BREAD

INTEGRATED SUBJECT(S): English Language Arts, Mathematics

GRADE LEVELS: K-12

LESSON TOPICS

Similarities and differences between different cultures

CURRICULAR CONNECTION + FOOD OBJECTIVES

Students will better understand how to compare and contrast (two or more items in a unit of study) by comparing and contrasting different grains used around the world and then use this information to select grains to make a loaf of bread.

CORE CONTENT STANDARD(S)/SKILLS *Potential Curricular Connections:*	**PILOT LIGHT FOOD EDUCATION STANDARDS covered in lesson**
Common Core English Language Arts: Grades K-12 Informational Text: Key Ideas and Details (Standards 1-3) Grades K-12 Speaking and Listening: Comprehension and Collaboration (Standard 1) Grades K-12 Writing: Research to Build and Present Knowledge (Standard 7,8) **Common Core Math:** Grades K-5 Measurement and Data Grades 6-8 Ratios & Proportions, Geometry Grades 9-12 Modeling, Geometry	PLFS 1: Food connects us to each other. PLFS 2: Foods have sources and origins. PLFS 4: Food behaviors are influenced by external and internal factors. PLFS 5: Food impacts health. PLFS 6: We can make positive and informed food choices. PLFS 7: We can advocate for food choices and changes that impact ourselves, our communities and our world.

RELEVANT VOCABULARY

gram, gluten, grain, mill, dough, rise, knead, proof, meal, leavened/unleavened, berry (wheat), loaf

CLASSROOM/CURRICULUM ACTIVITIES THAT CONNECT TO THE FOOD EXPERIENCE

How the food experience connects to the curriculum:

What activities will you do that lead up to and/or follow the food experience?

***grade bands are only suggestions- activities can be modified to fit multiple grade levels**

Grades K-2:

- Practice using measuring and using scales to measure different types of materials
- Work with a group to categorize breads by their shape, color, size, etc.
- Teach Descriptive Writing and using adjectives; Read Bread, Bread, Bread by Ann Morris
- Read Knead It, Punch It, Bake It: The Ultimate Breadmaking Book for Parents and Kids by Evan Jones and Judith Jones and discuss verbs

Grades 3-5:

- Comparing instant active yeast and wild caught yeast cultures over time. Students sustain both colonies and make observations over a number of days.
- Students can "mill" their own grains using dried corn, oats, or wheat berries.
- Practice using scales to measure different types of materials and to measure using the tare function.
- Select a country of interest, and research the grains grown and breads traditionally made to add to the class map of foods.
- Work with a group to categorize different types of breads - sweet breads, crackers, leavened/unleavened, etc.
- Students write recipes for different types of spreads (herbed butters, herbed cheeses, honey spreads, jams, etc.) to use on the bread they made. This can be related to a country they are studying, a neighborhood they are researching, a science lesson on plants (grow the herbs or the life cycle of a honeybee), a math lesson on fractions, a science lesson about how materials change as a reaction to temperature (making jam or churning butter from cream).
- Teach Descriptive Writing and using adjectives; Read Bread, Bread, Bread by Ann Morris

Grades 6-8:

- Research the history of milling and have students design a working mill to grind their grains into flour. This can be design stage only or you can provide materials from them to create a "working"mill (rolling pins, cleaned bricks/ pavers, pendulum set-ups using K'nex type materials and simple electromagnets)
- Have a class discussion about the definition of bread, developing a class definition and then add a challenge group. For instance, is cake a bread? Have students record their thinking in groups, creating a persuasive piece of writing for their stance.

Grades 9-12:

- Compare & Contrast different grains or nutritional values of different breads to practice comparing & contrasting in a unit of study in English Language Arts or Science
- Teach Chemical Changes: Making spreads like jam or butter to put on bread (Chemistry)
- Discuss the role of bread in various cultures throughout history: e.g. Neolithic Revolution, comparison of leavened & unleavened bread (Indian chapatis, Mexican tortillas), influence of French colonialism in Banh Mi (Social Studies/History)

RELATED BACKGROUND KNOWLEDGE ON FOOD

- Information on the history of bread: "The History of Bread" *Dovesfarm.com/uk* https://www.dovesfarm.co.uk/hints-tips/bread-making/the-history-of-bread
- Information about the role of fermentation and commercial production: "The Real Problem with Bread It's Probably Not Gluten" *Motherjones.com* by Tom Philpott http://www.motherjones.com/environment/2015/02/bread-gluten-rising-yeast-health-problem/
- Types of yeast and their uses: "The four different forms of yeast and how to use them" *VirtuousBread.com* by Virtuous Bread http://www.virtuousbread.com/bread-and-conversation/the-four-different-forms-of-yeast-and-how-to-use-them/
- History of the domestication of grains: "Wheat a Story of Domestication and Immigration" *From Dawn Til Today* by Brilowen https://briloewen.wordpress.com/2012/12/07/wheat-a-story-of-domestication-and-immigration/
- "The Proper Way to Measure Flour" *The Spruce Eats* by Linda Larsen https://www.thespruceeats.com/measuring-flour-wrong-and-right-483100
- Grain to Flour - in-depth information: "Wheat From Field to Flour" *Nebraskawheat.com* by Cody Dvorak and Nebraska Wheat Board https://nebraskawheat.com/wp-content/uploads/2014/01/WheatFromFieldToFlour.pdf
- Grain to Flour - short form video: "Where Does Wheat Come From" *YouTube* by Grain Chain https://www.youtube.com/watch?v=3wyhzKX97Vk

