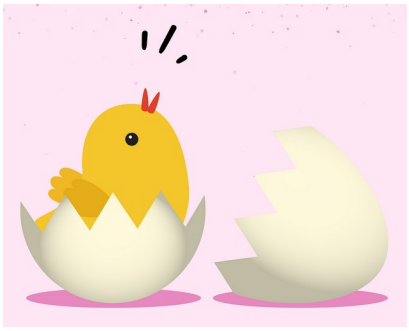
New Jersey Agriculture in the Classroom

Egg Research

OVERVIEW: Students learn that a chicken embryo requires nutrients, water, oxygen, and optimal temperature and humidity conditions to develop into a healthy chick. They observe an egg to discover that it contains most of the elements necessary for a chick to survive while developing inside the shell.

GRADES: 3-5



OBJECTIVES: The student will be able to:

Identify the essential components a chicken embryo needs for its development.

Describe the developmental process of a chick inside the egg.

MATERIALS:

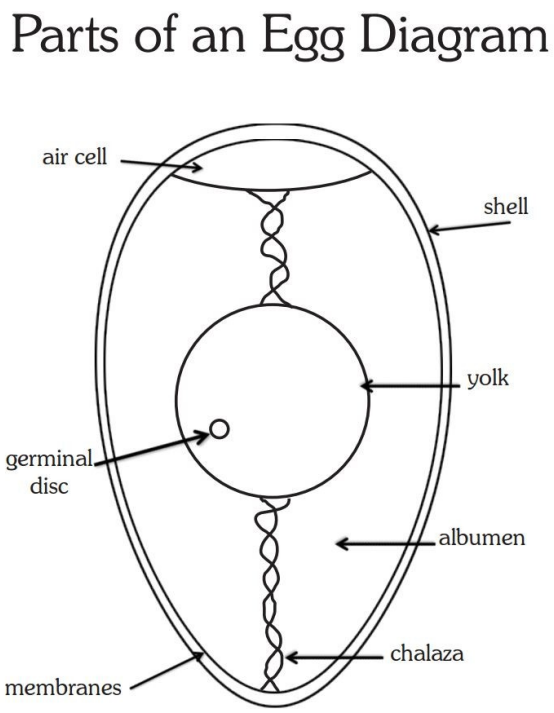
Facts About Chickens powerpoint
Parts of an Egg powerpoint
Activity Sheet: Parts of an Egg, one per student
Diagram of the Parts of an Egg
The Parts of an Egg book one per student
Scissors
Glue Sticks
Hole Punch
2 round-head fasteners per student

VOCABULARY:

Brooding: to sit eggs in order to hatch them
Chick: a young chicken
Clutch: a brood, or a group of eggs incubated together
Embryo: an animal in the early stages of development
Hen: a female chicken
Humidity: the amount of water vapor in the air
Incubation: the process of maintaining an organism in conditions favorable for its growth and development
Rooster: an adult male chicken

Show the *Facts About Chickens* powerpoint.
Ask the students to list what animals need to survive. Discuss the fact that animals need food, water, shelter, and air.

Ask the students if they think chicks have the same basic needs developing inside the egg compared to after they hatch. Tell 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.



Use the *Parts of an Egg* powerpoint to explain the function of each part of the egg.

Divide the students into groups. Carefully break open one unfertilized (grocery store) egg per group into a shallow container.

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.

Ask the students to fill out the *Parts of an Egg Activity Sheet* by cutting and pasting each egg part where it belongs

Tell students they are going to make a *Parts of an Egg Book.* Tell them to start by cutting out each egg. Then cut every egg, except the back cover, apart on the crack line. Match each egg part with its corresponding function. Use two brads to connect the pages to the back cover.

