**Challenger Middle School Course Syllabus Course Name: Medical Detectives Grade: 7th & 8th**

**Quarter 3 Start Date: 01/31/24 Quarter 3 End Date: 04/12/24**

**Medical Detectives 7/8**

**District Course Code:**

**CEDARS Course Code: GTT Medical Detectives**

**Certificated Teacher: Scott Birdseye**

**Grading:** A, B, C, D, F

**Course Description:**

Students play the role of real-life medical detectives as they collect and analyze medical data to diagnose disease. They solve medical mysteries through hands-on projects and labs, measure and interpret vital signs, examine nervous system structure and function, and investigate disease outbreaks.

**Text/Resources Provided:**

No paper resources

**Online resources:**

Canvas and the PLTW online textbook

**Common Core Standards Addressed In This Course :**

**National Consortium for Health Science Education**

* **Foundation Standard 1: Academic Foundation: Understand human anatomy, physiology, common diseases and disorders, and medical math principles.**
  + Human Anatomy and Physiology - Identify basic structures and describe functions of human body systems.
    - 1.1.2 g Structures of the nervous system
      * Identify organs of the nervous system
      * Identify structures of the special sense organs
      * Functions of the nervous system
      * Sensation
      * Movement
      * Processing
* Medical Mathematics
  + 1.3.2 Demonstrate the ability to analyze diagrams, charts, graphs, and tables to interpret healthcare results.
* **Foundation Standard 2: Communications Demonstrate methods of delivering and obtaining information, while communicating effectively.**
  + Written Communication Skills
    - 2.3.1 Use proper elements of written and electronic communication (spelling, grammar, and formatting).
    - 2.3.2 Prepare examples of technical and informative writing.
* **Foundation Standard 4: Employability Skills Use employability skills to enhance employment opportunities and job satisfaction.**
  + Career Decision-making
    - 4.3.2 Distinguish differences among careers within a health science pathway.
      * Biotechnology research and development
      * Diagnostic services
      * Health informatics
      * Support services
      * Therapeutic services

**Next Generation Science Standards**

* Science and Engineering Practices
  + Asking Questions and Defining Problems - Ask Questions
    - NGSS.P1 ⦁ that arise from careful observation of phenomena, models, or unexpected results, to clarify and/or seek additional information.
    - NGSS.P1 ⦁ to clarify and/or refine a model, an explanation, or an engineering problem.
  + Analyzing and Interpreting Data
    - NGSS.P4 ⦁ Analyze and interpret data to provide evidence for phenomena.
  + Constructing Explanations and Designing Solutions
    - NGSS.P6
      * Construct an explanation using models or representations.
  + Obtaining, Evaluating, and Communicating Information
    - NGSS.P8 ⦁ Communicate scientific and/or technical information (e.g. about a proposed object, tool, process, system) in writing and/or through oral presentations.

**Course Objectives:**

To pass this course, the student will demonstrate mastery of standards through assignments, projects and/or assessments:

**Summative Assessments:**

**Lesson 1: Disease Detectives**

* Students discover how healthcare professionals act as medical detectives to identify, treat, and prevent illness in their patients. Students collect and interpret vital signs to evaluate patient health, explore different infectious disease agents, and design and conduct experiments to test the effectiveness of antibiotics on bacteria. In the end-of-lesson project, students collect and analyze medical data to diagnose a patient with a mystery illness.

**Lesson 2: Mysteries of the Human Body**

* This lesson introduces the human body as a collection of body systems, with a focus on the nervous system. Students investigate how the nervous system collects information from the outside world, moves this information through neurons, processes this information in the brain, and initiates the body’s response accordingly. Students create neuron models and perform a sheep brain dissection. They use their knowledge to explore symptoms as they relate to specific nervous system dysfunction and analyze evidence to identify the cause of the dysfunction. In the end-of-lesson project, students create educational resources to help their patient understand the medical condition.

**Lesson 3: Outbreak!**

* A mysterious toxin is endangering the health of a community. Using their understandings of human body systems, students describe how the suspected toxin has impacted the health of the patient. Students analyze patient symptoms and perform lab analyses of patient samples to identify the culprit and determine how it’s spreading. In the end-of-unit problem, students locate the source of the toxin using a map of the community, patient histories, and lab data, then present their findings to help community leaders mitigate the situation.

**COURSE GRADE REQUIREMENTS**

**Standards-Based Grading:**

Grading will be standards based. All assignments are expected to be completed to standard; this is a "B". "A" is exceeding standards; demonstrating a deeper and extended understanding of the material. If tests/projects do not meet standard they will need to be revised within the grading period.

**Formative Assessment – 20%:** This includes assignments that assess student learning of a concept and may be a worksheet, team projects, or a quiz.

**Summative** **Assessment- 80% of grade:** Students cannot earn a cumulative passing course grade without meeting standards which may be assessed by tests, essays, and/or projects. Assessments are directly tied to one or more standards.

**Make up/Retake policy**: All assessments can be resubmitted until the student demonstrates mastery of the content. Retake opportunities may require extra preparation.

**Grading Scale: This year we are transitioning to a 4 point standards based scale, similar to what is used in elementary school.**

| **22-23 CHALLENGER MIDDLE STANDARDS-BASED GRADING SCALE** | | |
| --- | --- | --- |
| **SBG SCORE** | **DESCRIPTION** | **LETTER ALIGNMENT** |
| **4** | **Exceeding Standards -** Consistently meets requirements for exceptional work related to course standards and demonstrates a deep level of knowledge and skill | A  80-100 |
| **3** | **Meeting Standards -** Consistently meets most requirements for proficient work related to course standards and demonstrates grade level knowledge and skills | B  60-80 |
| **2** | **Approaching Standards -** Consistently meets some requirements for proficient work related to course standards and demonstrates some grade level knowledge and skills | C  40-60 |
| **1** | **Attempting Standards -** With or without consistent support student is making limited progress towards standards - progress report meeting required | D  20-40 |
| **0** | **Insufficient Evidence -** With consistent help, no  demonstration of key standards - progress report meeting required | F  0-20 |

**Academic Honesty:**

We are here to learn and grow as scholars and as such strive to produce our best original work. As such, we will be exploring the concepts of plagiarism, cheating, and academic integrity throughout our courses and will treat each instance of academic dishonesty as a learning opportunity. All of us (adults and students) are expected to work under the directions and guidelines provided by each learning opportunity, assignment, and assessment to the best of our individual and unique ability. Should a student demonstrate a pattern of behaviors that show a pattern of academic honesty violations, progressive interventions including disciplinary action may apply.

Progress and course assignment/project completion will be evaluated at least monthly by the teacher.

**Classroom Expectations and Norms:**

**Expectation:**

If what you are doing: INTERFERES with learning, HURTS someone's heart, PREVENTS you from being your best self… You shouldn’t be doing it!

**Norms:**

* Everyone has the right to be heard.
* Be respectful while still being critical.
* No name calling.
* One person speaks at a time.
* Hold yourself and each other to high standards of excellence at all times.
* Have the humility to recognize that you do not know everything and that everyone can stand to improve.
* Recognize that everyone will start from different bases of knowledge.