Lesson Plan Title: Acids and Bases in Food Sciences

Subject area:
Recommended course (s):

Nutrition and Wellness, Food Preparation

Aligned to NASAFACS Standards:

9.5.6 Conduct sensory evaluations of food products.
9.6.2 Implement food preparation, production, and testing systems.

Objectives:

1. To identify the properties of acids and bases.
2. To describe the pH scale and how it is used.
3. To apply various indicators to measure the pH of substances
4. To explain the importance of body pH.

Materials needed:	**Resources:**
Vinegar Baking Soda Litmus Paper Various food items	iCEV

Lesson Summary/Outline:

Take an in-depth look at the role acids and bases play in food science. This presentation identifies the properties of acids and bases, describes the pH scale and how it is used, demonstrates various types of pH indicators and discusses how pH is related to the properties of food, its safety and its freshness.

Motivator/Opening:

Students will be broken into groups. Each group will be given baking soda and vinegar in unlabeled containers. Students will observe substances and make a hypothesis on what will happen when the two substances are mixed together. Students will then mix the substances together. Students will record observations.

Activities:

Baking Soda & Vinegar
Directions:
The student will conduct the acid-base reaction between baking soda and vinegar as an opening to the lesson. To do this, place baking soda in one glass beaker and the vinegar in another and then pour the vinegar into the baking soda. After the activity a class discussion will be held on how acids and bases react. The student should record their observations and practice lab safety.

Mystery pH
Directions:
Students will find 10 substances from the kitchen. The students will then test the pH of the substances using pH paper and compare their findings with the rest of the class to determine an average pH of each substance. (To prevent waste have students put a small amount of substance in a separate container before testing.)

Assignments:

The pH of a Diet
Directions:
The student will write out a list of foods they normally consume and then research to determine if the foods are acidic or basic. From their findings, the student will create a poster of their diet which divides the acidic and basic foods they consume.

Industry Investigation
Directions:
The student will research and compose a report concerning at least three acids and bases which are used in different industries explaining the role the substance plays in the industry, the safety measures used to protect individuals from the substance, and a description of the product which is made using the acid or base.

Evaluation:

Notes:

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