# Unit 1 The World of Food Science

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Course(s): **Food Science**
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## Title Section

# Department of Curriculum and Instruction

**Belleville Public Schools**

Curriculum Guide

# Food Science

# Grades 10-12

**Belleville Board of Education**

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## Unit Overview

Food Science is an interdisciplinary subject that is defined as the science of production, processing, preperation,evaluation and utilization of food.

Unit 1 The world of food science we will explore the what food science is and why we study food science?

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## NJSLS

| | |
|---|---|
| 9.3.12.AG-FD.1 | Develop and implement procedures to ensure safety, sanitation and quality in food product and processing facilities. |
| 9.3.12.AG-FD.2 | Apply principles of nutrition, biology, microbiology, chemistry and human behavior to the development of food products. |
| 9.3.12.AG-FD.3 | Select and process food products for storage, distribution and consumption. |
| 9.3.12.AG-FD.4 | Explain the scope of the food industry and the historical and current developments of food products and processing. |
| CAEP.9.2.8.B.1 | Research careers within the 16 Career Clusters ® and determine attributes of career success. |
| CAEP.9.2.8.B.2 | Develop a Personalized Student Learning Plan with the assistance of an adult mentor that includes information about career areas of interest, goals and an educational plan. |
| CAEP.9.2.8.B.3 | Evaluate communication, collaboration, and leadership skills that can be developed through school, home, work, and extracurricular activities for use in a career. |
| CAEP.9.2.8.B.4 | Evaluate how traditional and nontraditional careers have evolved regionally, nationally, and globally. |
| CAEP.9.2.8.B.5 | Analyze labor market trends using state and federal labor market information and other resources available online. |
| CAEP.9.2.8.B.6 | Demonstrate understanding of the necessary preparation and legal requirements to enter the workforce. |
| CAEP.9.2.8.B.7 | Evaluate the impact of online activities and social media on employer decisions. |

## Exit Skills

What are the skills that the students should have obtained by the end of this unit? By the end of unit 1 SWDAT to identify:

- History of food science
- Trace the development of the scientific study of food
- Different careers in the food science industry
- Food production,food processing,& food preperation

## Enduring Understanding

**Enduring Understanding:**

1. **Food is essential for maintaining the physical and psychological needs of the human body.**
2. **Technological advances affect food production,new food inventions,and provides convience in our personal food selection.**
3. **Scientists and their discoveries concerning food science industry**
4. **Origin of food & food production**
5. **Personal benefits of studying topics in food science**
6. **Contributions of food science to increasing demand for food supplies**

7. **The role of food science & preserving the enviroment**
8. **Contributions of food science and food safety**
9. **Relate food science to social change & technological advance**

## Essential Questions

**Essential Question: A question that lies at the heart of a subject or a curriculum and one that promotes inquiry and the discovery of a subject.**

1. How does food satisfy physical needs,and fullfill psychological needs?
2. Why study food science?
3. What is Food Science?
4. In what ways do technological advances affect food production, new food inventions,and provide convenience in our personal food selection?
5. What new food trends may emerge due to technology?
6. To what extent does the purchase and storage of food effect its quality?

## Learning Objectives

**Tips on Writing Good Learning Objectives**

**Bloom's Taxonomy**

**Applying Bloom's Taxonomy to Learning Objectives**

Effective learning objectives need to be observable and/or measureable, and using action verbs is a way to achieve this. Verbs such as "identify", "argue," or "construct" are more measureable than vague or passive verbs such as "understand" or "be aware of". As you develop your syllabus focus on articulating clear learning objectives and then use these objectives to guide class assignments, exams and overall course assessment questions.

