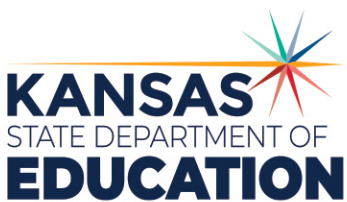


HARVEST OF THE MONTH - JULY / WHEAT & GRAINS

Grades 3 - 5



Kansas leads the world in the success of each student.

SEPTEMBER 30, 2024

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

Kansas leads the world in the success of each student.

MOTTO

Kansans Can

SUCCESS DEFINED

A successful Kansas high school graduate has the

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

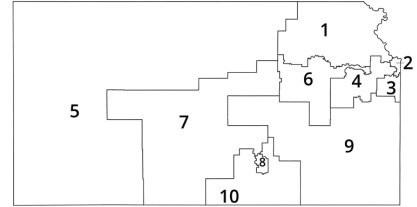
to be successful in postsecondary education, in the attainment of an industry recognized certification or in the workforce, without the need for remediation.

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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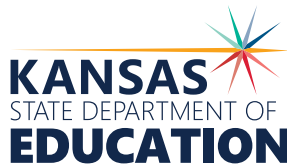


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Jan. 25, 2024

HARVEST OF THE MONTH

July / Wheat & Grains

INTRODUCTION

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

- This food is a member of the grass family.
- it produces a dry one-seeded fruit called a kernel.
- They are high in fiber
- We usually grind them up to make flour.
- Show picture.

Can you guess what food I'm talking about? We will be learning about wheat and grains!



VOCABULARY

Seed: a fertilized ripened part of a flowering plant that is capable of producing a new plant.

Endosperm: The tissue part of a seed that serves as a food source for the developing plant

Germ: The center part or embryo of a grain that is separated in milling as an oily flake and used as a source of protein

Function: The role or job a specific structure plays

Bran: The outermost and protective coating of a wheat kernel

Structure: A part that has a specific function

Whole Grain: A whole grain includes all of the parts of the grain. Including the bran, endosperm and germ. A food may be considered a whole grain even after being processed (crushed, cracked, rolled, etc.) as long as all parts of the grain are found in the food product. An example of this might be whole grain spaghetti.

GENERAL RESOURCES

Kansas Wheat¹

Whole Grain Council²

ENGAGE

To engage students in this topic start by reading students the nursery rhyme “Mary, Mary, Quite Contrary”.

Mary, Mary, quite contrary,
How does your garden grow?
With silver bells, and cockle shells,
And pretty maids all in a row.

Take a moment to help students navigate complex vocabulary words such as “contrary” and “cockle shells”. Consider asking students “why might Mary have been considered ‘contrary?’” It is anticipated that students would share responses such as “you don’t plant bells and shells to grow plants”. If students are not sharing responses along these lines, prompting their thinking would be appropriate.

EXPLORE

After students have interacted with what types of things are not needed from the rhyme, have students create an anchor T chart with plants they might have experienced in a garden on one side of the chart. On the other side of the T chart have students add what plants they have experienced growing in gardens or fields. Next, have

1 <https://kswheat.com/>

2 <https://wholegrainscouncil.org/>

4 | Kansas State Department of Education | www.ksde.org

students use the information from the T chart to interact with the rhyme again by rewriting it with their name and understanding of how plants grow. This sheet provides an outline for students.³

EXPLAIN

At this step, remind students that all plants need water, sunlight and carbon dioxide to grow. Typically we think about planting gardens and crops during the spring months; but, other crops have other needs. An example is winter wheat. Winter wheat is one of the most common crops in Kansas! Provide students the opportunity to learn more about this crop by reading “Teaching Winter Wheat” a free e-comic provided from www.agfoundation.org⁴. If students need additional support in reading, consider utilizing a read-a-loud⁵. Ask students to reflect on why this particular crop is planted in the fall/winter. Their answer should include things like “their roots need time to grow deep.” If time allows this concept of deep roots could also be connected to the history of winter wheat being brought to Kansas in the 19th century as a “cash crop” and that was made possible with additional research from Kansas State University.

ELABORATE

Have students revisit their poems and revise if needed. Student can learn more about wheat in Kansas by using the “Wheat Kids Connection Magazine.”⁶

KANSAS SCIENCE STANDARDS ADDRESSED

K-LS1 From Molecules to Organisms: Structures and Processes

Students who demonstrate understanding can:

3-LS1-1

Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.

Clarification Statement:

Changes organisms go through during their life form a pattern.] [Assessment Boundary: Assessment of plant life cycles is limited to those of flowering plants. Assessment does not include details of human reproduction.

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

3 <https://docs.google.com/document/d/1MKcd82czhLoYY4Xadki8WAG0NC7UCWcB8ETIII8UFpl/edit?usp=sharing>

4 https://www.agfoundation.org/files/Winter_Wheat.pdf

5 <https://www.youtube.com/watch?v=SACcRmjHmc>

6 <https://www.shawnee.k-state.edu/schoolenrichment/school-enrichment/wheatbreadscience/Wheat-Kids-Connection-Magazine.pdf>

Science and Engineering Practices

Developing and Using Models

Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions

- Develop models to describe phenomena. (3-LS1-1)

Connections to Nature of Science

Scientific Knowledge is Based on Empirical Evidence

- Science findings are based on recognizing patterns. (3-LS1-1)

Disciplinary Core Ideas

LS1.B: Growth and Development of Organisms

- Reproduction is essential to the continued existence of every kind of organism. Plants and animals have unique and diverse life cycles. (3-LS1-1)

Crosscutting Concepts

Patterns

- Patterns of change can be used to make predictions. (3-LS1-1)

K-LS1 From Molecules to Organisms: Structures and Processes

Students who demonstrate understanding can:

4-LS1-1.

Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

Clarification Statement:

Examples of structures could include thorns, stems, roots, colored petals, heart, stomach, lung, brain, and skin.

Assessment Boundary: Assessment is limited to macroscopic structures within plant and animal systems.

4-LS1-2.

Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.

Clarification Statement:

Emphasis is on systems of information transfer.

Assessment Boundary: Assessment does not include the mechanisms by which the brain stores and recalls information or the mechanisms of how sensory receptors function.

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

Developing and Using Models

Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions.

- Use a model to test interactions concerning the functioning of a natural system. (4-LS1-2)

Engaging in Argument from Evidence

Engaging in argument from evidence in 3–5 builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s).

- Construct an argument with evidence, data, and/or a model. (4-LS1-1)

Disciplinary Core Ideas

LS1.A: Structure and Function

- Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction. (4-LS1-1)

LS1.D: Information Processing

- Different sense receptors are specialized for particular kinds of information, which may be then processed by the animal's brain. Animals are able to use their perceptions and memories to guide their actions. (4-LS1-2)

Crosscutting Concepts

Systems and System Models

- A system can be described in terms of its components and their interactions. (4-LS1-1), (LS1-2)

5-LS1 From Molecules to Organisms: Structures and Processes

Students who demonstrate understanding can:

5-LS1-1

Support an argument that plants get the materials they need for growth chiefly from air and water

Clarification Statement:

Emphasis is on the idea that plant matter comes mostly from air and water, not from the soil.

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 3–5 builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s).

- Support an argument with evidence, data, or a model.

Disciplinary Core Ideas

LS1.C: Organization for Matter and Energy Flow in Organisms

- Plants acquire their material for growth chiefly from air and water.

Crosscutting Concepts

Energy and Matter

- Matter is transported into, out of, and within systems.

A sample of Kansas ELA Standards addressed in this unit are 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 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

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