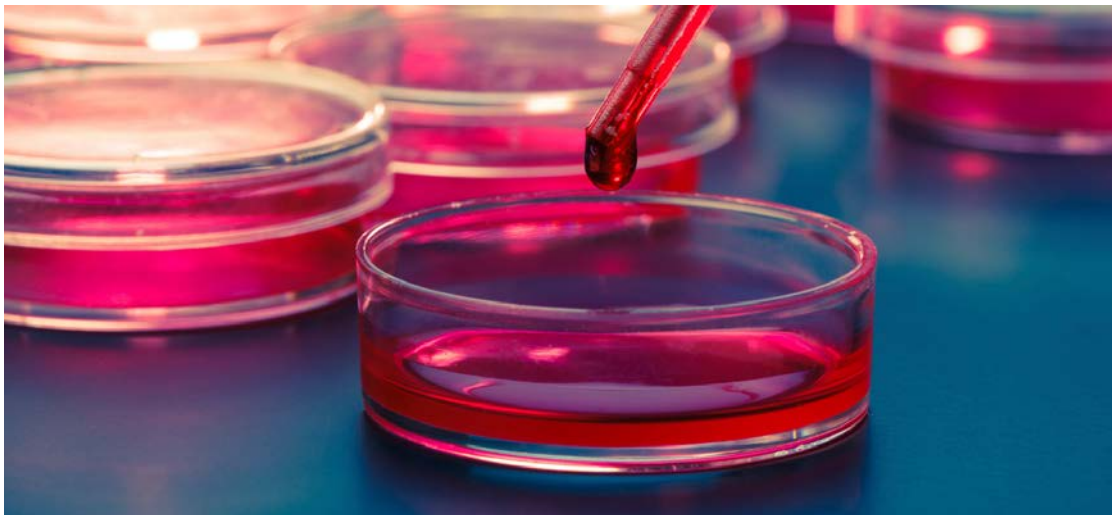


# WHAT'S THE DIAGNOSIS?



This guide links the *What's the Diagnosis?* task to the Texas Essential Knowledge and Skills (TEKS) for high school students. *What's the Diagnosis?* is a science unit that allows students to explore the physical and historical effects of viruses and diseases. Though a science unit, *What's the Diagnosis?* also helps students practice skills in the other subject areas of English language arts and social studies. For example, students will prepare, organize, and present informative and persuasive oral messages, which the English Language Arts and Reading TEKS address. They will also understand connections between major developments in science and technology and the growth of industrial economies and societies in the 18<sup>th</sup>, 19<sup>th</sup>, and 20<sup>th</sup> centuries, which the Social Studies TEKS cover. The following document includes the applicable TEKS and the details of *What's the Diagnosis?* unit. The asterisks indicate the TEKS that are testable on the State of Texas Assessments of Academic Readiness (STAAR). The final section of this document presents the applicable Texas College and Career Readiness Standards adopted by the Texas Higher Education Coordinating Board (THECB) on January 24, 2008.

## Description of Unit

In this task, students will explore the physical and historical impacts of disease. Students will begin by researching cells, bacteria, and viruses and the role of each in the body. They will then study different diseases (e.g., common cold, HIV/AIDS, bubonic plague) and their impacts on the body. Students will then choose one disease and track its history through time. They will determine the impact on the populations (including future populations) affected, as well as the impact on lifestyles of affected populations (including future populations) throughout the world.

## Goals

Students will meet these goals in their explorations:

- Ask questions and explore theories
- Have opportunities to generate new ideas

### *What's the Diagnosis?* (High School)

- Develop the essential skills of logical thinking, creative problem solving, intellectual risk taking, and communicating
- Become familiar with the biology and sociology of various diseases
- Understand how awareness of disease has changed over time and how people from various cultures have responded to this knowledge

