Classroom Teacher Preparation

Life Science 24: Food Additives

Please use the following to prepare for the next SfS lesson.

Description:

This module allows students to become more aware of what they eat as we explore a variety of food additives prevalent in the modern diet of processed foods and how they are used.

Lesson Objectives – SWBAT ("Students Will Be Able To…"):

3rd-8th

- Research, organize and present relevant data in an organized manner
- Explain that foods are the plants and animal products that humans consume to nourish our bodies
- Understand that processed foods are foods that have been modified with natural or artificial food additives to maintain their appearance, consistency, flavor or nutrition
- Appreciate that there are different types of food additives and explain what their purposes are
- Explain why vitamins and minerals are often added to processed foods

Disciplinary Core Idea (DCI)

PS1 Matter and its Interactions – PS1.A Structure of matter

- (3rd-5th) Because matter exists as particles that are too small to see, matter is always conserved even if it seems to disappear. Measurements of a variety of observable properties can be used to identify particular materials.
- (6th-8th) The fact that matter is composed of atoms and molecules can be used to explain the properties of substances, diversity of materials, states of matter, phase changes, and conservation of matter.

Science & Engineering Practice (SEP)

Obtaining, Evaluating, and Communicating Information

Preparation:

Encourage students to read the list of ingredients on a favorite food or processed food item from their lunch or snack. Although identification and discussion of all additives in a product is beyond the scope of this lesson, doing so would be part of a suitable follow-up activity. Please make sure that students are familiar with the following vocabulary terms.

Room Set Up for Activities:

This activity is designed for students to work in small groups. At the beginning of the lesson, students will break into small groups and assemble a food additive poster. They will then present their findings to the class then complete a series of experiments on food additives.

Safety:

Although the materials used in this lesson are food or food additives, they should not be eaten. Experiments will include the following materials: vegetable oil, soy lecithin, alginate (from seaweed), *Total* brand cereal and yeast. Please notify instructor of student allergies to these substances.

Related Modules:

This lesson may be taught as part of a sequence or group of related modules on **Public Health**. Other modules in this sequence include:

Chemistry 7: Nutrient Identification - Students learn that organic compounds, such as sugars, starches, and proteins, can be identified with the use of chemical indicators. Using these chemical indicators, students test a variety of food samples for the presence of proteins, and simple and complex carbohydrates.

Anatomy/Physiology 7: Intro to Infectious Disease - This lesson introduces the study of epidemiology and focuses on the transmission of infectious disease. The importance of disease mapping and methods of preventing infection are emphasized.

Anatomy/Physiology 16: Heart Health - This stations-based lesson allows students gain an understanding of the cardiovascular system and an appreciation for the importance of physical activity for heart health.

For other module sequences and groups, look here: www.sciencefromscientists.org/sequences

Standards Covered:

Please click the following link to our website to review the standards covered by this lesson, listed by state: http://www.sciencefromscientists.org/standards/

Lessons are matched to both national NGSS and local state standards.

After Our Visit:

Extend this lesson by becoming a "sugar detective" and evaluating the comparative healthfulness of beverages based on the amount of added sugar they contain.

Access this Extension activity by visiting the Classroom Post found on our website at sciencefromscientists.org/cohorts. Use the name of your school/cohort and password to log in.

To help Evaluate, check out our Open Response questions online at sciencefromscientists.org/open-response-questions. They are freely available for all of our lessons for current teachers. Use the password supplied by your instructor to log in.

Additional Resources:

Informative Websites:

- Understanding Food Labels: http://pbskids.org/itsmylife/body/foodsmarts/article4.html
- The Food Label and You - FDA website: http://www.fda.gov/Food/IngredientsPackagingLabeling/LabelingNutrition/ucm275409.htm
- FDA Description of Food Additives: http://www.fda.gov/Food/IngredientsPackagingLabeling/FoodAdditivesIngredients/ucm094211.htm
- Food Additives and Ingredients Association: http://www.faia.org.uk/food-additives/
- Is All Food Processing Bad?: http://nutrition.about.com/od/askyournutritionist/f/processedfoods.htm

Online Videos:

- Wired: Science – What's inside? Video (2:22; Cool Whip): http://youtube.com/watch?v=PcRF8HYvj2A#t=8s