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| **TEXAS CTE LESSON PLAN**  [www.txcte.org](http://www.txcte.org) | |
| **Lesson Identification and TEKS Addressed** | |
| **Career Cluster** | Human Services |
| **Course Name** | Lifetime Nutrition and Wellness |
| **Lesson/Unit Title** | We Are What We Eat – Connecting Food and Health |
| **TEKS Student Expectations** | (3) The student understands the principles of digestion and metabolism. The student is expected to:  (A) describe the processes of digestion and metabolism;  (C) apply knowledge of digestion and metabolism when making decisions related to food intake and physical fitness.  (4) The student demonstrates knowledge of nutritionally balanced diets. The student is expected to:  (A) research the long-term effects of food choices;  (B) outline strategies for prevention, treatment, and management of diet-related diseases such as diabetes, hypertension, childhood obesity, anorexia, and bulimia;  (C) determine the effects of food allergies and intolerances on individual and family health. |
| **Basic Direct Teach Lesson**  (Includes Special Education Modifications/Accommodations and  one English Language Proficiency Standards (ELPS) Strategy) | |
| **Instructional Objectives** | Students will:   * Investigate long-term illnesses related to diet and nutrition * Summarize information for the prevention, treatment and management of nutrition related illness including diabetes, hypertension, childhood obesity and others * Outline food allergy illnesses and their effects on people * Calculate personal Body Mass Index (BMI) |
| **Rationale** | Do you know someone who has diabetes? Osteoporosis? Hypertension? Many illnesses we will study can be prevented by the food choices we make over the course of our life. Genetics also plays a role, but many illnesses can be kept to a minimum with a healthy diet. |
| **Duration of Lesson** | Five 45-minute class periods |
| **Word Wall/Key Vocabulary**  *(ELPS c1a,c,f; c2b; c3a,b,d; c4c; c5b) PDAS II(5)* | **Anemia:** A deficiency in the oxygen-carrying component of the blood, as in the amount of hemoglobin or the number or volume of red blood cells. Iron deficiency, often caused by inadequate dietary consumption of iron, and blood loss are common causes of anemia  **Anorexia Nervosa:** A type of eating disorder that involves an irresistible urge to lose weight through self-starvation  **Body Mass Index (BMI):** A number calculated from a child’s weight and height and is a reliable indicator of body fatness for most children and teens  **Bulimia Nervosa:** A type of eating disorder that involves episodes of binge eating followed by purging  **Diabetes, Type 2:** A condition in which the body cannot control blood sugar levels  **Food allergies:** An abnormal, physical response to certain foods by the body’s immune system  **Food intolerance:** A digestive system response rather than an immune system response. It occurs when something in a food irritates a person’s digestive system or when a person is unable to properly digest or breakdown the food. Intolerance to lactose, which is found in milk and other dairy products, is the most common food intolerance  **High cholesterol:** A lipid disorder. Such a disorder occurs when you have too many fatty substances in your blood  **Hypertension:** Abnormally high blood pressure; an excess force on the walls of the arteries as blood is pumped from the heart  **Osteoporosis:** A condition in which bones lose their minerals and become porous, making them weak and fragile  **Scurvy:** The vitamin C deficiency disease, characterized by tiredness, weakness, shortness of breath, aching bones, and muscles, swollen and bleeding gums, lack of appetite, slow healing of wounds and tiny bruises on the skin  **Stress:** Physical or mental tension triggered by an event or situation in your life  Note: Many other terms on the slide presentation can be identified. Encourage students to include the definition in the assignment. |
