



The Book Planter



Ag in the Classroom

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Chick, Chick, Chick, Chick, Chicken!

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What better way to spend a sunny day than a visit to Grandpa's chickens—and a peek at some baby chicks just as they hatch? When Julie and her little brother Bob visit Grandpa on a beautiful day, they're in for a treat: a yard full of chickens! Grandpa introduces them—a white, fluffy Puffball called Lulu, a tan-colored Orpington called Lola, a strutting rooster named Marvin, even Lottie, who's sitting on eggs just about hatch into adorable yellow chicks. A simple, inviting narrative, and smaller text offers details about different

types of chickens, their various features, what kind of environment they like best, what they eat, how they lay their eggs, and more.

Student Motivator¹

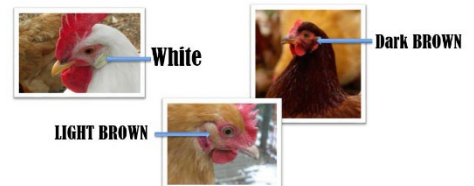
1. Develop student interest by using the [Facts about Chickens PowerPoint Slides](#) to teach your students some basic facts about chickens and eggs. Pictures can be projected from a computer or printed.

Activity 1: Egg Anatomy¹

Materials

- [Parts of an Egg](#) PowerPoint Slides
- Unfertilized (grocery store) eggs, 1 per group
- Shallow containers, 1 per group
- Toothpicks, 1 per student
- [Parts of an Egg Diagram](#), 1 per group
- [Parts of an Egg Activity Sheet](#), 1 per student
- [Parts of an Egg Book](#), 3 pages per student

You can tell what color of egg a hen will lay by the color of her earlobe



1. Ask the students to list what animals need to survive. Discuss the fact that animals need food, water, shelter and air.
2. Ask the students if they think chicks have the same basic needs developing inside the egg compared to after they hatch. All the students that chicken embryos need food, water, air, and the proper temperature and humidity to develop into a healthy chick that is ready to hatch out of the egg. Explain that it is important to know the parts of an egg and their functions in order to understand how a chicken embryo's basic needs are met inside the egg.
3. Use the [Parts of an Egg points PowerPoint Slides](#) or the information below to explain the function of each part of the egg.
 - Shell: The egg's shell has more than 7,000 tiny pores that allow oxygen to pass into the egg and carbon dioxide to escape.
 - Membrane: The inner and outer membranes, found between the eggshell and the egg white, keep bacteria from entering the egg and help to slow evaporation of moisture from the egg.
 - Air Cell: The air cell, located between the inner and outer membranes at the large end of the egg, holds oxygen for the chick to breathe.
 - Albumen: The albumen, or the egg white, contains the egg yolk floating within it and is the main source of protein and water for the embryo.
 - Yolk: The yolk provides food for the embryo. It is made up of fats, carbohydrates, proteins, vitamins and minerals.
 - Chalazae: The chalazae are cords on two sides of the yolk that keep the yolk floating in the center of the albumen.
 - Germinal Disc: The germinal disc is the white spot on the yolk. This is where the female's genetic material is found.
4. Divide students into groups. Carefully break open one unfertilized (grocery store) egg per group into a shallow container.
5. Using the [Parts of an Egg Diagram](#) and toothpicks, have the students locate each part of the egg. You may need to use spoons to gently flip the yolk if the germinal disc is not visible.
6. Ask the students to fill out the [Parts of an Egg Activity Sheet](#) by cutting and pasting each egg part where it belongs.
7. Have the students create a [Parts of an Egg Book](#) by cutting out each egg.
8. Cut every egg, except the back cover, apart on the crack line.
9. Match each egg part with its corresponding function. Use two brads (metal fasteners) to connect the pages to the back cover.