Teacher Directions	Additional Teacher Preparation & Notes
<p><b>Elicit</b></p> <p>Ask students to write freely in their journals about their experiences with sicknesses and disease. These journal entries may or may not be shared depending upon the interests of your students.</p> <p>Lead the class in an informal discussion about health and disease? What is disease? How do diseases spread? What are the relationships between cells, bacteria, and viruses with regards to both wellness and disease?</p>	<p>Through both the journal writing activities and the large group discussion, assess students' prior knowledge of biological processes related to disease.</p>
<p><b>Engage</b></p> <p>Break students up into small groups. Ask one group to research cells, another to research viruses, and a third to research bacteria. You may wish to collaborate with the local librarian, the local epidemiologist, or area healthcare professionals to obtain source material for student research. Guide students in identifying reputable internet sources. While researching the topic of healthcare and wellness on the internet, students should practice media literacy skills such as questioning, identifying sources and perspectives, and critically examining the material presented.</p>	<p>While the Internet boasts a wealth of health-related information, it is also rife with misinformation and pseudoscience. Effective researchers practice strong media literacy skills in order to sift through the abundance of information looking for accurate, reliable studies. This topic presents an excellent opportunity for students to practice these media literacy skills.</p> <p>For more information on media literacy visit Ithaca College's media literacy initiative, <a href="#">Project Look Sharp</a>.</p>
<p><b>Explain</b></p> <p>Each group should develop a scientific poster and present it to the class highlighting their findings on what cells, viruses, and bacteria do</p>	

### What's the Diagnosis? (High School)

to the body, what they are, and why they are present. Groups should clearly cite their sources of information. After each presentation, allow for an informal question and answer session. Leave the posters on display. Students may wish to revisit the posters through a gallery walk during later parts of this activity.

## Explore

Individually, or in small groups, assign each student a cellular or pathological disease. Students will research their disease and create a checklist for that disease as if they were doctors examining a patient. Include symptoms/signs of the disease, drawings/pictures, and the body's reaction to each stage of the disease (from onset until the end).

The focus for the checklist is primarily on identification of a particular disease for diagnosis as well as communicating the prognosis (including the stages of the disease) to a patient. If time permits, students may explore treatments, interventions, or therapies used to combat the disease.

## Explain

Allow each group to present their findings to the class. Hold a discussion about the diseases they studied and determine any similarities/differences that are significant, as well as any patterns that doctors, researchers, or other healthcare workers would need to know to help distinguish the differences between cellular and pathological diseases.

- What are some of symptoms of the disease?
- How are these symptoms similar to, or different from, other diseases?
- What type of bacteria or pathogen causes this disease and how does it spread both within the body as well as from person to person?
- What might be some of the risk factors for developing this disease?
- Where are the geographic hotspots for this disease (i.e., are there some areas on the globe where the disease is more prevalent)?
- How does the disease appear across various socio-economic or age-related groups?
- What are factors contributing to more or less frequent evidence of the disease in these populations?

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<p><b>Elaborate (Phase II)</b></p> <p><b>Research process</b></p> <ol style="list-style-type: none"> <li><b>1. Selecting a topic.</b> Each student chooses one disease to determine the effects on the body, from onset to the end, as well as tracking the disease historically.</li> <li><b>2. Asking guiding questions.</b> Once students have selected a topic, each student should think of three to five guiding questions, such as: <ul style="list-style-type: none"> <li>• How does this disease affect the body during each stage of its progression?</li> <li>• How have understanding and treatments of this disease evolved throughout history?</li> <li>• How has this disease impacted the affected populations and their lifestyles? Has it changed the lifestyles of unaffected populations?</li> <li>• How might this disease affect future populations and their lifestyles? What about the lifestyles of unaffected populations?</li> </ul> </li> <li><b>3. Creating a research proposal.</b> Students should identify their topic, guiding questions, and possible resources.</li> <li><b>4. Conducting the research.</b> After the teacher has approved student proposals, each student begins using the resources he/she has identified and others he/she may encounter. During this stage, the student will need to keep a log, note cards, and/or resource process sheets for all the sources he/she uses and what he/she learns from each one.</li> </ol>	<p>Students will select one of the diseases to study in-depth with the goal of creating an in-depth presentation from the perspective of an expert alongside a proposal to a healthcare agency for how they would spend research dollars in learning more about the disease, identifying treatment, or developing policies and procedures to slow its progress.</p>
<p><b>Explain</b></p> <p><b>The product</b></p> <ol style="list-style-type: none"> <li>1. Students will make a formal presentation as if they are experts on the disease they researched and discuss its history, ways to fight the disease, what could hinder this progress, ethical issues in researching and fighting the disease, and economic impacts of the disease.</li> <li>2. Students will be given X amount of money in order to</li> </ol>	

