

\* Important - keep for the duration of the course \*

Steinbach Christian High School

# 12 Physics

## Course Outline

Taught by: Mr. Scott Wiebe

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### Rationale:

Physics is the fundamental science. Understanding the physics of objects and situations around us can be very satisfying and rewarding... not to mention other people will think you're smart. ☺

Physics pursues the “why” question as far as the human reach can take it. Even as human reach extends; with new understandings, knowledge and technical expertise; our reach still exceeds our grasp. Thus the mystery continues.

Physics is a science about relationships between various quantities in a system. Like any other “relationship” the relationships in physics are based on what goes on within and between the various pieces of matter. Although the relationships can sometimes be illustrated visually, mathematics is the main medium of communication. The math will take numerical, graphical, and symbolic forms.

Physics seeks to describe, explain and predict those relationships as accurately and precisely as possible. This has established physics as the foundational science upon which the other sciences, not to mention a huge variety of vocations, are built.

### Keys for Success:

People who excel in physics have the following attributes:

- π Mathematical ability
  - Specifically algebraic and computational skills
- π Problem Solving Ability
  - Understanding word problems and translating them into visual and numerical relationships.
- π Creativity
  - Being able to approach problems in different ways, looking at situations from different perspectives.
- π Tenacity
  - Not giving up despite difficult circumstances.

### Course Outline:

#### Unit 1: : Mechanics

- π Kinematics
- π Dynamics
- π Momentum
- π Projectiles
- π Circular Motion
- π Work and Energy

#### Unit 2: Fields

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- $\pi$  Exploration of Space
- $\pi$  Low Earth Orbit
- $\pi$  Electric and Magnetic Fields

### **Unit 3: Electricity**

- $\pi$  Electric Circuits
- $\pi$  Electromagnetic Induction

### **Unit 4: Medical Physics**

## **Grading and Reporting:**

Grades will be based on tests, assignments, class participation and exams. The final grade will be based on: Catapult Contest(10%), Bridge Construction(8%), Tests(25%), Homework, etc(25%), Participation\*(7%), and final exam(25%).

## **\*Positive Participation – Student Self-Evaluation**

Positive participation contributes to 7% of your mark.

The evaluation will be verified by the teacher's recollection of your behaviours in the following categories. Where there is a discrepancy the grade will be adjusted to match the teacher's recollection.

The participation will be evaluated in the following areas:

- **Preparation** – coming prepared with all required materials for the day's lesson. This includes writing utensils, notebook with clean loose leaf, textbook, calculator.
- **Active group participation** – asking questions, volunteering answers, and verbally participating in discussions, or volunteering to help in a demonstration.
- **On Task Behaviour** – Being on task during class time.
- **Promptness** – being on time with no unexcused absences.
- **Attitude** – emotional response to others and the course material.

You may be asked to justify your evaluation with specific examples. If the student is unable to justify their evaluation with specific examples the mark for the self evaluation may become invalid. If it is invalid the student mark will be determined by the teacher.

The positive participation will be marked out of a total of 10.

**Note:** It is the student's responsibility to keep track of evidence of positive participation so that they could, if required, have the evidence needed to justify their self evaluation mark.

**Note:** If a student is ever sent out of the class for behavioural issues, their participation mark will drop by 3 marks.

**Note:** If a student has spent more than 10 hours tutoring others, and this has been verified for the teacher, that student's participation mark will increase by 3 marks to a maximum of 11 marks.

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### **Assignments**

- \* All assignments are to be finished for the assigned due date at the beginning of the class. They will be marked and scores given for each of them.
- \* Missed assignments will be given a zero unless completed within a short period of time. Marks will be deducted daily at a loss of 10%. After four days without handing in the assignment it will be worth zero.
- \* If you are absent, *it is your responsibility* for the assignments missed on that date. The due date extension will depend on how long you have been absent.
- \* Any assignment due on a day you are absent (valid) will be due on the day you return to class if you have already received the assignment.

### **Tests**

- \* All tests are to be written on the assigned date.
- \* If the student cannot write the test on the assigned day, due to extra-curricular activities, or previous appointments, that student needs to make responsible alternative arrangements BEFORE the assigned test.
- \* Tests written at alternative times may be an alternate version of the same test.
- \* If a student misses a test due to an illness or some other unexpected event, that student should let the teacher know by phone or email ([swiebe@schs.ca](mailto:swiebe@schs.ca)) before or on the test day.
- \* If a test is missed and proactive and responsible arrangements are not made BEFORE or ON the test date, the student will receive an automatic 8% deduction in their test mark and the teacher will determine when the student will write the test.
- \* **There will be no rewrites.**