EXTENSION
Lancaster County

444 Cherrycreek Road, Suite A | Lincoln, NE 68528 | 402-441-7180 | http://lancaster.unl.edu

EGG PART IDENTIFICATION

4-H EMBRYOLOGY AT-HOME ACTIVITY

These activities are structured to meet 3rd grade educational standards, though other ages may enjoy them. In addition to viewing the 4-H Egg Cam, youth are given the opportunity to expand their knowledge by reviewing and applying these concepts through fun activities at home. These activities will further expand concepts taught virtually or in classroom settings.

Prior to this activity, watch the video, "4-H Embryology Initial Classroom Presentation" online at https://youtu.be/XMFbL8SJXiM or https://mediahub.unl.edu/media/12525

During this activity, you will test your knowledge learned in the Initial Presentation and identify as many parts as you can!

Supplies Needed:
- 1 egg (purchased from the grocery store)
- 1 plate
- Egg part ID worksheet available at https://web.extension.illinois.edu/eggs/pdfs/eggparts.pdf.

Steps:
1) Once you select an egg, feel the outside of the shell, recognizing all the pores. Just like our skin, the shell is also covered in pores. Take notes on what other things you notice about your egg.
2) Crack your egg open onto a plate. What structures do you see? Do your best to identify the parts of the egg you see on the plate. Using the egg opened up on your plate and the knowledge gained from the Initial Presentation, complete the Egg Parts worksheet.

Photo by: Karen Wedding

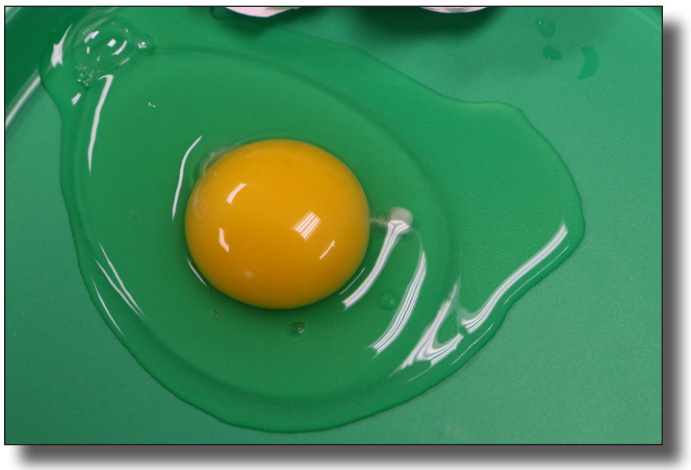
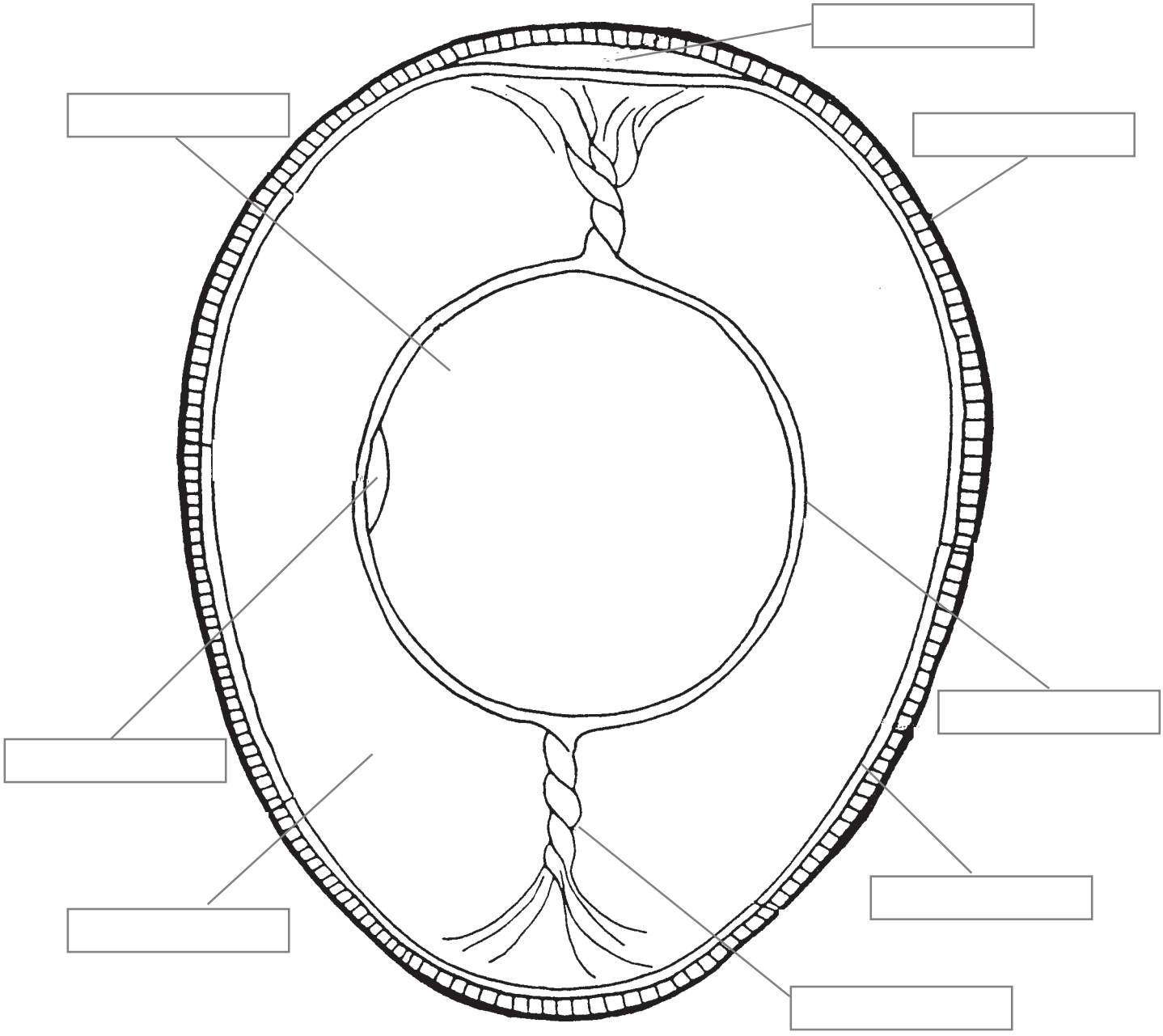


