

## Activities

- Share the information below detailing how chickens are different from other birds. Have students list birds that have a comb and those that have an appendage. After providing time for students to research, lead students to compare and contrast chickens, broilers, roosters, and turkeys with the general bird population. (W.3.2, W.3.7; W.4.2, W.4.7; W.5.2, W.5.7)

### Differentiating Chickens From Other Birds

Features that differentiate chickens from most other birds are the comb and two wattles that chickens have. The comb is the red appendage on the top of the head. The wattles are the two appendages under the beak. A few other birds have a comb or similar appendage, and a few have wattles.

The chicken has two legs and two wings, facts that influence housing and management. Domestic chickens have essentially lost the ability to fly, but sometimes lighter-bodied birds can fly short distances or over a fence. The feet and shank portions of the legs have scales. The chickens, like other birds, have a beak (or bill) but do not have teeth.

- Use the information provided below to share with students facts about the life cycle of chickens. Then lead students in a discussion of the differences between a rooster and a hen. (SL.3.2; SL.4.2; SL.5.2)

### Life Cycle of Chickens

The chicken life cycle has three stages: egg, chick, and adult (hen or rooster). The hen lays eggs. We use almost all the eggs a hen lays for our food. If farmers want to raise chicks, they will mate hens and roosters to get fertilized eggs. Fertilized eggs are used to produce chicks. Hens will lay eggs whether or not they have mated with a rooster. Unfertilized eggs result when hens and roosters do not mate.

### More Information

Both eggs and birds have been around longer than historians. Nobody really knows when the first fowl was domesticated, although Indian history places the date as early as 3200 bc. Egyptian and Chinese records show that domestic birds were laying eggs for human use in 1400 bc. The dependability of the rooster's early morning call and the regularity with which newly laid eggs appeared probably inspired the Chinese to describe fowls as "the domestic animal who knows time."

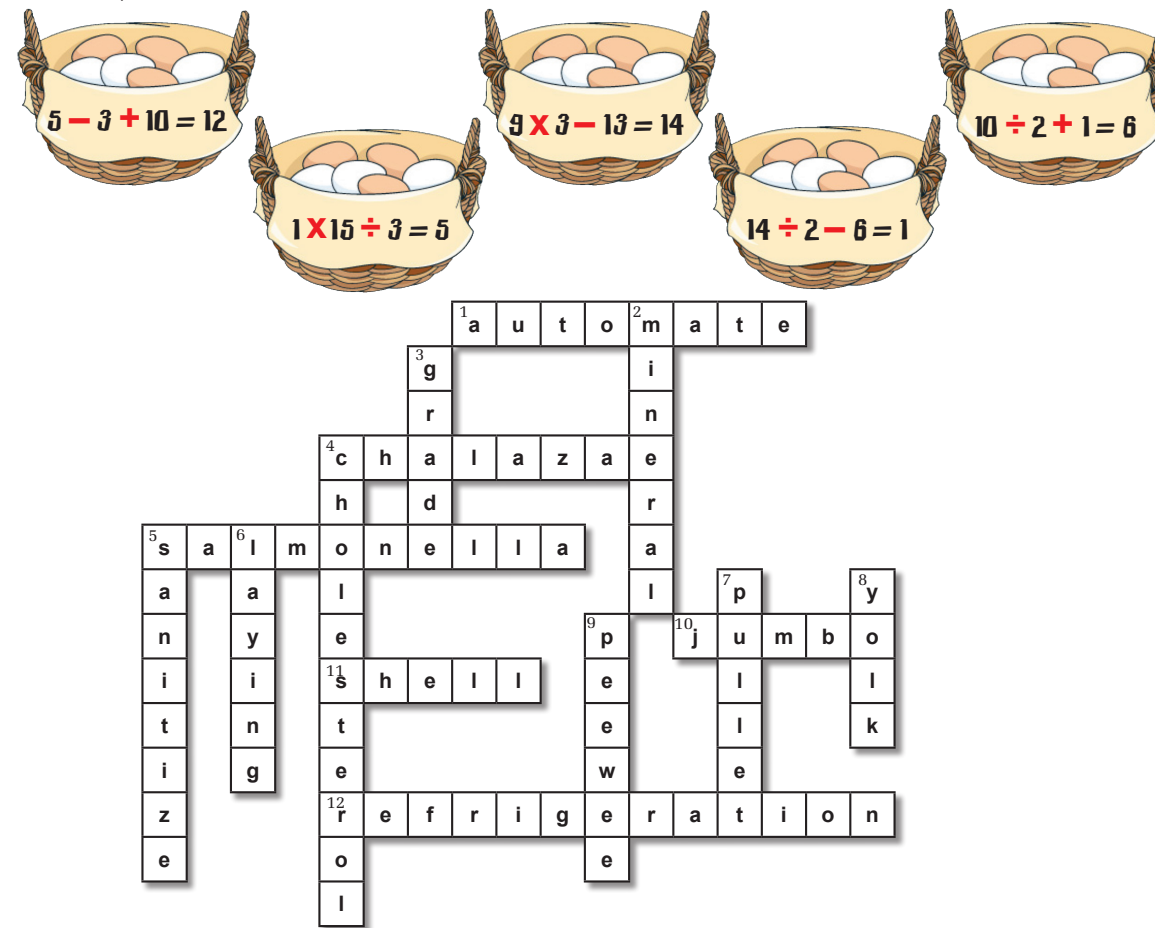
It is believed that Columbus's ships carried the first of the chickens related to those now in egg production to this country. These strains originated in Asia.