<p>research the disease they have been studying. They will then discuss how they will spend the money and the details of their plans.</p> <p><b>Communication</b> (aligned with 1-2 above)</p> <ol style="list-style-type: none"> <li>1. Formal presentation, as if at a conference, which includes audience questions.</li> <li>2. Grant proposal that would be made to the agencies giving the money—should be persuasive. Include time for questions from the audience.</li> </ol>	
<p><b>Evaluate</b></p> <p>Use the TPSP High School/Exit Level Rubric to assess each student’s learning. Additionally, you may wish to develop self- or peer-assessments based on the rubric that students could use to evaluate their products.</p> <p><b>A completed project consists of:</b></p> <ol style="list-style-type: none"> <li>1. Research proposal</li> <li>2. Research log, note cards, and/or resource process sheets</li> <li>3. The product, including references or works cited</li> <li>4. A videotape or audiotape of the class presentation, including the Q&amp;A session</li> </ol> <p>In what ways did the student:</p> <ul style="list-style-type: none"> <li>• Develop sophisticated, open-ended questions about the self-selected topic;</li> <li>• Use a variety of sources that access advanced content and include multiple perspectives;</li> <li>• Collect data using the tools of the discipline;</li> <li>• Analyze and interpret the data;</li> <li>• Capture and apply their analysis through an original product; and</li> <li>• Communicate his/her research findings, learning, and ideas to an audience using the language of the discipline.</li> </ul>	<p>The TPSP High School/Exit Level Rubric can be downloaded at <a href="http://www.texaspsp.org/highschool/high-school-assessment.php">http://www.texaspsp.org/highschool/high-school-assessment.php</a>.</p>

## Extend

Interdisciplinary extension activities include the following project ideas.

### Mathematics

Malaria has largely been eradicated in developed countries, however much of the world still combats this preventable/treatable disease. What is the economic toll of a disease such as malaria on the developing world? With the help of your local librarian, gather data from research studies, articles, and sources such as the World Health Organization and chart the impacts of the disease on a particular population. How much do treatments and preventative therapies for malaria cost? What are the obstacles that prevent the eradication of the disease from the entire world's population? Design a multimedia presentation using charts and graphs to communicate your quantitative analysis. Act as if you are founding a non-profit with the aim of eradicating malaria from the planet and you are stating your case to donors and investors.

### Social Studies

Diseases such as bubonic plague, smallpox, and cholera decimated populations and left indelible marks on history. Research a disease that substantially altered the history of a community or culture and create a museum exhibit that conveys that information to your peers. What might the community have been like had that disease been eradicated or prevented? How did the disease change the course of events and how might these changes have impacted surrounding communities or cultures? Include timelines, geographic maps, and images in your presentation.

### English language arts

Find a story where disease factors into the plot. In what ways does the illness act as a character in the story? How does it impact the other characters and move the plot forward to the conclusion? Rewrite the story with two possible alterations—either switch the disease to one that you studied, or treat the patient to a full recovery. How do these deviations impact the characters and alter the plot? Share your work with classmates through a public reading.

**Resources:**

[http://evolution.berkeley.edu/evolibrary/news/070301\\_hiv](http://evolution.berkeley.edu/evolibrary/news/070301_hiv)

[http://www.cdc.gov/ncidod/teachers\\_tools/virus\\_encounters.htm](http://www.cdc.gov/ncidod/teachers_tools/virus_encounters.htm)

<http://www.sdnhm.org/exhibits/epidemic/resources.html>

**Texas Essential Knowledge and Skills**

The unit may address the following TEKS:

**Science:*****Biology***

- B.3 Uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom
- B.4 Knows that cells are the basic structures of all living things with specialized parts that perform specific functions and that viruses are different from cells\* (Testable on the Biology STAAR, Reporting Category 1)
- B.7 Knows evolutionary theory is a scientific explanation for the unity and diversity of life\* (Testable on the Biology STAAR, Reporting Category 3)
- B.9 Knows the significance of various molecules involved in metabolic processes and energy conversions that occur in living organisms\* (Testable on the Biology STAAR, Reporting Category 1, Reporting Category 4)
- B.10 Knows that biological systems are composed of multiple levels\* (Testable on the Biology STAAR, Reporting Category 4)
- B.11 Knows that biological systems work to achieve and maintain balance\* (Testable on the Biology STAAR, Reporting Category 4, Reporting Category 5)

***Environmental Systems***

- C.3 Uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom
- C.4 Knows the relationships of biotic and abiotic factors within habitats, ecosystems, and biomes
- C.5 Knows the interrelationships among the resources within the local environmental system
- C.7 Knows the relationship between carrying capacity and changes in populations and ecosystems
- C.8 Knows that environments change naturally

