



Principles of Biomedical Science

Mrs. Sobieszcyk
2012-2013



Welcome to Principles of Biomedical Science (PBS) Class! Wheaton High School is the only school in Montgomery County to be partnered with Project Lead the Way to offer this class. The equipment that you work with this year has been specially purchased so that we can experiment, research, and build scientific models together. You are among some of the selected students across the country to take this course and experience science at this level. This course provides an introduction to the biomedical sciences through exciting hands-on projects and problems. Students investigate concepts of biology and medicine as they explore health conditions including heart disease, diabetes, sickle-cell disease, hypercholesterolemia, and infectious diseases. They will determine the factors that led to the death of a fictional woman as they sequentially piece together evidence found in her medical history and her autopsy report. Students will investigate lifestyle choices and medical treatments that might have prolonged the woman's life and demonstrate how the development of disease is related to changes in human body systems. The activities and projects introduce students to human physiology, basic biology, medicine, and research processes and allow students to design experiments to solve problems. Key biological concepts including maintenance of homeostasis in the body, metabolism, inheritance of traits, and defense against disease are embedded in the curriculum. This course is designed to provide an overview of all the courses in the biomedical sciences program and lay the scientific foundation for subsequent courses. These are the policies that I have created to make the most of the time that we have together and ensure our SUCCESS.

Responsibilities – What are my responsibilities as a student in Ms. Sobieszcyk's class?

1. Always bring your binder, notebook and pencil to class. You will not be allowed to go to your locker after the tardy bell rings to get these things. Upon occasion a calculator will be needed, so have one available.
2. Tardy by definition in this class is simply not being in your assigned seat when the tardy bell rings. You are to be seated before the tardy bell rings. This specifically means personal business should be tended to such as sharpening pencils prior to the tardy bell. Three tardies will result in one unexcused absence. If you should arrive tardy, simply sign in on the tardy sheet near the front door. Your tardy will be logged into the computer. If you have an excused pass, then place it on my desk.
3. Dismissal will be by the teacher not by the bell. Always remain seated until you are dismissed; never stand by the door waiting for the bell.
4. Food or drink is NOT permitted in classroom/laboratory spaces. Sinks are not to be used to dispose of trash, including glass cover slips, paper towels, or anything else. Broken glass should be brought to my attention for proper disposal.
5. If you missed notes, labs, or an exam due to an absence it is your responsibility to get the missing information and schedule a completion time. Excused absences will be allowed the same amount of time you missed to make-up work before it is considered to be late. Failure to complete any assignment in a timely manner is recorded as a zero.
6. Hats, cell phones, and other electronic devices are to be out of sight. Cell phones are to be turned off all during the school day. Electronic devices are to be turned off during class time. Violation of this school wide policy could result in the confiscation of your property. If this should occur you will have to deal with an administrator to retrieve your property.
7. Integrity and honesty are expected. Copied work, either from a peer, the Internet, or other text is not allowed. Students should understand the need for processing one's own ideas and recording sentences is an individual responsibility.

Rituals and Routines – What should I expect in my PBS class?

A weekly agenda will be provided to you at the beginning of each week. Each class period will follow the format outlined below.

- **Warm-up** question/activities will start every class period to engage students in the content of class.
- **Homework check** occurs when students are working on the warm-up. Students are required to have the assignment and homework sheet on the desk when they come into class.
- Review previous homework assignment. Explain new **homework assignment** and refer to **weekly agenda**.
- There will be **Mini-lessons** on content and the power points will be posted to edline and/ or the hand-out folders.
- **Work period:** Project Work in small groups, laboratory Investigations, or oral presentations.
- **Exit-tickets** will summarize the content that was addressed during class & how it will relate to what is being done the following day.

Materials – What should I bring to PBS class?

- The following will be provided and will remain in the classroom: Scientific Science Notebook, 1.5" binder and 7dividers
 - Label dividers References, Opportunities, Unit 1, Unit 2, Unit 3, Unit 4, Unit 5, Unit 6,
- Keep handy to bring-in for projects and homework: Ruler, calculator, glue stick, and colored pencils
- Bring a couple of pencils and pens (blue or black only) and loose leaf paper EACH DAY!!!
- Keep a folder labeled PBS to bring homework back and forth from home.
- Purchase: a marbled composition notebook AND loose leaf paper.

Assessment – How will I be graded in PBS?

- 1) Each assignment will have a **due date** and a **deadline date**. Any student, who turns in his /her work after the due date, will be penalized one letter grade. Assignments will not be accepted after the **deadline date**.
- 2) Cheating will not be tolerated. Plagiarism is cheating! Students will receive a score of zero for any assignment in which in the student has cheated.
- 3) All tests will be announced. Quizzes may be announced or unannounced. Some quizzes may be re-taken once a student has shown that he/she has mastered the indicator. Unit exams or final exams will never be retaken.
- 4) Grades are posted on the web. Progress reports will be issued at three week intervals. Students are expected to keep all returned papers. In case of a grade discrepancy, the burden of proof rests entirely on the student! Keep all papers!
- 5) Students who fulfill the requirements of an assignment or exam will not receive any grade lower than 50%. However, students who do not complete the assignment will receive a zero and may not have the opportunity for a re-take or re-assessment.
- 6) Make-up Policy If you are absent, it is up to **you** to get the work and the assignments you have missed during lunch or after school. The weeklies for each class and handouts are located in the **crate labeled PBS**. For excused absences, you will have as many days to make up this work as the days that you missed.

