

# Michigan State University Extension

## Tollgate Farm and Education Center

### EMBRYOLOGY

**Big Idea:** Students will observe the characteristics of the mature chicken and their offspring to note similarities and differences. They will develop an understanding of how animals use their external parts to help them survive, grow, and meet their needs as well as how behaviors of parents and offspring help the offspring survive. Participants will learn about the utility of chickens on the farm and in the community. They will make the connection between an end product (the egg) and its source (the chicken).

#### Big Questions:

- How does a chicken grow from an egg to a chick to a chicken? How does the life of the egg, chick, and chicken develop?
- How are the adult and young chickens alike but different?
- How does a chick use its external parts to survive, grow, meet their needs? How about a chicken?
- Why do parents and offspring behave as they do? How do these behaviors help them survive?

#### Michigan NGSS Performance Expectations:

1-LS1-1	Use materials to design a solution to a human problem by mimicking how plants and animals use their external parts to help them survive, grow, and meet their needs.
1-LS1-2	Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.
1-LS3-1	Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.

#### Common Core ELA and Math Standards:

ELA-LITERACY.RI .1.6	Distinguish between information provided by pictures or other illustrations and information provided by the words in a text.
ELA-LITERACY.SL .1.1a-c	Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups. a. Follow agreed-upon rules for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion). b. Build on others' talk in conversations by responding to the comments of others through multiple exchanges. c. Ask questions to clear up any confusion about the topics and texts under discussion.

ELA-LITERACY.SL .1.3	Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.
Math.Content.1 .MD.4	Represent and interpret data. <ul style="list-style-type: none"> <li>Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.</li> </ul>
Math.Content.1 .OA.5-6	Add and subtract within 20. Work with addition and subtraction equations. <ul style="list-style-type: none"> <li>Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).</li> <li>Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., <math>8 + 6 = 8 + 2 + 4 = 10 + 4 = 14</math>); decomposing a number leading to a ten (e.g., <math>13 - 4 = 13 - 3 - 1 = 10 - 1 = 9</math>); using the relationship between addition and subtraction (e.g., knowing that <math>8 + 4 = 12</math>, one knows <math>12 - 8 = 4</math>); and creating equivalent but easier or known sums (e.g., adding <math>6 + 7</math> by creating the known equivalent <math>6 + 6 + 1 = 12 + 1 = 13</math>).</li> </ul>

**Content Outcome:**

- After completing this program, participants should be able to:
- Describe how animals use their external parts to help them survive, grow, and meet their needs.
- Describe that young animals are like, but not exactly like, their parents and that they use their external parts to help them survive.

**Assessment/Final Reflection:**

Revisit the big questions at the end of the program and discuss, in pairs, small groups, or as a large group. What new understandings have students gained? Do students understand a chicken's life cycle? Can they explain the similarities and differences between chicks and adult chickens? Do they understand how a chicken uses its body to meet its needs and how its behavior helps it survive?

**Program Introduction:**

Welcome to Tollgate Farm! We are so excited to have scientists like you here today to help us answer the question, how do chickens go from an egg, to a chick, to a chicken?

**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:**

- Eggs and Embryology
- Meet our Hens and Chicks

- Caring for Chickens
- Geeked about Beaks: Using External Body Parts to Survive

**Teachers Resources:**

Children's Literature:

- [Chicks and Chickens](#) by Gail Gibbons
- [How and Why Animals Hatch from Eggs](#) by Elaine Pascoe
- [The Chicken or the Egg?](#) by Allan Fowler
- [The Egg](#) by Galimard Jeunesse and Pascale Bourgoing
- [Egg!](#) by A.J. Wood
- [Egg: A Photographic Story of Hatching](#) by Robert Burton
- [It Started as an Egg](#) by Kimberlee Graves
- [The Chick and the Duckling](#) by Mirra Ginsburg
- [Chickens Aren't the Only Ones](#) by Ruth Heller
- [An Extraordinary Egg](#) by Leo Lionni
- [A Nest Full of Eggs](#) by Priscilla Belz Jenkins
- [Big Egg](#) by Molly Cave