**English Language Arts and Reading:*****English I***

- I.1 Understands new vocabulary and uses it when reading and writing\* (Testable on the English I STAAR, Reporting Category 1)
- I.2 Analyzes, make inferences, and draws conclusions about theme and genre in different

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- cultural, historical, and contemporary contexts and provides evidence from the text to support their understanding\* (Testable on the English I STAAR, Reporting Category 1, Reporting Category 2)
- I.8 Analyzes, makes inferences, and draws conclusions about the author's purpose in cultural, historical, and contemporary contexts and provides evidence from the text to support their understanding\* (Testable on the English I STAAR, Reporting Category 3)
- I.11 Understands how to glean and uses information in procedural texts and documents\* (Testable on the English I STAAR, Reporting Category 3)
- I.12 Uses comprehension skills to analyze how words, images, graphics, and sounds work together in various forms to impact meaning\* (Testable on the English I STAAR, Reporting Category 2, Reporting Category 3)
- I.13 Uses elements of the writing process (planning, drafting, revising, editing, and publishing) to compose text\* (Testable on the English I STAAR, Reporting Category 4, Reporting Category 5, Reporting Category 6)
- I.16 Writes persuasive texts to influence the attitudes or actions of a specific audience on specific issues\* (Testable on the English I STAAR, Reporting Category 5)
- I.17 Understands the function of and uses the conventions of academic language when speaking and writing\* (Testable on the English I STAAR, Reporting Category 6)
- I.18 Writes legibly and uses appropriate capitalization and punctuation conventions in their compositions\* (Testable on the English I STAAR, Reporting Category 6)
- I.19 Spells correctly\* (Testable on the English I STAAR, Reporting Category 6)
- I.20 Asks open-ended research questions and develops a plan for answering them
- I.21 Determines, locates, and explores the full range of relevant sources addressing a research question and systematically record the information they gather
- I.23 Organizes and presents their ideas and information according to the purpose of the research and their audience
- I.24 Uses comprehension skills to listen attentively to others in formal and informal settings
- I.25 Speaks clearly and to the point, using the conventions of language

### **English II**

- II.1 Understands new vocabulary and uses it when reading and writing\* (Testable on the English II STAAR, Reporting Category 1)
- II.2 Analyzes, makes inferences, and draws conclusions about theme and genre in different cultural, historical, and contemporary contexts and provides evidence from the text to support their understanding\* (Testable on the English II STAAR, Reporting Category 1, Reporting Category 2)
- II.8 Analyzes, makes inferences, and draws conclusions about the author's purpose in cultural, historical, and contemporary contexts and provides evidence from the text to support their understanding\* (Testable on the English II STAAR, Reporting Category 3)
- II.9 Analyzes, makes inferences, and draws conclusions about expository text and provide

### **What's the Diagnosis? (High School)**



- evidence from text to support their understanding\* (Testable on the English II STAAR, Reporting Category 1, Reporting Category 3)
- II.12 Uses comprehension skills to analyze how words, images, graphics, and sounds work together in various forms to impact meaning\* (Testable on the English II STAAR, Reporting Category 2, Reporting Category 3)
- II.13 Uses elements of the writing process (planning, drafting, revising, editing, and publishing) to compose text\* (Testable on the English II STAAR, Reporting Category 4, Reporting Category 5, Reporting Category 6)
- II.14 Writes literary texts to express their ideas and feelings about real or imagined people, events, and ideas
- II.16 Writes persuasive texts to influence the attitudes or actions of a specific audience on specific issues\* (Testable on the English II STAAR, Reporting Category 4, Reporting Category 5)
- II.18 Writes legibly and use appropriate capitalization and punctuation conventions in their compositions\* (Testable on the English II STAAR, Reporting Category 6)
- II.20 Asks open-ended research questions and develops a plan for answering them
- II.21 Determine, locate, and explore the full range of relevant sources addressing a research question and systematically record the information they gather
- II.24 Uses comprehension skills to listen attentively to others in formal and informal settings
- II.25 Speaks clearly and to the point, using the conventions of language