Summative Assessments

50%

- Tests
- Projects and Laboratory Analyses
- Oral Presentations

Formative Assessments

40%

- Career Journal
- Assignments
- Notebooks

Homework

10%

Grading Scale

100 - 90 = A

89 - 80 = B

79 - 70 = C

69 - 60 = D

59-0 = E

PBS Topics	Activities/ Labs/ Projects	Month
Unit One: The Mystery (23 days)	<p>Lesson 1.1: Investigating the Scene (10 days)</p> <p>Activity 1.1.1: A Mysterious Death Activity 1.1.2: The Evidence Project 1.1.3: Blood Spatter Analysis</p> <p>Lesson 1.2: DNA Analysis (8 days)</p> <p>Activity 1.2.1: What is DNA? Activity 1.2.2: Structure of DNA Activity 1.2.3: DNA Analysis</p> <p>Lesson 1.3: The Findings (5 days)</p> <p>Activity 1.3.1: The Autopsy Activity 1.3.2: Was It a Crime?</p>	September October
Unit Two: Diabetes (39 days)	<p>Lesson 2.1: What Is Diabetes? (10 days)</p> <p>Activity 2.1.1: Diagnosing Diabetes Project 2.2.2: The Insulin Glucose Connection Activity 2.1.3: Feedback</p> <p>Lesson 2.2: The Science of Food (13 days)</p> <p>Project 2.2.1: Food Testing Activity 2.2.2: Food Labels Activity 2.2.3: The Biochemistry of Food Activity 2.2.4: Energy in Food</p> <p>Lesson 2.3: Life With Diabetes (16 days)</p> <p>Activity 2.3.1: A Day in the Life of a Diabetic Project 2.3.2: Diabetic Emergency! Activity 2.3.3: Complications of Diabetes Problem 2.3.4: The Future of Diabetes Management&Treatment</p>	October November
Unit Three: Sickle Cell Disease (33 days)	<p>Lesson 3.1: The Disease (6 days)</p> <p>Activity 3.1.1: Blood Detectives Activity 3.1.2: Sickle Cell Diaries</p> <p>Lesson 3.2: It's In the Genes (9 days)</p> <p>Activity 3.2.1: Protein Synthesis Activity 3.2.2: The Genetic Code Activity 3.2.3: Does Changing One Nucleotide Make a Big Difference?</p> <p>Lesson 3.3: Chromosomes (12 days)</p> <p>Activity 3.3.1: How is DNA Passed Through the Generations Activity 3.3.2: Chromosomes – A Closer Look Activity 3.3.3: The Immortal Cells Activity 3.3.4: Confidentiality</p> <p>Lesson 3.4: Inheritance (6 days)</p> <p>Activity 3.4.1: Family Inheritance Activity 3.4.2: What's the Probability? Activity 3.4.3: World Distribution of Sickle Cell Disease</p>	December January

<p>Unit 4: Heart Disease (39 days)</p>	<p>Lesson 4.1: Heart Structure (7 days) Activity 4.1.1: Path of Blood in the Heart Activity 4.1.2: Anatomy of the Heart</p> <p>Lesson 4.2: The Heart at Work (11 days) Project 4.2.1: Heart Rate Project 4.2.2: Blood Pressure Activity 4.2.3: EKG</p> <p>Lesson 4.3: Heart Dysfunction (12 days) Project 4.3.1: What is Cholesterol? Activity 4.3.2: Hypercholesterolemia Problem 4.3.3: The Heart as a Pump</p> <p>Lesson 4.4: Heart Intervention (9 days) Project 4.4.1: Unblocking the Vessels Project 4.4.2: Heart Disease Intervention</p>	<p>February March</p>
<p>Unit 5: Infectious Disease (20 days)</p>	<p>Lesson 5.1: Infection (20 days) Activity 5.1.1: Contagious Activity 5.1.2: Infectious Disease Agents Activity 5.1.3: Isolating Bacteria Activity 5.1.4: Gram Staining Activity 5.1.5: Bacterial Identification Project 5.1.6: Lines of Defense</p>	<p>April May</p>
<p>Unit 6: Post Mortem (8 days)</p>	<p>Lesson 6.1: Analyzing Anna (8 days) Project 6.1.1: How Do the Parts Make a Whole? Activity 6.1.2: How Did She Die?</p>	<p>May June</p>
<p>EOC</p>	<p>The PLTW End of Course Exam (40 MC and several essays)</p>	<p>June</p>