**TEXAS CTE LESSON PLAN**

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| **Lesson Identification and TEKS Addressed** |
| **Cluster**  | Hospitality and Tourism |
| **Course**  | Food Science |
| **Lesson/Unit Title** | Don’t Be a Fool; Use the Right Tool – Lab Equipment |
| **TEKS Student Expectations** | **130.256. (c) Knowledge and Skills**(2) The student, for at least 40% of instructional time, conducts laboratory and field investigations using safe, environmentally appropriate, and ethical practices. (A) The student is expected to demonstrate safe practices during laboratory and field investigations |
| **Basic Direct Teach Lesson** |
| **Instructional Objectives** | **Students will:*** Choose laboratory equipment that is suited for the specific task
* Demonstrate proper use and maintenance of laboratory equipment
* Demonstrate techniques for working safely in a food science laboratory
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| **Rationale** | Have you ever melted a container in the microwave? Have you ever followed a recipe that produced a product that was not sweet enough or way too salty? Using the right tools in the laboratory can make a huge difference for your product. |
| **Duration of Lesson** | Three 45-minute class periods |
| **Word Wall** | **Beaker:** A glass container that has a wide mouth and holds solids and liquids**Burette:** A long, thin cylinder marked to 0.1 of a millimeter**Calibrate:** To check, adjust, or standardize the marks on a measuring instrument**Graduated cylinder:** a tall, cylindrical container used for measuring the volume of a liquid**Meniscus:** The bottom of the curve a liquid form in a container**Tare:** The weight of a container when it is emptyNote: Many other terms on the slide presentation can be identified. Encourage students to include the definition in the assignment. |
| **Materials/Specialized Equipment Needed** | **Equipment:*** Beaker (various sizes)
* Burette
* Burner
* Computer with projector for PowerPoint presentation
* Computers with Internet access (Be sure to follow district guidelines for Internet access)
* Filter
* Filter paper
* Funnel
* Graduated cylinder
* Lab coat/apron
* Microscope
* Ring stand and clamp
* Safety googles
* Stirring rod
* Triple beam balance

**Food Supplies:*** Flour
* Food coloring
* Water (colored)
* Copies of handouts

**Online databases:*** Encyclopedia Britannica
* World Book Encyclopedia

**PowerPoint:*** Don’t Be a Fool; Use the Right Tool – Lab Equipment

**Handouts:*** Lab Equipment BINGO – Teacher Cards
* Lab Equipment BINGO
* Lab Equipment Notes Answers
* Lab Equipment Notes
* Lab Equipment Quiz Answers
* Lab Equipment Quiz
* Using Lab Equipment Answers
* Using Lab Equipment
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| **Anticipatory Set** | **Before class begins:**Display as many of the lesson related equipment and supplies (see Materials or Specialized Equipment Needed) that you have available, on a table at the front of the classroom.On a table in the center of the classroom, display a burette in a ring stand and a filtration set up.Allow students to observe the equipment and ask them to answer the following questions:* Does anyone know what either of these setups do?
* What type of experiments might use each of the setups?
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| **Direct Instruction with Special Education Modifications/Accommodations** | Introduce lesson objectives, terms, and definitions.Distribute handout, Lab Equipment Notes, and introduce PowerPoint, Don’t Be a Fool; Use the Right Tool – Lab Equipment. Students will be expected to take notes while viewing the slide presentation.*Individualized Education Plan (IEP) for all special education students must be followed. Examples of accommodations may include, but are not limited to:** checking for understanding
* providing assistance with note-taking
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| **Guided Practice with Special Education Modifications/****Accommodations** | Distribute handout, Lab Equipment BINGO. Instruct students to fill in vocabulary words located at the bottom of the page into the 16 boxes of the BINGO board. When students have completed this, use the teacher cards to read out definitions of lab equipment. Students will then cover the appropriate box. Pennies or paper squares can be used to mark spaces. You can play 4-in-a-row, 4 corners, picture frame, or any other combination of BINGO games.Distribute handouts Using Lab Equipment. Demonstrate safe practices with some possibly dangerous lab situations.*Individualized Education Plan (IEP) for all special education students must be followed. Examples of accommodations may include, but are not limited to:** providing peer tutoring
* reducing length of assignment
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| **Independent Practice/Laboratory Experience with Special Education Modifications/****Accommodations** | Distribute handouts Using Lab Equipment. Allow students to practice using various pieces of laboratory equipment.*Individualized Education Plan (IEP) for all special education students must be followed. Examples of accommodations may include, but are not limited to:** assisting student in gathering information
* providing praise and encouragement
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| **Lesson Closure** | Review lesson objectives, terms, and definitions.At the end of each class, discuss equipment used that day including its function and proper usage. Mention some of the food careers from the previous unit and discuss what equipment would be used in that scientist’s daily work. |
| **Summative/End of Lesson Assessment with Special Education Modifications/Accommodations** | Student will be assessed by taking Lab Equipment Quiz.*Individualized Education Plan (IEP) for all special education students must be followed. Examples of accommodations may include, but are not limited to:** grading according to work done
* providing praise and encouragement
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| **References/Resources** | **Images:*** Microsoft Clip Art: Used with permission from Microsoft.

