

Food Science and Technology

Curriculum Guide: *Food Science and Technology*

Unit: I. Principles of Food Preservation

Unit Objective:

Students will demonstrate an understanding of food preservation by researching food preservation techniques and presenting their findings to the class in an oral report.

Show-Me Standards: 2.1, CA6

References:

The Council. Accessed December 3, 2003, from <http://www.agedhq.org/councilindex.cfm>.

Exploring Agriculture in America. University of Missouri-Columbia, Instructional Materials Laboratory, 2000.

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 and Nutrition Publications. MU Extension. University of Missouri-Columbia. Accessed January 13, 2004, from <http://muextension.missouri.edu/explore/hesguide/foodnut/index.htm>.

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

Institute of Food Technologists (IFT). Accessed December 3, 2003, from <http://www.ift.org/cms/>.

Kimchee. Bottle Biology. Accessed December 3, 2003, from http://www.bottlebiology.org/investigations/kimchee_main.html.

Students will use additional outside sources to complete this activity.

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Instructional Strategies/Activities:

- Students will engage in study questions in lessons 1 and 2.
- Students will complete AS 1.1, Effects of Packaging Material in Maintaining Meat Quality.
- Additional activities that relate to the unit objective can be found under the heading “Other Activities” in the following locations: p. I-6 and p. I-21.

Performance-Based Assessment:

Students will be divided into eight groups and each group will research a different technique of food preservation: heat, cold, drying, irradiation, packaging, additives, fermentation, and canning. Each group’s findings should include various methods of the technique, the process of each method, and three different product examples. Students will report their findings to the class in an oral presentation. The presentation should be approximately 10 minutes in length and all group members should participate in some way. As part of the presentation, the group should use visual aids such as posters, illustrations, charts, or transparencies. Students will also be encouraged to actually perform the preservation technique, if possible.

Assessment will be based on the overall content and presentation of the report. Spelling, grammar, punctuation, and capitalization will also be factors in the assessment.

Unit I—Principles of Food Preservation 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. Divide the class into eight groups and assign each group one of the following food preservation techniques:
 - Heat
 - Cold
 - Drying
 - Irradiation
 - Packaging
 - Additives
 - Fermentation
 - Canning
2. Each group will research the food preservation technique and find the following information:
 - The various methods of the technique
 - The process of each method
 - Three different product examples
3. Students will report their findings to the class in the form of a presentation (minimum 10 minutes in length).
 - a. Students should incorporate visual aids into their presentation such as posters, illustrations, charts, or transparencies.
 - b. If feasible, have students actually perform the food preservation technique as part of their presentation. If not doing an actual demonstration, have students show one physical example of a product that was preserved using the technique.
 - c. Have each group prepare a detailed outline of the report that will be turned in after the presentation.
 - d. Each group member should play an active part in the presentation.
4. Students may use material found in the unit or discussed in class as well as additional outside material to complete their report. Useful web sites are listed under the references section in this assessment activity.
5. Students may not use the source material word for word and must provide a complete bibliography of their sources following their report.

6. The final assessment score will be based on the overall content and presentation of the report. The written aspects of the report will also be assessed for spelling, grammar, punctuation, and capitalization errors.

Unit I—Principles of Food Preservation Student Handout

1. The instructor will divide the class into eight groups and assign your group one of the following food preservation techniques:
 - Heat
 - Cold
 - Drying
 - Irradiation
 - Packaging
 - Additives
 - Fermentation
 - Canning
2. Your group will research the food preservation technique and find the following information:
 - The various methods of the technique
 - The process of each method
 - Three different product examples
3. Your group will report its findings to the class in the form of a presentation (minimum 10 minutes in length).
 - a. You should incorporate visual aids into your presentation such as posters, illustrations, charts, or transparencies.
 - b. With permission from the instructor, your group can actually perform the food preservation technique as part of the presentation. If not doing an actual demonstration, your group should show one physical example of a product that was preserved using the technique.
 - c. Your group will prepare a detailed outline of the report that will be turned in after the presentation.
 - d. Each member of your group should play an active part in the presentation.
4. You may use material found in the unit and discussed in class as well as additional outside material to complete your report.
5. You may not use the source material word for word and must provide a complete bibliography of your sources following your report.
6. Your final assessment score will be based on the overall content and 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 I—Principles of Food Preservation Scoring Guide

Name _____

Assessment Area	Criteria	0 Points	1 Point	2 Points	3 Points	4 Points	Weight	Total
Content of Report	<input type="checkbox"/> Includes all the required elements <input type="checkbox"/> Facts are accurate <input type="checkbox"/> Visual aids emphasize and clarify 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"/> All members participated	0 criteria met	1 criterion met	2 criteria met	3 criteria met	All 4 criteria met	X 7.5	
Technical Considerations (Written Aspects)	<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	
TOTAL								

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Final Assessment Total _____/100 pts.

Comments:

