

# DNA for Dinner: Instructor Guide

## Title

DNA for Dinner

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## Discipline

Multidisciplinary, Faculty Development, Biological Sciences, Biotechnology, Nutrition

## Target Audience

Introductory, may be used for a variety of audiences

## Keywords

DNA, Genetically modified organisms, New Leaf potato, faculty development, jigsaw, restaurants



## **Length of Time/Staging**

Problem structured to take a minimum of two two hour sessions although greater time could be allowed to explore the science of gene transfer.

## **Abstract**

The use of bioengineered food in quick service restaurants is controversial. Some stakeholders believe genetic engineering will increase the quality and quantity of available foods. Others feel that these foods are dangerous to both consumers and the environment. New Leaf TM Potatoes offer the possibility of great reductions in the use of pesticides in the growing process.

## **Date Submitted**

1/31/2001

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2/23/2001

## **Format of Delivery**

The problem has three stages. It uses both home groups and interest (jigsaw) groups. The instructor may briefly introduce the problem and provide a wrap-up when the problem is completed.

## **Student Learning Objectives**

This problem is designed for general audiences as a faculty development problem. As such, the learning objectives are associated with developing an understanding of Problem-Based Learning.

Students will:

1. identify and prioritize learning issues.
2. conduct research on assigned learning issues.
3. teach group members what they have learned from their research.
4. make decisions and reach consensus within their groups.
5. report the results of their decisions.

## **Student Resources**

Basic information on biotechnology may be provided by the instructor. Good sources are available in the [Encyclopedia Britannica online](#). Other resources include Internet resources from the home pages of the various interest groups. It should be quite easy for participants to find a considerable amount of information on this problem.

### ***From Page 1:***

DNA for Dinner?

<http://dnafordinner.blogspot.com/>



***From Page 2:***

National Restaurant Association:

<http://www.restaurant.org/>

Nation's Restaurant News:

<http://www.nrn.com/>

Genetically Modified Foods from [Cambridge Scientific Abstracts: Hot Topics](#)

<http://www.csa.com/hottopics/gmfood/overview.html>

Biotechnology and the Future of Food from the [American Dietetic Association](#)

<http://www.eatright.org/abiotechnology.html>

## **Instructor Resources**

Alliance for Better Foods

<http://www.betterfoods.org/>

American Dietetic Association

<http://www.eatright.org/>

Biotechnology Information Center

<http://warp.nal.usda.gov/bic/>

Biotechnology Industry Organization

<http://www.bio.org/>

Boyce Thompson Institute for Plant Research

<http://bti.cornell.edu/>

Consumers Union

<http://www.consumer.org/>

Council for Agricultural Science and Technology

<http://www.cast-science.org/>

Council for Biotechnology Information

<http://www.whybiotech.com/>

Donald Danforth Plant Science Center

<http://danforthcenter.org/>

Environmental Defense

<http://www.edf.org/>

Environmental Protection Agency

<http://www.epa.gov/>



Food and Agricultural Organization of the United Nations

<http://www.fao.org/>

Food Biotechnology Communications Network (Canada)

<http://www.foodbiotech.org/>

Food and Drug Administration

<http://www.fda.gov/>

Food Marketing Institute

<http://www.fmi.org/>

Georgetown Center for Food and Nutrition Policy

<http://www.law.georgetown.edu/academics/academic-programs/clinical-programs/our-clinics/HIP/health-food-work.cfm>

Grocery Manufacturers of America

<http://www.gmaonline.org/>

Institute of Food Technologists

<http://www.ift.org/>

International Food Information Council

<http://www.foodinsight.org/>

International Service for the Acquisition of Agri-Biotech Application

<http://www.isaaa.org/>

National Academy of Sciences

<http://www.nas.edu/>

National Food Processors Association

<http://www.nfpa-food.org/>

North Carolina Biotechnology Center

<http://www.ncbiotech.org/>

Tuskegee University Center for Plant Biotechnology Research

[http://www.tuskegee.edu/academics/colleges/caens/caens\\_research\\_centersprograms/plant\\_biotechnology.aspx](http://www.tuskegee.edu/academics/colleges/caens/caens_research_centersprograms/plant_biotechnology.aspx)

USDA Agricultural Biotechnology

<http://www.aphis.usda.gov/biotechnology/>

Union of Concerned Scientists

<http://www.ucsusa.org/>

University of California - Davis Biotechnology Program



## Author's Teaching Notes

Home groups are organized with five (preferred size) to six members per group. Problem may be introduced with some brief lecture about biotechnology. Then page one is passed out and participants work together to develop learning issues and responses to the end of page questions (20 minutes). Report from each group (three minutes per group).

Groups are reorganized into interest groups by having individuals in each group count off. (If there are five groups, do not use the interest group Mycogen.) Page two is passed out. The newly formed interest groups work together to develop learning issues. Issues are assigned and individuals in each group do research to solve their learning issues. If the instructor provides the materials, allow 30-45 minutes. If the individuals do the research independently on the Internet or at the Library, allow several hours. When the groups reassemble, allow 30 minutes for individuals to teach the group members what they have learned. Then allow 15 minutes for interest groups to reach consensus on their response to the questions at the end of page two.

The home groups are reassembled. Allow time for each home group to discuss and reach consensus on the questions at the end of page two (20-30 minutes). Each group reports their decision (three minutes per group).

Hand out page three. Allow about 10 minutes for discussion. Provide for general discussion about the PBL process.

## Assessment Strategies

When this problem is used for faculty development, the assessment of learning is less important than assuring that the participants have gained a good understanding of the PBL process. It is useful to identify the strategies used to complete the problem. These are:

1. "mini" lecture to introduce problem
2. instructor provided input at regular intervals
3. mechanism for groups to compare notes
4. instructor circulated amongst groups
5. instructor provided some resources
6. use of jigsaw group scheme
7. problem constructed to allow for one to six individuals per group

## Solution Notes

This problem is designed to have students understand the PBL process. Additionally there is no correct solution. Groups may come to different conclusions about the recommendations they will make to the three government agencies which promulgate regulations about pesticides, farming, and the safety of food products.