**Textbooks:*** Mehas, K. Y., & Rodgers, S. L. (2006) Food science: The biochemistry of food and nutrition. New York, N. Y: Glencoe, McGraw-Hill.
* Mehas, K. Y., & Rodgers, S. L. (2006) Food science: The biochemistry of food and nutrition. Lab manual. New York, N. Y: Glencoe, McGraw-Hill.
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| **Additional Required Components** |
| **English Language Proficiency Standards (ELPS) Strategies** | * Word wall
* Draw visual representations of terms on word wall
* Make sure students understand the vocabulary (word wall) before moving forward with this lesson. They are to make flash cards using an index card with the word on one side of the card and the definition on the other side. It is important for all students; especially ELL’s to have a firm foundation before moving forward. This is key to them following the entire lesson.
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| **College and Career Readiness Connection[[1]](#footnote-1)** |  |
| **Recommended Strategies** |
| **Reading Strategies** | Incorporate current events – Students can explore articles about safety in a commercial kitchen in newspapers, magazines, or the Internet sources that are current and relevant. Suggestions:* 9 Cooking Safety Tips for Commercial Kitchen
* Youth Worker Safety in RestaurantsDos and Don’ts for Teen Workers Rights<http://www.osha.gov/SLTC/youth/restaurant/poster_general.html>
* Kitchen EquipmentEmployers have the primary responsibility for protecting the safety and health of their workers. Employees are responsible for following the safe work practices of their employers.<http://www.osha.gov/SLTC/youth/restaurant/equipment_foodprep.html>

Encourage students to “visualize” as they read. Many students are visual learners and will benefit from making sketches or diagrams as they read. Providing students with graphic organizers to help them organize their thoughts is also helpful. |
| **Quotes** | Every week I have a disaster in my kitchen. The fire alarm goes off repeatedly. But it doesn’t stop me from being adventurous. **-Paul O’Grady**Never order food in excess of your body weight. **-Erma Bombeck**Never underestimate the power of a simple tool.**-Craig Bruce** |
| **Writing Strategies** | **Journal Entries:*** Using the proper equipment is important because…
* Accurate measurements are important because…

**Writing Strategy:**RAFT (Role/Audience/Format/Topic) writing strategy: * Role: chef
* Audience: kitchen manager
* Format: informal letter
* Topic: concerns over lack of proper equipment

You are the head chef at a restaurant. Write a letter to the kitchen manager expressing your concerns about the lack of proper kitchen equipment and utensils. Include information you have learned in this lesson, concerning accuracy of measurements and safety concerns, to write your letter. |
| **Communication 90 Second Speech Topics** | * What is the difference in the equipment used for measuring volume?
* What are the proper procedures for checking the aroma of a chemical mixture?
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| **Other Essential Lesson Components** |
| **Enrichment activity** | * Convert these Fahrenheit temperatures to Celsius: 55°F, 78°F, and 170°F. Convert these Celsius temperatures to Fahrenheit: 25°C, 50°C, and 85°C.
* Develop a list of ways that metric measurements are commonly used in the United States. Explain why the metric is used in some areas and not in others.
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| **Family/Community Connection** | Have students investigate food banks or homeless shelters. Have students create a list of groups and organizations that could use volunteers in food service and distribution in the local community. |
| **CTSO connection** | Family, Career, and Community Leaders of America (FCCLA) <http://texasfccla.org>**STAR Events:*** Applied Technology – An individual or team event: Recognizes participants who develop a project using technology that addresses a concern related to Family and Consumer Sciences and/or related occupations. The project integrates and applies content from academic subjects.
* Chapter Service Project (Display and Manual): A team event – recognizes chapters that develop and implement an in-depth service project that makes a worthwhile contribution to families, schools, and communities. Students must use Family and Consumer Sciences content and skills to address and take action on a community need.
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| **Service Learning Projects** | Successful service learning project ideas originate from student concerns and needs. Allow students to brainstorm about service projects pertaining to the lesson.<http://www.nylc.org/>Possible idea:Organize a tour of the school cafeteria or a local restaurant/hotel to learn about their food service. Students can observe food preparation on a large scale.Also see Family/Community connections. |

1. Visit the Texas College and Career Readiness Standards at <http://www.thecb.state.tx.us/collegereadiness/CRS.pdf>, Texas Higher Education Coordinating Board (THECB), 2009. [↑](#footnote-ref-1)