

HARVEST OF THE MONTH - APRIL / LEAFY GREENS

Grades 6-8

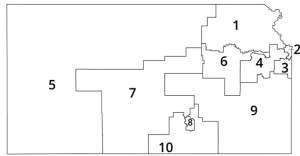


Kansas leads the world in the success of each student.

JULY 18, 2025



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SUCCESS DEFINED

A successful Kansas high school graduate has the

- Academic preparation,
- Cognitive preparation,
- Technical skills,
- Employability skills and
- Civic engagement

to be successful in postsecondary education, in the attainment of an industry recognized certification or in the workforce, without the need for remediation.

OUTCOMES

- Social-emotional growth
- Kindergarten readiness
- Individual Plan of Study
- Civic engagement
- Academically prepared for postsecondary
- High school graduation
- Postsecondary success



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MISSION

To prepare Kansas students for lifelong success through rigorous, quality academic instruction, career training and character development according to each student's gifts and talents.

VISION

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July 1, 2025

HARVEST OF THE MONTH

April / Leafy Greens

INTRODUCTION

Over the next few weeks, we will be learning about a kind of food that we harvest in Kansas. I'm going to give you some clues to see if you can guess what this food is.

- This food is rich in iron which helps you stay active and alert.
- It is packed with vitamins A, C, K and B which helps us have healthy skin, eyes and bones and have lots of energy.
- It has fiber to help us have good digestion.
- They boost our immunity which helps keep us from getting sick.
- They also help us to have healthy grown both for our bodies and our minds.
- This type of food can be found in salads
- They can be eaten raw, boiled, stir-fried, and steamed
- These green vegetables are made up of leaves.

Can you guess what food I'm talking about? We will be learning about Leafy Greens!

Some leafy green foods are iceberg lettuce, cabbage, spinach, collard greens, and kale. Have you eaten any of these?



VOCABULARY

Leafy Greens

Vertical Farming

Hydroponics

Yield

GENERAL RESOURCES

USDA ARS¹

PhysOrg²

ENGAGE

To engage students in the study of leafy greens, start by showing them a variety of leafy greens (pictures or samples) and discuss why they might be called “super foods.” Be sure to mention nutrients, vitamins, and fiber content as possible reasons. Then show students where and how leafy greens have traditionally been produced and harvested. Bring attention to the amount of space, water, and transportation needs for leafy greens and then ask “how can we feed billions of people the leafy greens that they need?” Write student questions on the board, or chart paper for future reference.

EXPLORE

In this step, students will read and annotate various articles to learn more about growing leafy greens in space. Use AI to help modify and/or differentiate the reading in this lesson. One suggestion is “Diffit” found here: <https://web.diffit.me/> You can enter the URLs and choose appropriate grade level summaries, questions, graphic organizers, and more. To facilitate collaboration in the classroom, it is suggested to use a cooperative learning strategy called a “jigsaw.” In a jigsaw discussion³, students will become experts in 1 of a few pre-determined topics, and then share their findings in a meaningful, purposeful way.

- Vertical Farming- No Longer a Futuristic Concept⁴
- Pittsburg (KS) Hydroponic Farm⁵

1 <https://www.ars.usda.gov/>

2 <https://phys.org/news/2021-04-dna-lettuce-unraveled-years-weed.html>

3 <https://www.adlit.org/in-the-classroom/strategies/jigsaw#:~:text=The%20jigsaw%20strategy%20divides%20large,a%20fun%20way%20to%20learn!>

4 <https://www.ars.usda.gov/oc/utm/vertical-farming-no-longer-a-futuristic-concept/>

5 <https://www.fourstateshomepage.com/local-news/pittsburg-news/ffa-members-peer-into-future-of-agriculture-at-pittsburg-hydroponic-farm/>

- The Ultra-Efficient Farm of the Future Is In the Sky⁶
- Future Proofing Agriculture⁷

EXPLAIN

At this stage of the lesson, students should be able to answer one or more of the investigation questions. To engage students in discussion consider using a scientist circle. To learn more watch an example of scientist circles⁸. Considerations could include sustainable farming practices and the importance of animal welfare.

ELABORATE

Have students research how robots ⁹ are being used to increase productivity and reduce waste in a variety of food crops.

KANSAS SCIENCE STANDARDS ADDRESSED

MS. Matter and Energy in Organisms and Ecosystems

Students who demonstrate understanding can:

MS-LS1-6

Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms

Clarification Statement:

Emphasis is on tracing movement of matter and flow of energy.]

Assessment Boundary

Assessment does not include the biochemical mechanisms of photosynthesis

The performance expectations above were developed using the following elements from the NRC document A Framework for K-12 Science Education.

6 <https://www.wired.com/story/the-ultra-efficient-farm-of-the-future-is-in-the-sky/>

7 <https://www.theguardian.com/environment/2022/aug/17/indoor-vertical-farms-agriculture>

8 <https://www.edutopia.org/video/scientists-circle-encouraging-collaboration/>

9 <https://www.cleantech.com/how-crop-robotics-can-make-our-food-system-more-sustainable/>

Science and Engineering Practices**Constructing Explanations and Designing Solutions**

Constructing explanations and designing solutions in 6–8 builds on K–5 experiences and progresses to include constructing explanations and designing solutions supported by multiple sources of evidence consistent with scientific knowledge, principles, and theories.

- Construct a scientific explanation based on valid and reliable evidence obtained from sources (including the students' own experiments) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future.

Connections to Nature of Science**Scientific Knowledge is Based on Empirical Evidence**

- Science knowledge is based upon logical connections between evidence and explanations.

Disciplinary Core Ideas**LS1.C: Organization for Matter and Energy Flow in Organisms**

- Plants, algae (including phytoplankton), and many microorganisms use the energy from light to make sugars (food) from carbon dioxide from the atmosphere and water through the process of photosynthesis, which also releases oxygen. These sugars can be used immediately or stored for growth or later use.

PS3.D: Energy in Chemical Processes and Everyday Life

- The chemical reaction by which plants produce complex food molecules (sugars) requires an energy input (i.e., from sunlight) to occur. In this reaction, carbon dioxide and water combine to form carbon-based organic molecules and release oxygen. (secondary)

Crosscutting Concepts**Energy and Matter**

- Within a natural system, the transfer of energy drives the motion and/or cycling of matter.

A sample of Kansas ELA Standards addressed in this unit is listed below. For details and specific grade level standard alignment, see: Kansas 2023 English Language Arts Standards

Reading Foundations: Standard 3; using grade-level phonics and word reading skills

Reading Literature: Standard 1; asking and answering questions about a text

Reading Literature: Standard 4; word meaning/ word choice

Reading Information: Standard 3; Describe the relationship between historical events, scientific ideas, or concepts

Reading Information: Standard 12; word meaning/ nuances

Writing: Standard 3; writing effective narratives to share experiences/ information with effective word choice and relevant details

Speaking and Listening: Standard 4; effectively presenting ideas and detailed/ sequenced descriptions with others

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