Evaluation:

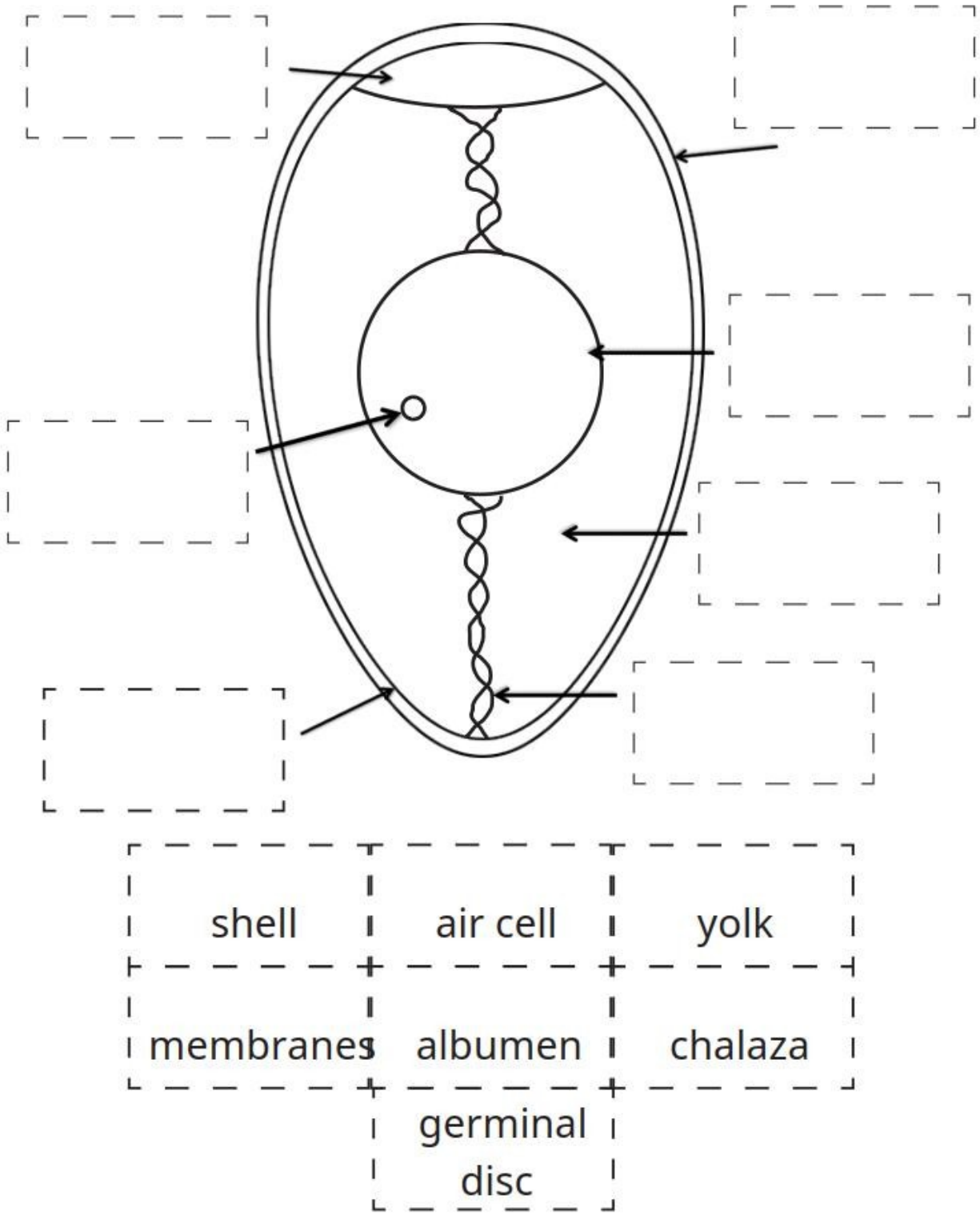
Completed Parts of an Egg activity sheet and book

New Jersey Learning Standards:

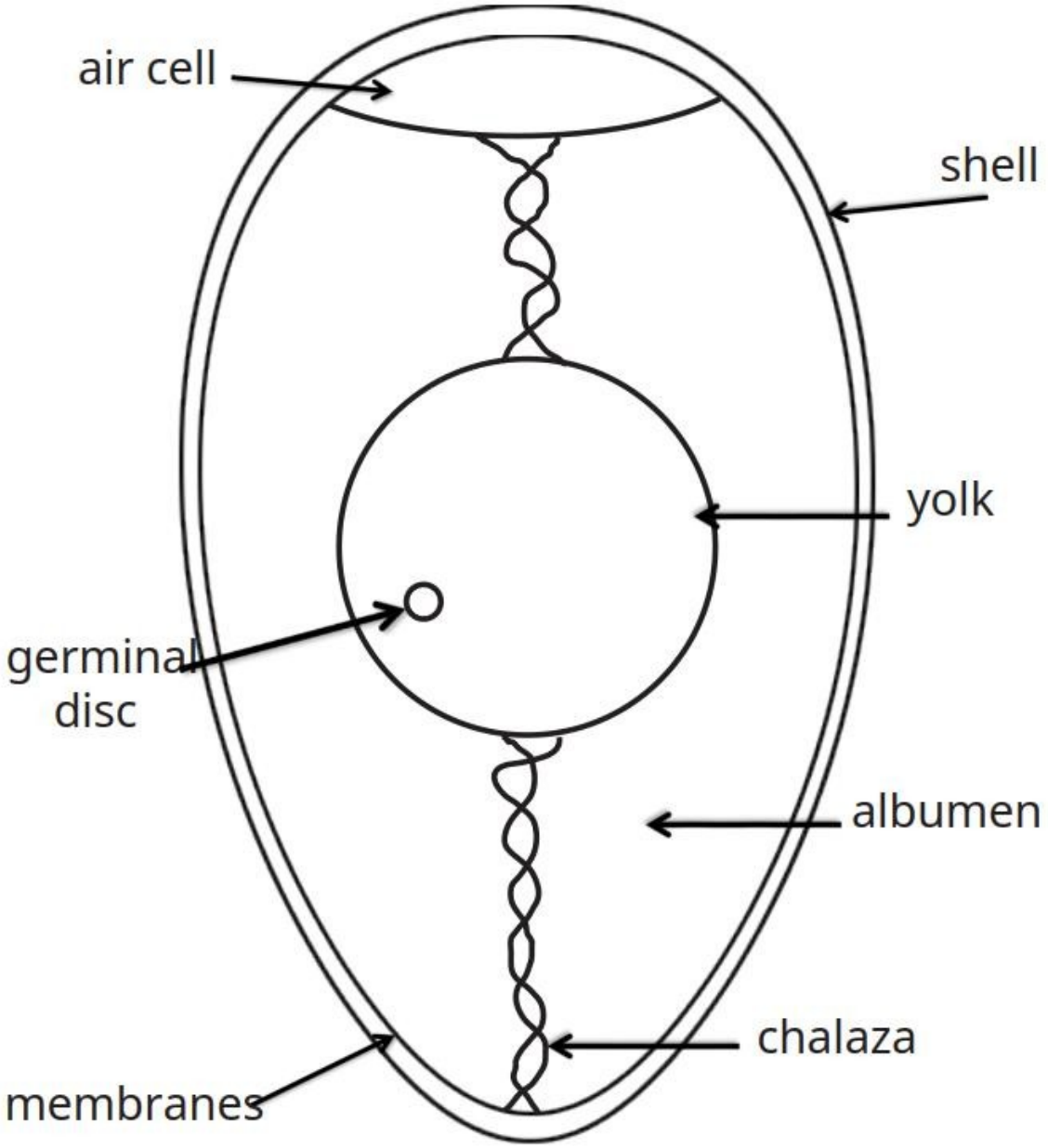
Science

3-LS1-1 3-LS3-2 3-LS4-2 4-LS1-1 5-LS2-1

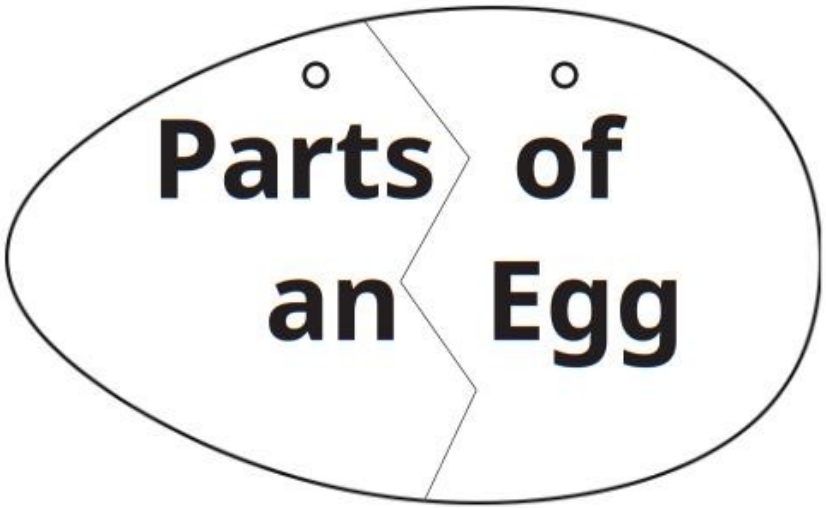
Parts of an Egg



Parts of an Egg Diagram



