

4-H Embryology Program



B. Spearman & L. Joseph

becky_spearman@ncsu.edu, NC Cooperative Extension, Bladen County
 liz_joseph@ncsu.edu, NC Cooperative Extension, Cumberland County

Introduction

According to the 2021-2022 District NC Schools report card, in Bladen and Hoke counties approximately 47-53% of students were not proficient in science and 65-84% were not proficient in math. Both counties need increased STEM opportunities to help ensure our students are meeting grade-level expectations. STEM programs like embryology have the potential to help bring hands-on learning to students.

The 4-H Embryology Program is a way for 2nd grade classrooms to teach the life cycle of a chick to meet North Carolina Education Standards. Agents in these counties partnered to create modules to enhance the student's learning without adding more work for the teachers. Students and Teachers hatch out chicks with materials provided by Extension. In 2023, 21 teachers and 400 students in Bladen County and 13 teachers and 759 students in Hoke County participated in the program.

Objective

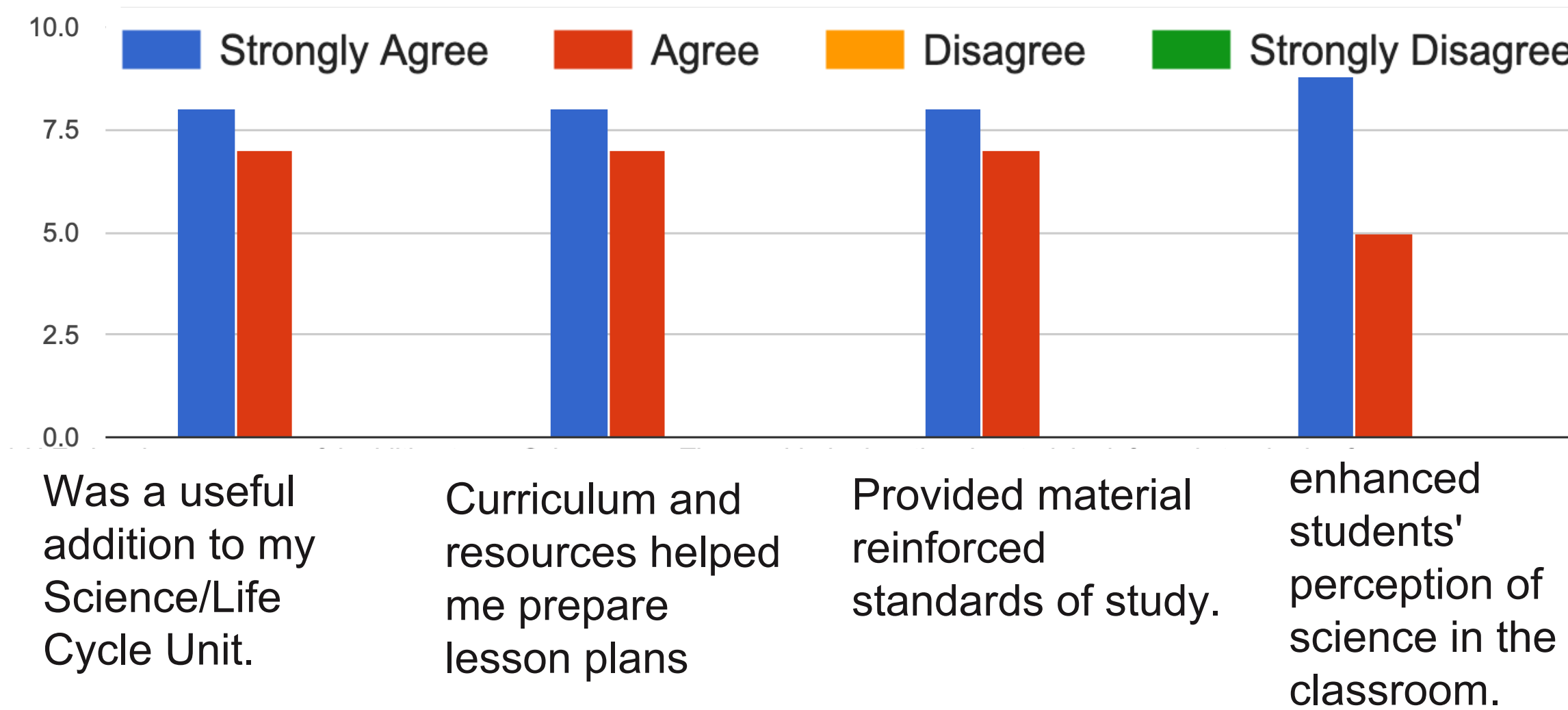
- To provide curriculum to teachers that meets seven North Carolina Essential Science Standards.
- Provide technical assistance and confidence for teachers to hatch eggs successfully in their classrooms.
- To provide learning modules to enhance student learning.