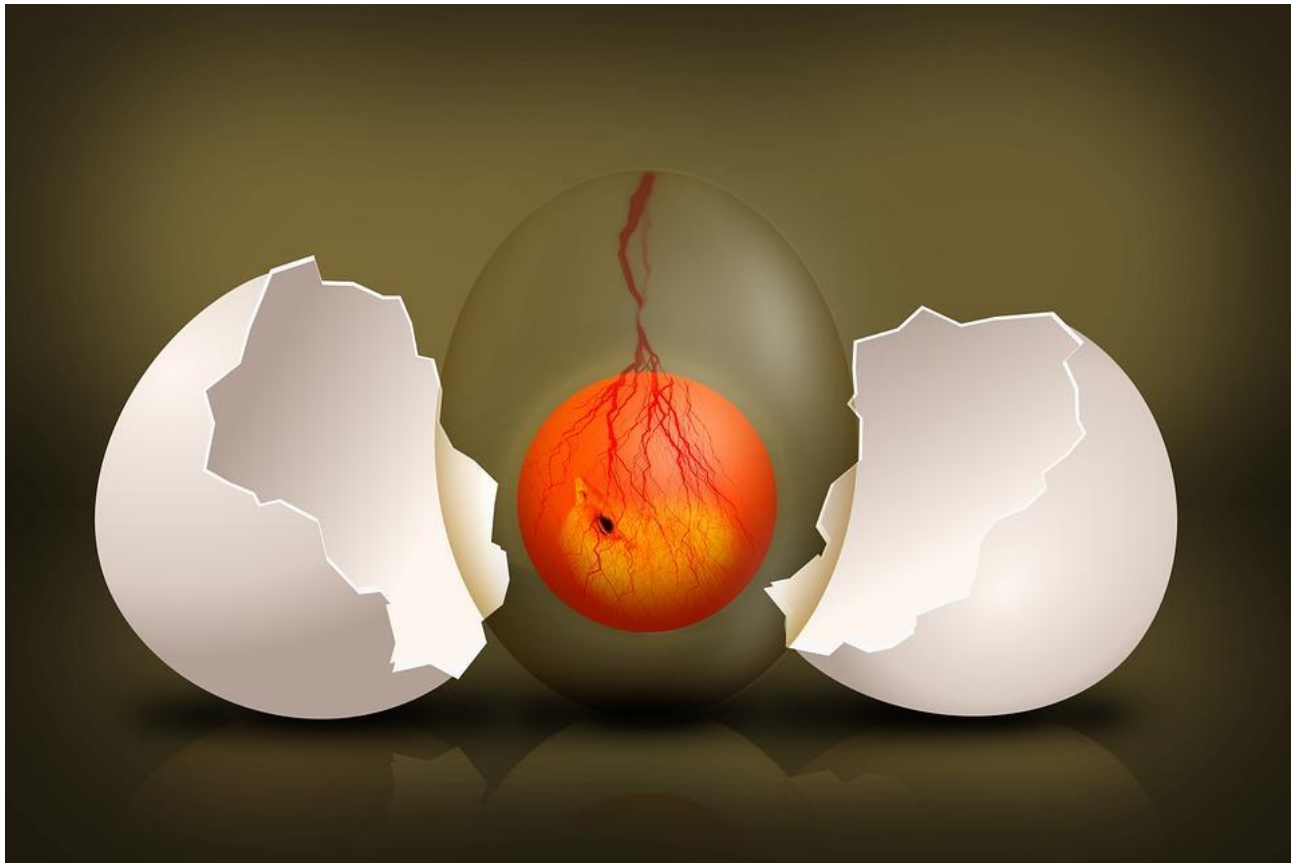
## **CURIOSITY PHOTOS**

Below are photos to show to your students in the days leading up to your school to farm visit to help inspire curiosity about their experience on the farm. Some ideas:

Show one photo per day and ask 'What do you notice? What do you wonder?'

Have students work together to create a story using these photos.











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