

COOPERATIVE  
EXTENSION  
SERVICE



College of Agriculture,  
Food and Environment

[extension.ca.uky.edu](http://extension.ca.uky.edu)

# EXTENDING KNOWLEDGE *Changing Lives*



Contact:

Animal and Food Sciences  
604 W. P. Garrigus Building  
Lexington, KY 40546-0215  
(859) 257-7529

<http://afspoultry.ca.uky.edu/>



*4-H excites youth about science through experiential learning opportunities, such as the embryology project that is conducted in elementary schools and farm-to-school programs across the state.*

When you support  
Extension, youth  
enhance science  
and language arts  
skills needed to  
pursue science,  
technology,  
engineering and  
math careers.

## 4-H Teaches Life Sciences in Kentucky Classrooms

*Extension provides elementary schools with expertise, equipment, educational materials, and hatching eggs, to conduct embryology programs in the classroom.*



# Research shows that 4-H members have a 300% increased interest in science compared to other youth (Tufts University, 2009).

Science, Technology, Engineering and Mathematics (STEM) is a priority in education. Kentucky youth are introduced to life science through the 4-H embryology outreach program. Overall the students become excited about science and gain knowledge in a fun and interactive manner. Many students are immersed in learning without even knowing it. The embryology project can be adapted for a variety of audiences, including elementary schools, farm-to-school programs, 4-H programs, senior living facilities, as well as field days.

Extension provides the expertise and educational materials as well as incubators, candlers, and the hatching eggs needed to conduct the embryology programs. Agents conduct age-appropriate lessons using a research-based curriculum that aligns with school science learning outcomes. Students expand their vocabulary as they learn the parts of an egg and describe the stages of the life cycle. Caring for the hatched chicks increases the youths' appreciation for living creatures.

Last year, the Kenton County 4-H agent conducted embryology programs at nine elementary schools reaching over 700 youth in kindergarten through fifth grade. Lessons taught were related to embryonic development, agriculture, and life cycles of living things. As a result of the program, a majority of the students accurately described the parts of an egg, displayed effective record keeping skills, and exhibited teamwork while caring for the eggs and chicks. Teachers reported 63% of students improved their record keeping skills and 83% of students improved communication skills.

Carroll County Extension took a different approach to their embryology project. They incubated 36 eggs at the Extension office. For each of the 21 days of incubation, the progress and development of the chick was spotlighted on social media. A complete hatching of one chick was recorded on video, posted on Facebook, and viewed by approximately 1,500 people. As a result of the embryology project, Carroll County youth have a renewed interest in livestock. The chicks were adopted by six youth who have formed a Carroll County 4-H Poultry Club and showed their chickens in the county fair. This coming year, the embryology project and the Poultry



*Students use observation and language arts skills to effectively record their experiences during the 4-H Embryology Program.*



*Eggs are part of a unique reproductive system in poultry. The egg serves to protect and provide nutrients to the developing embryo. The egg is a convenient self-contained package for studying embryology. In addition, newly hatched chicks are able to survive on their own without their mother.*

Club plan to expand into ducks as well as chickens.

Kentucky classrooms are enriched by experiential learning experiences. Most youth in Kentucky would not have a live embryology life cycle experience without Extension and 4-H Youth Development. Extension programs address the needs and priorities of Kentucky communities.