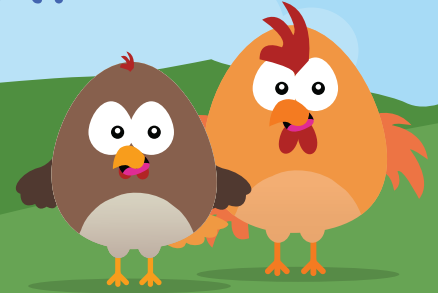


TO LAY OR NOT TO LAY

WHAT MAKES A HEN HAPPY?

Subject Area:
Science



Teacher Notes

Resources and Materials:

- Interactive whiteboard
- www.allabouteggs.com.au
- 1 x egg, plate and gloves
- Picture or name cards of different animals

Higher Order Thinking Skills (Bloom's Taxonomy):

- Knowledge
- Comprehension
- Application
- Analysis

Extension/Open-Ended Questions:

What would happen to the egg industry if the life of a hen was compromised during egg farming? What would happen to people's consumption of eggs?

Language/Vocabulary:

- Lighting, health, source, farmer, hen, chicken, eggs, feed, collect, raise, healthy, vitamins, minerals, protein, nutrients, produce, stored, location, temperature, reproduction, nutrition, albumen, yolk, environment, welfare, anatomy, physical, germinal disc, embryo, and fertilisation.

Overview

This lesson introduces the concept that living things can be grouped according to factors affecting reproduction. Students will predict physical and environmental variables connected to the reproductive output of a hen's unfertilised eggs.

Aims & Objectives

Upon completion of this lesson students will demonstrate a basic understanding of:

- The structure of an egg in relation to the development of a chick
- How animals can be grouped into categories based on their physical features and survival needs
- The physical and environmental factors affecting a hen's ability to lay an egg
- Cause and effect of factors in relation to: animal welfare, and supply and demand.
- How to form predictions based on the analysis of an animal's natural behaviour versus changed environments

Australian Curriculum

Key Learning Area:

Science

- Biological sciences
Living things can be grouped on the basis of observable features and can be distinguished from non-living things ([ACSSU044](#))
- Nature and development of science
Science involves making predictions and describing patterns and relationships ([ACSH050](#))

Cross-Curriculum Priorities:

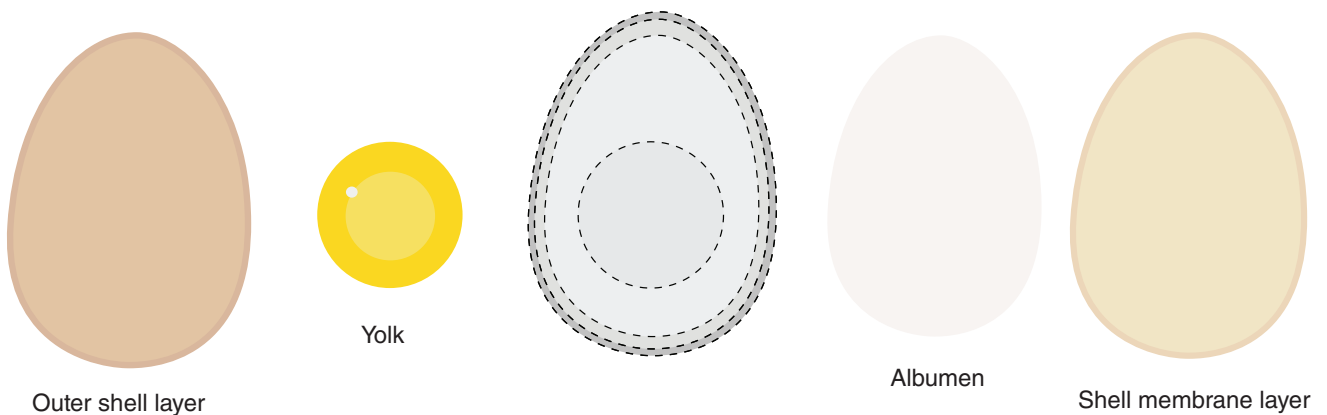
- Sustainability

General Capabilities:

- Literacy
- Critical and Creative Thinking
- Intercultural Understanding

Lesson Introduction

1. Conduct the pre-test [Pop Quiz](#).
2. Using the interactive whiteboard students watch, [Structure of an Egg](#), online video demonstrating the anatomy of an egg. After the egg structure is explained, direct the students' attention to the yolk. Explain that if they look closely at a real egg they will see a small white disc in the yolk. This is called the germinal disc (the point where fertilisation occurs in the egg). Inform the students that if a hen and rooster mate, this is the part of the egg where the chick will develop as an embryo. If you can bring an egg in the classroom, crack it open and allow the students to try and identify the germinal disc.
3. Move to the, [What Parts Make an Egg?](#) Interactive matching activity where students are required to match question and answer facts relating to the structure of an egg. Encourage students to click, drag and place the facts under the correct headings.
4. Ensuring there are no egg allergies, crack an egg onto a plate and show students the inside contents. Ask students to use their knowledge gained from the video to identify the various components of the egg's structure. Encourage the students to look, feel and smell the egg to assist in identifying its different parts.