Activity 2: Air Transfer¹

Materials

- Hard-boiled egg
- Raw egg
- Water

- Food coloring
 - Hand lens
1. Provide each group with a hand lens and a hard-boiled egg that has been sitting in dye (1 cup hot water, 20 drops food coloring) overnight. Ask the students to look carefully at the shell of the egg. Discuss their observations. Point out the tiny pores on the eggshell. There are more than 7,000 pores on an eggshell that allow oxygen to pass into the egg and carbon dioxide to pass out.
 2. Have the students compare the pores at the large end of the egg with the pores on the rest of the egg. Discuss their comparisons. The pores at the large end, where the air cell is located, are larger and more numerous than pores on other parts of the egg. This allows oxygen to enter the air cell easily. Just before hatching, the chick will puncture the air cell and use the oxygen stored there to breathe until it pecks through the shell.
 3. Ask the students what they think they will see when the eggshells are peeled off the eggs. Have the students peel the eggs. Ask the students to explain why there are small dots of color on the inside of the shell and the white of the egg. Explain that, like the food coloring, oxygen enters the egg through the shell's tiny pores. Point out that the dots of food coloring are larger and more numerous where the air cell is located.
 4. Place a raw egg in warm water. You will see tiny air bubbles rise to the surface of the water. Air is escaping through the pores in the shell. Explain that carbon dioxide escapes the egg through the pores.

Sources

1. <https://agclassroom.org/matrix/lessons/138/>

K-5 Subject Areas: Science

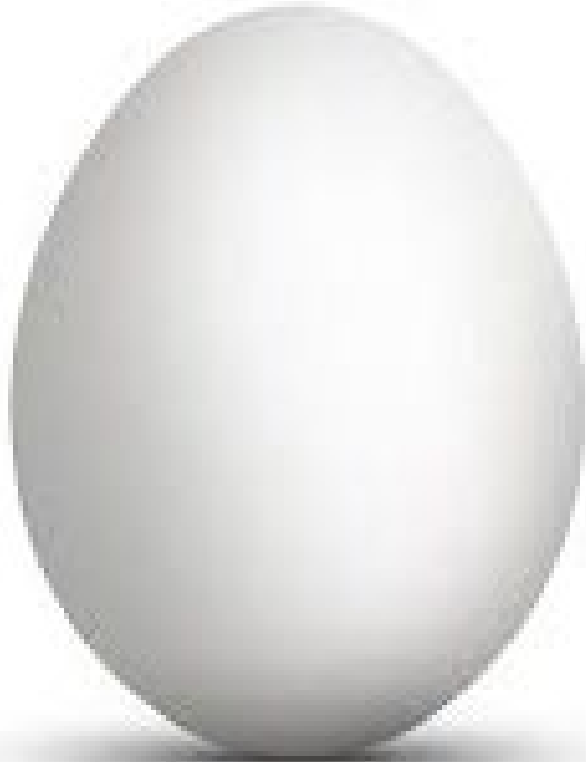
Science

- PS.K.1 Understand how objects are described based on their physical properties and how they are used.
- LS.K.1 Understand the characteristics of living organisms and nonliving things.
- LS.K.2 Understand characteristics of organisms that make them alike and different.
- LS.1.1 Understand the basic needs of a variety of plants and animals in different ecosystems.
- PS.2.1 Understand properties of solids and liquids and the changes they undergo.
- LS.2.1 Understand animal life cycles.
- LS.2.2 Understand that organisms differ from or are similar to their parents and other offspring based on characteristics of the organism.
- PS.3.1 Understand the structure and properties of matter before and after they undergo a change.
- LS.4.1 Understand the effects of environmental changes, adaptations, and behaviors that enable organisms to survive in changing habitats.
- LS.5.2 Understand the interdependence of plants and animals within their ecosystems.
- LS.5.3 Understand some characteristics of an organism are inherited and other characteristics are acquired.

