**Physics 11 – Course Outline 2013 – 2014**

**Teacher: Mr. G. Bodnar**

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Unit 1: Skills, Methods and the Nature of Physics 1 week

* Metric conversions, Scientific
* Notation, Sig Figs and Graphing

Unit 2: Kinematics in 1-D 5 weeks

* Vectors, Displacement, Velocity, Acceleration

Unit 3: Kinematics in 2-D 3 weeks

* Navigation, and Projectile Motion

Unit 4: Newton’s Laws 4 weeks

* Newton’s 1st, 2nd, 3rd Laws

Unit 5: Forces 6 weeks

* Forces, Gravity, Friction, Elastic

Unit 6: Momentum 3 weeks

* Collisions, Explosions

Unit 7: Energy 4 weeks

* Work, Power, Potential and Kine tic Energy, Law of Conservation

Unit 8: Wave Motion 5 weeks

* Wave types, Interactions, Reflection,
* Refraction, Diffraction, Interference

Unit 9: Special Relativity 1 week

* Relativistic Time

Unit 10: Fusion/Fission 1 week

* Radiation, Chain Reactions

**Course Expectations**

1. **SHOW UP ON TIME!**
2. **DO NOT MISS CLASSES**: If you do miss a class it is YOUR RESPONSIBILITY to get any notes or assignments that you missed. You are expected to complete every assignment whether you are here or not….check the website that will be updated daily.
3. **MATERIALS**: Come Prepared with all your materials including:

# Pens / pencil

# HB pencil with an eraser

# 3 ring binder with dividers

# Lined and unlined loose-leaf paper

* Agenda / Calendar
* Smart phone, laptop, tablet
* Calculator: You’ll need a calculator almost every day and although phones will be permitted for a variety of in-class experiments they are not an adequate replacement for a calculator.
1. **EXTRA HELP:** I expect for you to use your classroom time effectively. However it is your responsibility to speak up during class, whilst in group work or when I am circling around the room, when you are having some difficulty in this course. If you would like to see me for some extra help outside of class you can schedule an appointment to meet with me before or after school hours.

**Strategies for success:**

**To succeed in this course, students should have the following characteristics:**

* **Good mental math**
* **Strong visualization skills** (ability to draw a picture to represent a physical situation). If you struggle with your homework the minimum you can do for each assigned problem is draw a picture or writing out the known variables.
* **Global thinking skills** (the ability to look at big concepts rather than focus on individual
steps/formulas).
* **Resilience:** Most students find physics to be challenging. Sometimes it is the first course that has ever challenged them. It is very important to persevere and work through the difficulty.
* **Maturity**: It takes maturity to realize when help is needed, to seek it out, and to follow through with the work needed to stay on top of the coursework.

**Grading:**

Physics 11 uses cumulative grading rather than separating out individual term marks. Students are given multiple opportunities to show their progress throughout the year.

Grades are broken into three components:

**Concept Mastery 40%
Problem Solving 40 %
Data Management, Communication and Lab Skills 20%**

Each of these categories may be assessed using tests, quizzes, labs or assignments.

The final course grade will be based on: - 25% final exam
 -75% coursework

**Academic Expectations:**

*“Relativity applies to physics, not ethics.”
-Albert Einstein*

Academic misconduct (cheating, plagiarism, or any ‘innovative’ way of gaining unfair advantage) will be taken very seriously in this course. Most students work very hard to earn their grades and I will do everything possible to encourage this to flourish in this course. Subsequently, the Rockridge Academic code of conduct will be closely followed without exceptions. Please do not wind up with phrases that are too similar to phrases from the internet or another classmate’s work.

**Looking forward to a great year! Please do not hesitate to contact me at any time during the year if you have a question / concern in this course:** **gbodnar@sd45.bc.ca**

**Personal Education Philosophy excerpt:**

As educators, we need to constantly assess quality, to assess our contributions and to assess the immeasurable values that mean the most to our students. Ignoring something because it cannot be counted leads to faulty models; finding out what truly is important to us all, our passions, ensures that the education system will forever promote and uphold these immeasurable values.

“The ability to self-organize is the strongest form of system resilience. A system that can evolve can survive almost any change, by changing itself” (Meadows). If our education community can recognize these important mechanisms, the notions of symbiosis and self-organization, we can continue to make the necessary changes to embrace our constantly changing economic, ecological, cultural and pluralistic society.

In my experience dealing with a variety of students, colleagues, teachers, administration officials and school leaders, I have been reminded time and again **that it’s not age that will define an initiative but rather enthusiasm**. **“Nobody grows old merely by living a number of years. We grow old by deserting our ideals. Years may wrinkle the skin, but to give up enthusiasm wrinkles the soul” (Meadows).** All education communities have the potential to celebrate diversity, to acknowledge the meaningful, experienced, wise and also fragile (physical/mental) stakeholders who are capable of contributing equally. **Through this act of mutual hearing, students who are traditionally disenfranchised – the organizationally oppressed – begin to show up, think and imagine in bold and provocative ways. It affords people to be heard.**

Similarly for the education community to work effectively students must too be given the opportunity to be heard. With this in **mind I am committed to giving all students a sense of ownership over their own learning and allowing them to be heard.** Energetic and passionate, I am acutely interested in students’ way of thinking, their passions, their way of reflecting, and constantly strive to give them opportunities to reach their potential. I identify very effectively with all students’ intrinsic worth and right to learn and grow in a positive and trusting environment.

Everyone should have a right to learn, no matter their income or position in life. Students today ought to be fully instructed in 21st Century skills allowing them to compete in our global society. Skills outlined by Tony Wagner, Innovation Education Fellow at the Technology & Entrepreneurship Center at Harvard, as **Critical Thinking and Problem Solving; Collaboration Across Networks and Learning By Influence; Agility and Adaptability; Initiative and Entrepreneurship; Effective Oral and Written Communication; Accessing and Analyzing Information**; and **Curiosity and Imagination**. As an educational leader I am working relentlessly on these skills myself and strive to model these skills by embracing new technology and media arts in my daily work. In conclusion students need to be allowed to discover their true talents, skill sets and potential in a trusting and nurturing environment and I will do everything possible to allow this to happen in my classroom.