

SORGHUM at School

Learn, Grow, Pop, Taste

An integrated curriculum for Kindergarten to 2nd Grades

Lesson Overview

This lesson will introduce students to sorghum, a nutritious, gluten-free whole grain that can be enjoyed in many ways. Students will learn basic facts about growing sorghum, the states where it is grown and about its health benefits. The lesson gives options for growing, popping, tasting and milling sorghum. The students will complete an activity sheet and take home the Starring Sorghum handout which includes recipes and a puzzle to share with their families.

Objectives

The students will:

1. Be introduced to whole grain sorghum and learn where it is grown in the United States.
2. Identify the basic parts of a sorghum plant.
3. Recognize that sorghum is included in the grain group on the MyPlate food guide and why whole grains are important for growing bodies.
4. Participate in integrated participatory activities which feature growing, milling, popping and tasting sorghum.

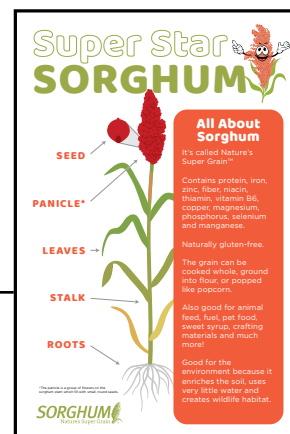
Integrated Subjects

- **Nutrition** (MyPlate, grains/whole grains, energy and nutrients, gluten-free)
- **Health** (healthy behaviors and practices)
- **Language Arts** (vocabulary, reading, writing)
- **Science** (plant science)

What You Will Need

To Teach and Supplement the Lesson:

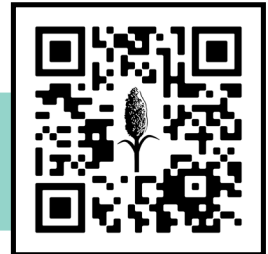
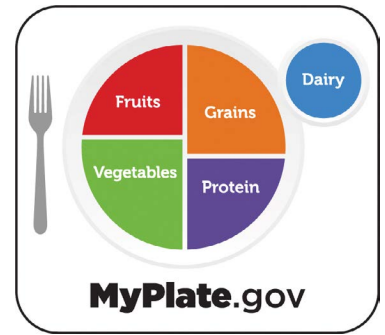
- Educator Resource Page
- Super Star Sorghum! Poster



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- Graphic or poster of the MyPlate food guide (available at <http://bit.ly/3HP236N>)
- Package of whole grain sorghum
- United States map
- Reproducible activity sheets
 - Learning About Sorghum student sheet
 - Starring Sorghum family page



Scan the QR code for digital copies of all resources, or to request hard copies and samples.

Materials to Gather for Activities

You will need:

- **Popping:**
 - Whole grain sorghum*
 - Microwave oven
 - Paper lunch sacks
 - Optional toppings for popped sorghum – spray oil, cinnamon, pumpkin pie spice, chili powder, garlic salt, etc.
- **Planting:**
 - Whole grain sorghum
 - Potting soil
 - Small pots for planting with lids or tray
 - Tape for labeling pots
 - Sunny window or grow light
- **Optional Milling Activity:**
 - Whole grain sorghum
 - Clean coffee bean grinder or mortar and pestle

*Scan the QR code to request a sample. Larger quantities are available at grocery stores or online retailers. A standard 24-oz. package should be enough for a classroom of 20 children.



Teaching the Lesson

- 1. Review the Educator Resource Page and Super Star Sorghum poster to become familiar with sorghum.**
- 2. Introduce the lesson by displaying the Super Star Sorghum poster and graphic of the MyPlate food guide. Lead a brief discussion with the students about sorghum.**
 - a) Ask students whether they have heard of sorghum. Ask whether any of the students have eaten sorghum. Encourage students to share their experience seeing or eating sorghum. For students who are unfamiliar with sorghum, ask how likely they are to try this fun new food.
 - b) Point out that sorghum will sometimes be served in the school cafeteria this year. Encourage students to choose sorghum dishes when they are served. If possible, coordinate with school foodservice personnel for this lesson to occur on a day that sorghum is served on the school breakfast or lunch menu.
 - d) Display the Super Star Sorghum poster and review the parts of the plant. Ask if they can identify the part of the plant that we eat (the grain). Pass around the package of whole grain sorghum so that they can see the grains/seeds.
 - e) Ask the students if they have heard of a “whole grain” and if they can describe what that term means. Discuss that a whole grain is when the entire seed or grain is eaten (i.e. the “whole grain”). Refined grains have part of the seed removed (bran and germ) and do not provide as many nutrients as whole grains.
 - f) Explain that sorghum is a healthy whole grain and ask whether they can identify its placement on the MyPlate food guide. Point out that grains provide energy to the body and whole grains, such as sorghum, provide nutrients including protein, fiber, vitamins and minerals to help bodies grow and stay healthy.
 - g) Discuss how sorghum is grown right here in the United States. Show students the U.S. map and ask them to identify the six states that grow the most sorghum - Kansas, Texas, Colorado, Oklahoma, South Dakota and Nebraska.
- 3. Introduce and complete the planting activity.**
 - Whole grain sorghum is also a seed. For best results, soak whole grain sorghum overnight to soften the seed and speed the germination process.



Did you know that sorghum goes by different names in different parts of the world? In India, sorghum is often called jowar and in the US, some people call sorghum milo.

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- Ask students if they can explain what a plant needs to germinate and grow. Acknowledge their replies and briefly review that plants are alive and require soil, oxygen, light and water. Depending on student readiness level, explain the concepts of soil nutrients, oxygen from air, light/sun for photosynthesis and how living plants require water.
- Set up an area in the classroom with potting soil, a scoop or large spoon, small pots and tape for labeling.
- Work with students in small groups to fill their pots with soil and ask them to pat the soil flat.
- Press two to three sorghum seeds one half inch deep in each pot and cover with soil. Ask students to predict what will happen to the planted seed. Introduce the concept of germination, which is how the seed changes and develops into a small plant known as a seedling.
- Use the tape to make a label with each student's name and the date of planting.
- Lightly water and place pot in a lid or tray to catch the water drips.
- Place in a sunny window or under a grow light. Seedlings should emerge within four to ten days.
- Continue to water every few days, just until moist, and monitor the progress of the plants by measuring height or counting stalks. Ask students to thin to one plant per container.
- In warm seasons, students can plant in their home or school garden.

4. **Introduce and complete the popped sorghum tasting activity.**

- Whole grain sorghum can be popped just like popcorn!
- One half cup of whole grain sorghum will make one half to one cup of popped sorghum. Pop the sorghum in small batches to share with the students.
- Instructions:
 - a) Place sorghum in a small paper lunch bag and fold the top down.
 - b) Lay the bag flat in the microwave with the fold face down.
 - c) Heat on high for 2-3 minutes (depending on microwave) or until there are more than 10 seconds between pops.
 - d) Remove from microwave and sprinkle lightly with salt or toppings of choice.
 - e) More recipes are available at <https://www.sorghumcheckoff.com/recipes/popped-sorghum-microwave-recipe/>

5. **Talk about sorghum flour and how it is made from grinding sorghum. Bring**

a coffee grinder or mortar and pestle to show how grinding sorghum creates flour. If using a hand-cranked coffee grinder, ask the students to participate in grinding the grain.

6. **Pass out the Learning About Sorghum activity sheet and ask students to complete in class or as homework.**

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7. **Send home the Starring Sorghum family handout to each student.**
8. **After the lesson is complete, again ask the students how likely they are to try sorghum at school or at home.**

Going Further

1. Invite the school foodservice director to your classroom to describe how he or she will be serving sorghum this year in school meal menus..
2. Encourage students to try sorghum at school or at home and share their thoughts with the class. Remind students to share the Starring Sorghum sheet with their family.
3. Continue to care for and monitor the sorghum plants. Use a tape measure to track growth. Discuss the parts of the plant and how it compares to the picture on the poster. Talk about photosynthesis and why the plants need light to grow. Encourage students to continue to care for their plants and record the progress.
4. Brainstorm ways that students can include sorghum at breakfast, lunch, dinner or snack time. Encourage them to write a story or poem, draw a picture, or create a colorful paper placemat that shows sorghum in a meal or snack.
5. Show students the “Sorghum at School” video from the United Sorghum Checkoff Program. Scan the QR code below to access this and other resources.

Education Standards

Science/Next Generation Science Standards (NGSS):

- Students who demonstrate understanding can:
 - K-LS1-1. Use observations to describe patterns of what plants and animals (including humans) need to survive.
 - 1-LS1-1. Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.
 - 2-LS2-1. Plan and conduct an investigation to determine if plants need sunlight and water.

National Health Education Standards (NHES):

- Performance expectations:
 - 1.2.5 Identify practices and behaviors that prevent or reduce health risks.
 - 5.2.5 Choose a health-promoting option when making an effective decision.



Kansas Standards for English Language Arts:

- Kindergarten: W.K.3
Use a combination of drawing, dictating, and writing to narrate a single event or several loosely linked events, tell about the events in the order in which they occurred, and provide a reaction to what happened.
- First Grade: W.1.3
Write narratives in which they recount two or more appropriately sequenced events, include some details regarding what happened, use temporal words to signal event order, and provide some sense of closure.
- Second Grade: W.2.3
Write narratives, in which they recount a well-elaborated event or short sequence of events, include details to describe actions, thoughts, and feelings, use temporal words to signal event order, and provide a sense of closure.

Sources:

1. Next Generation Science Standards, <https://www.nextgenscience.org/>
2. National Health Education Standards, https://www.schoolhealtheducation.org/wp-content/uploads/2022/10/National_Health_Education_Standards_Guide-10.02.2022.pdf
3. Kansas State Department of Education, Standards for English Language Arts, <https://community.ksde.org/Default.aspx?tabid=5301>

