FIELDS OF LEARNING
TEXAS WHEAT PRODUCERS BOARD

Wheat Nutrition Lesson Plan

Grade Level: Grades 6-8
Note: Can be scaled up or down as needed.

Lesson Duration:
90 minutes (suggested to break lesson into two days if including hands-on activities)
Note: Adding additional activities will add to lesson duration.

Objectives:
- Students will identify and describe the three main parts of the wheat kernel and their nutritional benefits.
- Students will identify and describe the key nutrients found in wheat.
- Students will understand the difference between whole wheat, enriched, refined and fortified flour.
- Students will understand the significance of gluten in wheat-based products and the definitions of gluten-related disorders.

Materials Needed:
- 'Wheat Nutrition' slide presentation
- 'Wheat Nutrition Guided Notes' worksheet
- 'Wheat Nutrients' handout and 'Mythbusters' activity
- 'Wheat Nutrition' handout (optional visual aid or handout)
- Printed activity sheets for each student (or uploaded to preferred LMS)

Lesson Outline:
Introduction (5 minutes)
- Briefly review topics covered in previous lessons.
- Ask students "What is the main nutrient found in wheat?" and "What do you think gluten is, and why is it important in baking and cooking with wheat?"

Direct Instruction (20 minutes)
- Present 'Wheat Nutrition' slides 1-4.
- Review the parts of the wheat kernel. (See guided discussion questions on page 4.)
- Present 'Wheat Nutrition' slides 5-10.
- Discuss the macro and micronutrients found in wheat. (See guided discussion questions on page 4.)
- Use slide visuals and optional 'Wheat Nutrition' handout (can be printed for individual student use or shared on screen for students to see).

Guided Practice (20 minutes)
- Distribute the 'Mythbusters' activity from the handout.
- Allow students to use the associated 'Wheat Nutrients' handout.
- Work through the first question together as a class.
- Students work in pairs to match terms to definitions.
- Review answers together to reinforce key terms.

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Direct Instruction (20 minutes)
- Present 'Wheat Nutrition' slides 11-13.
- Discuss gluten and gluten-processing disorders. (See guided discussion questions on page 4.)
- Present 'Wheat Nutrition' slides 14 & 15.
- Introduce the types of grains and flours (this will be covered in the next lesson).

Group Activity (20 minutes)
- Ahead of class, make two version of 'Moon Sand' in two separate containers.
  -With Gluten: 4 cups flour + 1/2 cup oil (vegetable, olive, baby, etc.)
  -Without Gluten: 4 cups gluten free flour (almond, rice, etc.) + 1/2 cup oil (vegetable, olive, baby, etc.)
- Allow students to feel each version and guess which version contains gluten and which one does not.
- After each student handles the 'Moon Sand,' discuss how gluten acts as a binding agent for doughs and other products.

Review and Discuss (5 minutes)
- Go over the 'Mythbusters' activity answers as a class, allowing students to self-check and discuss any missed items.
- Highlight key facts:
  -Wheat provides macro and micronutrients and is an excellent source of carbohydrates and protein as part of a balanced diet.
  -Gluten is a binding agent for wheat-based products and is not harmful to persons without gluten-related disorders.
  - There are different types of flours, and consumers have the luxury of choosing which type they want to use.

Assessment:
- Participation in class discussions.
- Completion and accuracy of activity worksheets (check with provided answer key).

Differentiation:
- Provide vocabulary word banks and visual aids from the PowerPoint.
- Allow verbal explanations instead of written responses when needed.
- Pair less confident readers with peers during activities.
- Provide additional visual support.
- Challenge advanced students to research the recommended amounts of carbohydrates based on Recommended Dietary Guidelines.

Wheat Nutrtion Lesson Plan

Additional Activities (Optional):

Food Label Detective
Objective:
- Understand how to read nutrition labels.

Materials:
- Various packaged wheat-based food items (nutrition labels can also be copied and printed for multiple copies)
  -Items can include but are not limited to: bread, pasta, crackers, tortillas, pretzels, cookies, etc.

Activity:
- Each student or group will read the nutrition labels and highlight the following nutrients: Total Carbohydrates, Dietary Fiber, Protein and vitamins and nutrients.
- Extension: Have students rank products in order of category (e.g. rank in order of total carbohydrates)

Gluten Extraction
Objective:
- Physically see gluten structures

Materials:
- Flour, water, bowl for mixing, spoon/spatula for mixing

Activity:
- Mix flour and water into a dough ball.
- Rinse under running water until the starch washes out, leaving the stretchy gluten.
- Have students conduct the “bubble test” by trying to blow a bubble with the gluten.

Other Activity Ideas:
- Instead of using the ‘Mythbusters’ activity as guided practice, adapt the worksheet into a group, movement-based activity. Label or identify one side of the room “true” and the other side “false.” Call out one statement at at time and instruct students to move to the side of the classroom they believe to be correct. As a follow up, ask students to defencd their reasoning.

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Guided Discussion Questions:

The Wheat Kernel
- Question: *What are the three parts of the wheat kernel, and what does each one do?*
- Potential Answer: *Bran provides fiber and nutrients, the endosperm provides energy and protein and the germ helps the plant grow and contains vitamins and fats.*

Wheat Nutrition
- Question: *How does wheat provide energy for the body?*
- Potential Answer: *Wheat contains complex carbohydrates that break down slowly and provide long-lasting energy.*

Types of Flour
- Question: *What is the difference between whole wheat flour and refined flour?*
- Potential Answer: *What is the difference between whole wheat flour and refined flour?*

Fortification & Enrichment
- Question: *Why was flour fortification introduced in the U.S.?*
- Potential Answer: *Fortification was added to help prevent neural tube defects by increasing folic acid intake.*