Research an Ingredient

Description
In this activity, students will use online tools and textbooks to research a basic ingredient used in baking. Possible ingredients to research include: flour, leaveners, eggs, fats, liquids, salt, or eggs. All of these are key ingredients used in baking. Students will learn about the nutritional value of the ingredient, its scientific make-up, uses and forms, and storage and handling. Students will learn about the function of the ingredient and how it contributes to the outcome of baked goods in terms of texture, flavor, colour, spread, etc.

After learning more about the ingredient, students will have the opportunity to bake something that uses the ingredient in the recipe.

Students will present their findings and include photos of the baked product in their journal/portfolio to share with the teacher and peers.

Lesson Objectives
Students will be able to identify, use, and describe the function(s) of an ingredient used in baking.

Safety Considerations
Basic food and kitchen safety

Assumptions
Students have an understanding of ingredient measurement, food handling safety, and appropriate clothing and personal attire in kitchens.

Terminology
Eggs: This ingredient serves many purposes in baking. Eggs provide flavour, structure, colour, volume, and tenderness and affect the function of other ingredients.

Fats: Oil, butter, and shortening are types of fats used in baking. They contribute to the moistness of the baked goods and help to create a tender texture. Fats also add flavour or enhance the flavour of other ingredients.

Flours: The protein and gluten in wheat flour provide the structure of baked goods. There are many varieties of flours that help to produce different kinds of breads and pastries.

Leaveners: Baking soda, baking powder, and yeast are examples of leavening agents. These affect the volume and “lightness” of baked goods.
Liquids: Examples of liquids used in baking include milk, milk alternatives, water, and juice. These hydrate other ingredients and combine with some to make a chemical reaction. Liquids contribute to the moist texture of baked goods.

Salt: The flavour and sweetness of baked goods are enhanced by salt. It is also effective for controlling yeast fermentation so that breads do not rise too quickly.

Sweeteners: There are many kinds of sweeteners from sugar to honey to artificial sweeteners. These act to add sweetness to the taste of the baked goods as well as keep them moist. Yeast needs sugar to activate.

Estimated Time
120 minutes

Recommended Number of Students
This activity may be done individually or in groups of 2–3.

Facilities
• Home Economics lab or cafeteria kitchen
• Access to reference materials (Internet-accessible computer and/or textbooks)

Resources
Baking Ingredients and Function: A Breakdown
https://ueat.utoronto.ca/baking-ingredients-function/

The Function of Basic Ingredients in Baking and Pastry
https://www.slideshare.net/abuhanifahmohdsaid/intro-36573771

Functions of Baking Ingredients
http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1412&context=extensionhist
Demonstrating Skills And Knowledge

1. Brainstorm a list of common and essential baking ingredients.
2. Ask students to select one ingredient to research.
3. Review the resources above on baking ingredients and their functions.
4. Encourage students to review textbooks and other resources about their chosen ingredients. The research should include nutritional value, scientific make-up, uses and forms, and storage and handling of the ingredient.
5. Students present their findings in their journal/portfolio. Optionally, students can also present their ingredient to the class.
6. Students select a recipe for a baked good that includes their chosen ingredient.
7. Students make the baked good and post a photo of it to their journal/portfolios with a reflection on the function of their ingredient.

Evaluation Guidelines

Consider co-creating the assessment criteria with your students at the beginning of the activity/project. You may want to include the following:

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<th>Emerging</th>
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<tr>
<td>Researches an ingredient and presents his/her findings in a journal/portfolio post. The research includes nutritional value, scientific make-up, uses and forms, and storage and handling of the ingredient.</td>
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<td>Describes the function of the ingredient and how it impacts baked goods.</td>
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<td>Makes a baked good that includes the researched ingredient and posted a photo and reflection of what s/he learned to his/her portfolio.</td>
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