

HARVEST OF THE MONTH - AUGUST / MELONS

Grades 6-8

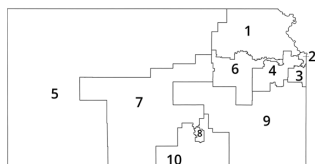


Kansas leads the world in the success of each student.

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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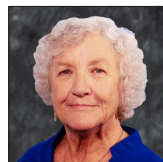
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MISSION

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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Kansas leads the world in the success of each student.

July 1, 2025

HARVEST OF THE MONTH

August / Melons

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.

- These are a large, round, sweet fruit with a thick rind that have a fragrant, juicy inside that is usually eaten fresh.
- A thick peel on the outside of fruit that protects it.
- They feel quite heavy for their size and can weigh anywhere from 1 to 50 pounds.
- They are a good source of Vitamin A which helps keep your eyes and skin healthy and Vitamin C which helps fight off germs.
- They grow on a vine.
- They contain lots of water.
- The most common types in Kansas are cantaloupe, honeydew, and watermelon.
- Show picture.

What do you think this fruit might be? We will be learning about melons!



VOCABULARY

Chromosome: any of the threadlike DNA-containing structures of cellular organisms that are located in the nucleus of eukaryotic cells

Mitosis: A process that takes place in the nucleus of a dividing cell that results in the formation of identical nuclei

Meiosis: A process that occurs in gamete-producing cells that results in the reduction of the number of sets of chromosomes

Colchicine: A poisonous substance that inhibits mitosis

Polyploid: A condition in which an organism has a chromosome number that is greater than two times the normal number of sets

Hybrid: An offspring of plants or animals of different breeds, varieties, or species

Fertile: Capable of breeding or reproducing

Sterile: Failing to produce or incapable of producing offspring

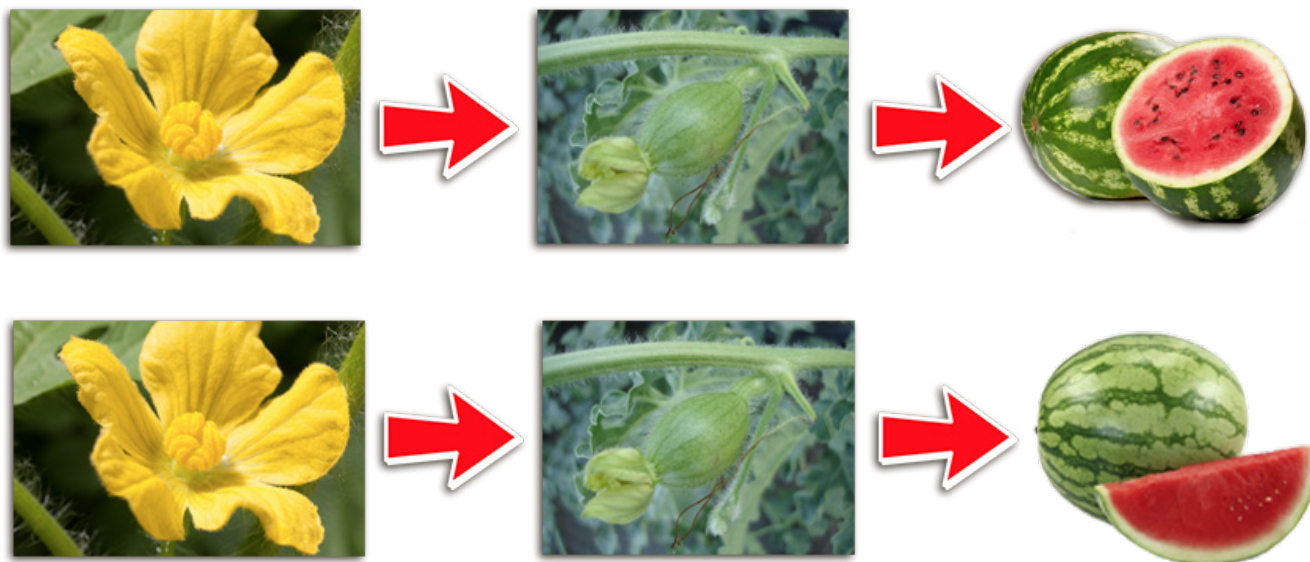
GENERAL RESOURCES

American Farm Bureau Foundation for Agriculture¹

Global Review of Watermelon Pollination Biology and Ecology²

ENGAGE

In this lesson, students will model meiosis in seeded and seedless watermelon to explain how each is produced. To familiarize students with the melons, show pictures of, or bring in fresh watermelon with both seeds and no seeds. Have students create a notice / wonder chart in their science notebooks to record their observations and questions. Tell students that seedless watermelons are sterile and unable to reproduce because they are hybrids. Have students think about why hybrids would be produced and what conditions would help create them.