| **Materials/Specialized Equipment Needed** | **Equipment:**   * Computer with projector for PowerPoint presentation * Computers with Internet access (be sure to follow district guidelines) * Light projector (Elmo) * Presenter/remote   **Materials:**   * Cardstock * Calculators * Glue * Poster board   **Supplies:**   * Medical supplies   + Blood pressure cuff   + Glucometer (blood glucose monitor)   + Stethoscope   + Weight scale with height measurement * Copies of handouts   **PowerPoint:**   * We Are What We Eat – Connecting Food and Health   **Technology:**   * Free iPad App:   + The BMI Calculator A measure for human body shape based on an individual’s height and weight.<https://itunes.apple.com/us/app/the-bmi-calculator/id646359200?mt=8> * Infographic:   + Nourish to Flourish Food insecurity and being overweight are two of the biggest crises facing America’s kids today. But they don’t need to be. The solution lies in understanding the facts.   **Tedx Talk:**   * Birke Baehr: What’s wrong with our food system 11-year-old Birke Baehr presents his take on a major source of our food — far-away and less-than-picturesque industrial farms. Keeping farms out of sight promotes a rosy, unreal picture of big-box agriculture, he argues, as he outlines the case to green and localize food production. (Filmed at TEDxNext Generation Asheville.)<http://www.ted.com/talks/birke_baehr_what_s_wrong_with_our_food_system?language=en> * Online databases:   + Encyclopedia Britannica   + World Book Encyclopedia   + Merck Manual of Medical Information   + Medline Plus   + U.S. National Library of Medicine   **Graphic Organizers:**   * KWL – Nutrition Research Assignment * We are What We Eat – Connecting Food and Health Notes * We are What We Eat – Connecting Food and Health Notes (Key)   **Handouts:**   * BMI for Age Weight Status Categories Chart * Boy – 2 to 20 years BMI index for age percentiles * Dietary Guidelines for Americans * Girls – 2 to 20 years BMI index for age percentiles * Nutrition Research Assignment * Rubric for Nutrition Research Brochure * Rubric for Nutrition Research PowerPoint Presentation * Rubric for Nutrition Research Visual Display * Rubric for Nutrition Research Written Report * Tips for a Safe and Healthy Life |
| **Anticipatory Set**  (May include pre-assessment for prior knowledge) | **Before class begins:**  Arrange various medical supplies from the Materials or Specialized Equipment Needed tab needed to treat diet-related illnesses on a table in front of the room.  These items may be borrowed from the Health Science teacher or nurse on your campus.  Allow students to observe the supplies and ask the following questions:   * Does anyone know how to correctly use a glucometer? * What is the blood pressure cuff for? * Why is it important to know much you weigh? * Why do doctors need to listen to our heart?   Distribute graphic organizer, KWL – Diet-Related Illnesses and have students complete the first two columns of the chart. Ask students to write down what they already know about specific illnesses such as Type 2 diabetes, osteoporosis, anorexia nervosa, bulimia nervosa, and so forth. Students should then complete the middle column with what they want to learn about diet-related illnesses.  Students will complete what they learned during lesson closure. |
| **Direct Instruction \*** | Introduce objectives, terms, and definitions.  Distribute graphic organizer We Are What We Eat – Connecting Food and Health Notes. Students will be expected to take notes while viewing the slide presentation.  Introduce PowerPoint We Are What We Eat – Connecting Food and Health. Lead a discussion on eating disorders, food allergies, and chronic disorders.  *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 \*** | If students have access to computers, they can calculate their Body Mass Index (BMI) using the following website:   * CDC – Centers for Disease Control and Prevention Healthy Weight – it’s not a diet, it’s a lifestyle! BMI Percentile Calculator for Child and Teen   Allow them to read the results and find out more about their Body Mass Index (BMI).  If students do not have access to computers, allow them to calculate their Body Mass Index (BMI) using the formula: Weight (lb.) ÷ height (in) ÷ height (in) x 703  Distribute handouts Girls – 2 to 20 years BMI index for age percentiles and Boys – 2 to 20 years BMI index for age percentiles.  Simple instructions for calculating the Body Mass Index (BMI) are at the bottom of the small chart. Students should then plot their number on the growth chart with their age. Students should then refer to the BMI-for-age Weight Status Categories Chart to see their percentile range. This will tell them their weight status category.  Note: Be discreet with the weight of some students and the percentile range.  *Individualized Education Plan (IEP) for all special education students must be followed. Examples of accommodations may include, but are not limited to:*   * assistance with graph chart * checking for understanding |
| **Independent Practice/Laboratory Experience/Differentiated Activities \*** | Distribute handout**,** Nutrition Research Assignment. Inform students that project assignment may be prepared individually or with a partner. Allow students to select one topic from the handout list so that all topics are covered.  Keep students focused and on task. Explain that information will be expected to be retrieved only from reliable sources. Provide due date within 2 to 3 class periods.  Reliable sources may include online databases (if your school subscribes):   * Encyclopedia Britannica * World Book Encyclopedia * Merck Manual of Medical Information * Medline Plus * U.S. National Library of Medicine   Students may choose to present summative information in a slide presentation, written report, brochure, or a visual display. Review handouts Rubric for Nutrition Research Brochure, Rubric for Nutrition Research PowerPoint Presentation, Rubric for Nutrition Research Visual Display, and Rubric for Nutrition Research Written Report so that students are aware of assessment procedures.  *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** | Review objectives, terms, and definitions.  Complete graphic organizer KWL – Nutrition Research Assignment to analyze what they have learned from their investigation of diet-related illnesses.  Distribute Dietary Guidelines for Americans and discuss the tips to help them choose healthy eating habits. |
| **Summative/End of Lesson Assessment \*** | Students will present information on diet-related illnesses to the class.  Students 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:**   * Duyff. R. L. (2010). *Food, nutrition & wellness.* Columbus, OH: Glencoe/McGraw-Hill. * Kowtaluk, H. (2010). *Food for today.* Columbus, OH: Glencoe/McGraw-Hill. * Weixel, S., & Wempen, F. (2010). *Food & nutrition for you.* Upper Saddle River, NJ: Pearson/Prentice Hall.   **Video:**   * Finding Balance  Source: National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP)  Running Time: (4:07) Release Date: 7/13/2009 More than one third of U.S. adults are obese. Weight gain occurs when you consume more calories than your body uses. Reaching and maintaining a healthy weight will help you prevent and control many diseases and conditions. The key is FINDING A BALANCE in your lifestyle that includes healthy eating and regular physical activity.   **Websites:**   * CDC – Centers for Disease Control and Prevention Healthy Weight – it’s not a diet, it’s a lifestyle! BMI Percentile Calculator for Child and Teen * Tips for a Safe and Healthy Life U.S. Department of Health and Human Services Centers for Disease Control and Prevention * <http://cdc.gov/> |
| **Additional Required Components** | |
| **English Language Proficiency Standards (ELPS) Strategies** | * Draw visual representations of terms on word wall * <http://www.learnerdictionary.com> for pronunciation and meaning of medical terms * Word wall |
| **College and Career Readiness Connection[[1]](#footnote-1)** |  |
| **Recommended Strategies** | |
| **Reading Strategies** | Examine the handout Tips for a Safe and Healthy Life from the U.S. Department of Health and Human Services, Centers for the Disease Control, and Prevention. Have students discuss what the effects of poor nutrition mean for long-term health. Students can share this document with family and friends.  Discovery Health How Much Water Do I Need Every day?<http://health.howstuffworks.com/wellness/food-nutrition/facts/how-much-water-every-day.htm>  Reading Strategy: Have students form their own questions about the text prior to reading or have them write down any questions that come to mind as they are reading. |
| **Quotes** | …the key dietary messages are stunningly simple: Eat less, move more, eat more fruits and vegetables, and don’t eat too much junk food. It’s no more complicated than that. **-Marion Nestle**  A diet is when you watch what you eat and wish you could eat what you watch. **-Hermione Gingold**  It’s bizarre that the produce manager is more important to my children’s health than the pediatrician. **-Meryl Streep**  He who has health has hope, and he who has hope has everything. **-Arabian Proverb**  The doctor of the future will no longer treat the human frame with drugs, but rather will cure and prevent disease with nutrition. **-Thomas Edison**  He that takes medicine and neglects diet wastes the skills of the physician. **-Chinese proverb** |
