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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** | Child Development |
| **Lesson/Unit Title** | Down syndrome |
| **TEKS Student Expectations** | **130.277. (c) Knowledge and Skills**  (4) The student investigates components of optimal prenatal care and development. The student is expected to:  (A) identify signs and stages of pregnancy  (B) analyze the effect of environmental and hereditary factors on fetal development, including prenatal brain development  (C) describe nutritional needs prior to and during pregnancy  (D) analyze appropriate medical care and good health practices prior to and during pregnancy |
| **Basic Direct Teach Lesson**  (Includes Special Education Modifications/Accommodations and  one English Language Proficiency Standards (ELPS) Strategy) | |
| **Instructional Objectives** | **Students will:**   * Analyze the causes of Down syndrome * Differentiate the types of prenatal screening tests for Down syndrome * Investigate health problems associated with Down syndrome * Create a brochure with information, facts, and resources for parents of children with Down syndrome * Assess salaries, duties, work environment, and job outlook for employment for a career involving infants such as a neonatal intensive care specialist |
| **Rationale** | Down syndrome is the most common type of chromosomal disorder today. The Center for Disease Control estimates that each year about 6,000 babies in the United States are born with Down syndrome. In other words, about 1 of every 691 babies born in the United States each year is born with Down syndrome. In this lesson, you will explore and investigate the causes and health problems associated with Down syndrome.  After a child is born with Down syndrome, the doctor will send the infant to a neonatal intensive care unit. The neonatal intensive care units are responsible for quality care of infants and to provide parents with accurate information on their child’s condition. A career involving infants as a neonatal intensive care specialist can be very rewarding. |
| **Duration of Lesson** | Three 45-minute class periods |
| **Word Wall/Key Vocabulary**  *(ELPS c1a, c, f; c2b; c3a, b, d; c4c; c5b) PDAS II (5)* | **Amniocentesis:** A procedure in which a small sample of amniotic fluid is drawn out of the uterus through a needle inserted in the abdomen. The fluid is then analyzed to detect genetic abnormalities in the fetus or to determine the sex of the fetus  **Chorionic Villus Sampling (CVS):** Prenatal test to detect birth defects that is performed at an early stage of pregnancy and involves retrieval and examination of tissue from the chorionic villi  **Karyotype:** Visual display of chromosomes grouped by size, number, and shape  **Neonatal:** Of or relating to newborn infants or an infant: neonatal care; neonatal disorders  **Percutaneous Umbilical Blood Sampling (PUBS):** Genetic test that examines blood from the umbilical cord to detect fetal abnormalities. This test carries a high risk of complication and is usually reserved for high-risk pregnancies  **Simian Crease:** Single crease across the palm of the hand  **Trisomy:** Three chromosomes |
| **Materials/Specialized Equipment Needed** | **Equipment:**   * Computer with projector for multimedia presentation * Computers with internet access (be sure to follow district guidelines for internet access)   **Materials:**   * Pictures of hospital nurseries, nurses, cribs, incubators * Samples of different types of pamphlets and brochures about birth defects * Pictures of down syndrome children * Copies of handouts   **PowerPoint:**   * Down syndrome   **Technology:**   * TEDx Talk:   + David Merrill: Toy tiles that talk to each other MIT grad student David Merrill demos Siftables— cookie-sized, computerized tiles you can stack and shuffle in your hands. These future-toys can do math, play music, and talk to their friends, too. Is this the next thing in hands-on learning?<http://www.ted.com/talks/david_merrill_demos_siftables_the_smart_blocks>   **YouTube:**   * I Have a Voice This is an upcoming Traveling Gallery, promoting Down syndrome awareness. Portrait photography by renown photographer Thomas Balsamo. A coffee table book is soon to follow designed by legendary Advertising Agency Bagby & Company. This film promotes awareness and the organization that brought this project to life, GiGi’s Playhouse, a National Down Syndrome Awareness, non-for-profit organization.<http://youtu.be/t_0K-gPlyb0> * Learning About Down Syndrome Sarah Palin is a role model to many parents of children with Down Syndrome. As Katie Couric reports, the majority of parents that learn of the disorder early choose to terminate the pregnancy.<http://youtu.be/o4y0k7zRGQw> * Neonatal Nurse This is a full detail video on the career of a Neonatal Nurse<http://youtu.be/bFuaPoO_Vso>   **Graphic Organizer:**   * Career as a Neonatal Intensive Care Specialist * Down Syndrome Notes * KWL – Down Syndrome   **Handouts:**   * Down Syndrome Fact Sheet * Down Syndrome Research Project * Four Corner Word Wall * Rubric-Down Syndrome Research Project |
