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| **TEXAS CTE LESSON PLAN**  [www.txcte.org](http://www.txcte.org) | |
| **Lesson Identification and TEKS Addressed** | |
| **Career Cluster** | Hospitality and Tourism |
| **Course Name** | Food Science |
| **Lesson/Unit Title** | Investigating Food Science Professions |
| **TEKS Student Expectations** | **130.256. (c) Knowledge and Skills**  (1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:  (A) apply interpersonal communication skills in business and industry settings;  (B) explain and recognize the value of collaboration within the workplace;  (C) examine the importance of time management to succeed in the workforce;  (D) identify work ethics/professionalism in a job setting; and  (E) develop problem-solving and critical-thinking skills. |
| **Basic Direct Teach Lesson**  (Includes Special Education Modifications/Accommodations and  one English Language Proficiency Standards (ELPS) Strategy) | |
| **Instructional Objectives** | **Students will:**   * Investigate professions in food science to include:   + Duties   + Education   + Job outlook   + Salary * Create a multimedia presentation on a selected profession * Explore schools/colleges/universities that offer the degree for the food science profession * Evaluate personal job skills, aptitude, and interests with a state recognized assessment program |
| **Rationale** | Do you know what food scientists do? Think of all the great new food products that have come into the market over the last few years. We have food scientists to thank for the development of these new products. Scientists are also involved in developing new sugar substitutes, genetically modifying foods, working with patients to make healthy food choices, keeping our food safe, developing new products and much more. Have you ever considered a career in the food industry? |
| **Duration of Lesson** | Six 45-minute class periods |
| **Word Wall/Key Vocabulary**  *(ELPS c1a, c, f; c2b; c3a, b, d; c4c; c5b) PDAS II (5)* | **Dietetics:** Applying nutritional principles to meal planning and preparation  **Food Distribution:** Involves hauling and storing foods  **Food Manufacturing:** Raw foods are processed, refined, and altered to make different new products  **Food Production:** Refers to the growth of basic food  **Foodservice:** Involves preparing meals and serving them to customers  **Quality Control:** Ensures that food products are safe and meet federal regulations  **Profession:** A paid occupation, especially one that involves prolonged training and a formal qualification  Note: Many other terms on the slide presentation can be identified. Encourage students to include the term and definition in the assignment. |
| **Materials/Specialized Equipment Needed** | **Equipment:**   * Computer with projector for multimedia presentation * Computers with internet access (be sure to follow district guidelines)   **Materials:**   * Cardstock * College brochures * Food scientist job postings   **Supplies:**   * Beakers * Lab coat * Microscope * Petri dishes * Safety goggles * Scale * Slides * Test tubes * copies of handouts (see All Lesson Attachments tab)   **PowerPoint:**   * Investigating Food Science Professions   **Technology:**   * TED Talks:   Choice, happiness, and spaghetti sauce  “Tipping Point” author Malcolm Gladwell gets inside the food industry’s pursuit of the perfect spaghetti sauce â and makes a larger argument about the nature of choice and happiness.<http://www.ted.com/talks/malcolm_gladwell_on_spaghetti_sauce>  **Handouts:**   * Food science professions research * Food science professions * Note-taking – investigating food science professions * Rubric for food science professions research |
| **Anticipatory Set**  (May include pre-assessment for prior knowledge) | **Before class begins:**  Note to teacher – Become familiar with:   * The Texas Work Prep Learning Management System (LMS) designed and hosted by the Texas Workforce Commission. The Job Hunter’s Guide Course – This course will allow the student to gain knowledge and skills to attain employment. The course is approximately an hour and a half long. Students will receive a certificate upon completion of this course. Certificate can be printed and added to their professional portfolio.<https://www.texasworkprep.com/texasworkprep.htm>   Print and separate the Food Science Careers (see All Lesson Attachments tab) on card stock ready for use in the Independent Practice tab.  On a table in the center of the classroom, arrange pamphlets from training programs and colleges that teach food science. Literature on companies that employ food scientists would also be appropriate.  Allow students to browse through the brochures and ask them the following questions:   * Are you interested in science as a career? In food science? * What kinds of jobs are available in the food science industry? * Where would a food scientist work? * What training or education is needed for these jobs? * Lead a discussion about the skills needed to be a food scientist. |
| **Direct Instruction \*** | Introduce lesson objectives, terms, and definitions.  Distribute Note Taking – Investigating Food Science Professions (see All Lesson Attachments) so that students may take notes during slide presentation.  Introduce PowerPoint, Investigating Food Science Professions (see All Lesson Attachments tab) and lead a discussion about careers in food science.  View video:   * What Is Food Science and Technology?   Learn what food science is all about and hear from people that work in the profession about what it’s like to work in food science.  [http://www.ift.org/knowledge-center/learn-about-food-science/what-is-food-science.aspx](http://www.achievetexas.org/index.html)   *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 |
| **Guided Practice \*** | Introduce the *Texas Work Prep Learning Management System.*  Direct students to the Texas Job Hunter’s Guide Course. <https://www.texasworkprep.com/texasworkprep.htm>  Inform students that this is an interactive free assessment that will allow them to identify their job values, interests, aptitudes, and skills assessments as well as assist them in preparing a resume and teaching them interview skill tips.  Students must complete all six sections and successfully pass a short quiz to receive their printable certificate.  Stress the importance of having this type of documentation in their professional portfolio.  *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 |