### **English III**

- III.1 Understands new vocabulary and uses it when reading and writing\* (Testable on the English III STAAR, Reporting Category 1)
- III.2 Analyzes, makes inferences, and draws conclusions about theme and genre in different cultural, historical, and contemporary contexts and provides evidence from the text to support their understanding\* (Testable on the English III STAAR, Reporting Category 2)
- III.8 Analyzes, makes inferences, and draws conclusions about the author's purpose in cultural, historical, and contemporary contexts and provides evidence from the text to support their understanding\* (Testable on the English III STAAR, Reporting Category 3)
- III.13 Uses elements of the writing process (planning, drafting, revising, editing, and publishing) to compose text\* (Testable on the English III STAAR, Reporting Category 4, Reporting Category 5)
- III.14 Writes literary texts to express their ideas and feelings about real or imagined people, events, and ideas
- III.16 Writes persuasive texts to influence the attitudes or actions of a specific audience on specific issues\* (Testable on the English III STAAR, Reporting Category 4, Reporting Category 5)
- III.18 Writes legibly and uses appropriate capitalization and punctuation conventions in their compositions\* (Testable on the English III STAAR)
- III.20 Asks open-ended research questions and develops a plan for answering them

### **What's the Diagnosis? (High School)**

- III.21 Determines, locates, and explores the full range of relevant sources addressing a research question and systematically record the information they gather
- III.23 Organizes and presents their ideas and information according to the purpose of the research and their audience
- III.24 Uses comprehension skills to listen attentively to others in formal and informal settings
- III.25 Speaks clearly and to the point, using the conventions of language

#### **English IV**

- IV.1 Understands new vocabulary and uses it when reading and writing
- IV.2 Analyzes, makes inferences, and draws conclusions about theme and genre in different cultural, historical, and contemporary contexts and provides evidence from the text to support their understanding
- IV.6 Understands, makes inferences, and draws conclusions about the varied structural patterns and features of literary nonfiction and provides evidence from text to support their understanding
- IV.8 Analyzes, makes inferences, and draws conclusions about the author's purpose in cultural, historical, and contemporary contexts and provides evidence from the text to support their understanding
- IV.9 Analyzes, makes inferences, and draws conclusions about expository text and provides evidence from text to support their understanding
- IV.11 Understands how to glean and uses information in procedural texts and documents
- IV.12 Uses comprehension skills to analyze how words, images, graphics, and sounds work together in various forms to impact meaning
- IV.13 Uses elements of the writing process (planning, drafting, revising, editing, and publishing) to compose text
- IV.15 Writes expository and procedural or work-related texts to communicate ideas and information to specific audiences for specific purposes
- IV.17 Understands the function of and uses the conventions of academic language when speaking and writing
- IV.18 Writes legibly and use appropriate capitalization and punctuation conventions in their compositions
- IV.20 Asks open-ended research questions and develops a plan for answering them
- IV.21 Determine, locate, and explore the full range of relevant sources addressing a research question and systematically record the information they gather
- IV.23 Organizes and presents their ideas and information according to the purpose of the research and their audience
- IV.24 Uses comprehension skills to listen attentively to others in formal and informal settings
- IV.25 Speaks clearly and to the point, using the conventions of language

#### **What's the Diagnosis? (High School)**

**Social Studies:*****United States History***

- US.12 Understands the impact of geographic factors on major events\* (Testable on the U.S. History STAAR, Reporting Category 2)
- US.13 Understands the causes and effects of migration and immigration on American society\* (Testable on the U.S. History STAAR, Reporting Category 2)
- US.29 Applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology\* (Testable on the U.S. History STAAR)
- US.30 Communicates in written, oral, and visual form\* (Testable on the U.S. History STAAR)
- US.31 Uses geographic tools to collect, analyze, and interpret data\* (Testable on the U.S. History STAAR)
- US.32 Uses problem-solving and decision-making skills, working independently and with others, in a variety of settings

***World History***

- WH.1 Understands traditional historical points of reference in world history\* (Testable on the World History STAAR, Reporting Category 1)
- WH.15 Uses geographic skills and tools to collect, analyze, and interpret data\* (Testable on the World History STAAR)
- WH.16 Understands the impact of geographic factors on major historic events and processes\* (Testable on the World History STAAR, Reporting Category 3)
- WH.21 Understands the significance of political choices and decisions made by individuals, groups, and nations throughout history\* (Testable on the World History STAAR, Reporting Category 4)
- WH.25 Understands how the development of ideas has influenced institutions and societies\* (Testable on the World History STAAR, Reporting Category 3)
- WH.28 Understands how major scientific and mathematical discoveries and technological innovations have affected societies from 1750 to the present\* (Testable on the World History STAAR, Reporting Category 5)
- WH.29 Applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology\* (Testable on the World History STAAR)
- WH.30 Communicates in written, oral, and visual forms\* (Testable on the World History STAAR)
- WH.31 Uses problem-solving and decision-making skills, working independently and with others, in a variety of settings

***World Geography***

- WG.2 Understands how people, places, and environments have changed over time and the effects of these changes\* (Testable on the World Geography STAAR, Reporting Category 1)
- WG.3 Understands how physical processes shape patterns in the physical environment\* (Testable on the World Geography STAAR, Reporting Category 2)

***What's the Diagnosis? (High School)***

- WG.4 Understands the patterns and characteristics of major landforms, climates, and ecosystems of Earth and the interrelated processes that produce them\* (Testable on the World Geography STAAR, Reporting Category 2)
- WG.5 Understands how political, economic, and social processes shape cultural patterns and characteristics in various places and regions\* (Testable on the World Geography STAAR, Reporting Category 2)
- WG.6 Understands the types, patterns, and processes of settlement\* (Testable on the World Geography STAAR, Reporting Category 2)
- WG.15 Understands how different points of view influence the development of public policies and decision-making processes on local, state, national, and international levels\* (Testable on the World Geography STAAR, Reporting Category 1)
- WG.16 Understands how the components of culture affect the way people live and shape the characteristics of regions\* (Testable on the World Geography STAAR, Reporting Category 3)
- WG.17 Understands the distribution, patterns, and characteristics of different cultures\* (Testable on the World Geography STAAR, Reporting Category 3)
- WG.18 Understands the ways in which cultures change and maintain continuity\* (Testable on the World Geography STAAR, Reporting Category 3)
- WG.21 Applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology\* (Testable on the World Geography STAAR)
- WG.22 Communicates in written, oral, and visual forms\* (Testable on the World Geography STAAR)
- WG.23 Uses problem-solving and decision-making skills, working independently and with others, in a variety of settings\* (Testable on the World Geography STAAR)

### ***Psychology***

- PSY.3 Understands the relationship between biology and behavior
- PSY.13 Understand the influence of society and culture on behavior and cognition
- PSY.14 Applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology
- PSY.15 Communicates in written, oral, and visual forms
- PSY.16 Uses problem-solving and decision-making skills, working independently and with others, in a variety of settings
- PSY.18 Understands the relationship of changes in technology to personal growth and development

### ***Sociology***

- SOC.1 Understands the theoretical perspectives of the historical interpretations of human social development
- SOC.2 Understands how society evolves and cause and effect of social and institutional change
- SOC.3 Examines world cultures
- SOC.4 Understands types of groups and their functions

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SOC.7	Understands the concept of adolescence and its characteristics
SOC.8	Understands the life stage of adulthood and its characteristics
SOC.10	Understands the nature of social stratification in society
SOC.12	Understands changing societal views on gender, age, and health
SOC.14	Identifies the basic social institutions of economics and politics and explains their influence on society
SOC.17	Understands how population and urbanization contribute to a changing social world
SOC.18	Understands how collective behavior, social movements, and modernization contribute to a changing social world
SOC.19	Applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology
SOC.20	Communicates in written, oral, and visual forms
SOC.21	Uses problem-solving and decision-making skills, working independently and with others, in a variety of settings

## Texas College and Career Readiness Standards

This unit may address the following Texas College and Career Readiness Standards:

### English Language Arts:

I.A.2	Generates ideas and gathers information relevant to the topic and purpose, keeping careful records of outside sources
I.A.3	Evaluates relevance, quality, sufficiency, and depth of preliminary ideas and information, organize material generated, and formulate thesis
I.A.4	Recognizes the importance of revision as the key to effective writing
II.A.1	Uses effective reading strategies to determine a written work's purpose and intended audience
II.A.2	Uses text features and graphics to form an overview of informational texts and to determine where to locate information
II.A.3	Identifies explicit and implicit textual information including main ideas and author's purpose
II.A.4	Draws and supports complex inferences from text to summarize, draw conclusions, and distinguish facts from simple assertions and opinions
II.A.5	Analyzes the presentation of information and the strength and quality of evidence used by the author and judge the coherence and logic of the presentation and the credibility of an argument
II.A.8	Compares and analyzes how generic features are used across texts
II.A.9	Identifies and analyzes the audience, purpose, and message of an informational or persuasive text

### What's the Diagnosis? (High School)

- II.A.11 Identifies, analyzes, and evaluate similarities and differences in how multiple texts present information, argue a position, or relate a theme
- II.B.1 Identifies new words and concepts acquired through study of their relationships to other words and concepts
- II.B.2 Applies knowledge of roots and affixes to infer the meanings of new words
- II.B.3 Uses reference guides to confirm the meanings of new words or concepts
- III.A.1 Understands how style and content of spoken language varies in different contexts and influences the listener's understanding
- III.A.2 Adjusts presentation (delivery, vocabulary, length) to particular audiences and purposes
- III.B.1 Participates actively and effectively in one-on-one oral communication situations
- III.B.2 Participates actively and effectively in group discussions
- III.B.3 Plans and delivers focused and coherent presentations that convey clear and distinct perspectives and demonstrate solid reasoning
- IV.A.1 Analyzes and evaluates the effectiveness of a public presentation
- IV.A.2 Interprets a speaker's message; identifies the position taken and the evidence in support of that position
- IV.A.3 Uses a variety of strategies to enhance listening comprehension
- IV.B.1 Listens critically and respond appropriately to presentations
- IV.B.2 Listens actively and effectively in one-on-one communication situations
- IV.B.3 Listens actively and effectively in group discussions
- V.A.1 Formulates research questions
- V.A.2 Explores a research topic
- V.A.3 Refines research topic and devise a timeline for completing work
- V.B.1 Gathers relevant sources
- V.B.2 Evaluates the validity and reliability of sources
- V.B.3 Synthesizes and organizes information effectively
- V.B.4 Uses source material ethically
- V.C.1 Designs and present an effective product
- V.C.2 Uses source material ethically

### Science:

- I.A.1 Utilizes skepticism, logic, and professional ethics in science
- I.A.2 Uses creativity and insight to recognize and describe patterns in natural phenomena
- I.A.3 Formulates appropriate questions to test understanding of natural phenomena
- I.A.4 Relies on reproducible observations of empirical evidence when constructing, analyzing, and evaluating explanations of natural events and processes
- I.B.1 Designs and conducts scientific investigations in which hypotheses are formulated and tested
- I.C.1 Collaborates on joint projects
- I.E.1 Uses several modes of expression to describe or characterize natural patterns and

- phenomena. These modes of expression include narrative, numerical, graphical, pictorial, symbolic, and kinesthetic
- I.E.2 Uses essential vocabulary of the discipline being studied
- III.A.1 Uses correct applications of writing practices in scientific communication
- III.B.1 Reads technical and scientific articles to gain understanding of interpretations, apparatuses, techniques or procedures, and data
- III.B.2 Sets up apparatuses, carry out procedures, and collect specified data from a given set of appropriate instructions
- III.B.3 Recognizes scientific and technical vocabulary in the field of study and use this vocabulary to enhance clarity of communication
- III.B.4 Lists, uses, and gives examples of specific strategies before, during, and after reading to improve comprehension
- III.C.1 Prepares and represents scientific/technical information in appropriate formats for various audiences
- III.D.1 Uses search engines, databases, and other digital electronic tools effectively to locate information
- III.D.2 Evaluates quality, accuracy, completeness, reliability, and currency of information from any source
- IV.A.1 Recognizes how scientific discoveries are connected to technological innovations
- IV.C.2 Recognizes the role of people in important contributions to scientific knowledge
- V.C.1 Recognizes patterns of change
- V.D.1 Understands that scientists categorize things according to similarities and differences
- V.E.1 Uses models to make predictions
- V.E.2 Uses scale to relate models and structures
- VI.A.1 Knows that although cells share basic features, cells differentiate to carry out specialized functions
- VI.A.2 Explains in their own words how cells can be categorized into two major types: prokaryotic and eukaryotic, and describes major features that distinguish one from the other
- VI.A.3 Describes the structure and function of major subcellular organelles
- VI.A.4 Describes the major features of mitosis and relate this process to growth and asexual reproduction
- VI.A.5 Understands the process of cytokinesis in plant and animal cells and how this process is related to growth
- VI.A.6 Knows the structure of membranes and know this related to permeability
- VI.C.1 Knows multiple categories of evidence for evolutionary change and how this evidence is used to infer evolutionary relationships among organism
- VI.C.2 Recognizes variations in population sizes, including extinction, and describe mechanisms and conditions that produce these variations
- X.C.1 Recognizes variations in population sizes, including human population and extinction, and describe mechanisms and conditions that produce these variations

