientation, marital status, family status or veteran status.