

Dear Educator,

Sustainability is a key concept in 21st-century learning. This program, from the egg nutrition professionals at the American Egg Board and the award-winning curriculum specialists at Young Minds Inspired, offers a unique way for students to understand how the practices employed by egg farmers that reduce environmental impacts and conserve resources, particularly water and energy, support the role of sustainability in protecting the planet while still meeting the food and nutrition needs of the population.

Developed as a complement to the AEB's existing *Hen to Home* teaching kit, this program looks at connections between the economy, the environment, and society, showing how technological innovation in the production process has reduced the egg farmer's environmental footprint. Students will learn that innovations in egg farming are a shining example of sustainable agriculture, making eggs a welcome component of a sustainable approach to a healthy lifestyle.

We hope you will find these lessons helpful in supplementing the valuable resources already available at aeb.org/educators and at the AEB's companion site, incredibleegg.org. Be sure to check back periodically for updates. Although the materials are copyrighted, you may make as many copies as needed for educational purposes.

Please comment online at ymiclassroom.com/feedback-egg-board to provide feedback. We look forward to hearing from you.

Sincerely,



Dr. Dominic Kinsley
Editor in Chief
Young Minds Inspired



For questions, contact us toll-free at 1-800-859-8005 or by email at feedback@ymiclassroom.com.

Target Audience

Middle school students in Science classes.

Program Objectives

- Educate students about how the agriculture methods employed by U.S. egg farmers support environmental sustainability.
- Reinforce how the nutritional benefits of eggs help consumers sustain a healthier lifestyle.
- Interest students in careers in agriculture.

Standards Alignment

This program aligns with National Science Standards, Next Generation Science Standards, and Common Core State Standards for English Language Arts. For details, visit ymiclassroom.com/egg-board.

How to Use This Program

Download and photocopy this teacher's guide and the three activity sheets, and review the materials for each activity in advance.

Activity 1

Sustainability, an Egg-cellent Idea

PART 1. Allow students time to research the three pillars of sustainability and how this concept has been applied in different branches of agriculture.

- **Three pillars of sustainability** — 1. *Environmental*: stewardship of our nation's land, air, and water; 2. *Social*: improved quality of life for farmers, ranchers, and their communities; 3. *Economic*: profit over the long term.
- **Examples of sustainable agriculture** — a cattle rancher rotating grazing pastures to better manage soil and water; a crop farmer using crop rotation to break up pest cycles, improve soil fertility, and cut costs; a fruit and vegetable grower selling directly to restaurants in a nearby city to gain a larger share of the consumer food dollar.

Use this information to lead a class discussion about student responses to the sustainability points in the chart:

1. Sustainable agriculture is good for the planet, because it seeks to conserve natural resources upon which all people depend, no matter where they live.
2. The U.S. Geological Service states that only 2.5% of Earth's water is fresh water. Of that amount, only a little more than 1.2% is surface water, but not all surface water is accessible and usable for humans.¹
3. U.S. farmers increasingly rely on technology to make production and harvest systems more efficient to meet the needs of a growing population.

PART 2. Help students review the data on the sites listed to cite examples of how today's egg farmers support the three pillars of sustainability, e.g., reduced use of energy and water saves money and natural resources, in turn reducing greenhouse gas emissions and the industry's environmental footprint, and initiatives such as the Good Egg Project help feed hungry neighbors. Have students

¹ *The World's Water*, <http://water.usgs.gov/edu/earthwherewater.html>

² www.aeb.org/images/ImagesArticles/AmericanEggBoard_infographic_full.png

Food for Thought

share their findings in a classroom discussion.

PART 3. Guide a class discussion about everyday actions that show sustainability, e.g., practicing the 3R's (reduce, reuse, recycle), conserving energy by unplugging appliances not in use, conserving water by taking shorter showers, protecting soil and pollinators by not using pesticides, growing a garden, supporting community agriculture, etc. Have students share their written responses with one another.

Activity 2

Good Eggs

Teachers of younger students may share the infographic on an overhead projector to help students complete the activity as a group. Teachers of older students may wish to have students work independently.

Scenario Answers²

1. Taking better care of hen health, nutrition, and living environments.
2. Today's egg farmers use 32% less water than in 1960.
3. Taking 5.2 million cars off the road for a year.



