

**PLTW-Medical Interventions-Year Long Course (A/B Day)**

Teacher: Brooke Spells

Phone: 980-343-6011

Classroom: B104

**Office Hours: Monday & Thursday, 2:15-3:15 pm**

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**Course Description:**

Medical Interventions (MI) allows students to investigate the variety of interventions involved in the prevention, diagnosis, and treatment of disease as they follow the lives of a fictitious family. A “How-To” manual for maintaining overall health and homeostasis in the body, the course will explore how to prevent and fight infection, how to screen and evaluate the code in our DNA, how to prevent, diagnose, and treat cancer, and how to prevail when the organs of the body begin to fail. Through these scenarios students will be exposed to the wide range of interventions related to immunology, surgery, genetics, pharmacology, medical devices, and diagnostics. Each family case scenario will introduce multiple types of interventions, reinforce concepts learned in the previous two courses, and present new content. Interventions may range from simple diagnostic tests to treatment of complex diseases and disorders. These interventions will be showcased across the generations of the family and will provide a look at the past, present, and future of biomedical science. Lifestyle choices and preventive measures are emphasized throughout the course as well as the important role that scientific thinking and engineering design play in the development of interventions of the future.

**Prerequisites or Co-Requisites:**

Principles of Biomedical Sciences and Human Body Systems

**Textbook and Materials:**

There is no textbook required for these courses, curriculum is online. Resources students can use are Khan Academy, NOVA Online, and Crash Course.

• Dividers

• 3 ring binder-1 & ½ inch

• Loose leaf notebook paper

• Pens/Pencil

• Internet Access (To complete assignments if absent, curriculum is online)

• Flash drive

**Grading Procedures:**

Grades will be based upon the following:

**Informal** (Class Participation, Labs, Warm ups, Classwork, Homework)-20%

Labs are a mandatory part of this class. Laboratory reports are required on some labs.

**Formal** (Test, Quizzes, Projects, Lab report)-60%

**Midterm**-20%

**Final Exam**-20%

**CMS grading scale is on a 10 point scale:** A= 90-100, B= 80-89, C= 70-79, D=60-69, F= 59 and below

**Make Up Work:**

A Student who misses homework assignments or other assignments or due dates because of absences, whether excused or unexcused, will be allowed to make up the work. Arrangements for completing the work should be made **within five (5) school days** of the date of the student’s return to school and include a schedule for completion of the work. Students must initiate the contact with the teacher.

**Late work:**

1. Homework and other assignments will be accepted, even if turned in after the designated date.

2. Students will receive an initial score of **zero (0)** for an assignment or assessment on which he or she made no attempt or which is missing.

3. Credit for late work shall be awarded according to the following guidelines:

a. If the student was present in class on the due date, the work will be penalize 20 points.

b. If the student was not present in class on the due date because of an excused absence, full credit will be given for the completed work.

c. If the student was present in class on the due date because of an unexcused absence, the work will be penalized 20 points.

**Policy for Retesting:**

If a student score **below a 79**, he or she must be given the option to retake a test with a qualifier. A qualifier is a clause in the policy that must be met before the student is able to retest. Students who retest will receive the average (mean) of the 1st (original score) and the 2nd (retest score).

**The qualifier for CTE:**

* + **You have to submit ALL missing assignments for that Unit Test.**
  + **You have to complete two (2) sessions after school with teacher for tutoring.**
  + **If you don’t complete all missing assignments and two (2) sessions after school you can’t retest. NO EXCEPTIONS!!**
  + **Retest must be taken within two (2) school days of tutoring. NO EXCEPTIONS or EXTENSIONS!!**

**Rules and Procedures:**

1. All students are required to come school and be prepared for class every day (Pens, pencil, paper, projects, homework, flash drive etc.)
2. Students are required to participate in class discussion and take lecture notes at times. We will do some public speaking with presenting projects.
3. Class will begin at the tardy bell, please come in and take your seat quietly and begin your warm up.
4. Please get a drink of water and go the bathroom before coming to class.
5. Please keep your area clean, pick up any paper off the floor or desk before leaving class.
6. The bell doesn’t dismiss class, I will dismiss class. Student will be allowed enough time to pack up and get ready to leave. Class will not be dismissed until everyone is seated.
7. Respect your classmates and authority. (No talking while others are talking, name calling, teasing, using profanity)
8. Please listen and follow **ALL** directions, each student and parent signed the Student Safety Contract concerning the lab. All these rules must be followed.
9. Keep your hands, feet and objects to yourself
10. **NO** cell phones, electronic devices, and earphones are allowed during class time. NO music will be allowed to be played on any electronic devices. Technology will only be used for instructional purpose, all cell phones should be kept in book bags. Book bags will be kept in the front of the class.
11. **NO** food (bottled water), gum, or candy allowed in class/lab (Any open bottles must be kept in your book bag)

**Academic Dishonesty and Plagiarism:**

Please refer to the Hawthorne Academy handbook for consequences.