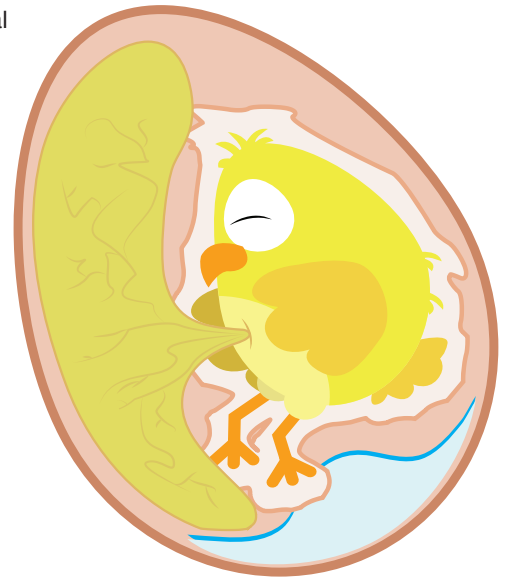


Pre-Lesson Q&A

1. In what part of the egg does the chick embryo begin to grow?
The germinal disc.
2. Living things can be categorised by what factors?
Their physical features, their environmental and survival needs.
3. What is reproduction?
The process by which new organisms are generated.
4. What physical and environmental conditions affect a hen's ability to lay an egg?
Lighting, hen age, nutrition, health, housing and welfare.
5. What important nutrients does an egg provide to people?
Protein, vitamins and minerals.

Main Body of Teaching

1. As a class, read through the list of physical features and environmental/survival needs for a variety of different animals in the, [Animal Features Interactive](#). Allow some time for students to conduct their own research of animals not mentioned in this list.
2. In groups, students decide how to categorise these facts and features. For example, the statement 'Pigs need to eat both plants and animals' can be grouped under the heading 'Omnivore'. Other headings for different animals could include 'Diet high in nutrients'; 'Animals that have claws'; 'Oviparous animals' etc.
3. Use the interactive whiteboard to record the students' responses. Create a mind map and ask each group to organise their information to reflect their understanding of the animals' needs.
4. As a class, discuss how living things can be grouped on the basis of observable features and distinguished from non-living things.
5. Discuss the term 'reproduction' by providing students with a simple definition: 'Reproduction is the process by which new organisms are generated!' Explain that eggs are formed in the reproductive system of the hen.
6. Students watch the short online video, [How an Egg Forms](#), that illustrates the process of egg formation inside the hen, with emphasis on the chick growing inside the egg.
7. Explain to the students that hens require certain conditions for egg reproduction to be successful and that physical and environmental factors can affect the hen's ability to lay an egg. Students view the video, [What Affects Egg Production](#), that explains these factors including lighting, age, nutrition, health, housing and welfare.



Conclusion

1. Provide each student with a card containing a picture/name of an animal. Students stand in a large area with space to move around freely. Allow five minutes for the students to form groups to classify themselves according to the physical features and environmental/survival needs of their animal.
2. After 5 minutes, students provide reasons why they grouped themselves accordingly. For example, "The hen is with the cow because they both require a diet high in nutrients". Repeat the activity.
3. Conduct the post-test [Pop Quiz](#).



Homework

1. Respond to the following newsreader statement:
“Making headlines today...a group of hens on an egg farm in Northern NSW have reportedly stopped laying eggs...”
2. Write a television interview exploring this statement, referring to the factors affecting egg farming.

Post-Lesson Q&A

1. What does the yolk consist of? **Water, fat, protein, vitamins and minerals.**
2. The albumen has 9% of what nutrient? **Protein**
3. From your observations how many structures are found in an egg? **Five.**
4. Living things can be distinguished from non-living things by... **Their physical features, environmental/survival needs and reproduction.**
5. A hen will lay fewer eggs when... **The numbers of daylight hours decrease.**
6. When do most commercial hens start laying eggs? **3-6 months**
7. Complete this statement: Egg farmers work closely with nutritionists to... **Develop feed which will meet the hens needs of good health and egg laying.**
8. A hen's diet consists of protein, carbohydrates, fats, vitamins, minerals and... **Water.**
9. What are the ways egg farmers reduce the risk of pests and diseases infecting their flock? **Biosecurity and vaccination.**
10. What are the three ways hens can be housed on an egg farm? **Cage systems, Free range systems and Barn systems.**

Based on Australian Curriculum, Assessment and Reporting Authority (ACARA) materials downloaded from the Australian Curriculum website on March 2018. ACARA does not endorse any changes that have been made to the Australian Curriculum.

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