

Organic Japanese Food

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Subject: Chemistry/Physical Science

Objective: to understand functional groups of organic molecules in food

Ohio Benchmark:

Physical Sciences

- Grades 6-8
 - Benchmark A: Relate uses, properties, and chemical processes to the behavior and/or arrangement of the small particles that compose matter.
 - Grade Level Indicator, Nature of Matter, #4: Describe that physical and chemical changes occur all around us (e.g. the human body, cooking, and industry)
- Grades 9-10
 - Benchmark A: Describe that matter is made of minute particles called atoms and atoms are comprised of even smaller components. Explain the structure and properties of atoms.
 - Grade Level Indicator, Nature of Matter, #9: Investigate the properties of pure substances.
- Grade 12
 - Benchmark A: Explain how variations in the arrangement and motions of atoms and molecules form the basis of a variety of biological, chemical, and physical phenomena.
 - Grade Level Indicator, Nature of Matter, #2: Explain how atoms join with one another in various combinations in distinct molecules.

Procedure:

Days 1-3: Introduce and practice identification of functional groups of organic molecules according to outlined curriculum.

Days 4-8: Students will

1. Find a recipe
2. Research the ingredients for 7 of the following:
 - a. Organic molecules present
 - b. Formula
 - c. Structure
 - d. Chemical Properties
 - e. Functional Groups
3. Obtain a picture of the dish.
4. Arrange information nicely on a posterboard, PowerPoint, or Prezi. Share one chemical form their poster.
5. Make 4-6 servings of the dish and bring it in for the class for a food day.

Note: This can easily be taught at lower grade levels by removing the functional group component.

Assessment: See handout

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Name _____ Period _____ Date _____

Introduction: Your objective to observe the presence of organic molecules in food.

Procedure:

1. Research a Japanese recipe.
2. Type the recipe.
3. Research the ingredients for 9 of the following:

a. Chemical present: name and formula	b. Chemical Properties
c. Structure	d. Functional Groups

*Note: Some ingredients have more than one chemical in them while others (are or) have only one.

4. Obtain a picture of the dish.
5. Arrange your information (recipe, research, and picture) nicely on a posterboard, PowerPoint, or Prezi.

***Your posterboard/PowerPoint/Prezi is due on _____.**

6. Make 4-6 servings of the dish and bring it in for the class.

***You are to bring your food on _____.**

You will be graded according to the expectations below. Turn this paper in with your Poster/PowerPoint/Prezi.

1. Ingredient: _____ Chemical: Name and Formula _____/1 pt Structure _____/1 pt Chemical Property _____/1 pt Functional Groups _____/5 pts	6. Ingredient: _____ Chemical: Name and Formula _____/1 pt Structure _____/1 pt Chemical Property _____/1 pt Functional Groups _____/5 pts
2. Ingredient: _____ Chemical: Name and Formula _____/1 pt Structure _____/1 pt Chemical Property _____/1 pt Functional Groups _____/5 pts	7. Ingredient: _____ Chemical: Name and Formula _____/1 pt Structure _____/1 pt Chemical Property _____/1 pt Functional Groups _____/5 pts
3. Ingredient: _____ Chemical: Name and Formula _____/1 pt Structure _____/1 pt Chemical Property _____/1 pt Functional Groups _____/5 pts	8. Ingredient: _____ Chemical: Name and Formula _____/1 pt Structure _____/1 pt Chemical Property _____/1 pt Functional Groups _____/5 pts
4. Ingredient: _____ Chemical: Name and Formula _____/1 pt	9. Ingredient: _____

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Structure _____/1 pt Chemical Property _____/1 pt Functional Groups _____/5 pts	Chemical: Name and Formula _____/1 pt Structure _____/1 pt Chemical Property _____/1 pt Functional Groups _____/5 pts
5. Ingredient: _____ Chemical: Name and Formula _____/1 pt Structure _____/1 pt Chemical Property _____/1 pt Functional Groups _____/5 pts	Recipe _____/10 pts Picture of Dish _____/4 pts Overall Appearance _____/30 pts Food Brought for Class _____/50 pts Total _____/150 pts

Remember: *Organic* in organic food is different from *organic* in organic chemistry.