



How DID the chicken lay an egg? Comparative Female Reproductive Anatomy

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Annotation:

This lesson includes a power-point lecture comparing avian female reproductive anatomy with human female reproductive anatomy. It covers follicular development, ovulation, menstruation, gestation, components of the human female reproductive tract, and anomalies in human female reproduction. In addition, the lesson covers avian reproductive anatomy and explains the functional significance of the components of the avian reproductive tract in the formation of an egg. The lesson includes the dissection of avian reproductive tracts and traces the formation of an egg as the follicle travels down the reproductive tract.

Primary Learning Outcome:

Students should be able to compare and contrast the avian and human female reproductive tracts. They should be able to explain how the form of each tract fits its function by comparing the necessary biological environments required by a human fetus as compared to a chick that develops inside an egg. Students should be aware of the positive correlation that exists between biological form and function.

Additional Learning Outcome:

Students should become familiar with the idea of an avian follicular hierarchy and compare the hierarchy to normal follicular development in human females.

Assessed QCC's:

- 22.1 Describes the basic function of each body system.
- 23.1 Identifies the organs and structural parts present in each system (e.g., circulatory; heart, arteries, veins, and capillaries).
- 24.1 Identifies the function of each structural part in the human body system.

Non-Assessed QCC's:

- 24.2 Explains how the parts interrelate in a functioning system.
- 23.2 Describes the basic structure of the major organ in each system (e.g., heart: chambers, valves, lungs, bronchi, bronchioles, and alveoli)

Local and/or National Standards:

- S.9-12.21 Describes the anatomy and physiology of classes of vertebrates.
- S.9-12.22 Analyzes the overall organization of the human body.
- S.9-12.23 Describes the anatomy of each system.
- S.9-12.24 Describes the physiology of each system

Materials:

- 1) Powerpoint projector and computer set up
- 2) Dissection kits (tray, scalpel, pins, magnifying glass etc.)
- 3) Gloves
- 4) Goggles
- 5) Avian reproductive tracts (Leghorn chickens works best!) May contact UGA Poultry Science Dept. to obtain reproductive tracts (706-542-1351)

Total Duration:

1 hr. 30 minutes

Technology Connection:

Powerpoint presentation including images of avian and human female reproductive tracts and reproductive anomalies.

Procedures:

The Procedures area should include teaching strategies that lead to achieving the Primary Learning Outcomes and the QCC standards listed within the lesson plan. A variety of learning activities should be included that are meaningful and actively engage students in the learning. The learning activities should reflect some consideration for individual student needs. The lesson should use original ideas, text, and graphics, or attributes ideas, text, and graphics in a manner in keeping with current copyright laws. The Procedures section should include an introductory step in which new material is reviewed/taught, a guided practice or student-centered activity, an individual or group activity on which students will be concretely assessed and a conclusion to sum up the lesson. Appropriate resources should be identified, attached, given titles and annotations, and linked to the appropriate step.

Lesson Materials to Be Attached: List the names and descriptions of attachments you will provide (Worksheets, graphic organizers, transparencies, PowerPoint presentations, etc) and/or the names and annotations of Web sites that you believe will assist the teacher or the students. Add or delete rows for attachments, Web sites, or steps as needed. Make sure that you use only copyright-free graphics in your attachments and state the source of these attachments in the description field.

Step 1 Lecture	
Description	Powerpoint presentation covering anatomical similarities and differences
Duration in hours/minutes	45 minutes
Attachment #1 – Name and description	Reproductive Anatomy (powerpoint lecture)
Step 2 Dissection	
Description	Students identify each component of the reproductive tract and discuss its function. Students should trace the flow of a recently released follicle through the reproductive tract and explain how each component of an egg forms as the follicle passes through the tract. Instructor can manually place a follicle in the infundibulum and move the follicle through the tract to simulate the formation of an egg.

Duration in hours/minutes	35 minutes
Attachment #2 – Name and description	Anatomy of a Hen’s Reproductive Tract (diagrammatic sketch)
Step 3 Assign Laboratory Report	
Description	Review and familiarize students with the laboratory report questions. Clarify any confusion that may exist.
Duration in hours/minutes	10 minutes
Attachment # 3 – Name and description	Avian Reproduction Laboratory Report

Assessment:

This lesson will be assessed through a written laboratory report that asks students to explain the avian follicular hierarchy, make comparisons between the avian reproductive tract and the human female reproductive tract, define key terms, and make diagnoses regarding reproductive anomalies.

Extension:

Include other vertebrates with unique reproductive processes and have students create a comparison/contrast checklist. Students may create a “reproductive journey” project that traces a follicle from ovulation through the embryological development of a fetus.

Remediation:

Start with the dissection and visually engage students by having them move a follicle through the avian reproductive tract while explaining how an egg forms during this process. In addition, have students draw both reproductive tracts and compare and contrast organs and their functions.