

Michigan State University Extension  
Tollgate Farm and Education Center

# ECOSYSTEM EXPLORATION ON THE FARM

**Big Idea:** Students will investigate the needs and life cycles of living things to understand how plants and animals adapt to meet their needs from season to season. We will observe and study various organisms and make comparisons and connections between their diverse and unique lifestyles.

**Big Question:**

- What internal mechanisms and external behaviors do living things carry out in order to aid their survival in a complex and ever-changing environment?

**Michigan NGSS Performance Expectations:**

<a href="#">3-LS1-1</a>	Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.
<a href="#">3-LS3-1</a>	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.
<a href="#">3-LS4-3</a>	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.
<a href="#">3-LS2-1</a>	Construct an argument that some animals form groups that help members survive.
<a href="#">3-LS4-4</a>	Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.
<a href="#">3-LS3-2</a>	Use evidence to support the explanation that traits can be influenced by the environment.
<a href="#">3-LS4-2</a>	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.

**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
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	<p>on that preparation and other information known about the topic to explore ideas under discussion.</p> <p>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).</p> <p>c. Ask questions to check understanding of information presented, stay on topic, and link their comments to the remarks of others.</p> <p>d. Explain their own ideas and understanding in light of the discussion.</p>
ELA-LITERACY.SL.3.3	Ask and answer questions about information from a speaker, offering appropriate elaboration and detail.
Math.Content.3.MD.4	<p>Represent and interpret data.</p> <p>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.</p>

**Content Outcomes:**

- Understand how plants and animals use their internal and external parts to survive.
- Understand how plants and animals use the world around them to survive.
- Explore adaptations of plants and animals (including humans) to changing environment.

**Assessment:**

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 Ecosystem Exploration on the Farm! We'll be going on an adventure today to solve a mystery and we need your help. What internal mechanisms and external behaviors do living things carry out in order to aid their survival in a complex and ever-changing and environment? What plants and animals do you think we will see here on the farm today? How are these various living things alike and how are they different? What roles do they play in their ecosystem and how is everything connected? How do the lifestyles of organisms change from season to season and how might this impact the other members of their ecosystem?

**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.**

## Rotations:

- Birds and Migration *Field*
- Herd and Flock Animals *Pond and Animal Barn*
- Plant Competition *Apple Orchard*
- Pumpkin and its Ecosystem *Pumpkin Patch*

## Teacher Resources

### Background Information:

- [Migrating Birds from Michigan](#)
- [Herd Animal Behavior](#)
- [Basics of Resource Competition](#)
- [Pumpkin Production](#)

### Children's Literature:

- [Going Home: The Mystery of Animal Migration](#) by Marianne Berkes
- [Animals Do, Too!](#) by Etta Kaner
- [Herd of Cows, Flock of Sheep](#) by Rick Walton
- [From Seed to Plant](#) by Gail Gibbons
- [Living Sunlight: How Plants Bring the Earth to Life](#) by Molly Bang
- [Pumpkin Circle: The Story of a Garden](#) by George Levenson

### References:

- The Migration Game is adapted from [The Migration Game: A Shorebird's Journey](#) from the U.S. Fish & Wildlife Service

# CURIOSITY PHOTOS

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





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