TUBERCULOSIS (TB) UNIT
LESSON 1: GOOD NEWS! TB KILLER ON THE LOOSE!

TEXAS BIOMEDICAL RESEARCH INSTITUTE
HEALTH STARTS WITH SCIENCE

Overview: Through the following activities, students will be able to express their knowledge of how infectious diseases affect the lungs. In these activities students will create products and/or explain the impact of Mycobacterium tuberculosis (aka: TB) on the body as well as explore the body's immune responses to the bacterium. In Activity A, Infect Me…If You Can! students will showcase their acquired knowledge through completion of items from a Choice Board. In Activity B, students will demonstrate their data analysis skills by interpreting graphic representations of data from TB research. In Activity C, students will write an abstract or summary of what they have learned about TB. From the written abstract, students will create a visual abstract, using pictures and diagrams to convey what they have learned.

Education Standards:

TEKS: **(MS) 8th Grade:** 2B & C, 3 A, B, & C
7th Grade: 2 B, C, & D, 3 A, B, & C, 4 A & B, 13 A

ELPS: ELPS.c1, ELPS.c.2, ELPS.c.3, ELPS.c.4, ELPS.c.5

NGSS: Middle School and High School Life Science

Transformed Article:

Activities

Activity A: ***Infect Me… If You Can!***

Students will read the student background information for Activity 1 and then view the SciTech Now video "Tuberculosis". This 5-minute video introduces students to current tuberculosis research conducted at Texas Biomedical Research Institute in San Antonio Texas. After viewing the video, students will select activities from a choice board.

Teacher Notes: The background information can be read as a class, individually, or within groups. There may be questions and a great opportunity for discussion. The video included in this activity is 5-minutes long and well suited for in-class viewing. However, viewing the video can be an outside class activity. After completing the reading and video, students will select from a Choice Board to demonstrate their level of mastery.

> **Suggestion:** The Choice Board provides flexibility for planning. The number of activities students can complete is open to the teacher to decide. Perhaps 1 activity will be sufficient for students with learning or language challenges. For advanced students or as enhancements, consider assigning patterns (3 in a row or column or complete the 4 corners). It can serve as a discussion/presentation opportunity for Activity A or as a summative assessment after both activities A & B. If students are to present their product(s) from the Choice Board, consider a Gallery Walk for static products such as the Acrostic Poem, One-Pager, Comic Book Strip, or Cheat Sheet. Other projects can be shared as video performances, such as TikTok, podcasts, or performed live.

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Activity B: *Getting "Graphic" with TB*

Students will read the transformed article "Good News! There's a TB Killer on the Loose!". Using graphs from the article students will analyze the effects of tuberculosis on the body and how the body's immune system responds. Throughout this activity, students will develop/reinforce data analyzing skills such as identifying relationships between dependent and independent variables, identifying patterns, and predicting patterns. As students learn about the body's response to infectious disease, they will engage with graphs to strengthen understanding of scientific research methods.

Teacher Notes: To complete this activity, students will need to read the transformed article. It may be beneficial to review the components of the graph: independent and dependent variables, discussion about why graphs are used in science. Different types of graphs are included in the transformed article. These are discussed in the student background and teacher background.

> **Suggestions:** There may be new vocabulary terms and sentences which may be challenging to students. Consider engaging students in a discussion, either as a class or in small groups, to use context clues or internet resources to create definitions for these terms. Different classes may identify different terms. Students can create anchor charts for new terms or concepts.

Activity C: *Visual Abstract*

Students will create an abstract, summarizing what they have learned from about TB, infectious diseases, and the immune response system. The abstract should include information obtained from the transformed article, Good News! There's a TB Killer on the Loose. The abstract should not exceed 3 paragraphs (4 to 5 sentences each paragraph). Students are to create a visual abstract, which uses pictures and/or diagrams to visually represent their written abstract. The pictures/diagrams may be hand drawn or, if done virtually include non-licensed clip art. Appropriate citation(s) should be included for non-original pictures/diagrams.

Teacher Notes: A visual abstract is a pictorial representation, allowing viewers to "see" what students learned. This activity is highly flexible to meet student learning needs and fit within time constraints. Teachers can decide the length of the abstract, including sentence requirements, size limits for the visual abstract, presentation format (electronic or hard copy), and presentation requirements. The Student Background information to support Activity C is included in the Student Background information for both Activities A and B. For the visual abstract, Activity C, teachers have flexibility as to the sources of student information. Teachers may elect to use student background information from only Activity A or Activity B or both Activities A and B. It is strongly recommended the transformed article be a source of information in the abstract.

> **Suggestions:** Use the rubric to assess student work. The provided rubric can serve as a grading guide for students. Visual abstracts are well-suited for gallery walks and provide an opportunity for peer-review or peer-grading.