Activity 3

The Incredible, Sustainable Egg

Explain that students will work in teams to find relatable information on both sustainable agricultural practices in egg farming and the nutrition in eggs that helps sustain good health in order to create a poster or infographic.

Help students prepare by discussing infographics found at aeb.org and incredibleegg.org, as well as from other sources you may regularly use. Point out that posters and infographics offer a creative way to bring images and information together. Older students may opt to create a digital infographic, while younger students may produce a poster.

Plan time for student research, creative brainstorming, and outlining of ideas. Post student work in the classroom or on the class blog and/or throughout the school.

Resources

- ymiclassroom.com/egg-board
- American Egg Board: aeb.org
- Egg Nutrition Center: eggnutritioncenter.org
- Incredible Egg: incredibleegg.org
- Sustainable Agriculture Research & Education: sare.org
- USDA National Institute of Food and Agriculture: <https://nifa.usda.gov>
- U.S. Geological Service: <http://water.usgs.gov/edu/earthwherewater.html>

Sustainability, an Egg-cellent Idea

PART 1. The U.S. egg farming industry has significantly decreased its environmental footprint in the past 50 years, enabling egg farmers to meet consumer demands in an increasingly responsible way that embraces the practices associated with *environmental sustainability*.³

Environmental sustainability is one of the “Three Pillars of Sustainability.” Use these resources to learn more about this

concept and how it has been adopted in agriculture.

Resources

- Three Pillars of Sustainability — circularrecology.com/sustainability-and-sustainable-development.html#V2mYEa48BdY
- Definition/examples of sustainable agriculture — sare.org/Learning-Center/SARE-Program-Materials/National-Program-Materials/What-is-Sustainable-Agriculture



Now mark these statements according to how much you agree or disagree with each:

Sustainability Points	Agree	Uncertain	Disagree
1. People living in urban areas do not need to be concerned with sustainable agriculture.			
2. Water savings in agriculture will never be a problem, because water is constantly recycled in nature.			
3. As the population increases, technology can make it easier for farmers to practice sustainable methods.			

PART 2. Two ways in which egg farmers practice environmental sustainability relate to savings in water and energy. Review the information at these links and then write your ideas about how egg farming practices reflect the Three Pillars of Sustainability.

- incredibleegg.org/where-eggs-come-from/reducing-our-environmental-footprint
- incredibleegg.org/wp-content/uploads/infographic-emissions.pdf
- incredibleegg.org/wp-content/uploads/infographic-water.pdf



PART 3. You may not be an egg farmer but, as a citizen of the planet, you can still play a part in environmental sustainability. Use the back of this paper to write some examples of how you practice sustainability in your everyday world.

³www.aeb.org/food-manufacturers/eggs-product-overview/why-eggs/98-cwhite-papers/469-bthe-egg-sustainability

Good Eggs

EGGS ARE GOOD FOR YOUR HEALTH, so it's important that the hens providing them stay healthy as well. Nurturing healthy hens depends on the right diet, housing, lighting, water, and overall living conditions. Sustainable agriculture practices help egg farmers not only keep hens healthy, but also help hens produce high-quality eggs for consumers.

Put yourself in the chick's nest below to chat about some ways egg farmers have reduced their environmental footprint over the past 50 years. Use the Egg Farmers Environmental Impact infographic found at aeb.org/images/imagesArticles/AmericanEggBoard_infographic_full.png and the other side of this paper, if needed, to complete the responses — and give your chick her own unique vocal “personality”!



We're lucky chicks!
Back in my grand-hen's day, things sure were different.

Yes, I know.
I have been learning all about it in the henhouse!

1

Let's see what you've learned.
Can you name three ways farmers are helping us live longer to produce more eggs for people?

3

I'm gonna lay another one on you! Our farm produces less waste now than it did in 1960 – in fact, greenhouse gas emissions are 71% lower.⁵ That's equal to what?

2

Wow, you're one smart chick! How much less water do egg farmers use today than they did in 1960 to take care of us?⁴

Looks like someone's been paying attention in class!
You really know how farmers are working hard to keep us hens and the planet happy!

^{4,5}www.aeb.org/images/imagesArticles/AmericanEggBoard_infographic_full.png

© 2016 YMI, Inc.