

The Nutritious Egg

Grade Level: 4-8

Lesson Overview

Eggs contain the highest quality protein known. It is second only to mother's milk for human nutrition. Eggs also have all 9 essential amino acids that a human body cannot manufacture. Learn more about this nutritional powerhouse.

Student Objectives

1. Read and interpret a nutrition label.
2. Show knowledge of the nutritional elements of an egg.

Materials

- ✓ The Nutritious Egg information sheet
- ✓ The Nutritious Egg worksheet

Vocabulary

- **amino acids:** any one of many acids that occur naturally in living things, including some which form proteins
- **nutrients:** a substance that provides nourishment essential for growth and maintenance of life
- **protein:** an essential nutrient responsible for building structural components of body tissues such as muscle, hair, and collagen

Background Information

See information sheet.

Procedure

Depending upon the knowledge of the students, the teacher may have to introduce a nutrition label and discuss some of the information provided on the label. Then assign the reading The Nutritious Egg information sheet, to be done in groups, individually or as a class. After reading the information, the students will complete The Nutritious Egg worksheet.

Additional Resources

- Eggs 101 Videos: [Eggs 101 - American Egg Board \(incredibleegg.org\)](http://www.incredibleegg.org)

Teacher's Guide for Eggs 101 Videos: An Egg's Journey from the Farm to our Tables: [Eggs101TeachersGuide.pdf \(wpengine.com\)](http://www.wpengine.com)

The American Egg Board has developed a collection of short videos that showcases an egg's journey from the hen house to our plates. This flexible series includes seven videos that give an in-depth explanation of an egg's journey; from the barn experience to environmental management and from the egg itself to the homes of families nationwide. These videos are suitable for learners in the middle grades (4th-8th). They introduce health and nutrition concepts as well as information about sustainable agricultural practices. They encourage vocabulary acquisition, expose students to career opportunities, and demonstrate ways in which technology has changed agriculture over time.

- American Egg Board's Egg Nutrition Resources & Recipes Toolkit: <https://www.incredibleegg.org/nutrition/nutrition-education-materials/>

This toolkit contains shareable resources highlighting the nutritional benefits of eggs. Inside you'll find a dozen topics that provide key information, research findings and examples of how eggs can be a practical nutrition solution.

- Eggs Contain Nutrients That Are Important For Health Infographic from Egg Nutrition Center: https://www.eggnutritioncenter.org/downloads/toolkits/Egg-Nutrients-for-Health_Final.pdf
- Illinois Agriculture in the Classroom Poultry Ag Mag: http://agintheclassroom.org/TeacherResources/AgMags/Poultry%20Ag%20Mag%20-%20Online%20Version%20Pages_3.26.2020.pdf
- Illinois Agriculture in the Classroom Poultry Ag Reader: http://agintheclassroom.org/TeacherResources/terra_nova_poultry.shtml

Standard

Illinois English Language Arts Standard

RI.6.7: Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.

The **M**ultidisciplinary **A**gricultural **I**ntegrated **C**urriculum (mAGic) was created in 2004 under the leadership of the Illinois State Board of Education (ISBE) and the Facilitating Coordination in Agricultural Education Project (FCAE). Funding was made available through the FCAE grant budget from the agricultural education line item of the ISBE budget. This revision, as printed, was developed in September 2021.



These mAGic lessons are designed to bring agriculture to life in your classroom. They address the Illinois Learning Standards in math, science, English language arts and social studies.

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The Nutritious Egg

Nutrition Facts			
Serving Size 1 egg (50g)			
Serving per Container 12			
Amount Per Serving			
Calories 70		Calories from Fat 40	
% Daily Value*			
Total Fat 4.5 g			7%
Saturated Fat 1.5 g			8%
Polyunsaturated Fat .5g			
Monounsaturated Fat 2.0g			
Cholesterol 215 mg			71%
Sodium 65 mg			3%
Potassium 60 mg			2%
Total Carbohydrate 1 g			0%
Protein 6g			10%
Vitamin A 6% • Vitamin C 0%			
Calcium 2% • Iron 4% • Thiamin 2%			
Riboflavin 15% • Vitamin B-6 4%			
Folate 6% • Vitamin B-12 8%			
Phosphorus 8% • Zinc 4%			
Not a significant source of Dietary Fiber or Sugars.			
*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.			
	Calories	2,000	2,500
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300 mg	300 mg
Sodium	Less than	2,400 mg	2,400 mg
Potassium		3,500 mg	3,500 mg
Total Carbohydrate		300g	375 g
Dietary Fiber		25g	30g
Protein		50g	65g
Calories per gram			
Fat 9 • Carbohydrate 4 • Protein 4			

Eggs are one of nature's most nutritious foods. One large egg contains only 70 calories and an incredible amount of nutrition. Whether the egg is brown or white in color, each egg contains eleven vitamins and fourteen minerals. Eggs are also high in protein. The protein found in eggs is the second-best source available, with the only greater source of protein being found in mother's milk. The nutrition label of a large chicken egg is shown here.

- ▶ Eggs are classified with meat and fish as a protein on USDA's MyPlate. A healthy diet can contain one egg a day.
- ▶ Eggs are produced by nature, not processed according to a man-made formula, and may differ somewhat in nutrient content based on the individual hen and her diet. For these reasons, the nutrition label for an egg is an approximation based on the findings of many eggs by nutritionists. To better understand the label, below are some of the listed nutrients and their value to the body.

Protein

Eggs contain all nine essential amino acids making them an excellent source of high-quality protein. Scientists frequently use eggs as a standard for measuring the protein quality of other foods. Protein quality is expressed as biological value, which measures the rate of efficiency that protein is used for growth. At 93.7% eggs score higher than any other food.