Front Cover



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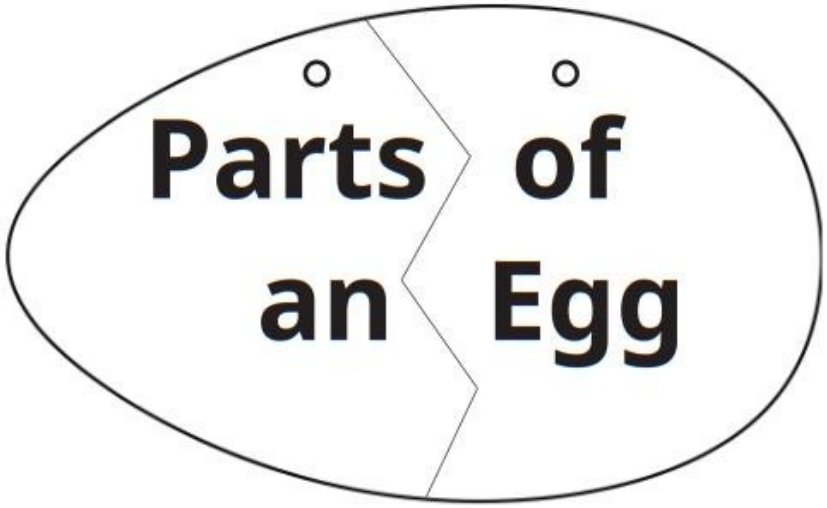
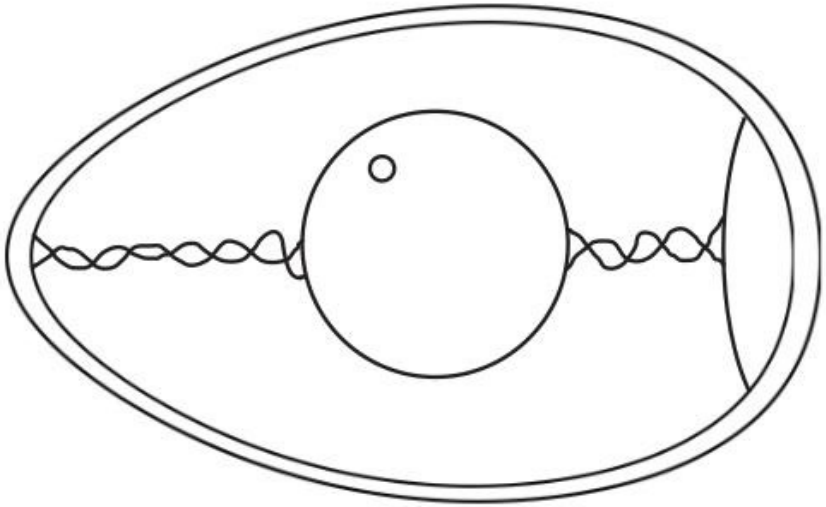