Facts About Chickens

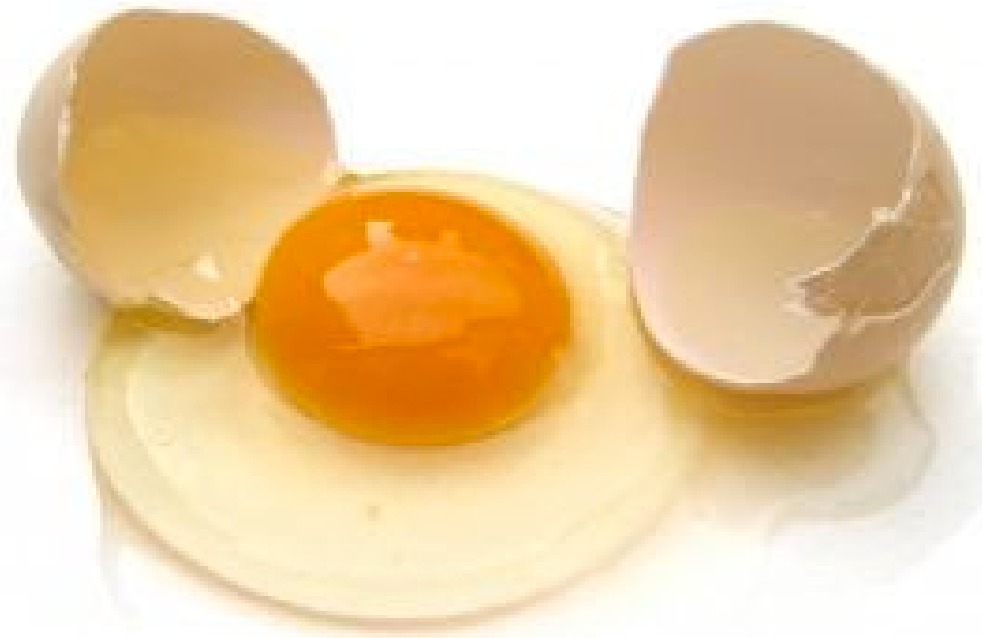
**A female chicken is
called a “Hen”**





**Hens can
lay 1 egg
per day**

**Eggs
provide
protein to
our diet**



Eggs purchased at the store will never hatch



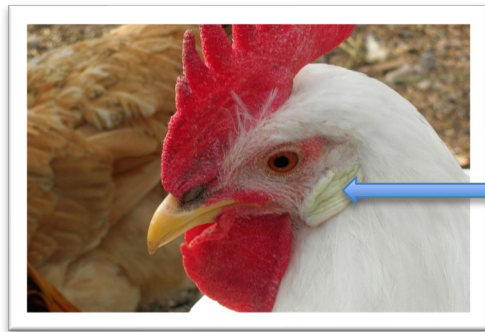
**An embryo (baby chick) never even began
developing because it wasn't fertilized or
incubated (Kept at right temperature)**

**Eggs come
in many
colors**

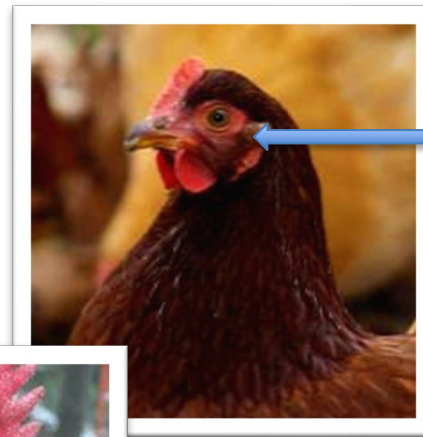


**...but the color does not affect
the nutritional value**

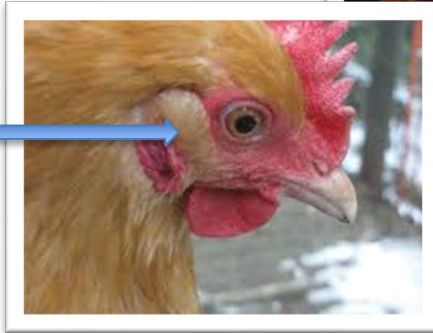
You can tell what color of egg a hen will lay by the color of her earlobe



White



Dark BROWN



LIGHT BROWN

There are many kinds of chickens...

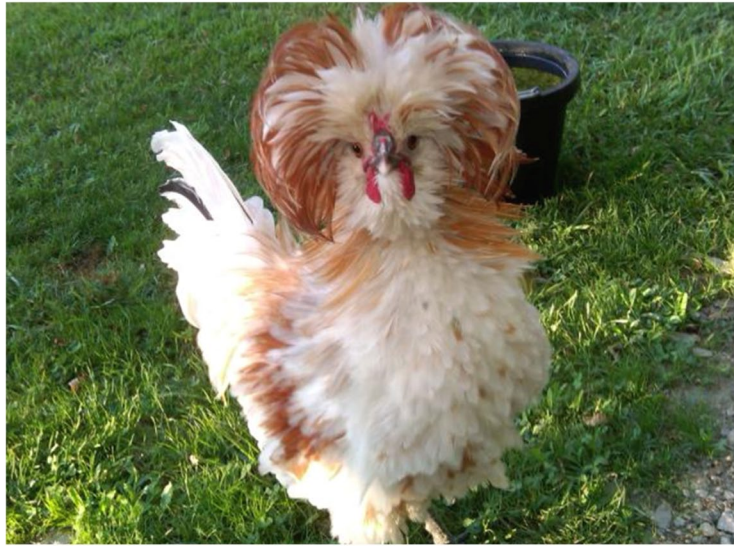
Big...



