

Erdkinder

Eggs-act Measurement Activity

Cycle: Systems

Adapted from Ah-Ha lessons.

Overview: “The egg is a biological structure intended by nature for reproduction. It protects and provides a complete diet for the developing embryo, and serves as the principle source of food for the first few days of the chick’s life. The egg is also one of the most nutritious and versatile of human foods.” (University of Illinois, Incubation & Embryology)

Essential question: What is the relationship between exact measurement & science?

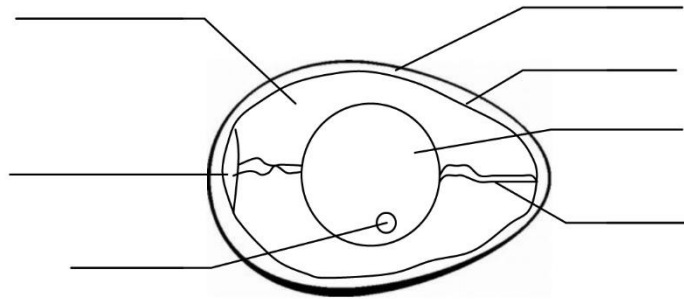
Let’s get cracking!

1. Measure 3 unfertilized eggs and record the weight of each in grams and the height & width with the calipers.

	Weight in grams	Height	Width (girth)
Egg #1			
Egg #2			
Egg #3			

2. *Highlight* the entire row with your largest egg in one color.
3. *Highlight* the entire row with your smallest egg in a different color.
4. *Highlight* the remaining egg in a third color. Carefully break it open (try not to break the wide end, but crack it on the long pointy side) and separate the **albumin** (egg white) and the yolk using the shell to hold the yolk. Pour the albumin into a graduated cylinder and measure its volume in mL: _____
5. Tell your lab partner the purpose of the albumin.
6. Examine the yolk. Can you see a tiny white dot on the ball of the yellow? This is the **germinal disc**. It contains the genetic material of the female. If the egg was fertilized by a rooster it would develop into the chick in the next 3 weeks.
7. Tell your lab partner the purpose of the germinal disc.
8. Look for the **chalazae** (white fibers or cords that connected the yolk to the membrane. These cords hold the yolk in the center of the egg. Use the graduated cylinder to measure the volume of the yolk: _____ (don’t forget to label the units you use)
9. Share the purpose of the yolk.

10. Share the purpose of the chalazae.
 11. Which was *larger* in volume, the albumin or the yolk? _____
 12. Does this agree with the results others students found? (Ask two other groups) _____
 13. Examine the shell. Can you see any **pores** in it? They are too small to be seen buy you can see some if you place a bright light behind them (use the hand held candler)
 14. Can you see the “brighter” spots all over the shell? This is the porous region that allows the embryo to get air while in the shell. There are about 7000 of these pores on the shell!
 15. Look inside the shell. Can you find the membrane? It is a film-like structure covering the inside of the egg. If you did not break the egg on the large end, you can see where the membrane separates from the shell in the large end to form the **air sac**.
 16. As the temperature of the egg varies during the day (when the mother hen is off the nest) the egg cools a bit and the inside parts contract more than the shell. This creates a vacuum and air is drawn in through the pores.
 17. Identify the 4 main parts of an egg (you may use the provided chart if needed)
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Want to hatch a goose?

- 1. Find out the incubation period for a goose.**
- 2. What is the incubation temperature for a goose?**
- 3. How many times in the day should we rotate the eggs?**
- 4. Use the term imprinting in a sentence related to a gosling.**