ANCHOR TEXTS

Grades K-3

- Knead It, Punch It, Bake It: The Ultimate Breadmaking Book for Parents and Kids by Evan Jones and Judith Jones
- Everyone Bakes Bread by Norah Dooley
    - Students can locate and map countries from book.
    - Students can write personal narratives about bread they eat at home and how they get it (homemade, store bought, etc.)
- Bread, Bread, Bread by Ann Morris
    - Students can identify commonalities between the different types of breads.
        - Book is an easy for introducing adjectives and can be used to introduce students to how to write more descriptively.
        - Easy text (first grade level text) is accessible for ELL and DL students.

Grades 3-12

- "An A to Z of Breads from Around the World" by *bhf.org* https://www.bhf.org.uk/heart-matters-magazine/nutrition/cooking-skills/dough/a-to-z-of-breads
    - Students can map locations and identify grains used in those countries of origin.

FOOD EXPERIENCE + MATERIALS

Step by step instructions for the food experience.

Option 1:

- Students will examine ingredients for different breads and record their observations on the record sheet (attached under Instructional materials). Grains to be used are listed below.
- Bring in assorted types of breads for students to sample and record observations (ie white bread, naan, tortillas, whole wheat, raisin bread).

Materials:

- Various types of bread to sample
- Grains used for bread for observation
- Grain Observation Recording sheet -- feel free to make your own here!

Option 2:

1. Students will make small loaves of bread. Students will work in groups of 6 to make the dough using the grains they selected as a group and the recipe below.
2. They will watch and record the changes to the dough throughout the day. Dough should be checked every hour for change in appearance and smell.
3. The dough can go home to be cooked with instructions.

Materials:

- Copy of recipe for class (see below in take-home section)
- Food scale
- Bread pans - use disposable pans!
- Kettle
- Bowls, measuring cups, measuring spoons and pastry brush can normally be sourced from the closest dollar store.

List of Possible Ingredients

- Grains and Flours can all be sourced from
    - Bob's Red Mill: http://www.bobsredmill.com/shop.html
    - King Arthur Flours: http://www.kingarthurflour.com/
- Select 6 - 8 different grains
- Spelt
- Rye
- Rolled Oats
- Barley
- Millet
- Corn Meal
- Buckwheat
- Teff
- Bread Flour
- salt
- yeast
- water (will need to be heated)

IDEAS FOR FOOD ADVOCACY

- Have students analyze the types of bread available at the nearest grocery store and compare it to neighborhood socioeconomic data.
    - Ask students: Are all groups represented? Write letters asking for more variety if there are limited options.
- Research the ingredient High Fructose Corn Syrup or Enriched Flour. Have students create pamphlets/ informational posters about the ingredient and why it is in mass-produced bread.
    - Use this information to create persuasive writings to bakeries/stores/schools about using or not using the ingredient and address both positive and negative opinions.

COMMUNITY CONNECTIONS

- Request a field trip to a local bakery. Try your neighborhood grocery store, a larger factory or a regional baker.
- Visit a local grain mill or farm that produces grains used to make flours.

RECIPE OR TAKE-HOME ACTIVITY

Recipe:

No-Knead Bread Base *Created by: Chef Greg Wade, Publican Quality Bread*

375g bread flour
125g whole grain flour
375g water
10g salt
3g dry yeast
1 egg, lightly whisked (egg wash)

Directions:

1. Scale flours, salt and dry yeast together in a medium size mixing bowl. Pour warm (80 degrees) water over dry ingredients, mix by hand until fully incorporated. cover and let rise for 15 hours at room temp (72F).
2. After 15 hours gently dump dough onto a cleaned surface or medium sized cutting board. Using either non-stick spray or butter, lightly grease the bread bans. Gently shape the dough into a log shape and place into the bread pan with the top or smooth side up.
3. Allow the bread to proof covered in a 75F area for 1.5 hours or until the dough holds the imprint of your finger and does not bounce back. After 1 hour of proofing make sure to preheat your oven to 425F.
4. Once the bread is ready to bake, use a pastry brush and brush with egg wash on the surface. Place bread pan onto a baking sheet and then directly into the oven. This will make it easier to remove the loaf of bread from the oven.
5. The loaf of bread should be done after 25 minutes of baking but make sure to check using a thermometer or wood toothpick. The internal temperature should be between 195F-200F or if using a wood toothpick it should come out clean with no raw dough on it. A finished loaf of bread will also sound hollow when tapped.

Note: Although many bakers work in weight, it is possible to convert their recipes with some variability with online converters!

Lesson adapted from lesson by: *Chandra Garcia-Kitch, Paul Kahan, and Greg Wade*