| **Independent Practice/Laboratory Experience/Differentiated Activities \*** | Place Food Science Professions cards (see All Lesson Attachments) in a basket and ask students to select a card with a career they will research and present to the class.  Distribute handout Food Science Professions Research (see All Lesson Attachments) and instruct students about thoroughly research a career. Remind them to use reliable sources such as government and educational websites for their information.  Students will research the selected career and gather information needed for their multimedia presentation.  Distribute the Rubric for Food Science Professions Research (see All Lesson Attachments) so students understand what is expected.  *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 |
| **Lesson Closure** | View the videos of food scientists as they explain what they do in their jobs so that students better understand the profession.   * Day in the Life of a Food Scientist   What is it really like to be a food scientist? What do food scientists do each day? What kinds of things do they think about? Learn more about what it’s like to be a food scientist in the words of people who do it every day.<http://www.ift.org/knowledge-center/learn-about-food-science/day-in-the-life.aspx>   Lead a discussion about each of the food scientists and ask students if they can see themselves in this profession. |
| **Summative/End of Lesson Assessment \*** | Students will present their multimedia presentations.  Student presentations will be assessed with appropriate rubric.  *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 |
| **References/Resources/**  **Teacher Preparation** | **Textbook(s):**   * Mehas, K. Y., & Rodgers, S. L. (2002). *Food science: The biochemistry of food and nutrition.* New York, NY: Glenco/McGraw-Hill. * Ward, J. D., & Ward, L. T. (2013). *Principles of food science.* Tinley Park, IL: Goodheart-Wilcox Company.   **Website:**   * Institute of Food Technologists  Feeding the minds that feed the world<http://www.ift.org/>   **Video:**  What Is Food Science & Technology?   Learn what food science is all about and hear from people that work in the profession about what it’s like to work in food science.<http://www.ift.org/knowledge-center/learn-about-food-science/what-is-food-science.aspx> |
| **Additional Required Components** | |
| **English Language Proficiency Standards (ELPS) Strategies** | * Word wall * Draw visual representations of terms on word wall * <http://www.learnerdictionary.com> for pronunciation and meaning of medical terms |
| **College and Career Readiness Connection[[1]](#footnote-1)** |  |
| **Recommended Strategies** | |
| **Reading Strategies** | Encourage students to continue reading articles pertaining to this lesson:   * Careers in food science  it’s real-life science in action!  So you want to be a scientist? Learn all about what it takes to make it happen by checking out these exciting interviews! Professionals working in a variety of food safety careers tell all about their jobs, exciting discoveries, and reveal their secrets for success!  Get inspired!  Sixteen full-length interviews from people in a variety of food science careers are presented. These will give you a taste of what a career in food safety is like. [http://www.fda.gov/Food/FoodScienceResearch/ToolsMaterials/ucm215926.htm](https://www.fda.gov/Food/FoodScienceResearch/ToolsMaterials/ucm215926.htm)   **Reading Strategy**  Encourage students to “visualize” as they read. Many students are visual learners and will benefit from making sketches or diagrams on scrap paper as they read. Providing students with graphic organizers to help them organize their thoughts is also helpful. |
| **Quotes** | Each problem that I solved became a rule, which served afterwards to solve other problems.  **-Rene Descartes**  Every great advance in science has issued from a new audacity of imagination. **-John Dewey**  Some of us will do our jobs well and some will not, but we will be judged by only one thing-the result.  **-Vince Lombardi**  The kitchen is a laboratory, and everything that happens there has to do with science. It is biology, chemistry, physics. Yes, there is history. Yes, there is artistry. Yes, to all of that. But what happened there, what actually happens to the food is all science. **-Alton Brown**  Everything in food is science. The only subjective part is when you eat it. **-Alton Brown**  We are doing everything we can to protect the food supply. And I can tell you that we’re making decisions based upon sound science and good public policy, given the circumstances that we are now in. **-Ann Veneman** |
| **Writing Strategies**  **Journal Entries + 1 Additional Writing Strategy** | **Journal Entries:**   * Food scientists are important to us, the consumers of food, because… * A good educational background is important for a food scientist because… * After learning about some careers in food science, I am more interested in… * I would be interested in working as a food scientist at \_\_\_\_\_\_\_\_\_\_\_\_\_\_ because … * The advantages and disadvantages of being a farmer are … * Food safety is important to people and the inspector does …   **Writing Strategy:**   * RAFT (Role/Audience/Format/Topic) writing strategy:   + Role: soon-to-be college graduate   + Audience: food company   + Format: formal letter   + Topic: apply for a job   You are about to graduate from college with a food science degree. Write a formal cover letter for your application to a business in the food industry. Choose a specific field of study that you are interested in. |
| **Communication**  **90 Second Speech Topics** | * Three things food scientists continue to research are … * Different fields of food science studies to consider are … * Besides FDA and USDA, other federal agencies that employ food scientists are … |
| **Other Essential Lesson Components** | |
| **Enrichment Activity**  (e.g., homework assignment) | **TED Talks**  TED is a nonprofit organization devoted to spreading ideas, usually in the form of short, powerful talks (18 minutes or less).  The video below is related to this lesson. Allow students to view the video and lead a discussion concerning the TED Talk.  Choice, happiness, and spaghetti sauce  “Tipping Point” author Malcolm Gladwell gets inside the food industry’s pursuit of the perfect spaghetti sauce and makes a larger argument about the nature of choice and happiness.<http://www.ted.com/talks/malcolm_gladwell_on_spaghetti_sauce> |
| **Family/Community Connection** | Have students interview members of their community that work in food science careers. Students can locate laboratories and companies in their area that employ food scientists. |
| **CTSO connection(s)** | 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 act on a community need. |
| **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. For additional information on service learning see:<http://www.ysa.org>  Possible idea: Organize a food science career fair by providing information brochures and distributing flyers of various occupations in the food science industry, including educational requirements, job expectations, range of salaries and typical job locations. 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)