| **Anticipatory Set**  (May include pre-assessment for prior knowledge) | **Before class begins:**  Note to teacher – Become familiar with:  Medline Plus – interactive tutorial or self-playing tutorial on amniocentesis<http://www.nlm.nih.gov/medlineplus/tutorials/amniocentesis/htm/index.htm>  Gather materials (see Materials or Specialized Equipment Needed tab) and place on a table for students to observe as they enter the classroom.  **As class begins:**  Show news clip from CBS news. <http://www.youtube.com/watch?v=o4y0k7zRGQw>  When students are seated, show the video. Then engage the students in a classroom discussion about Down syndrome. Have students brainstorm answers to the following questions. Assign a student scribe to record all answers on the board or chart tablet.   * What is Down syndrome? * What causes Down syndrome? * What resources are available to help parents and families understand Down syndrome? * What careers are associated with helping children with Down syndrome? * What are some early intervention programs available to parents? * What services are available to children with Down syndrome? * What are some health issues related to Down syndrome?   Distribute graphic organizer, KWL-Down syndrome, and have students complete the first two columns of the chart. The last column will be completed during lesson closure. |
| **Direct Instruction \*** | Introduce lesson objectives, terms, and definitions.  Distribute the graphic organizer Down Syndrome Notes so that students may take notes during the slide presentation.  Introduce PowerPoint, Down syndrome. Allow time for questions and class discussion.  Note to teacher: You can also print the Amniocentesis Reference Summary for the students.  View the YouTube videos:   * I have a Voice video<http://youtu.be/t_0K-gPlyb0> * Neonatal Nurse This is a full detail video on the career of a Neonatal Nurse<http://youtu.be/bFuaPoO_Vso>   Distribute graphic organizer Career as a Neonatal Intensive Care Specialist and allow the students to complete the handout.  *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 * encourage participation |
| **Guided Practice \*** | Distribute the handout, down syndrome Fact Sheet, and discuss with the class. Students will add additional facts to the handouts. Students can share this document with family and friends.  Distribute handout, Down Syndrome Research Project. Students will work individually on the research. Discuss what information will be required in the brochure.  Students will present summative information in a brochure. Distribute Rubric- Down Syndrome Research Project so that students are aware of assessment requirements.  Continuously monitor and assist students with research. This will assist in keeping them focused and on task.  *Individualized Education Plan (IEP) for all special education students must be followed. Examples of accommodations may include, but are not limited to:*   * check for understanding * assist student in gathering information |
| **Independent Practice/Laboratory Experience/Differentiated Activities \*** | Students will work independently researching and collecting information for their assignment. At the end of each class period have each student give a brief status report on his or her assignment. Students will complete their projects and begin presentations. Students may use Online Databases such as:   * Online Dictionary<http://www.merriam-webster.com/> * World Book Encyclopedia<http://worldbookonline.com/wb/Login?ed=wb> * Medline Plus <http://www.nlm.nih.gov/medlineplus/>   *Individualized Education Plan (IEP) for all special education students must be followed. Examples of accommodations may include, but are not limited to:*   * reducing length of assignment * providing praise and encouragement |
| **Lesson Closure** | Students will volunteer to present their research project.  Students will complete the KWL chart-Down syndrome.  During research, end each class with each group giving a brief status report on the progress of their assignment. |
| **Summative/End of Lesson Assessment \*** | Student research projects 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 * extra time for assignment |
| **References/Resources/**  **Teacher Preparation** | **Websites:**   * About Down syndrome Source: National Down Syndrome Society <http://www.ndss.org/> * Down syndrome Source: National Institute of Health  What is Down syndrome?  [http://www.nichd.nih.gov/health/topics/down\_syndrome.cfm](https://www.nichd.nih.gov/Pages/index.aspx) * Facts about Down syndrome   Source: Kids Health  Facts and information for parents about Down syndrome.<http://kidshealth.org/parent/medical/genetic/down_syndrome.html> * Facts about Down syndrome Source: National Association for Down syndrome Down syndrome is a genetic condition that causes delays in physical and intellectual development. Discuses basic facts about Down syndrome. [www.nads.org/pages\_new/facts.html](http://www.nads.org/pages_new/facts.html) * National Down Syndrome Society The mission of the National Down Syndrome Society is to be the national advocate for the value, acceptance, and inclusion of people with Down syndrome. The National Down Syndrome Society envisions a world in which all people with Down syndrome have the opportunity to enhance their quality of life, realize their life aspirations, and become valued members of welcoming communities.<http://www.ndss.org/>   **YouTube:**   * I Have a Voice This is an upcoming Traveling Gallery, promoting Down syndrome awareness. Portrait photography by renown photographer Thomas Balsamo. A coffee table book is soon to follow designed by legendary Advertising Agency Bagby & Company. This film promotes awareness and the organization that brought this project to life, GiGi’s Playhouse, a National Down Syndrome Awareness, non-for-profit organization.<http://youtu.be/t_0K-gPlyb0> * Learning About Down Syndrome Sarah Palin is a role model to many parents of children with Down Syndrome. As Katie Couric reports, the majority of parents that learn of the disorder early choose to terminate the pregnancy.<http://youtu.be/o4y0k7zRGQw> * Neonatal Nurse This is a full detail video on the career of a Neonatal Nurse<http://youtu.be/bFuaPoO_Vso> |