1 <https://www.agfoundation.org/news/where-does-seedless-watermelon-come-from>

2 <https://www.sciencedirect.com/science/article/abs/pii/S0304423820303216>

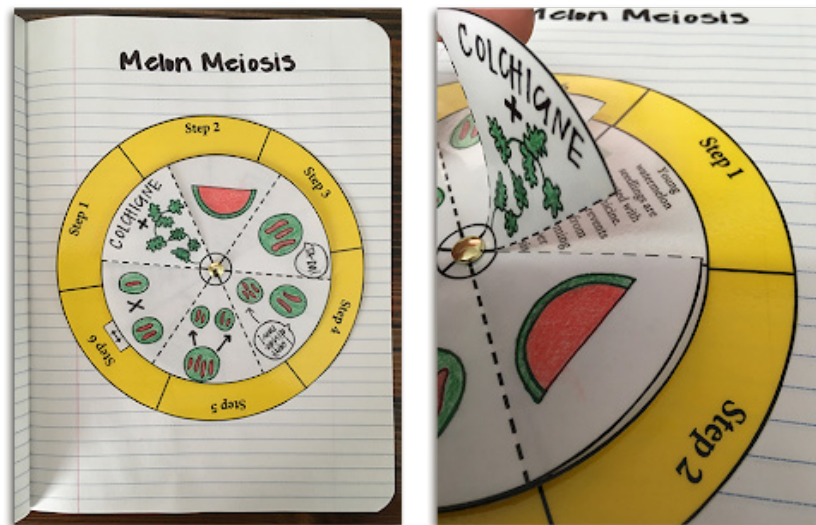
EXPLORE

To start this section, students will need to build knowledge about mitosis, meiosis, polyploidy, and a chemical called colchicine. Use the links below to set up collaborative learning stations around your room. This can be done with QR codes, printing off the readings, or even virtually in a shared slide deck. Have students use a graphic organizer to jot down what they learned and what questions they have at each station.

- Watermelon Mitosis³
- Watermelon Meiosis⁴
- Seedless Watermelon video⁵
- Seedless Watermelon Production⁶

EXPLAIN

At this stage of the lesson, students will be able to explain how to produce a seedless watermelon using a visual aid called a Melon Meiosis wheel⁷. Instructions for building the wheel are found below.



1. Pass out a Seedless Melon Meiosis Wheel to each student.
2. Instruct students to color and illustrate a picture in each of the blank spaces representing each description and step of seedless watermelon meiosis. Students may need to follow along with the video again for help.

3 https://docs.google.com/document/d/1f8_tQMSoAFgGD0LVsy-CwuHQUqM6_CbAXcUDwPP-Qro/edit?usp=sharing

4 <https://docs.google.com/document/d/1wVklk0GNWTskWHOE6jP1bBSL2nO6PtYJlxegwL7urY/edit?usp=sharing>

5 <https://youtu.be/ohN0y03yMco>

6 <https://docs.google.com/document/d/12RKvjOT3ovb-qa70S3yYztSuA5gKOMVWbuf6bYmjYw/edit?usp=sharing>

7 https://drive.google.com/file/d/10IAuttyPqW5YjpMCA4sP03pyAHpGFFTt/view?usp=drive_link

3. Ask students to cut out each of the circles and secure with a fastener. The big wheel should go on bottom, with the descriptions in the middle, and the illustrations on top.
4. Instruct students to cut down each of the dotted lines on the illustrated wheel, creating flaps.
5. Insert wheels into interactive notebooks, if available.
6. Allow students to practice lining up the correct step with the corresponding description and illustration.

ELABORATE

Assign students to groups to research whether or not other fruits and vegetables that are seedless are produced in the same way. For students that are interested in this process, and would like to know more, you can send them to these additional resources. Students could summarize what they learned in an infographic, or short video to share with the class.

- Mendel in the Kitchen: A Scientist's View of Genetically Modified Foods⁸
- Watermelon Farmer-America's Heartland⁹

8 <https://www.amazon.com/Mendel-Kitchen-Scientists-Genetically-Modified/dp/030909738X>

9 <https://www.americasheartland.org/watch/season-8/?episode=americas-heartland-813&start=1237&end=1493&title=Watermelon+Farmer>

KANSAS SCIENCE STANDARDS ADDRESSED

MS-LS3-2 Heredity: Inheritance and Variation of Traits

Students who demonstrate understanding can:

MS-LS3-2

Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation.

Clarification Statement:

Emphasis is on using models such as Punnett squares, diagrams, and simulations to describe the cause and effect relationship of gene transmission from parent(s) to offspring and resulting genetic variation

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 6–8 builds on K–5 experiences and progresses to developing, using, and revising models to describe, test, and predict more abstract phenomena and design systems.

- Develop and use a model to describe phenomena.

Disciplinary Core Ideas

LS1.B: Growth and Development of Organisms

- Organisms reproduce, either sexually or asexually, and transfer their genetic information to their offspring.

LS3.A: Inheritance of Traits

- Variations of inherited traits between parent and offspring arise from genetic differences that result from the subset of chromosomes (and therefore genes) inherited.

Variation of Traits

- In sexually reproducing organisms, each parent contributes half of the genes acquired (at random) by the offspring. Individuals have two of each chromosome and hence two alleles of each gene, one acquired from each parent. These versions may be identical or may differ from each other.

Crosscutting Concepts

Cause and Effect

- Cause and effect relationships may be used to predict phenomena in natural 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](https://www.ksde.gov/Portals/0/CSAS/Content%20Area%20(A-E)/English_Language_Arts/Kansas%20Standards%20for%20English%20Language%20Arts.pdf)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 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.

10 [https://www.ksde.gov/Portals/0/CSAS/Content%20Area%20\(A-E\)/English_Language_Arts/Kansas%20Standards%20for%20English%20Language%20Arts.pdf](https://www.ksde.gov/Portals/0/CSAS/Content%20Area%20(A-E)/English_Language_Arts/Kansas%20Standards%20for%20English%20Language%20Arts.pdf)

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