



THINGS I CAN LEARN ABOUT WHEAT

Kansas College and Career Readiness Standards

(RI.1.1) Ask and answer questions about key details in a
3-LS4-3—Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all. W.3.1b—Provide reasons that support the opinion. W.3.1d—Provide a concluding statement or section. W.3.8—Recall information from experiences or gather information from print and digital sources; take brief notes and sort evidence into provided categories.

Lesson 1 - Dear Wheat Farmer

Materials

- U.S. Wheat Associates trifold (includes seed samples and map of area of growth)
- [Dear Wheat Farmer](#) PowerPoint

Overview

Students will learn about plants from three different biomes (habitats). They will learn about varieties, survival, and reproduction.

After learning about plants in three different biomes, they will begin researching wheat varieties and make a graphic organizer that includes habitat, survival and reproduction.

Objectives

1. Students will discuss how plants in three different biomes (habitats) grow, why is one habitat better than another habitat and what environmental influences are good and bad.
2. Students will discover how different classes of wheat thrive in different conditions.
3. Students will brainstorm how environmental changes affect wheat varieties.
4. Students will write a letter using the information from their research to a farmer telling what they learned about one of the varieties.

Background Information

The six classes of wheat grown in the United States are designated by color, hardness and their growing season. With a range of quality characteristics within these classes, producers can make a wide variety of products for consumers.

Subjects

Science

ELA

Grade Level

3rdGrade

Time Required

Lesson 1: 3-4 45 minute classes

Lesson 2: 30 minutes

Lesson 3: 1 hour

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Engage

Show students the Dear Wheat Farmer presentation containing pictures of various grasses in different habitats. Stop at each slide and lead a class discussion to share observations of the different and similar types of plants in each picture.

Explore

Tell students that wheat is divided into classes. Explain the differences in these classes and why we need them. Pass out one wheat fact slide to each student. Students should have different classes of wheat if working in a small group. Students will use these wheat fact handouts to fill out their section of the KLEW graphic organizer.

After filling out their section of the graphic organizer, instruct students to pair up with two other students, who have read about different wheat classes. Students will then share what they have learned with one another, completing their graphic organizer with the information shared by their peers.

Explain

Pass out the prairie fact presentation (slide 12). Students will need all three to answer the discussion questions.

Pose discussion questions:

- Why is one habitat better than another habitat for growing wheat?
- What environmental influences are helpful for growing wheat? harmful?
- Why is (type of wheat) not able to grow or able to grow in (environment)?

Wrap up the discussion with a class-generated statement about different wheats being suitable for different environments.

Evaluate

Using the data gathered, students will write a letter to a farmer telling what they learned about one of the classes of wheat and why they believe the farmer should invest in this class of wheat when planting their fields. Students will share their final letter with the class and/or a local wheat farmer.

KLEW Graphic Organizer

Name: _____

K

What do we know?

L

What did we learn?

E

What is our evidence?

W

What do we wonder?

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Lesson 2 - Life Cycle Comparison

Kansas College and Career Ready Standards:

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 that 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.

Materials

- [Wheat Growth Stages](#)
- [Beef Life Cycle](#)
- [Sunflower Growth Stages](#)
- Venn Diagram Worksheet

Vocabulary

Life Cycle: The stages a living organism goes through during its lifespan

Organism: An individual that exhibits the property of life

Objective

In this lesson, students will be analyzing various life cycles. Students will be able to describe how organisms have unique and diverse life cycles, but they all have in common, birth, growth, reproduction and death.

Explore

Display posters of the sunflower growth stages and wheat growth stages. Provide students with venn diagram handout for comparing life cycles. Using the Venn Diagram, students will explore and record observations of what they see that is similar and different between the two life cycles. Allow students 3-5 minutes on their own, then divide students into groups and have them compare answers.

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Explain

Now, students will explain the similarities and differences between plants and animal life cycles. Students should expand their own venn diagrams to include ideas from peers and content specific vocabulary.