**Sample Learning Objectives for a Lower Division Course**

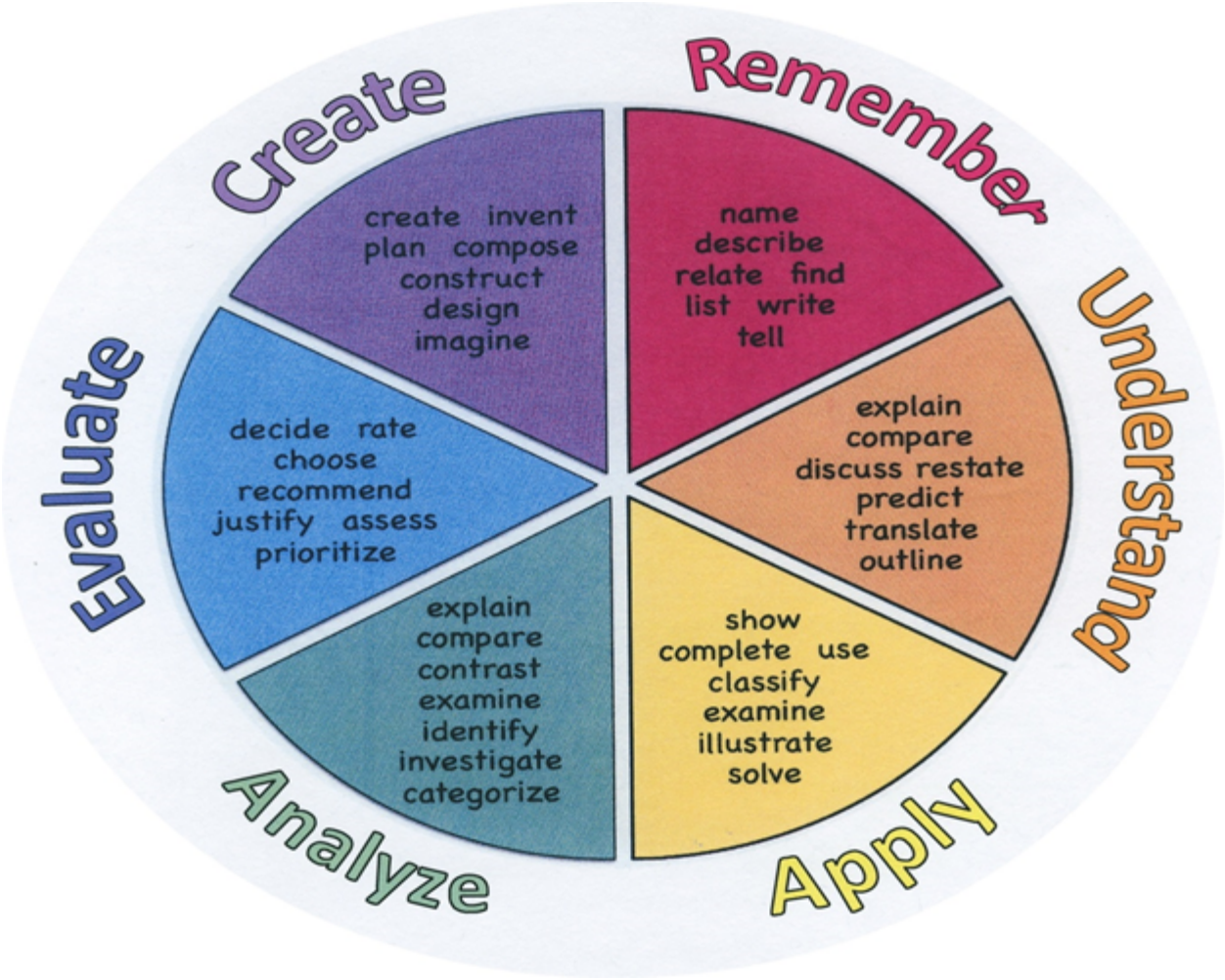
**After completing Nutrition 101 *Humans and Food*, students will be able to:**

- **Identify** the developmet of the scientific study of food.
- Use computer to create a timeline of food scientists contribution analysis to assess a**summarize** results
- **Locate** food products information on the Internet and use **evaluative** criteria to **identify** how it has effected today's food

**Action Verbs**

Below are examples of action verbs associated with each level of the Revised Bloom's Taxonomy. These are useful in writing learning objectives, assignment objectives and exam questions.

| Remember | Understand | Apply | Analyze | Evaluate | Create |
|---|---|---|---|---|---|
| Choose | Classify | Choose | Categorize | Appraise | Combine |
| Describe | Defend | Dramatize | Classify | Judge | Compose |
| Define | Demonstrate | Explain | Compare | Criticize | Construct |
| Label | Distinguish | Generalize | Differentiate | Defend | Design |
| List | Explain | Judge | Distinguish | Compare | Develop |
| Locate | Express | Organize | Identify | Assess | Formulate |
| Match | Extend | Paint | Infer | Conclude | Hypothesize |
| Memorize | Give Examples | Prepare | Point out | Contrast | Invent |
| Name | Illustrate | Produce | Select | Critique | Make |
| Omit | Indicate | Select | Subdivide | Determine | Originate |
| Recite | Interrelate | Show | Survey | Grade | Organize |
| Select | Interpret | Sketch | Arrange | Justify | Plan |
| State | Infer | Solve | Breakdown | Measure | Produce |
| Count | Match | Use | Combine | Rank | Role Play |
| Draw | Paraphrase | Add | Detect | Rate | Drive |
| Outline | Represent | Calculate | Diagram | Support | Devise |
| Point | Restate | Change | Discriminate | Test | Generate |
| Quote | Rewrite | Classify | Illustrate | | Integrate |
| Recall | Select | Complete | Outline | | Prescribe |
| Recognize | Show | Compute | Point out | | Propose |
| Repeat | Summarize | Discover | Separate | | Reconstruct |
| Reproduce | Tell | Divide | | | Revise |
| | Translate | Examine | | | Rewrite |
| | Associate | Graph | | | Transform |
| | Compute | Interpolate | | | |
| | Convert | Manipulate | | | |
| | Discuss | Modify | | | |
| | Estimate | Operate | | | |
| | Extrapolate | Subtract | | | |
| | Generalize | | | | |
| | Predict | | | | |




## Interdisciplinary Connections

Please list all and any cross-curricular content standards that link to this Unit.

| | |
|---|---|
| LA.RH.9-10.7 | Integrate quantitative or technical analysis (e.g., charts, research data) with qualitative analysis in print or digital text, to analyze information presented via different mediums. |
| LA.RST.9-10.1 | Accurately cite strong and thorough evidence from the text to support analysis of science and technical texts, attending to precise details for explanations or descriptions. |
| LA.RST.9-10.2 | Determine the central ideas, themes, or conclusions of a text; trace the text's explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text. |
| LA.RST.9-10.3 | Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text. |
| LA.RST.9-10.4 | Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9-10 texts and topics. |

## Alignment to 21st Century Skills & Technology

**Key SUBJECTS AND 21st CENTURY THEMES**

Mastery of key subjects and 21st century themes is essential for all students in the 21stcentury.

Key subjects include:

- English, reading or language arts
- World languages
- Arts
- Mathematics
- Economics
- Science
- Geography
- History
- Government and Civics

## 21st Century/Interdisciplinary Themes

- Civic Literacy
- Environmental Literacy
- Financial, Economic, Business and Entrepreneurial Literacy
- Global Awareness
- Health Literacy

## 21st Century Skills

- Communication and Collaboration
- Creativity and Innovation
- Critical thinking and Problem Solving
- ICT (Information, Communications and Technology) Literacy
- Information Literacy
- Life and Career Skills
- Media Literacy

## Technology Infusion

What technology can be used in this unit to enhance learning?




## Differentiation

As a Reminder:

The basis of good differentiation in a lesson lies in differentiating by content, process, and/or product.

Resources:

- NJDOE: Instructional Supports and Scaffolds for Success in Implementing the Common Core State Standards http://www.state.nj.us/education/modelcurriculum/success/math/k2/

## Special Education

- printed copy of board work/notes provided
- additional time for skill mastery
- assistive technology
- behavior management plan
- Center-Based Instruction
- check work frequently for understanding
- computer or electronic device utilizes
- extended time on tests/ quizzes
- have student repeat directions to check for understanding
- highlighted text visual presentation
- modified assignment format
- modified test content
- modified test format
- modified test length
- multi-sensory presentation
- multiple test sessions
- preferential seating
- preview of content, concepts, and vocabulary
- reduced/shortened reading assignments
- Reduced/shortened written assignments
- secure attention before giving instruction/directions
- shortened assignments
- student working with an assigned partner
- teacher initiated weekly assignment sheet
- Use open book, study guides, test prototypes