| **Additional Required Components** | |
| **English Language Proficiency Standards (ELPS) Strategies** | * Word wall * Four corner word wall handout. The four-corner vocabulary activity (see below) is a great instructional strategy for English language learners. A variation of this activity is to have students document the information, using an index card per word, and create their own personal dictionary. The left-hand corner of each index cards can be hole punched and deck can be held together with an over-sized notebook ring. |
| **College and Career Readiness Connection[[1]](#footnote-1)** |  |
| **Recommended Strategies** | |
| **Reading Strategies** | The My Great Story campaign, from the National Down Syndrome Society (NDSS) seeks to ignite a new way of thinking about people with Down syndrome by sharing stories by and about them. To view the complete collection or submit your own story, visit <http://www.ndss.org/>  Inform students that they will be reading a story about an individual with Down syndrome and giving a brief oral summary of the story. Instruct student to log onto <http://www.ndss.org/> browse through the contents and select a story to read.  Encourage students to connect reading to their life experiences or prior knowledge. |
| **Quotes** | Please do not ever prejudge the limits of my abilities, just because I happen to have a disability. **-Ann Forts**  Down syndrome is a gift that can’t wait to be opened. **-Diane Moedens**  One of my greatest joys is when my 3rd grade daughter, who has Down syndrome, reads me a bedtime story. **-Robbin Lyo** |
| **Writing Strategies**  **Journal Entries + 1 Additional Writing Strategy** | **Journal Entries:**   * People with Down syndrome can contribute to society by… * If I had a brother or sister with Down syndrome, I would…   **Writing Strategy:**   * RAFT (Role/Audience/Format/Topic) writing strategy:    + Role: a child with Down syndrome   + Audience: students in classroom   + Format: informal letter   + Topic: things I want you to know about me having Down syndrome.   You are playing the role of a student with Down syndrome. Based on the information you learned about Down syndrome; write a letter outlining strategies to help the students in the classroom better understand a person with Down syndrome.  The My Great Story campaign, from the National Down Syndrome Society (NDSS)seeks to ignite a new way of thinking about people with Down syndrome by sharing stories by and about them. Encourage students with Down syndrome siblings or relatives to write and submit their own story to the NDSS for possible publication in their collection of My Great Story. [www.ndss.org/stories.](http://www.ndss.org/stories.) |
| **Communication**  **90 Second Speech Topics** | * People need to understand that Down syndrome is… * A child born with Down syndrome is capable of… |
| **Other Essential Lesson Components** | |
| **Enrichment Activity**  (e.g., homework assignment) | * Each month the National Down Syndrome Society (NDSS) provides a free educational web-based seminar, or webinar, to anyone who is interested in learning more about Down syndrome and related topics, such as health, education, research, and family life. Encourage students to participate in a webinar of their choice and report their findings to the class. * Volunteer within the school system to work with Down syndrome individuals. Offer to help with schoolwork, read to them, paint fingernails, or take directives from the teacher.   **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.  David Merrill: Toy tiles that talk to each other MIT grad student David Merrill demos Siftables— cookie-sized, computerized tiles you can stack and shuffle in your hands. These future-toys can do math, play music, and talk to their friends, too. Is this the next thing in hands-on learning?<http://www.ted.com/talks/david_merrill_demos_siftables_the_smart_blocks> |
| **Family/Community Connection** | Invite a guest speaker from a local support organization to speak on the services they provide for Down syndrome families.  Ask a doctor to speak on how a determination of Down syndrome is made at birth. |
| **CTSO connection(s)** | Family Career and Community Leaders of America (FCCLA) <http://texasfccla.org>   * 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. |
| **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://www.nylc.org/>  Possible idea:  Distribute brochures on Down syndrome to the library, guidance office and/or local health department.  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)