## Activities

- Discuss the definition of these expressions that use the word egg:

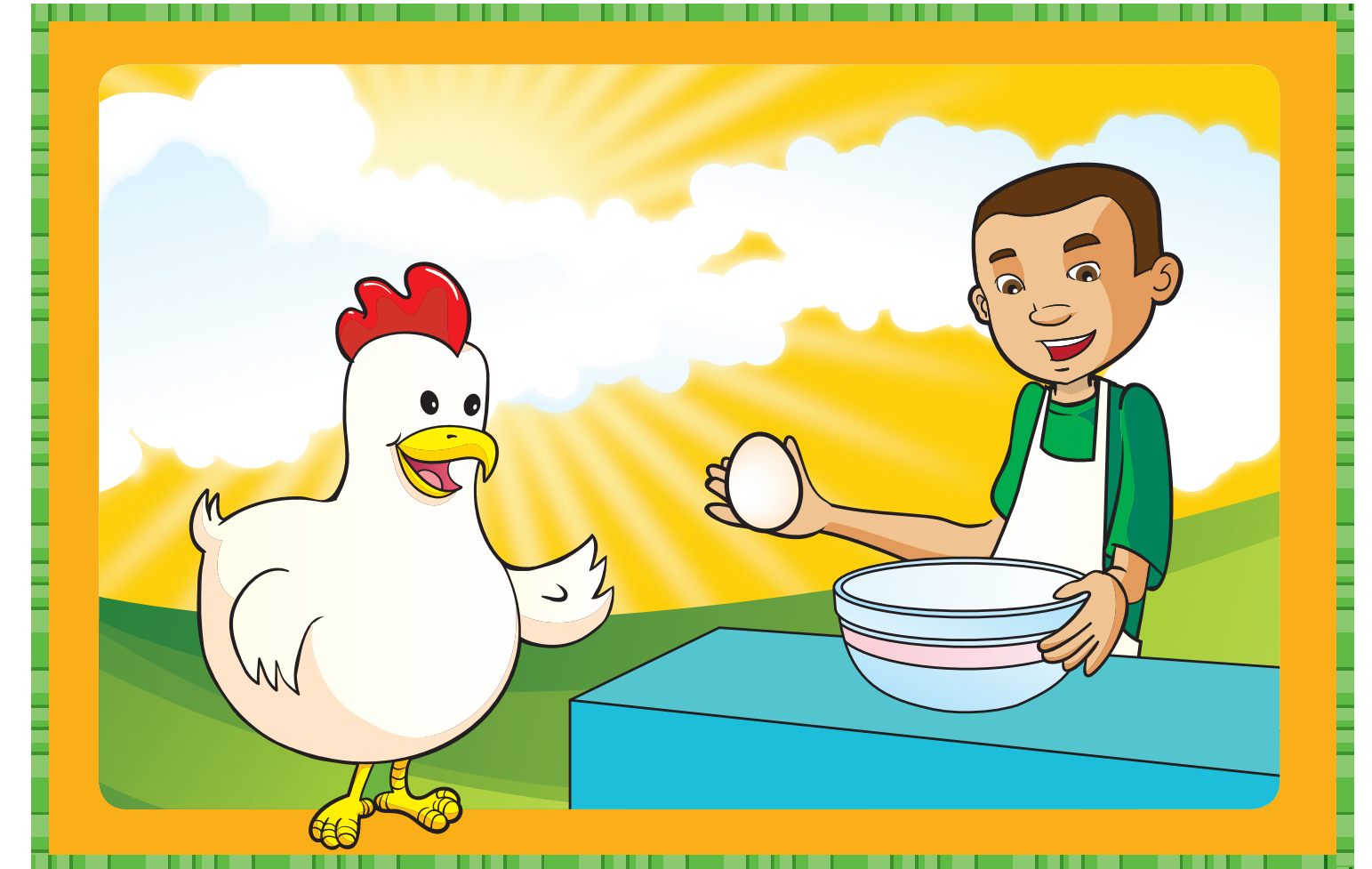
egg on your face  
egghead  
Don't put all your eggs in one basket.  
nest egg  
goose egg

Challenge students to find three examples in articles, photos, and comics or in ads in newspapers, magazines, or online. (L.3.5a)



## Teacher's Activity Guide and Answer Keys

Common Core Aligned



AEB.org/Educators



Page 1

Activities

- Project a copy of the egg diagram onto the board. Guide students to read the diagram; then have them explain how it relates to the rest of the text on the page. (RI.3.7; RI.4.7)
- After reviewing the parts of the egg, have students alphabetize the words.