Back Cover



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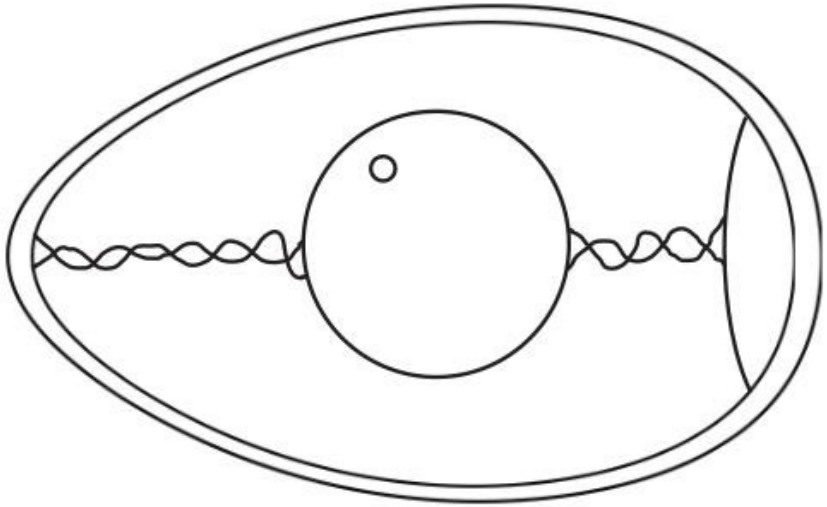
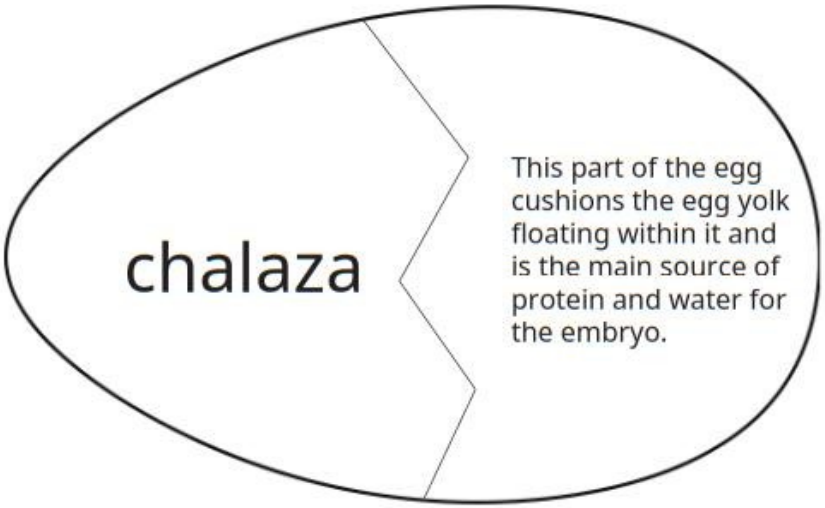