Explore

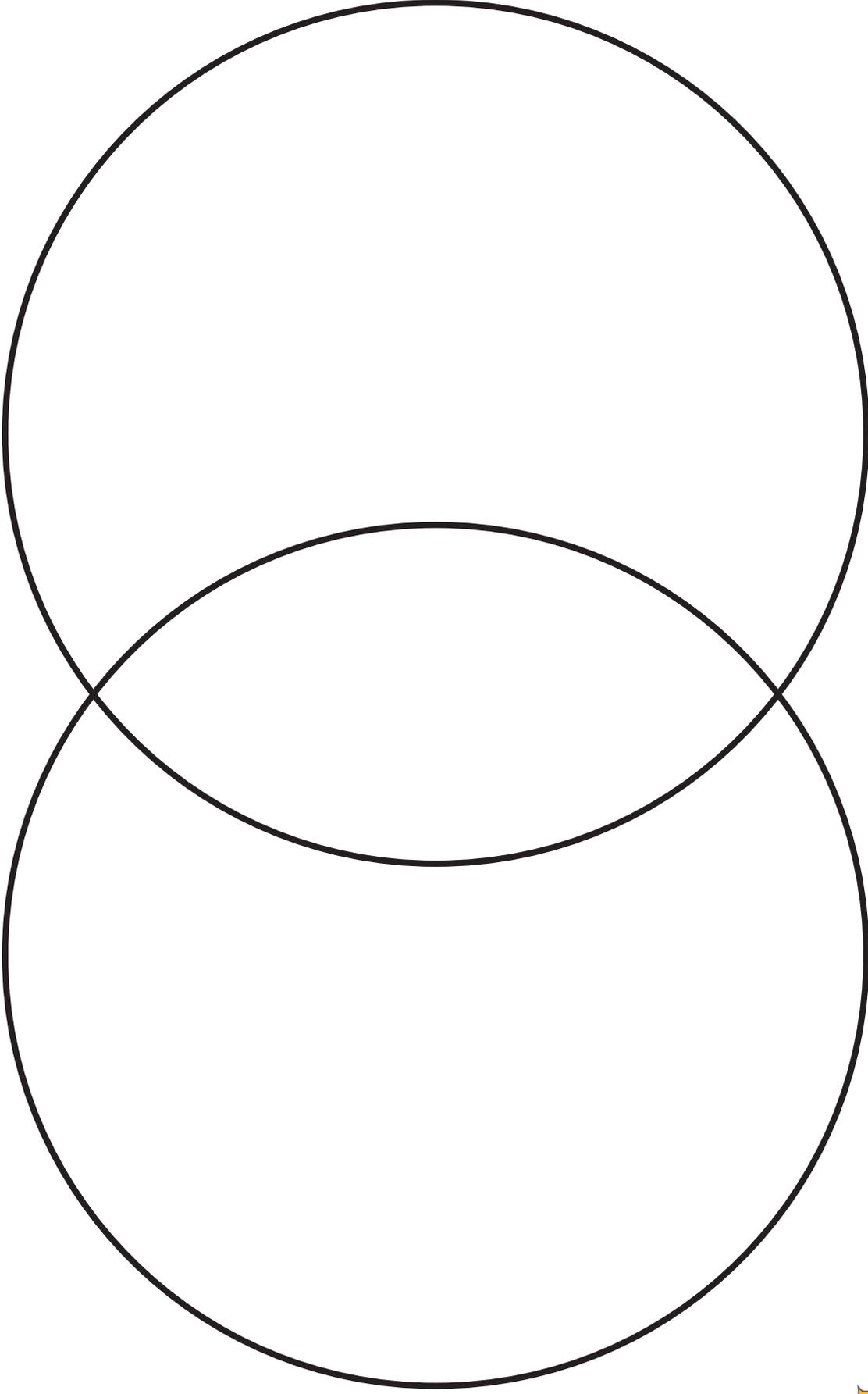
Display posters of beef life cycle and wheat growth stages. Using their Venn Diagram, students should compare the similarities and differences of the life cycles. Allow students 3-5 minutes on their own, then divide students into groups and have them compare answers.

Elaborate

Have students research the differences in winter and spring wheat life cycles, exploring when each variety is sown, its growth period, and harvest. Students should present their findings to their peers.

Name: _____

COW

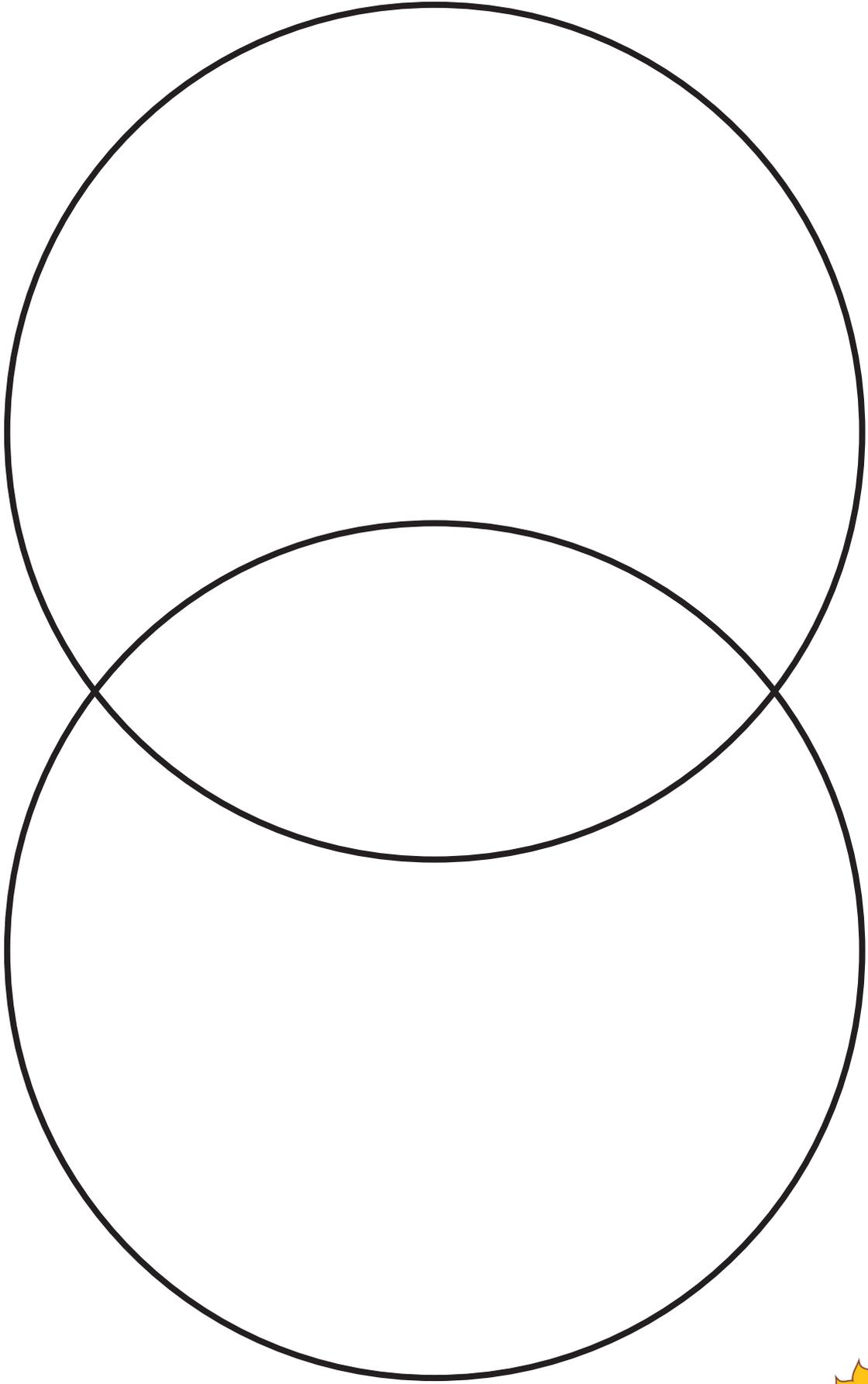


Wheat

Name: _____

Sunflower

Wheat



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Lesson 3 - Wheat Family Traits

Kansas College and Career Ready Standards:

3-LS3-1: Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and variation of these traits exists in a group of similar organisms. [Clarification Statement: Patterns are the similarities and differences in traits shared between offspring and their parents, or among siblings. Emphasis is on organisms other than humans.] [Assessment Boundary: Assessment does not include genetic mechanisms of inheritance and prediction of traits. Assessment is limited to non-human examples.]

Materials

- Download a picture of a famous family they will recognize such as the U.S. President's family or a Royal Family of England photo
- Photos of diverse individuals
- Student science journal
- Wheat Family Tree (page 10)
- Chart paper/markers
- [Wheat Family Traits](#) PowerPoint

Objective

Students will analyze the characteristics of the traits inherited across generations and how they can be influenced by the environment.

Preparation

Use the U.S. President's or Royal Family of England family pictures to compare physical traits among family members. They can also compare and contrast the human pictures with plant family tree pictures to discover the parent plants pass some traits on to their offspring. Gather pictures of diverse individuals for students to compare physical traits.

Engage

Engage students in a discussion of how people are physically different by displaying pictures of diverse individuals. Have students partner up and share similarities and differences in the people pictured. Example responses: hair/eye color, skin color, size, etc.

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Explore

Display a family picture, at least 2 generations- more generations provide more conversation topics. Begin asking students to make observations of what they see. As you begin the class conversation, guide the class to look specifically at the similarities between the children and parents or siblings. Record observations on an anchor chart to use later. If you use a science journal, students can record their observations during this time. Example responses: hair/eye color, skin color, size, etc.

Explain

Explain how inherited traits are characteristics we get from our birth parents; these inherited traits are passed through generations. Brainstorm characteristics that would be inherited versus not inherited, recording these in their student science journal. Guide students to think about the example family and the characteristics they share with their siblings and parents. If the trait is something they see, this is an observable trait. Begin introducing vocabulary and label student observations in their journals with these terms. Students can either add definitions next to their labels or create a new vocabulary word bank on a separate page. If a student does not have an observation that relates to these terms, have them add a picture or drawing to their notes so they have a visual reference.

Vocabulary

Characteristic: a special quality or appearance that makes one individual different from another

Trait: an inherited characteristic such as hair color or eye color

Inherited Trait: characteristics you get from one or both of your birth parents

Observable Trait: a trait that can be physically observed with your eyes such as hair or eye color

Generation: the average length of time between the birth of parents and that of their children

Explore

Present the Wheat Family Tree handout for wheat to the students and give them time to think. Ask them to think about what characteristics the wheat offspring inherited from the wheat parent. Ask students to be specific in their observations and what they see. As students share, record observations on the anchor chart or have students add their observations in their science journals. Example responses: color, size of head, number of awns (the bristle-like fibers on the end of a wheat plant), length of awns, etc.

Evaluate

Bring back the vocabulary word bank and repeat the labeling activity with the wheat pictures from the PowerPoint presentation, students should make the connection between family generations and varieties of wheat.

These pictures should be printed off and displayed on a class anchor chart or printed off for students to glue into their student journals. Teachers may also share other pictures of several generations to demonstrate similar traits family members may have such as eye color, hair color, shape of head, shape of body, placement of ears or nose. Compare a human family to a plant family of traits.

WHEAT FAMILY TREE



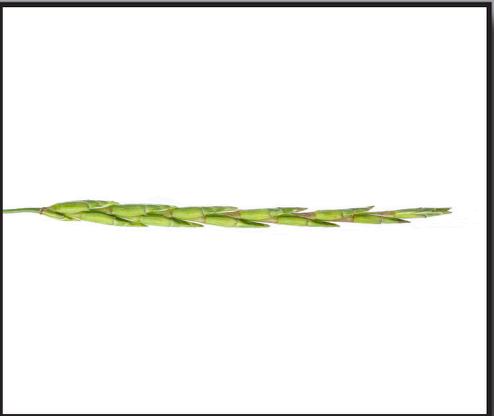
Triticum urartu
($2n=2x, AA$)



Triticum turgidum
($2n=4x, AABB$)



Triticum aestivum
($2n=6x, AABBDD$)



Aegilops speltoides
($2n=2x, SS$)



Aegilops tauschii
($2n=2x, DD$)

