

Chocolate: Food of the Gods



Annotation:

This lesson will provide students with knowledge on the history of chocolate, cultivation, production, and harvesting of chocolate. In addition it will cover myths about candies and the chemical theobromine, a natural caffeine-like component of chocolate.

** Note this PowerPoint presentation has been modified from the Hershey's website as well as from the University of Georgia's Science Behind Our Food NSF GK-12 trip to Costa Rica. This lesson includes a taste-testing experiment where students determine taste differences between milk and dark chocolate.

Primary Learning Outcome:

Students should understand how chocolate is harvested and produced. Students will learn the basic history of the formation of the major chocolate company, Hershey's. Students will learn to think about agricultural products they consume in their daily lives such as chocolate. Students will learn about chemical compounds such as theobromine that occur naturally in plants.

Assessed QCC's:

Biology:

Topic: Science Process Skills, and Laboratory Safety

Standard: Uses terms and processes employed in scientific research

1.1 Demonstrates proficiency in the use of science process skills in laboratory and /or field activities involving observation, classification, communication, metric measurement, prediction, inference, identifying variables, formulating hypotheses, controlling variables, making operational definitions, designing investigations, experimenting, collecting qualitative and/or quantitative data, constructing a data table, graphing, analyzing, and interpreting data and/or drawing conclusions.

Topic: Diversity of Life (Kingdom Plantae: Seed Producers)

Standard: Describes the similarities and differences of seed producing plants.

19.4 Describes the importance of seed plants for food, medicine, and other products.

Botany:

Topic: Economic Botany

20.1 Distinguishes plants that can produce psychoactive results

20.3 Identifies major food plants.

20.5 Identifies the role of plants in history.

20.6 Analyzes the importance of agriculture to society.

Materials Needed:Taste-test Materials:

For ~ 15 students:

Water, cups (can use a water fountain instead!)

Equally sized portions of Hershey's milk chocolate and dark chocolate (Purchase 2 giant sized bars of milk and of dark chocolate and divide into individual blocks)

napkins

Teaching Materials:

Taste-Test Protocol sheet

Taste-Test Response sheet (2 per student)

PowerPoint projector/computer capabilities for chocolate PowerPoint presentation

Total Duration:

1hr. 15 min.

Procedures:

Step 1	
Description	Chocolate PowerPoint presentation
Duration in hours/minutes	45 minutes
Attachment #1 – Name and description	Chocolate PowerPoint
Step 2	
Description	Taste Testing
Duration in hours/minutes	15 minutes
Attachment #1 – Name and description	Taste Testing Protocol and Response Sheets
Step 3	
Description	Discussion of Results
Duration in hours/minutes	15 minutes
Attachment #1 – Name and description	Taste Testing Protocol

Assessment:

This lesson will be assessed by having students discuss their taste-testing results. As a class students should hypothesize why they might have or have not been able to differentiate between milk and dark chocolate. Students may discuss the cultivation/processing procedures that may account for their differences in taste.

Extension:

Students may perform individual research projects on historical developments in the Hershey's company. Students may also research the addictive nature of chocolate and its correlation with the chemical compound theobromine.

Remediation:

Students should be helped to draw the steps chocolate cultivation and processing using diagrammatic flow charts or images. Additionally, a discussion of their own personal consumption of chocolate related products may be helpful to demonstrate the use of chocolate in their daily life.