

# Food Science and Technology

**Curriculum Guide:** *Food Science and Technology*

**Unit:** III. The Biochemistry of Foods

**Unit Objective:**

Students will demonstrate an understanding of biochemistry of foods by creating a poster about a commodity, product, or application that has been created or made better by the influence of biochemistry and giving an oral report to the class based on their poster.

**Show-Me Standards:** 1.8, CA6

**References:**

Food and Nutrition Information Center. U.S. Department of Agriculture and Agricultural Research Service. Accessed December 11, 2003, from <http://www.nal.usda.gov/fnic/>.

*Food Science and Technology*. University of Missouri-Columbia, Instructional Materials Laboratory, 1994.

Monsanto Company. Accessed November 3, 2003, from <http://www.monsanto.com/monsanto/layout/default.asp>.

Weidner, K. "Science in Your Shopping Cart." *Penn State Agriculture* (magazine), Fall 2002/Winter 2003. Accessed November 3, 2003, from <http://www.aginfo.psu.edu/psa/fw2003/gmo.html>.

Students will use additional outside sources to complete this activity.

**Instructional Strategies/Activities:**

- Students will engage in study questions in lessons 1 through 5.
- Students will complete AS 5.1, A Bioengineered Food Product.
- Additional activities that relate to the unit objective can be found under the heading "Other Activities" in the following locations: p. III-5 and pp. III-52-III-53.

### **Performance-Based Assessment:**

Each student will create a poster that describes a commodity, product, or application that has been created or made better by biochemistry. The poster will include who developed the commodity, product, or application; a summary of the process; a picture of the commodity, product, or application; a short summary of how biochemistry has affected the commodity, product, or application; and what makes this commodity, product, or application different than its predecessor, if applicable. They will present their findings to the class in a presentation (5 minutes minimum in length) while using their poster as a visual aid.

Assessment will be based on the overall quality of the content of the poster and outline and the presentation of the report. The written portions of the project will also be assessed for spelling, grammar, punctuation, and capitalization.

**Unit III—The Biochemistry of Foods  
Instructor Guide**

The instructor should assign the performance-based assessment activity at the beginning of the unit. Students will work toward completing the activity as they progress through the unit lessons. The assessment activity will be due at the completion of the unit.

1. Have each student choose a commodity, product, or application that has been created or improved by biochemistry. NOTE: If the class size is large or if time is limited, divide students into small groups. Students may select one of the following examples or find one on their own.
  - Provit A corn (enhanced)
  - Roundup Ready wheat, canola, corn, cotton, or soybeans
  - Yieldgard corn
  - Bollgard cotton
  - Yieldgard Plus corn
  - Bollgard/Roundup Ready cotton
  - StarLink corn
  - Hothouse tomatoes
  - Animal cloning for any purpose
2. After making a selection, students will research the topic and create a poster that illustrates their findings. The poster should include the following information:
  - Who developed the commodity, product, or application
  - How the commodity, product, or application is produced (steps involved in the biochemical process)
  - What the commodity, product, or application looks like (Find a picture.)
  - How biochemistry has affected the commodity, product, or application
  - How this commodity, product, or application is different from its predecessor, if applicable
3. Students may use material found in the unit or discussed in class as well as additional outside material to complete their poster. Useful web sites are listed under the references section in this assessment activity.
4. Students may not use the source material word for word and must provide a complete bibliography of their sources.

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5. Students will present their findings to the class in an oral report while using their poster as a visual aid.
  - a. Have students prepare a detailed outline of their presentation to turn in after the report.
  - b. The presentation should be at least 5 minutes in length.
6. The final assessment score will be based on the overall quality of the content of the poster and outline and the presentation of the report. The written aspects of the report will also be assessed for spelling, grammar, punctuation, and capitalization errors.

**Unit III—The Biochemistry of Foods  
Student Handout**

1. You will choose a commodity, product, or application that has been created or improved by biochemistry. You may select one of the following examples or find one on your own.
  - Provit A corn (enhanced)
  - Roundup Ready wheat, canola, corn, cotton, or soybeans
  - Yieldgard corn
  - Bollgard cotton
  - Yieldgard Plus corn
  - Bollgard/Roundup Ready cotton
  - StarLink corn
  - Hothouse tomatoes
  - Animal cloning for any purpose
2. After making a selection, you will research the topic and create a poster that illustrates your findings. The poster should include the following information:
  - Who developed the commodity, product, or application
  - How the commodity, product, or application is produced (steps involved in the biochemical process)
  - What the commodity, product, or application looks like (Find a picture.)
  - How biochemistry has affected the commodity, product, or application
  - How this commodity, product, or application is different from its predecessor, if applicable
3. You may use material found in the unit or discussed in class as well as additional outside material to complete your poster.
4. You may not use the source material word for word and must provide a complete bibliography of your sources.
5. You will present your findings to the class in an oral report while using your poster as a visual aid.
  - a. You will prepare a detailed outline of your presentation to turn in after the report.
  - b. Your presentation should be at least 5 minutes in length.
6. Your final assessment score will be based on the overall quality of the content of the poster and outline and the presentation of the report. The written aspects of the report will also be assessed for spelling, grammar, punctuation, and capitalization errors.



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## Unit III—The Biochemistry of Foods Scoring Guide

Name \_\_\_\_\_

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Assessment Area	Criteria	0 Points	1 Point	2 Points	3 Points	4 Points	Weight	Total
Content of Poster and Outline	<input type="checkbox"/> Includes all the required elements <input type="checkbox"/> Facts are accurate <input type="checkbox"/> Poster emphasizes and clarifies key points <input type="checkbox"/> Well organized	0 criteria met	1 criterion met	2 criteria met	3 criteria met	All 4 criteria met	X 15	
Presentation of Report	<input type="checkbox"/> Holds audience interest <input type="checkbox"/> Speaks clearly and uses correct grammar <input type="checkbox"/> Maintains good posture <input type="checkbox"/> Easy to follow	0 criteria met	1 criterion met	2 criteria met	3 criteria met	All 4 criteria met	X 7.5	
Technical Considerations (Written Portions)	<input type="checkbox"/> Spelling <input type="checkbox"/> Grammar <input type="checkbox"/> Punctuation <input type="checkbox"/> Capitalization	0 criteria met	1 criterion met	2 criteria met	3 criteria met	All 4 criteria met	X 2.5	
<b>TOTAL</b>								

Final Assessment Total \_\_\_\_\_/100 pts.

Comments:

