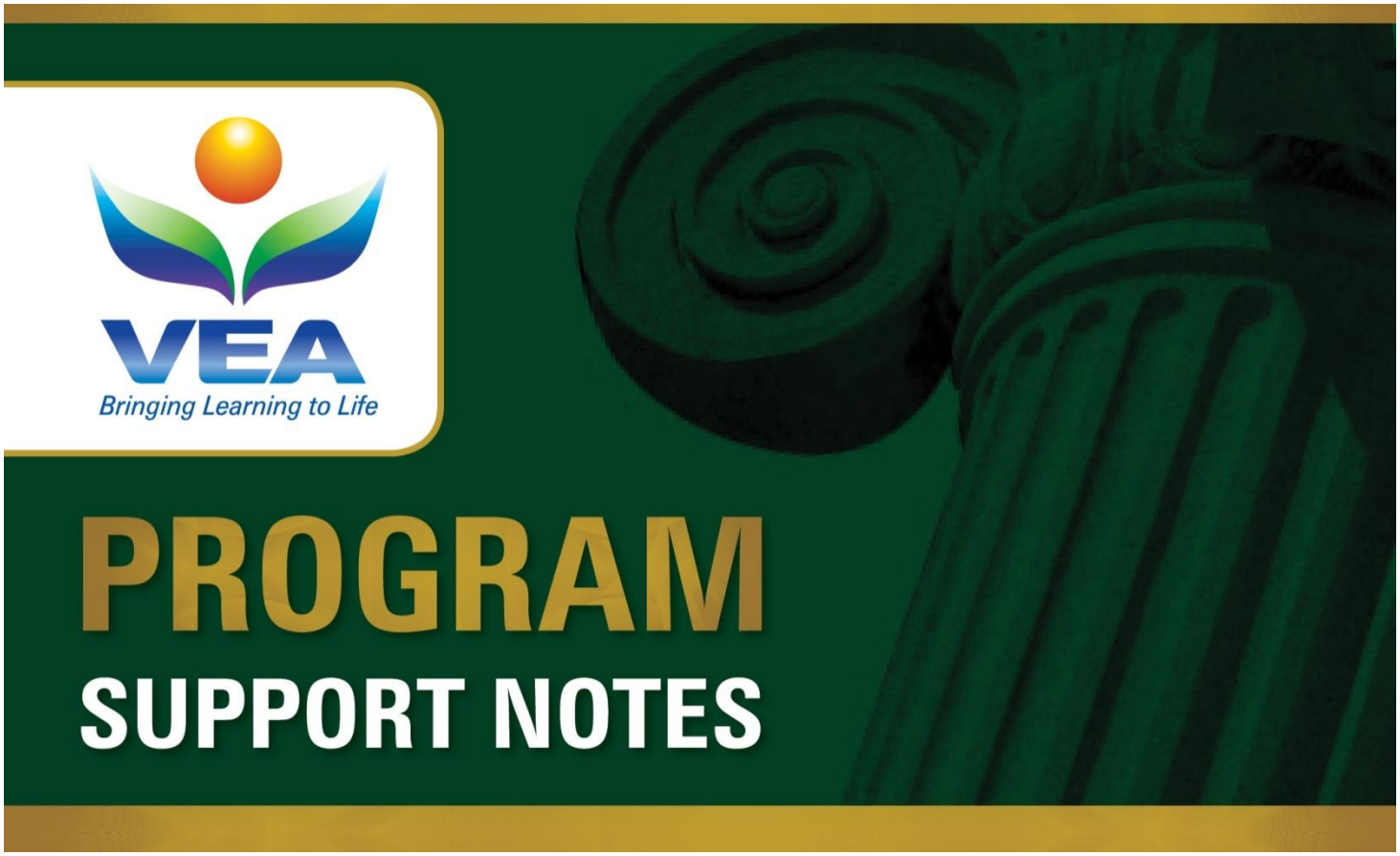

All About Food Additives

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For Teachers

Introduction

Food additives are a necessary part of modern food production to enable a supply of a wide variety of foods across economic, seasonal and geographical boundaries.

This program aims to teach students what food additives are and why they are used in food processing. Students will discover a global system that ensures safety and regulation of the additives in our food supply. The program will look at a variety of additives including colors, flavors, emulsifiers, gels, stabilizers, preservatives, antioxidants and processing aids.

Dr. Leif Lundin from the CSIRO provides an informative explanation of the topic. The program is presented with many visual demonstrations of food spoilage and preservation.

Timeline

Related Titles

Food Preservation Techniques
Industrial and Sustainable Farming
The Cooking Process – How Food Changes
No Accounting for Taste – Why We Eat What We Eat
Food Planning for Special Occasions

Recommended Resources

- http://www.understandingfoodadditives.org/index.htm
- http://www.learningseed.com/_guides/1206_food_additives_guide.pdf
- http://fedup.com.au/
- http://www.betterhealth.vic.gov.au/bhcv2/bhcarticles.nsf/pages/Food_additives
- http://www.choice.com.au/reviews-and-tests/food-and-health/food-and-drink/safety/food-additives.aspx

Student Worksheet

Initiate Prior Learning

1. ***Teacher demonstration*** – Bring to class a soft drink bottle with water and blue food dye in it. Drink it. Use student's reactions as a discussion point on food additives, starting with colors. Also discuss with the class what they expect from a manufacturer when purchasing a product.

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_____

_____

_____

_____

2. Class Discussion – What types of foods would you assume food additives are added to and why? Write down the responses.

_____

_____

_____

_____

_____

3. Guess the food labels game. Write a list of the ingredients you think are in common food items such as bread, yoghurt, muesli bars, jam, tomato sauce etc. Look at food labels to compare.

_____

_____

_____

_____

_____

4. Small group Brainstorm. Discuss what you think each of these words mean and give an example for each:

   a) Colors

_____

_____

_____

   b) Flavors

_____

_____

_____

   c) Emulsifiers

_____

_____

_____

   d) Gels

_____

_____

_____

   e) Stabilizers

_____

_____

_____

f) Preservatives

_____

_____

_____

g) Antioxidants

_____

_____

_____

h) Processing aids

_____

_____

_____

Active Viewing Guide

What are food additives and why are they used?

1. According to Dr. Leif Lundin: Food additives are _____ ingredients in _____ food. They tend to function for _____, quality, _____ and so on.

2. a) What is the purpose of sorbic acid?

_____

_____

b) What foods is sorbic acid commonly found in?

_____

3. What are some of the health concerns of potassium and sodium nitrate?

_____

_____

4. Government authorities regulate our food supply. List the authority responsible in each country.

a) Australia

_____

b) USA

_____

c) Canada

_____

d) Europe

_____

e) Britain

_____

Colors and flavors

5. a) Why are colors added to foods?

_____

_____

b) Using the international coding systems, what range of numbers indicates an added color?

_____

c) Name two foods that might have added colors.

_____

_____

6. a) What is the role of flavorings?

_____

_____

b) Using the international coding systems, what range of numbers indicates an added flavor?

_____

c) Name two foods that might have added flavors.

_____

_____

Emulsifiers, gelling agents and stabilizers

7. a) Give an example of how emulsifiers work.

_____

_____

b) List other foods emulsifiers are common in.

_____

_____

_____

8. a) What is the role of gelling agents?

_____

_____

b) Give one example of the type of foods that might contain gelling agents.

_____

9. a) How are stabilizers used in the manufacture of chocolate flavored milk?

_____

_____

b) Suggest one other food where a stabilizer might be used.

_____

Preservatives and antioxidants

10. How do preservatives extend the shelf life of foods?

_____

_____

11. a) Explain how citric acid preserves foods.

_____

_____

b) What manufactured foods is citric acid commonly found in?

_____

12. Name three natural sources of antioxidants.

_____

_____

_____

Processing aids

13. Give an example of a processing aid.

_____

_____

14. Do you think processing aids should or shouldn't be included on food labels? Why/why not?

_____

_____

_____

_____

_____

_____

Extension Activities

1. Food spoilage observation – over a week observe a variety of foods for their deterioration. Look at the appearance such as color, mould, texture, shape and also odor. Foods that could be used are bread, dried biscuit, banana, strawberry, zucchini, potato, dip.

2. Classroom debate – have a debate on whether food additives are necessary in our food supply. Give students time to complete internet research first.

3. Practical Lesson – make a food item that will keep for a long period of time such as jam. Discuss the role of sugar and pectin in jam making.

4. Internet research – bring to class a variety of empty food containers. Research the food additives in that product (usually listed as a number). (a) What it is? (b) Its role is in the food item.

5. Informative piece – in groups, make an informative piece to explain to other students what food additives are. You could make a video, PowerPoint, magazine, poster etc.

Suggested Student Responses

Active Viewing Guide

What are food additives and why are they used?

1. According to Dr. Leif Lundin: Food additives are **minor** ingredients in **manufactured** food. They tend to function for **stability**, quality, **colors** and so on.

2. a) What is the purpose of sorbic acid?
   To help prevent mould and fungi growth.

   b) What foods is sorbic acid commonly found in?
   Baked products, beverages, seafood, dairy & confectionery.

3. What are some of the health concerns of potassium and sodium nitrate?
   Headaches
   Asthma
   Stomach upsets

4. Government authorities regulate our food supply. List the authority responsible in each country.

   a) Australia
   Food Standards Australia and New Zealand (FSANZ)

   b) USA
   Food Drug Authority (FDA)

   c) Canada
   Health Canada

   d) Europe
   European Union

   e) Britain
   Food Standards Agency (FSA)

Colors and flavors

5. a) Why are colors added to foods?
   So they look visually appealing to the consumer.

   b) Using the international coding systems, what range of numbers indicates an added color?
   100-182

   c) Name two foods that might have added colors.
   Answers will vary but may include two of ice cream, jams, and confectionary.

6. a) What is the role of flavorings?
   Add to the existing flavor and whole eating experience.

   b) Using the international coding systems, what range of numbers indicates an added flavor?
   620-642

c) Name two foods that might have added flavors.
Answers will vary but may include two of canned foods, gravy and stock powders, breakfast foods, sauces and ketchups.

Emulsifiers, gelling agents and stabilizers

7. a) Give an example of how emulsifiers work.
In mayonnaise the egg yolk is an emulsifier as it helps to combine the oil and water, so they don't separate.

b) List other foods emulsifiers are common in.
Peanut butter
Salad dressings
Margarine

8. a) What is the role of gelling agents?
They help control the texture by thickening the food.

b) Give one example of the type of foods that might contain gelling agents.
Answers will vary but may include one of custard sauce, dairy desserts, fruit pies, and jellies

9. a) How are stabilizers used in the manufacture of chocolate flavored milk?
The make sure the cocoa doesn't settle out of the milk to the bottom of the container.

b) Suggest one other food where a stabilizer might be used.
Many answers possible, including ice cream, yoghurt, sauces and dressings.

Preservatives and antioxidants

10. How do preservatives extend the shelf life of foods?
By prohibiting mould, bacteria and yeast.

11. a) Explain how citric acid preserves foods.
Helps to prevent the discoloring of fruit, which is caused by oxidation.

b) What manufactured foods is citric acid commonly found in?
Jams, tin fruit, cheese, dried soup.

12. Name three natural sources of antioxidants.
Answers will vary but may include three of citrus fruits, herbal teas, berry fruits, green leafy vegetables, carrots, dark grapes, papaya, and pomegranate

Processing aids

13. Give an example of a processing aid.
Answer will vary but include: organic acids or chlorine washes to wash fruit and vegetables; stearoyl lactylate to strengthen dough in frozen products; some food colorings.

14. Do you think processing aids should or shouldn't be included on food labels? Why/why not?
Answers will vary