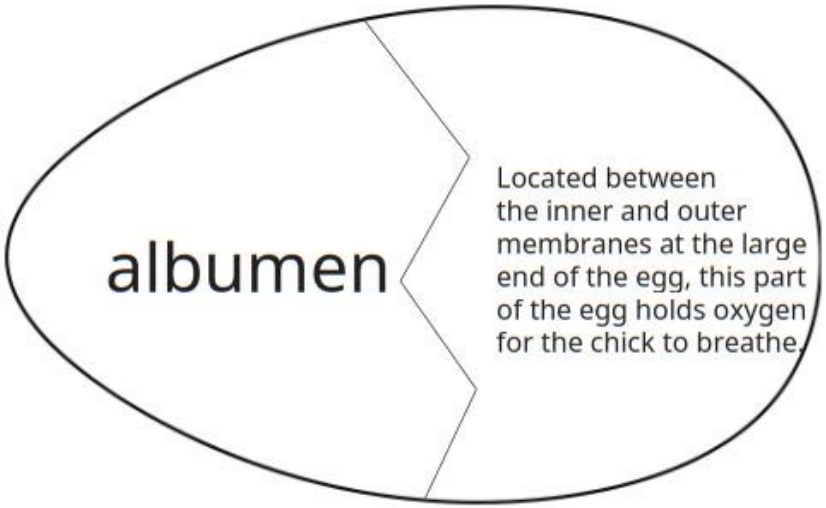
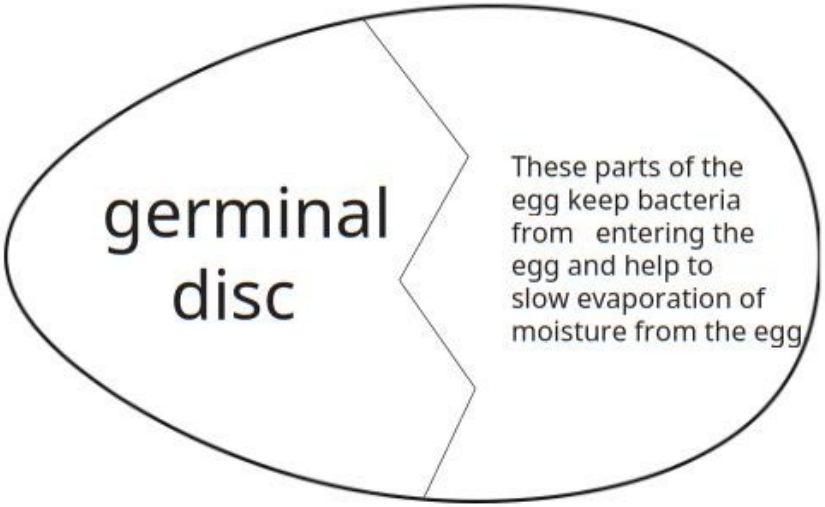
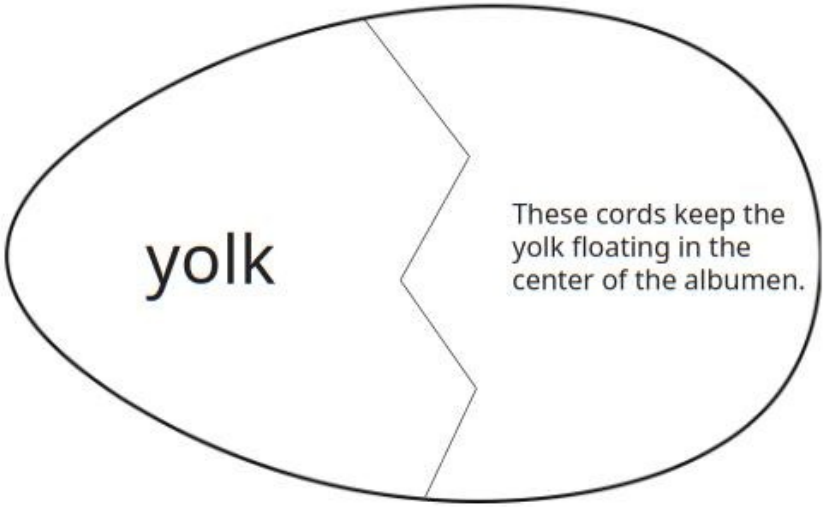
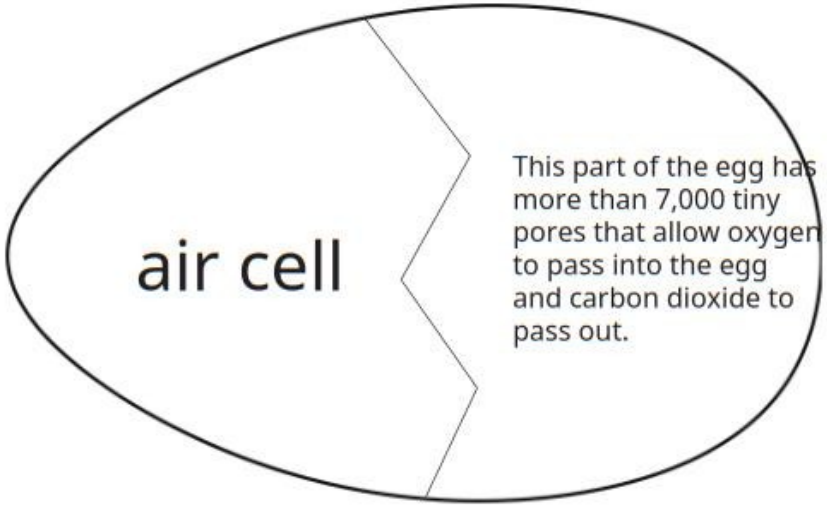