Carbohydrates

Carbohydrates provide the body with the fuel it needs for physical activity and for proper organ function.

Cholesterol

Cholesterol is a waxy, fat-like substance. It has many uses, including insulating nerve fibers, maintaining cell walls and producing vitamin D, digestive juices and certain hormones.

High blood cholesterol levels can increase your risk of heart disease. However, foods that contain cholesterol, such as meat, poultry, seafood, eggs and dairy products, do not automatically become blood cholesterol. The liver makes most blood cholesterol in our bodies.

Many foods that contain cholesterol are included in a healthy diet. Eliminating them from your diet would limit your intake of vitamins and minerals. Cutting back on fats, especially saturated fats, is thought to be a way of lowering your cholesterol level, rather than not eating foods that contain cholesterol.

Fats

Fats provide energy (calories) and essential fatty acids. Fat is needed to absorb the fat-soluble vitamins A, D, E and K and helps us recognize the feelings of fullness, so we do not overeat. All of the fat in an egg is found in the yolk.

Sodium

Sodium is necessary to maintain the balance of the physical fluids system of the body. It is also required for nerve and muscle functioning.

Potassium

Potassium assists in muscular contraction and maintains fluid and electrolyte balance in the body's cells. Potassium is also important in sending nerve impulses as well as releasing energy from protein, fats and carbohydrates during metabolism.

Vitamins

Vitamin A helps maintain healthy skin and eye tissue and assists with night vision.

Vitamin D helps keep bones and teeth strong and regulates calcium absorption.

Vitamin E acts as an antioxidant and protects Vitamins A and C. Thiamin helps the body release energy from carbohydrates.

Riboflavin is needed to metabolize proteins.

Niacin helps release energy and promotes normal nerve function. Vitamin B6 is needed to metabolize protein and form tissues.

Folate and Vitamin B12 aid in red blood cell formation. Pantothenic acid helps metabolize energy and form tissues. Calcium and phosphorus are used to make strong bones and teeth. Magnesium helps metabolize energy and form tissues and bones. Iron carries oxygen to the cells and keeps blood healthy.

Zinc helps the body metabolize energy and form tissues.

All of these nutrients are found in just one egg. The egg is a convenient and inexpensive source of many nutrients needed to have a healthy body. Maybe that's why it is frequently said that it is an "egg-cellent" source of nutrition.

Name _____

The Nutritious Egg Worksheet

1. What are two ways that you can change your diet to lower your cholesterol level?
2. How many milligrams of sodium does the average large chicken egg contain?
3. The total fat in a large chicken egg is 4.5 g. How many grams of that is saturated fat?
4. What nutrient is important in sending nerve impulses throughout our body?
5. If you had the choice of eating a hard-boiled egg or a chocolate chip cookie for a snack, which one would be the better choice for your body and why?
6. The school is thinking of putting hard boiled eggs into their lunch line. Do you think this is a good idea and why?

It may be difficult to compare the nutrients in various types of eggs because of the differences in their sizes. This table compares different types of whole eggs based on an equal portion, which is 100 grams.

Component	Chicken	Quail	Duck	Turkey	Goose
Calories	147	158	185	171	185
Total Fat	9.9 g	11.1 g	13.8 g	11.9 g	13.3 g
Saturated Fat	3.1 g	3.6 g	3.7 g	3.6 g	3.6 g
Cholesterol	423 mg	844 mg	884 mg	933 mg	852 mg
Protein	12.6 g	13.1 g	12.8 g	13.7 g	13.9 g
Calcium	53 mg	64 mg	64 mg	99 mg	60 mg
Iron	1.8 mg	3.6 mg	3.8 mg	4.1 mg	3.6 mg

Use the above information to answer questions 7 – 9

7. How can this table compare eggs that are of such different sizes?

8. What is the average amount of cholesterol in the eggs listed? Be sure to show your work.

9. What percent of the total fat is saturated fat in a goose egg? Show your work.

10. Why is it important for nutrition labels to be used on packages of food?

The Nutritious Egg ANSWER KEY

1. What are two ways that you can change your diet to lower your cholesterol level?

Eating foods that are low in fats, especially saturated fats. Watching how much cholesterol you are eating daily.

2. How many milligrams of sodium does the average large chicken egg contain?

65 mg of sodium is in the average large egg.

3. The total fat in a large chicken egg is 4.5 g. How many grams of that is saturated fat?

1.5 g of saturated fat are found in the average large egg.

4. What nutrient is important in sending nerve impulses throughout our body?

Potassium is the nutrient that sends nerve impulses throughout the body.

5. If you had the choice of eating a hard-boiled egg or a chocolate chip cookie for a snack, which one would be the better choice for your body and why?

The hard-boiled egg, as it contains so much protein and does not have a significant amount of sugar.

6. The school is thinking of putting hard boiled eggs into their lunch line. Do you think this is a good idea and why?

The students would have a good protein choice and they would be easy to eat.

It may be difficult to compare the nutrients in various types of eggs because of the differences in their sizes. This table compares different types of whole eggs based on an equal portion, which is 100 grams.

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7. How can this table compare eggs that are of such different sizes?

The table compares different types of whole eggs based on an equal portion, which is 100 grams.

8. What is the average amount of cholesterol in the eggs listed? Be sure to show your work.

***423+844+884+933+852 =3936
3936/5 = 787.2 mg is the average amount of cholesterol***

9. What percent of the total fat is saturated fat in a goose egg? Show your work.

3.6/13.3=0.27 or 27%

10. Why is it important for nutrition labels to be used on packages of food?

Many people need to know what the content of a food is because of their diets or allergies.