Green Valley School Mr. Chris Thiessen

Physics 40S Course Outline

Course Description: Physics 40S is designed to introduce and develop some of the basic concepts in chemistry and to promote an understanding of the relationships between chemistry, technology, the environment, and the society that we all live in.

Course Requirements: In order to be successful in Physics 40S it is important that students have completed Physics 30S. Since Physics is by nature very mathematical, it is important that students have a credit in Applied or Pre-Calculus Mathematics 30S. Students will also need their own calculators.

General Learning Outcomes: The Physics 40S Curriculum has numerous general outcomes. They can be summarized as follows:

A. Understanding the Nature of Science and Technology
B. Identify factors that affect health in relation to Science, Technology, Society and the Environment
C. Demonstrate scientific and technological skills and attitudes
D. Understand essential science knowledge
E. Recognize unifying concepts of science

For a complete list and description please see:
http://www.edu.gov.mb.ca/k12/cur/science/found/physics40s/section1.pdf

Resources: Students will be receiving a signed out textbook for this course to assign questions to themselves for extra practice. The textbook will be *Physics: Concepts and Connections* by Irwin Publishing. If students feel like they would like more practice they may also sign out *Physics* by Prentice Hall. Two websites that are useful for helping students understand concepts are:
http://phet.colorado.edu/en/simulations/category/physics
https://www.khanacademy.org/science/physics
http://www.edu.gov.mb.ca/k12/dl/downloads/

40S Physics Unit Descriptions:

1) Mechanics

This chapter is the study motion. This is a very large expansion of the grade 11 unit on mechanics that will take the first half of the course. There will 6 smaller chapters in the mechanics unit. No homework or assignments will be assigned from in this section. Students will be given practice time and at the end of each chapter will be a quiz. Most chapters will also have a lab. Because this unit is so large there will be 2 tests, one covering the first 3 chapters and one covering the last 3 chapters.

1. Kinematics – (motion without forces)
2. Dynamics – (motion with forces)
3. Momentum
4. Projectile Motion
5. Circular Motion
6. Work and Energy

2) Fields

This unit has 3 chapters. The first 2 deal with gravitational fields: exploration of space and low Earth orbit. The last chapter is Electric Fields. This is an extension of the electric fields that were studied in grade 11.

3) Electricity

This chapter looks in depth and the differences between series and parallel circuits and how they work when they are connected. Electricity generation using electromagnetism is discussed and how electricity is generated and transmitted throughout Manitoba including the use of transformers.

4) Medical Physics

This unit covers a variety of different medical technologies that use radiation, waves, or fields. Some of the technologies are X-rays, ultrasound, MRI, gamma knife, and CT scans.

For a complete list and description of all of the outcomes that will be covered please see the provincial curricular document:
http://www.edu.gov.mb.ca/k12/cur/science/found/physics40s/full_doc.pdf

Course Evaluation Structure:
Students will be assessed the following ways

1) Regular Assignments – Assignments are always due at the beginning of a class. Any assignment handed in after the class starts is late. The beginning of the course has many quizzes instead of assignments. One assignment this year will be to present to the class 2 scientists who have made a significant impact on scientific understanding. Value: 40%
2) Labs – A student's lab mark comes from the completion of the lab, the lab report, and any other observations made of the student while they are doing the lab. Students will always be completing their own lab reports. Reports are to be formal and to be completed in full sentences with good grammar. Value: 20%
3) Tests – Value: 40%
4) Final exam
   The final mark will be 75% term marks and 25% final exam.

Student Responsibilities and Expectations:
Students are expected to follow the policies and expectations as laid out in the student handbook. Below are a few highlights but please refer to the handbook for a complete list.

1) Students are expected to be on time. If you are late, please enter quietly and respectfully.
2) No food or drink is allowed in class. There are 3 exceptions: 1) water is permitted when there are no lab supplies in the room 2) if food is brought for the purpose of community and sharing with the entire class 3) if food was brought for the purpose of sharing before class and it isn't finished yet.
3) All assignments are to be completed on time. This means they are to be handed in at the beginning of the class. If an assignment is late the expectation is that the student will be going to the homework room during lunch times to complete the assignment. As well, 5% of the value of the assignment will be deducted per day up to a maximum of 25%.

4) Only one person will be allowed out of class at a time with given permission. This is a privilege and can be taken away if abused. Breaks should be used to get necessary supplies and to use the washroom.
5) Cell phones are not to be a distraction in class. They may not be used as a calculator. If you bring a phone to class the ringer must be off (not even on vibrate). The phone must sit on your table in front of **ALL** of your other supplies. It may not be in a pocket, purse, or anywhere else. You may not send any messages in class. If there is a time where the no one is addressing the class (teacher, student, video, announcement, etc.) students will be permitted to check their phone and briefly read a message, but sending of messages is not allowed. If a student has a cell phone, they will not be allowed to leave during class time with their phone (this includes getting a drink or going to the washroom – phones stay on the table in front of **ALL** of your other supplies). If you can't leave your phone behind you don't need to go to the washroom. If a student abuses the privilege of having their phone with them in class they will be required to leave the phone on the front table for future classes.
6) Students are expected to follow all safety rules. This includes no throwing things. If a student breaks any safety rules during a lab they may be removed from that lab, receive a 0% on that lab and possibly be banned from all future labs.
7) Please do not miss any tests or labs. If a student misses a test the test will be written on the first day back at school. If a student misses a test or a lab without a valid reason like illness or an appointment, they may receive a mark of 0% with no chance of redeeming that mark. Note: work does not count as a valid reason.
8) Cheating will result in 0% for all involved parties.
9) If you are absent from class it is your responsibility to find out what you missed. Please get any notes that you missed. After you have the notes you may come and ask for help on understanding them.
10) No hats or headwear is allowed during class time.

Extra Help:
I am very willing to offer extra help if it is needed. I am usually available for extra help before school or at 12:10 most days. Please let me know and I will try to make sure I don't book myself with other things during those times.

Contact:
Please feel free to contact me at:
(204) 434-6415 or
chthiessen@hsd.ca