Small...

There are many kinds of chickens...

**Extra feathers
on their head**



Or feet...

There are many kinds of chickens...

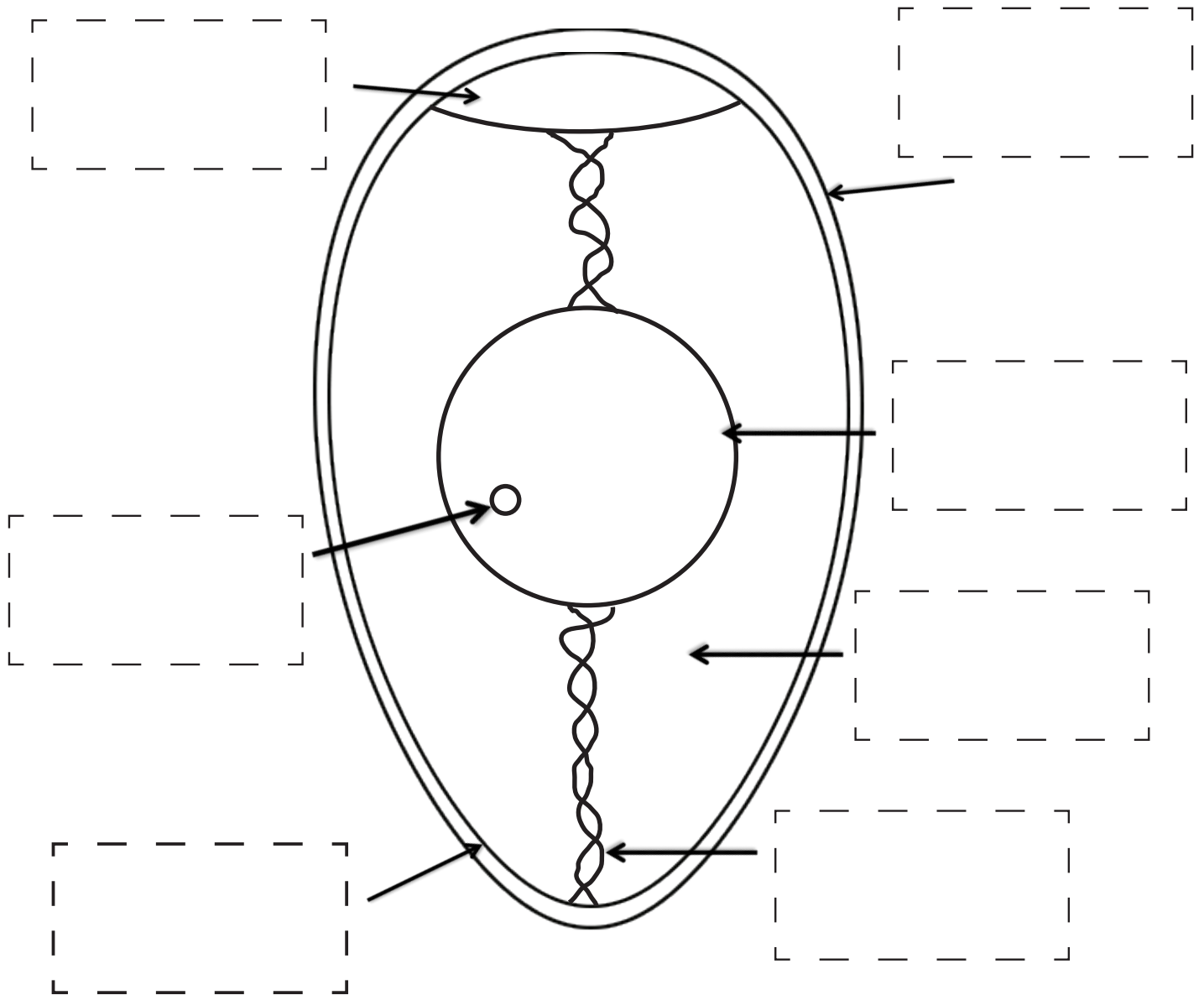
Fuzzy ones...