**Answer Key:** air cell, chalazae, germinal disc, shell, shell membrane, thick albumen, thin albumen, vitelline membrane, yolk

Page 2 Answer Key

shell	This is the outer covering of the egg. It is made up mainly of calcium carbonate and may be white, cream, or brown, depending on the breed of the hen. The color does not affect an egg's quality, flavor, nutritional value, shell thickness, or how it cooks.
yolk	This is the yellow part of the egg. The color varies with the feed eaten by the hen but doesn't affect nutritional content. This egg part is a major source of the egg's vitamins, minerals, and fat and about half the protein.
chalazae	These are twisted, cordlike strands of egg white that hold the yolk in the center of the egg. Their presence indicates that the egg is fresh.
vitelline	The membrane that surrounds the yolk.
air cell	This pocket of air forms at the large end of the egg because of the contraction of the egg's contents as they cool after laying. It increases in size as the egg ages. (It forms at the large end because this end is more porous.)
thin albumen	This is the white part of the egg nearest the shell.
thick albumen	This white part is the major source of an egg's riboflavin and protein.
shell membrane	Two of these, an inner and an outer one, surround the albumen. They provide a protective barrier against bacterial entry; the air cell forms between them.

Activities

- Lead your students to examine the pros and cons of each of the methods of egg production. What major differences in feed control can they determine? How could this affect the nutritional value of the different eggs? (RI.4.1–3; RI.5.1–3)
- Have students monitor the newspaper or online sources for one week to see how many articles they can find about farming. (RI.3.2; RI.4.2; RI.5.2)

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Activity

- Review the main points of the food safety text. If desired, assign each small group a category below and have the students make a poster highlighting the main points. (RI.3.2; RI.4.2; RI.5.2)

Tips on Food Safety  
Storage:

- Refrigerate (do not freeze) eggs.
- Store them away from strong odors.
- Rotate them: first in, first out.

Handling:

- Wash your hands.
- Use clean, sanitized utensils and equipment.

Preparation:

- Cook eggs thoroughly.
- Keep cold egg dishes below 40°F.
- Keep hot egg dishes above 140°F.
- Never leave egg dishes at room temperature more than an hour.

More Information

Today's egg farmers are concerned about producing a safe product. While a variety of safety measures ensure the quality of their product, always practice safe food handling at home. Proper storage, preparation, and cooking all contribute to safe food handling.

- Remember to always store your eggs on the center shelf in the refrigerator in their original carton.
- Thoroughly clean your hands, as well as the surfaces and utensils that come into contact with raw egg—an important step to prevent cross-contamination.
- Separate eggs from other foods in your grocery cart, your shopping bag, and in the refrigerator to prevent cross-contamination.
- Eggs left at room temperature should be discarded after two hours (or after one hour in warm weather).
- Eggs should be cooked until the whites and yolks are firm or, for dishes containing eggs, until an internal temperature of 160°F is reached.

Page 4

Activities

- Have each student look in a dictionary for one of the vitamins or minerals listed. Ask students to share what they learn about their assigned word. (There are 22 items on the list). (L.4.4c; L.5.4c)
- Have children record the number of stories that are run in the newspaper or online over the course of a week about the human diet and current obesity issues. (RI.3.2; RI.4.2; RI.5.2)
- Review examples of protein sources. As a class, come up with three additional sources. Find these examples in newspapers, magazines, reference books, or online.
- Have students name food dishes (preferably something they've eaten recently). Look up the recipes to see how many contain eggs.

More Information

So What Does a Chicken Eat?

Corn, barley, brewer's grain, and soybeans are raised for chicken feed, which also contains limestone, vitamins, and minerals. These natural ingredients are grown and harvested and then trucked to feed mills. The feed mills create a computer-generated formula containing 10 to 20 percent protein. This amount of protein allows the hen to lay high-quality eggs. Healthy hens produce an egg every 24–26 hours.

Egg Grades

The USDA (United States Department of Agriculture) determines egg standards (grades) for interior and exterior quality. The most common grades are AA and A. Eggs graded AA have yolks and albumens that stand taller and firmer than those graded A. However, both grades AA and A have the same nutritional value. Also, Grade AA eggs are not available in all regions of the country.

Page 5 Answer Key

Solve for the number of ounces in the following number of eggs. Hint: Dividing by 12 will give you the weight of one egg.						
Number of Eggs	Jumbo	Extra Large	Large	Medium	Small	Peewee
1	2.5	2.25	2	1.75	1.5	1.25
2	5	4.5	4	3.5	3	2.5
3	7.5	6.75	6	5.25	4.5	3.75
4	10	9	8	7	6	5
5	12.5	11.25	10	8.75	7.5	6.25
6	15	13.5	12	10.5	9	7.5

