

HARVEST OF THE MONTH - APRIL / LEAFY GREENS

Grades 9-12

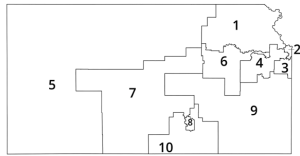


Kansas leads the world in the success of each student.

JULY 17, 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

Kansans leads the world in the success of each student.

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Kansas leads the world in the success of each student.

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

Habitat

Resources

Radiation

GENERAL RESOURCES

NASA¹

ENGAGE

Leafy greens are a part of a balanced, healthy diet for all humans including those traveling to or living in space. However, growing leafy greens in space can be challenging. Engage students with this phenomenon by creating stations or a slide deck containing pictures of leafy greens growing in space and on Earth. A few space pictures are provided below.



1 <https://www.nasa.gov/>

Have students record their observations in a “Notice/ Wonder” chart in their science notebooks. Provide support by asking questions about the similarities and differences in the environments and elicit background knowledge of space conditions compared to conditions on Earth (gravity, radiation, water, etc.) Have students share their wonderings with partners and/or as a class. Record student questions on a Driving Question Board that is visible to the class.

EXPLORE

In this step, students will read and annotate various articles to learn more about growing leafy greens in space. It is suggested to use a cooperative learning strategy called a “Jigsaw.” In a Jigsaw discussion², students will become experts in 1 of a few pre-determined topics, and then share their findings in a meaningful, purposeful way.

Is lettuce grown in space nutritious and safe to eat?³

Growing Plants in Space⁴

Salads Grown in Space May Pose a Deadly Problem⁵

Seeds Undergo Radiation in Space to Explore Biology and Genetics for Enhanced Food Security⁶

EXPLAIN

At this point in the lesson, students will follow the Jigsaw procedure to “teach” their group members what they’ve learned. Students will need to listen closely to the information shared by their partners regarding the patterns and common factors they noticed in the reading. Students will then make a claim based on evidence to answer the chosen question.

Learn more about how to support students in generating a CER visit⁷.

High School Template⁸

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

3 <https://sciworthy.com/is-lettuce-grown-in-space-nutritious-and-safe-to-eat/>

4 <https://www.nasa.gov/exploration-research-and-technology/growing-plants-in-space/>

5 <https://www.sciencealert.com/salads-grown-in-space-may-pose-a-deadly-problem>

6 <https://www.iaea.org/newscenter/news/seeds-undergo-radiation-in-space-to-explore-biology-and-genetics-for-enhanced-food-security>

7 <https://www.edutopia.org/blog/science-inquiry-claim-evidence-reasoning-eric-brunsell>

8 <https://ambitiousscienceteaching.org/claim-evidence-reasoning-template-high-school/>

ELABORATE

The Vegetable Production System (Veggie) can simulate space conditions to test the growth of vegetables in space. Have students research and report on the growing lab located on the International Space Station.⁹

KANSAS SCIENCE STANDARDS ADDRESSED

HS. Ecosystems: Interactions, Energy, and Dynamics

Students who demonstrate understanding can:

HS-LS2-8

Evaluate the evidence for the role of group behavior on individual and species' chances to survive and reproduce

Clarification Statement:

Emphasis is on:

- (1) distinguishing between group and individual behavior
- (2) identifying evidence supporting the outcomes of group behavior, and
- (3) developing logical and reasonable arguments based on evidence. Examples of group behaviors could include flocking, schooling, herding, and cooperative behaviors such as hunting, migrating, and swarming.]

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

Science and Engineering Practices**Engaging in Argument from Evidence**

Engaging in argument from evidence in 9–12 builds on K–8 experiences and progresses to using appropriate and sufficient evidence and scientific reasoning to defend and critique claims and explanations about the natural and designed world(s). Arguments may also come from current scientific or historical episodes in science.

- Evaluate the evidence behind currently accepted explanations to determine the merits of arguments.

Connections to Nature of Science

Scientific Knowledge is Open to Revision in Light of New Evidence

- Scientific argumentation is a mode of logical discourse used to clarify the strength of relationships between ideas and evidence that may result in revision of an explanation.

Disciplinary Core Ideas**LS2.D: Social Interactions and Group Behavior**

- Group behavior has evolved because membership can increase the chances of survival for individuals and their genetic relatives.

⁹ <https://www.issnationallab.org/expedition-space-lab-plants-in-space/>

Crosscutting Concepts**Cause and Effect**

- Empirical evidence is required to differentiate between cause and correlation and make claims about specific causes and effects.

HS-LS4-5

Evaluate the evidence supporting claims that changes in environmental conditions may result in: (1) increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species

Clarification Statement:

Emphasis is on determining cause and effect relationships for how changes to the environment such as deforestation, fishing, application of fertilizers, drought, flood, and the rate of change of the environment affect distribution or disappearance of traits in species

Science and Engineering Practices**Engaging in Argument from Evidence**

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- Evaluate the evidence behind currently accepted explanations to determine the merits of arguments.

Disciplinary Core Ideas**LS4.C: Adaptation**

- Changes in the physical environment, whether naturally occurring or human induced, have thus contributed to the expansion of some species, the emergence of new distinct species as populations diverge under different conditions, and the decline—and sometimes the extinction—of some species
- Species become extinct because they can no longer survive and reproduce in their altered environment. If members cannot adjust to change that is too fast or drastic, the opportunity for the species' evolution is lost.

Crosscutting Concepts**Cause and Effect**

- Empirical evidence is required to differentiate between cause and correlation and make claims about specific causes and effects.

A sample of Kansas ELA Standards addressed in this unit are listed below. For details and specific grade level

GRADES 9-12

standard alignment, see Kansas 2023 English Language Arts Standards.¹⁰

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 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

Research to Build and Present Knowledge: Standard 7,8,9

¹⁰ [https://www.ksde.gov/Portals/0/CSAS/Content%20Area%20\(A-E\)/English_Language_Arts/Kansas%20Standards%20for%20English%20Language%20Arts.pdf?ver=2023-05-17-150345-123](https://www.ksde.gov/Portals/0/CSAS/Content%20Area%20(A-E)/English_Language_Arts/Kansas%20Standards%20for%20English%20Language%20Arts.pdf?ver=2023-05-17-150345-123)

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