## ELL

- teaching key aspects of a topic.  Eliminate nonessential information

- using videos, illustrations, pictures, and drawings to explain or clarif
- allowing products (projects, timelines, demonstrations, models, drawings, dioramas, poster boards, charts, graphs, slide shows, videos, etc.) to demonstrate student's learning;
- allowing students to correct errors (looking for understanding)
- allowing the use of note cards or open-book during testing
- decreasing the amount of workpresented or required
- having peers take notes or providing a copy of the teacher's notes
- modifying tests to reflect selected objectives
- providing study guides
- reducing or omitting lengthy outside reading assignments
- reducing the number of answer choices on a multiple choice test
- tutoring by peers
- using computer word processing spell check and grammar check features
- using true/false, matching, or fill in the blank tests in lieu of essay tests

## Intervention Strategies

- allowing students to correct errors (looking for understanding)
- teaching key aspects of a topic. Eliminate nonessential information
- allowing products (projects, timelines, demonstrations, models, drawings, dioramas, poster boards, charts, graphs, slide shows, videos, etc.) to demonstrate student's learning
- allowing students to select from given choices
- allowing the use of note cards or open-book during testing
- collaborating (general education teacher and specialist) to modify vocabulary, omit or modify items to reflect objectives for the student, eliminate sections of the test, and determine how the grade will be determined prior to giving the test.
- decreasing the amount of workpresented or required
- having peers take notes or providing a copy of the teacher's notes
- marking students' correct and acceptable work, not the mistakes
- modifying tests to reflect selected objectives
- providing study guides
- reducing or omitting lengthy outside reading assignments
- reducing the number of answer choices on a multiple choice test
- tutoring by peers
- using authentic assessments with real-life problem-solving
- using true/false, matching, or fill in the blank tests in lieu of essay tests
- using videos, illustrations, pictures, and drawings to explain or clarify

## Evidence of Student Learning-CFU's

Please list ways educators may effectively check for understanding in this secion.

- Admit Tickets
- Anticipation Guide
- Common benchmarks
- Compare & Contrast
- Create a Multimedia Poster
- Define
- Describe
- Evaluate
- Evaluation rubrics
- Exit Tickets
- Explaining
- Fist- to-Five or Thumb-Ometer
- Illustration
- Journals
- KWL Chart
- Newspaper Headline
- Outline
- Question Stems
- Quickwrite
- Quizzes
- Red Light, Green Light
- Self- assessments
- Socratic Seminar
- Study Guide
- Teacher Observation Checklist
- Think, Pair, Share
- Think, Write, Pair, Share
- Top 10 List
- Unit tests

## Primary Resources

Please list all resources available to you that are located either within the district or that can be obtained by district resources.

- Textbook: *Discovering Food and Nutrition*
- Textbook: *Food, Nutrition & Wellness*
- *Textbook: The Bio-chemistry of Food and Nutrition*
- *Textbook: Teachers Editio*
- *Teacher prepared packets*

- Power Point Presentation
- Lab/Experiments
- Guest speakers
- Research Assignments
- Smart Board
- Internet
- Online Resources Glencoe.com
- Demonstrations
- Unit Project
- Group work
- Chapter worksheets/questions
- student notebook
- Unit test

## Ancillary Resources

Please list ALL other resources available to strengthen your lesson.

Do Now: List three Food science careers

- Life experience
- Current Events
- Media Center
- Food Magazines
- Scientific journals
- Medical Journal
- Youtube training video

## Sample Lesson

Unit Name: The Science of Nutrition

NJSLS: RST: 11-12.3,4,8,9,2a,2e,9.4

Interdisciplinary Connection:Writing,Analysis,critical thinking.Reading-inform,vocabulary/text science math,communication , group work

Statement of Objective: SWDAT evaluate ,analysis and describe the development of the scientific study of food. Explain different types of work that food scientists do with 100% participation.

Anticipatory Set/Do Now: Name 2 food scientists.

Learning Activity:Q&A,Review Chapter 1 vocabulary terms,Chapter questions 1-6
Group Activity.

Student Assessment/CFU's:

Materials:Textbooks Chapter 1 Work,,Study Guide,Technology,CLass Logs,Chapter terms

21st Century Themes and Skills:

Differentiation: Visual learners,hands on activities,group peer instruction, Audio Learners,Tactile Learners,Guided Practice

Integration of Technology:Smartboard , youtube, Webquest