Biosecurity Unit Lesson #1

**Title Of Lesson: *Poultry***

**Subject/Course/Grade: Ag Science**

Learning objectives:

* Students will explore the poultry industry
* Students will be able to identify parts of a poultry egg
* Students will be able to identify what makes an egg a certain grade at the grocery store.

Main Concept:

* Students will explore the poultry industry and learn more about eggs and egg candling

Students will understand/know…

* **Vocabulary**
  + **Hatchery**- farm dedicated to producing baby chicks to send out for commercial use or for a backyard flock.
  + **Egg layer facilities**- large commercial farms that have poultry solely for the purpose of laying eggs.
  + **Vaccination**- usually a shot given to birds to stimulate their immune response against a certain disease.
  + **Biosecurity-** measures used to prevent the introduction of germs and reduce the spread of germs.
  + **Consumer**- a person who intends to buy products, in this case we are looking at consumers who are buying poultry products such as eggs and meat.
  + **Membrane (as inside the egg)**- protects the contents of the egg from bacterial invasion and prevent too rapid evaporation from the liquid of the egg.
  + **Air cell**- usually between the outer and inner membrane of the egg, acts as a shock absorber in the early stages of the egg, as the chick inside grows the air cell will get bigger, and the chick can use it as a source of oxygen towards the end of the growing stage
  + **Egg candling**- a process that is used to check for freshness and fertility in the egg by holding a light up to the egg and looking at the contents

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| Show introduction video “Poultry.”  **Background:**  “Eggs are an important part of people’s diet, but there is a lot more going on behind the scenes to give people a perfect egg to eat. As we saw in the video, eggs can be classified in many different ways. Today we are going to try and recreate the inside of the egg as best we can.”    **Activity**  Materials Needed   * Unfertilized (grocery store) egg * Paper towels * Paper cups * Plastic wrap * Cotton balls * Tape * Paper * Pipe cleaners * Pony beads * Flash light   Before students arrive:   1. Pre- cut paper cups lengthwise, each student will have to have a half of a paper cup. These half cups will represent the shell of the egg. 2. Pre cut the plastic wrap for each student. 3. Have the tape, cotton ball, pipe cleaners, and beads set out on table tops, or have them set out in one spot to make distributing items easier. 4. Use a cup to make circles on a piece of paper, then cut each one of the circles in half for each student to have one   Activity  Using the store-bought egg, put up a flashlight to the egg and demonstrate candling to students, students can try to identify the parts of the eggs that they see on the inside. See if they can find the air cell of this egg.  After you demonstrate the actual egg candling then tell them that they are going to try and recreate an egg themselves. As you go through this activity, you will need to tell students what each part of this represents. First pass out the cup halves, this is going to represent the shell of the egg.  Next students will line the inside of the cup with the plastic wrap and tape it down along the edges, this will represent the membrane in an egg. Using the semi-circle, students will tape this on the bottom of the cup, representing the air cell.  Pull apart a cotton ball and lay it flat on the cup, this is the albumen, or the egg white. Then have students twist two pipe cleaners together to look like a double helix and then slide the pony bead into the center of the twisted pipe cleaner. The pipe cleaners are going to be the chalaza and the pony bead represents the yolk of an egg.  **Follow Through**  Have students go back through their diagrams and name all the parts of the egg that they created, they can talk about this to other people beside them and see how much they remember. You can also pass around the grocery store egg and have them candle the egg and see what they can identify.  Have students also talk about some faults on their eggs that they made and what they would grade them based on the air cell they made and the outside of it.  Protocol modified from NevadaTeach Pre-service Teachers “Classroom Chicks” |
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| Monitoring and Feedback:   * Students will understand the parts of an egg and how grading an egg is done. |
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| Learning Activities:  Introductory poultry video (4:42 minutes)  Introduce vocabulary, give background (10 minutes)  Egg making activity (10 minutes)  Post activity discussion and questions (20 minutes) |

# RESOURCES

<https://agri.nv.gov/uploadedFiles/agrinvgov/Content/Plant/FTS-FSP/northern_nevada_conference/Hatching%20Science%20with%20Classroom%20Chicks_handout.pdf>

<https://extension.psu.edu/programs/4-h/get-involved/teachers/embryology/teacher-resources/supporting-subject-matter/the-egg/the-parts-of-the-egg>

<https://www.ers.usda.gov/topics/animal-products/poultry-eggs/>

<https://www.ans.iastate.edu/undergraduate/careers/poultry-careers>

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7739384/