Photo by: Karen Wedding

Egg Parts

Color each part of the egg a different color and label each part of the egg.



Use each word only once:

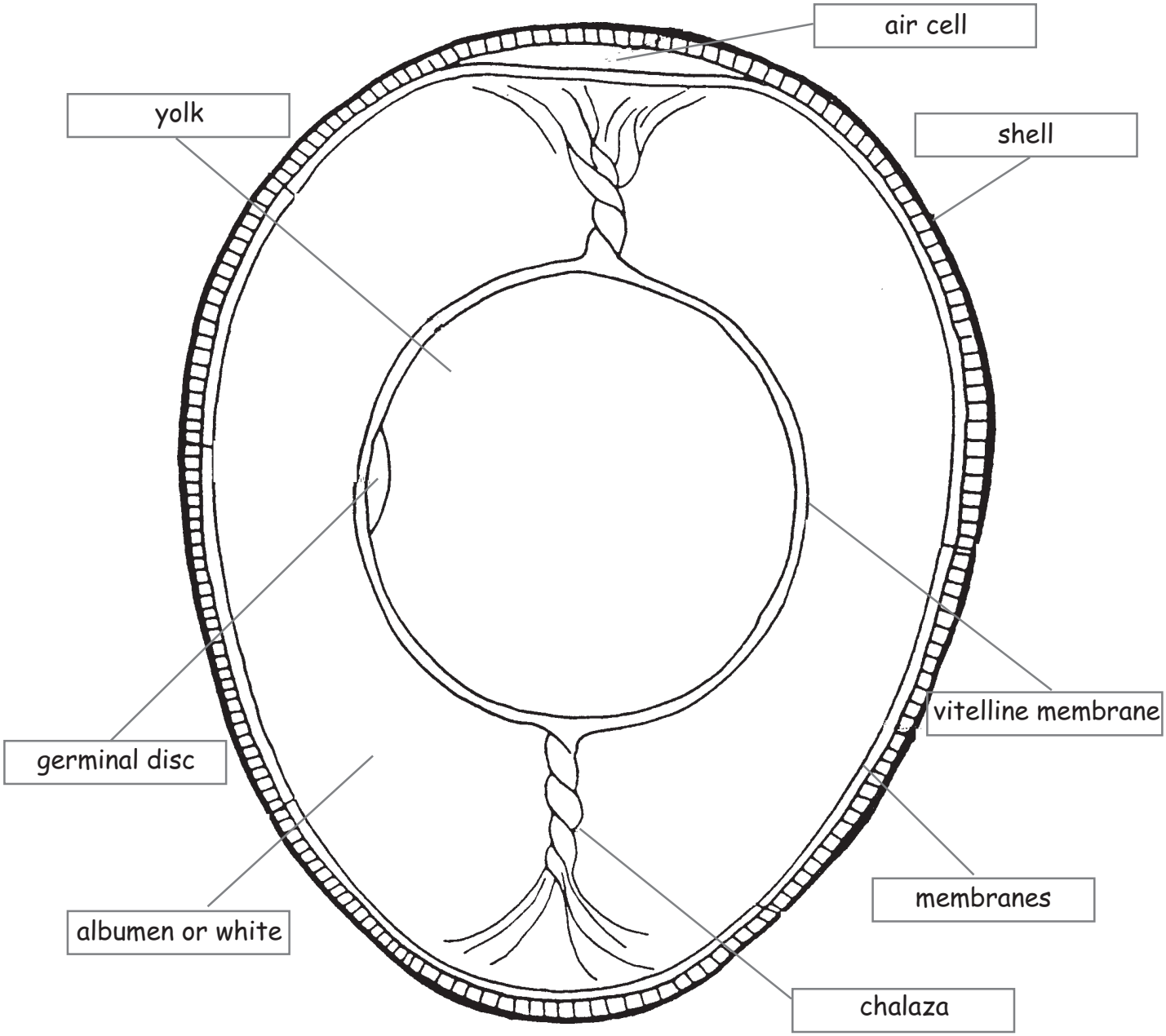
air cell
albumen or white
chalaza
germinal disc
membranes
shell
vitelline membrane
yolk