### ***What's the Diagnosis? (High School)***

**Social Studies:**

- I.A.2 Analyzes the interaction between human communities and the environment
- I.A.3 Analyzes how physical and cultural processes have shaped human communities over time
- I.A.4 Evaluates the causes and effects of human migration patterns over time
- I.A.5 Analyzes how various cultural regions have changed over time
- I.A.6 Analyzes the relationship between geography and the development of human communities
- I.B.2 Identifies and evaluates sources and patterns of change and continuity across time and place
- I.F.1 Uses a variety of research and analytical tools to explore questions or issues thoroughly and fairly
- I.F.2 Analyzes ethical issues in historical, cultural, and social contexts
- IV.A.1 Identifies and analyzes the main idea(s) and point(s) of view in sources
- IV.A.2 Situates an informational source in its appropriate contexts
- IV.A.3 Evaluates sources from multiple perspectives
- IV.A.4 Understands the differences between a primary and secondary source and use each appropriately to conduct research and construct arguments
- IV.A.5 Reads narrative texts critically
- IV.A.6 Reads research data critically
- IV.B.1 Uses established research methodologies
- IV.B.2 Explains how historians and other social scientists develop new and competing views of past phenomena
- IV.B.3 Gathers, organizes, and displays the results of data and research
- IV.B.4 Identifies and collects sources
- IV.C.1 Understands/interprets presentations critically
- IV.D.1 Constructs a thesis that is supported by evidence
- IV.D.2 Recognizes and evaluates counter-arguments
- V.A.1 Uses appropriate oral communication techniques, depending on the context or nature of the interaction
- V.A.2 Uses conventions of standard written English
- V.B.1 Attributes ideas and information to source materials and authors

**Cross-Disciplinary Standards:**

- I.A.1 Engages in scholarly inquiry and dialogue
- I.A.2 Accepts constructive criticism and revise personal views when valid evidence warrants
- I.B.1 Considers arguments and conclusions of self and others
- I.B.2 Constructs well-reasoned arguments to explain phenomena, validate conjectures, or support positions
- I.B.3 Gathers evidence to support arguments, findings, or lines of reasoning
- I.B.4 Supports or modifies claims based on the results of an inquiry
- I.D.1 Self-monitors learning needs and seeks assistance when needed

**What's the Diagnosis? (High School)**



- I.D.2 Uses study habits necessary to manage academic pursuits and requirements
- I.D.3 Strives for accuracy and precision
- I.D.4 Perseveres to complete and master tasks
- I.E.1 Works independently
- I.E.2 Works collaboratively
- I.F.1 Attributes ideas and information to source materials and people
- I.F.2 Evaluates sources for quality of content, validity, credibility, and relevance
- I.F.3 Includes the ideas of others and the complexities of the debate, issue, or problem
- I.F.4 Understands and adheres to ethical codes of conduct
- II.A.1 Uses effective prereading strategies
- II.A.2 Uses a variety of strategies to understand the meanings of new words
- II.A.3 Identifies the intended purpose and audience of the text
- II.A.4 Identifies the key information and supporting details
- II.A.5 Analyzes textual information critically
- II.A.6 Annotates, summarizes, paraphrases, and outlines texts when appropriate
- II.A.7 Adapts reading strategies according to structure of texts
- II.A.8 Connects reading to historical and current events and personal interest
- II.B.1 Writes clearly and coherently, using standard writing conventions
- II.B.2 Writes in a variety of forms for various audiences and purposes
- II.B.3 Composes and revises drafts
- II.C.1 Understands which topics or questions are to be investigated
- II.C.2 Explores a research topic
- II.C.3 Refines research topic based on preliminary research and devises a timeline for completing work
- II.C.4 Evaluates the validity and reliability of sources
- II.C.5 Synthesizes and organizes information effectively
- II.C.6 Designs and presents an effective product
- II.C.7 Integrates source material
- II.C.8 Presents final product
- II.D.1 Identifies patterns or departures from patterns among data
- II.D.2 Uses statistical and probabilistic skills necessary for planning an investigation and collecting, analyzing, and interpreting data
- II.D.3 Presents analyzed data and communicate findings in a variety of formats
- II.E.1 Uses technology to gather information
- II.E.2 Uses technology to organize, manage, and analyze information
- II.E.3 Uses technology to communicate and display findings in a clear and coherent manner
- II.E.4 Uses technology appropriately

### ***What's the Diagnosis? (High School)***