| **Writing Strategies**  **Journal Entries + 1 Additional Writing Strategy** | **Journal Entries:**   * My grandmother has diabetes and she must be careful with …… * I am taller than my grandfather because ………. (osteoporosis) * My uncle had a heart attack due to …………… (high cholesterol) and it affected my family …………… * I suspect my friend at school suffers from ……. (anorexia nervosa) because …. * I want to eat healthy because ….   **Writing Strategy:**   * RAFT (Role/Audience/Format/Topic) writing strategy:   + Role – son or daughter   + Audience – diabetic parent   + Format – informal letter   + Topic – concerns regarding their medical condition You have a diabetic parent that is not following their doctor’s advice. Write a letter to your parent expressing your concerns. Using information learned in this lesson, outline strategies to help your parent live a healthier lifestyle. |
| **Communication**  **90 Second Speech Topics** | * How does diabetes affect the extremities (hands, fingers, toes, and feet)? * How does diabetes affect eyesight? * What is dialysis? |
| **Other Essential Lesson Components** | |
| **Enrichment Activity**  (e.g., homework assignment) | **TED Talks:**  TEDx is a program of local, self-organized events that bring people together to share a TED-like experience. At a TEDx event, TEDTalks videos and live speakers combine to spark deep discussion and connection in a small group. These local, self-organized events are branded TEDx, where x = independently organized TED event.  The video below is related to this lesson. Allow students to view the video, and lead a discussion concerning the TED Talk.  Birke Baehr: What’s wrong with our food system 11-year-old Birke Baehr presents his take on a major source of our food — far-away and less-than-picturesque industrial farms. Keeping farms out of sight promotes a rosy, unreal picture of big-box agriculture, he argues, as he outlines the case to green and localize food production. (Filmed at TEDxNext Generation Asheville.)<http://www.ted.com/talks/birke_baehr_what_s_wrong_with_our_food_system?language=en>  Listen to the Podcasts from the Centers for Disease Control (CDC) and discuss with class.   * Shun the Sodas One in four high school students drinks some type of soda each day and nearly two in 10 consume other types of sugar-sweetened drinks one or more times a day. This podcast discusses how sugar-sweetened drinks can lead to excessive weight gain, and encourages drinking water. Created: 6/23/2011 by MMWR. Date Released: 6/23/2011. Series Name: A Minute of Health with CDC.<http://www2c.cdc.gov/podcasts/player.asp?f=7583393#transcript> * Stopping the Disease Spiral Diabetes is a major risk factor for developing kidney disease, and people with kidney disease are more susceptible to developing and dying from heart disease. This podcast discusses the importance of controlling diabetes, blood pressure, and cholesterol to help prevent or delay the onset of kidney and heart disease. Created: 3/3/2011 by MMWR. Date Released: 3/3/2011. Series Name: A Minute of Health with CDC.<http://www2c.cdc.gov/podcasts/player.asp?f=5798021>   Human Services Lifetime Nutrition and Wellness Writing Prompts:   * Think about the long-term effects of food choices. Write an essay in which you state your position on the long-term effects of food choices. (10th and 11th grade persuasive writing) |
| **Family/Community Connection** | Have students investigate individuals, groups, and associations. available in their community to help people with diabetes, eating disorders, food allergies and so forth. Have students create a phone list of these agencies and organizations that can be distributed to the school and local community. |
| **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. * Nutrition and Wellness – An individual event that recognizes participants who track food intake and physical activity for themselves, their family, or a community group and determine goals and strategies for improving their overall health. |
| **Service Learning Projects** | Successful service learning project ideas originate from student concerns and needs. Allow students to brainstorm about service projects pertaining to lesson. For additional information on service learning see:<http://ysa.org/>  Possible idea:   * Organize a local health and wellness clinic by contacting medical professionals to oversee needed screenings, providing information brochures, and distributing flyers.   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)