This worksheet is a part of the Incubation and Embryology Project (http://www.urbanext.uiuc.edu/eggs). University of Illinois Extension, 1999.

KEY

Egg Parts

Color each part of the egg a different color and label each part of the egg.



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GROCERY STORE EGG CANDLING

4-H EMBRYOLOGY AT-HOME ACTIVITY

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Prior to this activity, watch the video, "4-H Embryology Day 7 Candling Classroom Presentation" online at *https://youtu.be/nCkPzS0E3RM* or *https://mediahub.unl.edu/media/12526*.

Candling is the process used to check for freshness and fertility in eggs. During this activity, you will candle eggs to see parts inside by shining a light through the air cell of an egg. You will also learn how to grade eggs by interior quality based on air cell size using the dime, nickel and quarter trick!

Supplies Needed:

- 1 dime
- 1 nickel
- 1 quarter
- 1 phone-light/flashlight
- 1 carton of eggs (purchased from the grocery store)

Steps:

1) Find a dark room with low lighting to perform candling of the eggs.

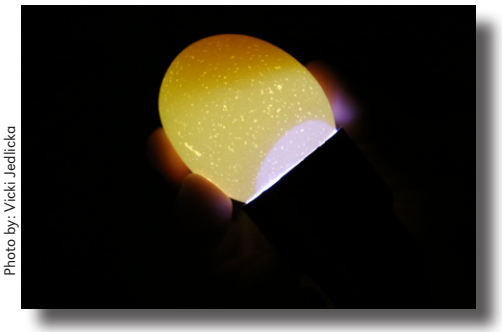

Photo by: Vicki Jedlicka

2) You will use your phone-light/flashlight to shine through the air cell found on the large end of an egg.
3) While shining your light through the air cell, identify the yolk and egg white (albumen). You will also see pores light up all over the shell of the egg.

Photo by: Karen Wedding

4) Your carton should be labeled with a grade on the top of the carton. This is most commonly "Grade A". This grade is based on the size of the air cell found inside each egg.
5) Next, use your phone-light/flashlight to candle each egg grading them on the size of the air cell. This is where your coins will come into play using the dime, nickel and quarter trick.
6) You will test to see if your carton of eggs was graded correctly. Use the dime, nickel, quarter trick comparing the size of the air cells in your eggs according to the grades below. Good luck!
    a. Grade AA – Size of a dime.
    b. Grade A – Size of a nickel.
    c. Grade B – Size of a quarter.

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DRAW AN EMBRYO DEVELOPMENT TIMELINE

4-H EMBRYOLOGY AT-HOME ACTIVITY

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Prior to this activity, watch the Embryo Development video available at *www.poultryhub.org/embryo-2*. By watching this video, you will be introduced to the 21-day developmental cycle of a chicken embryo. Using the poster showing the 21 days of development at *www.aces.edu/blog/topics/poultry/chicken-embryo-development*, create your own timeline at home, drawing structures that develop each day!

Supplies Needed:

- Colored pencils/ crayons/markers
- 1 blank sheet of paper or 21 note cards*

* *For those using note cards, you will also need: One hole punch and one loose-leaf binder ring.*

Photo by: Karen Wedding

Steps:

1) If you wish to complete your timeline on a single sheet of paper, create 21 boxes and draw each day of development with a caption below.
2) Those using note cards, draw each day of development on a separate card making sure to include a caption.
   a. Use a hole punch on the top left corner of your cards and place them in order on a loose-leaf binder ring. If a ring is unavailable, then leave as flashcards!

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THE FLOATING EGG

4-H EMBRYOLOGY AT-HOME ACTIVITY

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During this activity you will learn about buoyancy by placing one egg in a glass of tap water, and one egg in a glass of salt water. Before beginning this activity, hypothesize on what you think will happen. Will you need to add more salt than recommended?

Supplies Needed:

- Salt (3 Tablespoons)
- 2 tall 8–12 oz. drinking glasses (clear recommended)
- 2 eggs (purchased from the grocery store)

Steps:

1) Fill 2 glasses 3/4 full of water.
2) Place 1 egg in each glass of water and watch them sink.
3) Add 3 Tablespoons of salt to one glass and stir until egg floats.
4) (Optional) Add more salt to glass as needed until egg floats.

Photo by: Karen Wedding