Methods

- Incubators and fertile eggs placed in classrooms for hands-on learning.
- Teacher training on incubator principles and classroom best management practices for hatching.
- Student training on the incubation process, hatching, chick brooding, egg basics, and handwashing.
- Learning module Google Site with weekly lessons and videos.
- Videos on site to show candling throughout the 21 days.
- Student Worksheet Packets that follows the weekly lessons.
- A 21 day plastic chick life cycle set to show chick growth each day.
- Chicken reading books for classrooms.

Educational Program Results

Teacher and student surveys provided these impressions:



Teacher feedback and comments:

- 2023 program evaluations showed 90% of teachers used the website and student packets.
- All the teachers that used the site agreed or strongly agreed that it was a useful strategy to implement the project.

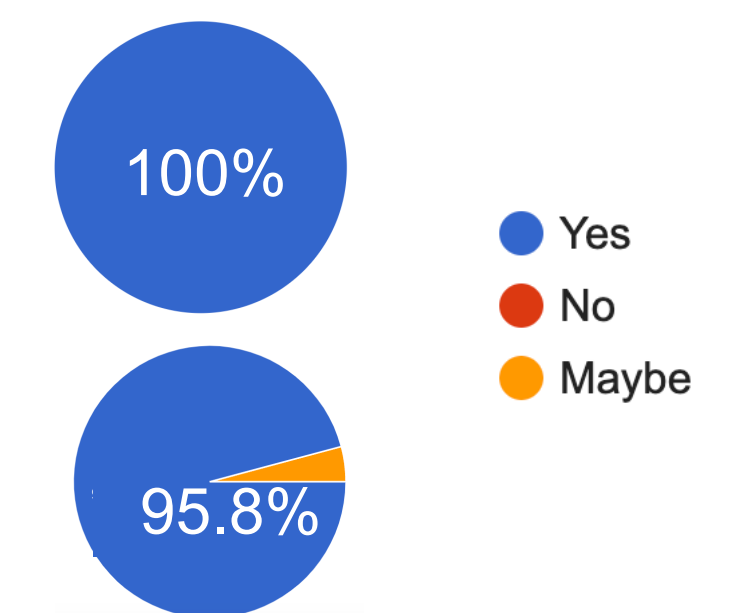
Glowing Comments from teachers:

- "It was beneficial to actually see the life cycle in real life."
- "The program enlightened most of the class about the life cycle of a chicken. Many had no idea about the whole concept."
- "My students were exposed to content and material that helped them better understand the world around them. They thought the inside of an egg had a chick inside. As we talked and discussed what the inside of a fertilized egg had, they began to understand the reason why it had the parts it did."
- "My students gained some social emotional success with the project. They had to learned how to be patient and responsible with the chicks when handling them after hatching."
- "I liked the videos that were created by 4-H embryology program coordinators."
- "I liked the book, packets and embedded videos that were sent. They helped the students visually gain knowledge about the process."

Students commented the following from their surveys:

- "I learned about the life-cycles of a baby chicks."
- "The ear lobe tells what color eggs the chicks will lay."
- "I learned about caring for the baby eggs."
- "I learned Chicks are very fluffy and chirpy."
- "They can hatch over night."
- "Eggs hatch in 3 weeks."
- "Baby chicks are very curious."
- "Chickens have an egg tooth."
- "The eggs have veins when they are growing."

We asked students, did you learn.. more about the Life Cycle of Animals? how to safely wash your hands? how to care for live baby chicks?



Conclusions and Implications

- Students and Teachers love the embryology program. Many teachers love teaching this part of the curriculum and look forward to the spring program each year.
- The program has been provided for 13 years in Bladen County and 25 years in Hoke county.
- The Bladen CTE director said "The 4H embryology program meets the needs of our students in many capacities. It brings the community in the classroom, exposes students to various STEM aspects which eventually lead to career skills, exposes students indirectly to various career opportunities, and introduces students who are removed from production agriculture to the origins of their food supply. In my opinion, this is one of the most valuable experiences for our 2nd grade students."

Student page:



Teacher page:

