

Types of Wheat & Flour Activity Overview

Age Range: 11-14

Note: Can be adapted to older or younger audiences as needed.

Duration:

60-90 minutes

Note: May vary based on number of activities.

4-H Project Connection:

Family & Community Health - Food & Nutrition, Consumer Education

Agriculture & Livestock - Agronomy

Objectives:

- Members will build foundational knowledge of wheat.
- Members will understand the connection between wheat production and the foods they eat.
- Members will identify the six main types (classes) of wheat grown in the U.S.
- Members will describe the characteristics, uses and growing regions of each wheat class.
- Members will match wheat types with their use, growing regions and food products.
- Members will understand the fundamentals of the milling process.
- Members will identify and describe different types of flour and uses in baking.

Materials Needed:

- 'Types of Wheat & Flour' slide presentation (optional)
 - Includes slides for 'Types of Wheat' matching game which can be used in place of or in addition to 'Types of Wheat' worksheets
- 'Types of Wheat' worksheets and handout sheets
 - Includes cards for 'Types of Wheat' matching game included in slide deck
- 'Types of Wheat' Jeopardy game (optional)
 - <https://jeopardylabs.com/play/types-of-wheat>
 - Can be used in place of or in addition to 'Types of Wheat' worksheets
- 'Wheat Growing Regions' map (optional visual aid or handout)
- 'Types of Flour' poster (optional visual aid)
- 'Types of Wheat & Flour' fact sheet (optional visual aid or handout)
- 'Flour Milling' fact sheet (optional visual aid or handout)
- 'Texas Wheat Facts' fact sheet (optional visual aid or handout)
- Printed activity sheets and handouts for each member
- Kernels of each wheat class
- Common types of flour
- Wheat-based product samples or pictures

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Program Outline:

Introduction (10-15 minutes)

Key Topics:

- Wheat as a crop and food ingredient
- Wheat production in Texas
- Wheat classes in the U.S.
 - Hard wheat vs. soft wheat
 - Winter wheat vs. spring wheat
 - Growing regions
 - Uses in food and flour
- Flour milling
- Common types of flour
 - Whole wheat flour vs. refined flour
 - Enriched & fortified flour
 - Bleached vs. unbleached flour
 - Common flours and their uses in cooking and baking

Suggested Materials:

- 'Types of Wheat & Flour' slide presentation
- 'Types of Wheat' worksheets and handout sheets
- 'Types of Wheat' Jeopardy game
- 'Texas Wheat Facts' fact sheet
- 'Types of Wheat & Flour' fact sheet
- 'Flour Milling' fact sheet
- 'Wheat Growing Regions' map
- 'Types of Flour' poster
- Kernels of each wheat class
- Samples of common types of flour

Activity: Flour & Product Match Up (10-15 minutes)

Objective:

- Connect wheat classes to end-use products.

Materials:

- Wheat-based product samples or photos (ex. bread, pasta, tortillas, noodles, cookies, pastries, cake, etc.)
- Flour samples (ex. all purpose flour, bread flour, cake flour, whole wheat flour, white whole wheat flour, semolina flour, etc.)

Activity:

- Members match each flour or product to the wheat class it most likely comes from.

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Activity: Flour Power (15-20 minutes)

Objective:

- Identify different types of flours and their properties.

Materials:

- All-purpose flour, whole wheat/whole white flour, bread flour, type 00 flour (or any other types of flour)
- Small cups or bowls for sampling
- Spoons, water and measuring spoons/droppers
- Cleaning supplies
- Paper for observations

Activity:

- Give each member or group a small sample of each type of flour.
- Direct members to identify the color, texture and feel of the flour and note their observations.
- Add water to each type of flour, small amounts at a time, until a dough or paste forms.
- Direct members to identify how sticky, stretchy or crumbly each mixture is and observe how much water it took to reach a dough state and note their observations.
- As a class, discuss the different types of flour and their intended uses.

Activity: Baking Lab (varies based on product)

Objective:

- Apply concepts about wheat and flour through hands-on food preparation.

Materials:

- Varies based on item selected to bake.

Activity:

- Select a product to bake from the Texas Wheat recipe library (<https://texaswheat.org/resources/>) or another wheat-based recipe.
- Follow recipe instructions and bake as directed.

Modification:

- Bake multiple versions of the same product using different types of flour and compare results. (Ex. switch all-purpose flour for whole wheat flour.)

Wrap Up (5 minutes)

Key Topics:

- Different wheat types have different characteristics.
- Different flours have different characteristics and uses.
- Protein and gluten influence the structure and texture of many baked products.
- The type of flour used can affect the final food product.
- Wheat connects agriculture, food science, nutrition and everyday foods.

Optional Extension:

- Members identify wheat-based products in their homes and investigate the types of wheat or flour used in those products.

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Guided Discussion Questions:

All About Wheat

- Question: *Why do you think Texas is a good place to grow wheat?*
- Potential Answer: *Texas has large areas for farmland and climates that are well suited to produce wheat.*

Wheat Classes

- Question: *How do climate and geography affect which wheat is grown in an area?*
- Potential Answer: *Temperature, rainfall/snowfall, soil type and growing season determine which wheat varieties will grow best in a region.*

Protein & Food Products

- Question: *How does protein change the texture of foods made from wheat?*
- Potential Answer: *Higher protein indicates stronger gluten which makes foods chewy, while lower protein means less gluten, making foods softer and crumbly.*

Flour

- Question: *Why might a baker choose bread flour instead of all-purpose flour?*
- Potential Answer: *Bread flour has higher protein and gluten, which helps bread rise and become chewy.*

Real-World Connections

- Question: *Can you match common foods (bread, pasta, cookies) to the wheat class used to make them?*
- Potential Answer: *Bread—Hard Red Winter or Hard Red Spring; Pasta—Durum; Cookies—Soft Red Winter or Soft White.*