**But they all developed
inside an egg...**

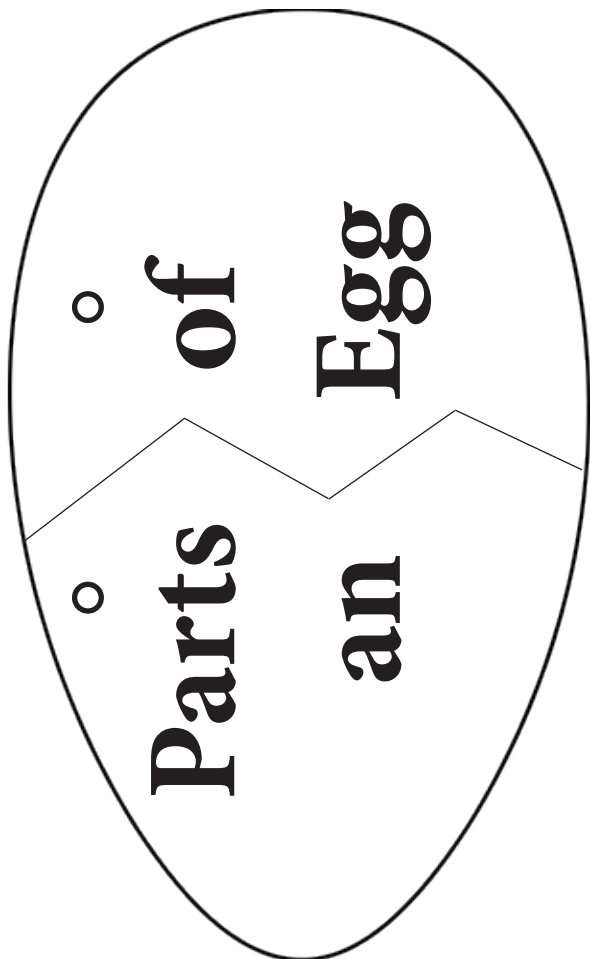


Parts of an Egg

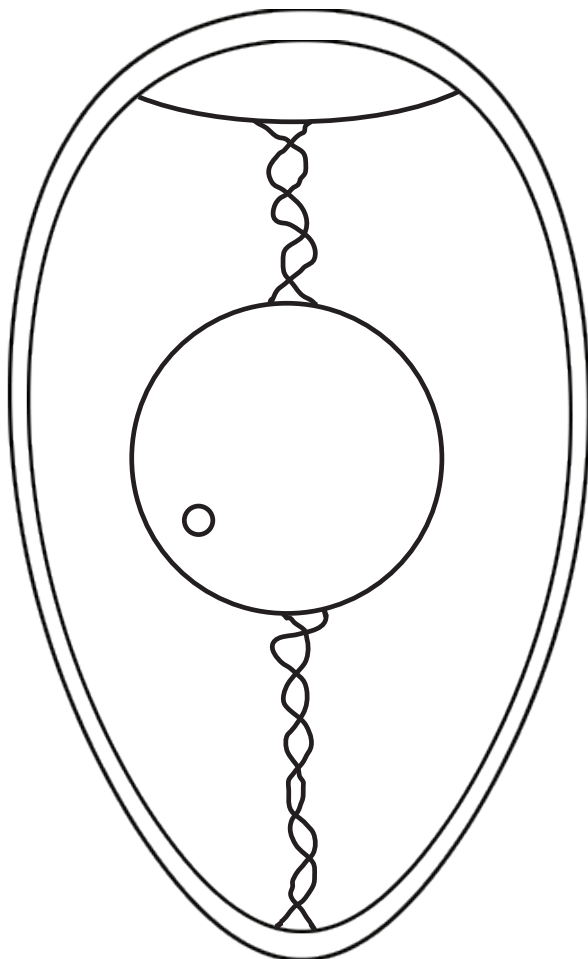


shell	air cell	yolk
membranes	albumen	chalaza
	germinal disc	

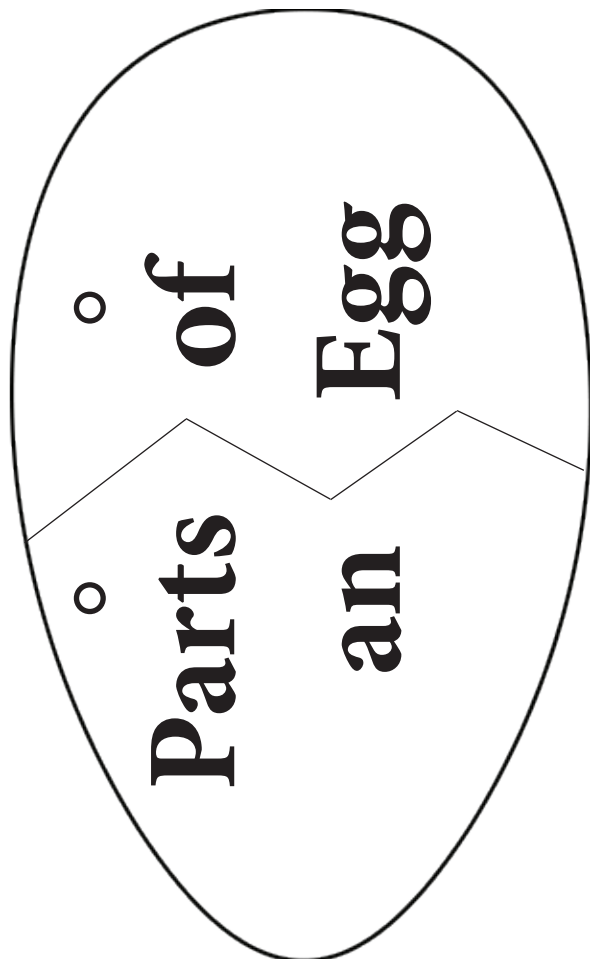
Front Cover



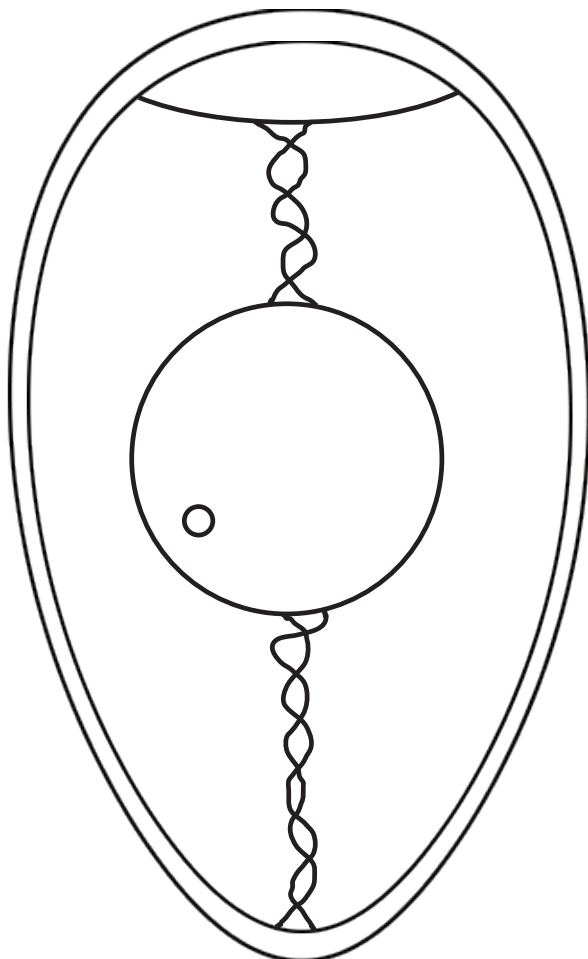
Back Cover



Front Cover



Back Cover



Located between the inner and outer membranes at the large end of the egg, this part of the egg holds oxygen for the chick to breathe.

albumen

These cords keep the yolk floating in the center of the albumen.

yolk

This part of the egg cushions the egg yolk floating within it and is the main source of protein and water for the embryo.

chalaza

These parts of the egg keep bacteria from entering the egg and help to slow evaporation of moisture from the egg.

**germinal
disc**

This part of the egg provides food for the embryo. It is made up of fats, carbohydrates, proteins, and minerals.

shell

This is the white spot on the yolk. The female's genetic material is found here.

membranes

This part of the egg has more than 7,000 tiny pores that allow oxygen to pass into the egg and carbon dioxide to pass out.

air cell

Parts of an Egg Diagram