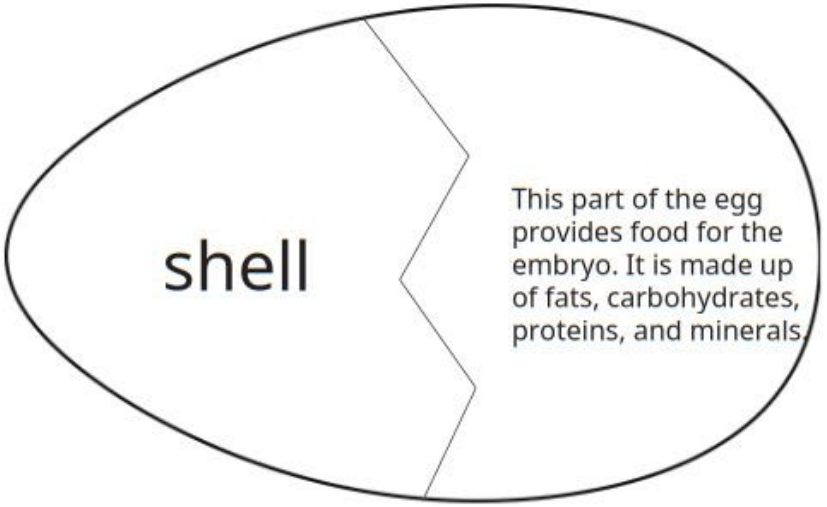

chalaza
This part of the egg cushions the egg yolk floating within it and is the main source of protein and water for the embryo.

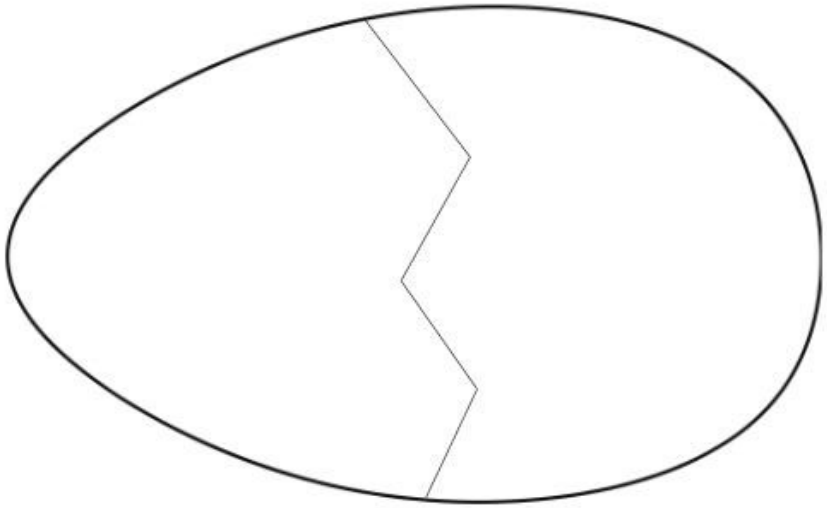

albumen
Located between the inner and outer membranes at the large end of the egg, this part of the egg holds oxygen for the chick to breathe.

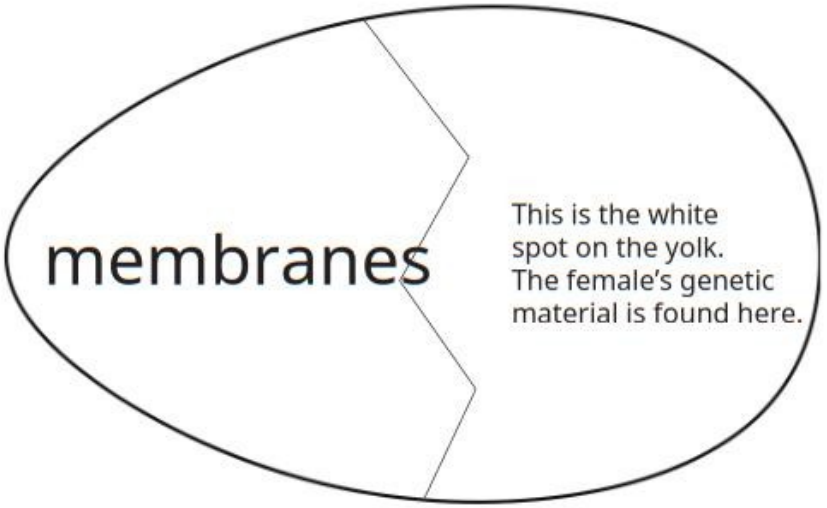

germinal disc
These parts of the egg keep bacteria from entering the egg and help to slow evaporation of moisture from the egg.


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









Parts of an Egg Book