**Consequences:**

Student/teacher conference

Parental contact

Referral to his/her counselor

After-school detection

ISS (In school suspension)/OSS (Out of school suspension)

**Positive Rewards:**

Student of the month (will receive warm up or homework passes)

Class Celebration

Call parent to give “positive” report

**Remind 101**

To keep you informed about classroom activities and assignments, I’m using Remind. Remind is a free service that lets me send quick messages via text, push notifications or email to everyone involved with the class. Remind will keep all phone numbers private and will allow us to stay in touch. Signing up for my messages on Remind is easy, all you need to do is provide a cell phone number or email address and I will add you to the class for your student. A place to provide your information will be at the end of the syllabus. Students have signed up for Remind, during the first week of class with cell phone number or email.

**HOSA Club**

HOSA (Health Occupation Students of America) is a national student organization recognized by the U.S. Department of Education and the Health Science Education (HSE) Division of ACTE. HOSA's two-fold mission is to promote career opportunities in the health care industry and to enhance the delivery of quality health care to all people. Hawthorne Academy of Health Science HOSA chapter will begin recruiting for the current school year in September. This is a wonderful opportunity for students to participate in volunteering, fundraising and competing at the regional, state and national level in HOSA competitive events. Information about HOSA will be located on my webpage. I am one of the advisor and contact me if you have additional questions. **National and State dues for HOSA membership are $40.00.**

**Course Topics:**

**Unit 1-How to Fight an Infection**

In this unit students are introduced to Sue Smith, the eighteen-year-old daughter of Mr. and Mrs. Smith. Sue is a college freshman who is presenting symptoms of an unknown infectious disease which students eventually identify as bacterial meningitis. Sue survives the infection but is left with hearing impairment. Through this case students will explore the diagnostic process used to identify an unknown infection, the use of antibiotics as a treatment, how bacteria develop antibiotic resistance, how hearing impairment is assessed and treated, and how vaccinations are developed and used to prevent infection.

**Unit 2-How to Screen What is in Your Genes**

In this unit students are introduced to Mr. and Mrs. Smith, Sue’s parents. Mr. and Mrs. Smith are very excited to find out they are expecting a new baby. Because the couple is in their early 40s, the doctor has suggested genetic screening and testing. Through this case students will explore how to screen and evaluate the code in our DNA, the value of good prenatal care, and the future of genetic technology.

**Unit 3-How to Conquer Cancer**

In this unit students are introduced to Mike Smith, the sixteen-year-old son of Mr. and Mrs. Smith. Mike is diagnosed with osteosarcoma, a type of bone cancer that often affects teenagers. Mike’s treatments put him into remission; however, in order to remove all of the cancerous tissue, he had to have most of his arm amputated. Mike now needs a prosthesis. Through this case students will explore the diagnostic process used to determine the presence of cancerous cells, the risk factors and prevention of cancer, rehabilitation after disease or injury, and the design process for new medications, prosthetics, and nanotechnology.

**Unit 4-How to Prevail when Organs Fail**

In this unit students are introduced to Mrs. Jones, the forty-four-year-old sister of Mrs. Smith. Mrs. Jones has been struggling with Type 1 Diabetes for twenty years. Over the years, Mrs. Jones did not take good care of herself or properly control her diabetes. She eventually began using an insulin pump and changed her lifestyle to regulate her blood sugar levels, but the damage had already been done. Mrs. Jones is now dealing with end stage renal failure and needs a kidney transplant. Through this case students will explore protein production, blood sugar regulation, dialysis, organ donation and transplantation, and non-invasive surgery techniques. In addition students will create a bionic human.

I have read and understood the above course syllabus, for PLTW-Human Body System. Parents, if you would like to sign up for Remind, check the box: \_\_\_\_\_\_\_\_ Yes \_\_\_\_\_\_\_\_\_ No

Student Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Student signature and date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Parent(s)/Guardian signature and date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Parent(s)/Guardian Contact Information: Home\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Work\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Cell \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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