Dear Parents and Students,

Welcome to Standard Level (SL) IB Physics. Most students in the class are IB Diploma Program juniors or seniors and have taken a semester long “MYP Principles of Physics” course their sophomore year. The SL course covers a wide range of physics topics laid out by the IB organization in their syllabus details. (I encourage parents to scan through this document to get an idea of the amount of information the students are expected to know by May.) The IB Physics SL Subject Guide can be found on my website under the IB Physics SL link, Unit Documents, “IB Documents” Folder.

This is an algebra-based class, so any specific math skills required to understand physics are appropriate for a junior. What makes the class challenging, besides the physics concepts themselves, is the AMOUNT of material that must be learned in one school year and the critical thinking skills that need to be applied. In many schools around the world, the class is taught over a two year period. We must get everything in (an exhausting amount by any measure) by the exam dates on May 7th & 8th. That demands that students build on what was learned in the prior sophomore class along with keeping up with the rigor of the current class. The demanding nature of the class leaves little time for in class for multiple practice opportunities over each subject. It also expects that students will put in the time and effort to learn ideas and concepts as we go along without needing constant re-teaching. We will see 10 units in 32 weeks of school. That makes in-class time incredibly important. Along with the 140 class hours of content information that students are expected to know, there is a requirement of 40 hours of lab work that students must complete during the year. This, much to my chagrin, requires that some portions of the course happen outside of class.

Serious review sessions, study groups, and practice exams will be held in the evenings in late April at the school. Also, some lab data collection may have to be finished up outside of class time throughout the year. I promise to do my best to limit this time, but I also have no other options if we wish to be prepared for the exam in May. There are plenty more specifics about the class in the following pages where I will address “Frequently Asked Questions” about the class. I think you will find that they thoroughly cover any questions you may have. As always, please contact me if you have any questions. I look forward to helping your student learn physics and all the attributes of the IB learner profile through the IB Program at Rampart High School.

Sincerely,
Mr. Mac Farlane, M.A.T. Secondary Science
FAQs: Click on a Question Below to Find an Answer

**What will an IB Physics SL student expect to learn this year?**

**What do I expect from students?**

**What can you expect from the teacher?**

**What would a typical class period look like?**

**What will homework consist of? (The burning question! :)**

**What do I do if I forget to do my homework?**

**What do I do if I simply miss one day of class and it’s excused?**

**What if I miss a bunch of class?**

**What resources do I have to help my struggling student?**

**How is my grade determined?**

**What is Mr. Mac looking forward to this year?**

**First Assignment**

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**What will an IB Physics SL student expect to learn this year?**

All of this can be found in the IB Physics SL Subject Guide. But here is a simple outline.

- Unit 0- Measurement & Uncertainty
- Unit 1- Describing Motion
- Unit 2- Waves, Oscillations & Communication
- Unit 3- Conservation Laws & Energy Sources
- Unit 4- Thermal Physics
- Unit 5- Fields & Forces
- Unit 6- Electric Circuits & Digital Tech.
- Unit 7- Atomic & Nuclear Physics
- Unit 8- Atmospheric Physics

It is important to remember that this class is an IB diploma PROGRAM course. The IBO encourages students to have a broader perspective on their subject and make connections with their lives and their other subjects of study. The IB in front of the course does not necessarily mean it is harder. It is a comprehensive PROGRAM where students should feel part of a community of learners (both students and teachers). An example of this is the IB Group 4 Project we will complete in Semester 1 which requires juniors from ALL sciences to work together to investigate an in-depth research question. This year’s theme is “Sustainability in the Rampart Community”.

**What do I expect from students?**

Attitude is everything. I expect students to take their learning seriously and be engaged and present in the learning process-both in and out of class. I expect that students are serious about the SL exam in May and expect to score well. I expect that students are respectful of the learning environment and treat everyone with humanity and dignity.
What can you expect from the teacher?

First and foremost, anything I expect of the students I expect from myself. You can expect that I hold myself to very high standards and that I am not satisfied with “good enough”. You can expect me to hold your student accountable for their actions (usually this is a positive thing!) You can expect me to be prepared for class consistently in a professional manner. You can expect me to treat each student as an important person who can achieve with my guidance. You can expect me to have an extensive content knowledge of both physics, and the IB curriculum. You can expect me to do everything in my power to help a student achieve the IBO mark (from 1 to 7) they wish to get on the exam in May, but ALSO embody the attributes of the IB Learner Profile. You can expect me to reward effort and excellence. You can also expect that I will do my best to make learning fun, engaging, and relevant. (p.s.-I am also an imperfect HUMAN.)

What would a typical class period look like?

After having taught for 12 years, I have come to a point where me standing in front of a class of students and yammering on and on for 90 minutes is not fulfilling. Research shows this doesn’t actually help students take ownership of their learning. My goal this year is to have students work more on the tough physics problems IN CLASS (rather than having the 1a.m. nuclear meltdown) and leave the basic definitions and concept introductions outside of class to the student. In an ideal world, the students would use “homework” time for practicing problems and reading about the basics. I also have always done my honest best to use as many resources as I can to help students whether that be demos, labs, online video tutorials, animations, interactive lessons, peer coaching, etc. Some people would call this a “flipped” classroom. Click this link for a 60 second explanation:
http://blog.peerinstruction.net/2013/04/22/what-is-a-flipped-classroom-in-60-seconds/

On any given day, you could see students collecting data in an investigation using computer aided data collection technology, solving problems and discussing ideas in groups, questioning from the teacher and the students, demonstrations, worked examples and occasionally lectures on tricky subjects. My hope is that anything we do in class be driven by student questions. I also, in the IB spirit, hope to get outside of the 4 walls of the classroom and see physics in action as much as possible. I don’t teach physics for some authority trip, I teach physics because I love the subject and enjoy seeing students’ minds “come alive.” I am here to help students learn, but they’ll take much more from the class if they have a learning attitude.
What will homework consist of? (The burning question! :)

Let me start by being real honest. Homework for homework’s sake is not necessary. I don’t enjoy homework any more than students. For every hour they have, I have 3. BUT . . . in a class of this pace, there simply isn’t enough class time to do it all. So, first, the most consistent form of homework will be working on problems in their journals from a website called [www.webassign.com](http://www.webassign.com). Often, many of these problems will be discussed and worked on in class, but never the majority. These problems are from their textbook. Here’s how it works.

Students will login for the 1st time with this information:

username: lastname.firstname  (Example: smith.robert, as they are given on the Rampart attendance roster, no caps)
institution: rampart.co
password: same as username. Students should change this ASAP in the settings.

Students will find selected problems online after logging in. These should be completed in their learning journals using the GUESS method (discussed in class). Then, the answers will be input online AFTER they work on them by hand. They get 3 opportunities to get the problem wrong before a 25% deduction occurs. It will tell them immediately if the question is right or wrong. Students and parents have had very positive feedback about this service since 2006. They can complete homework anywhere there is internet service and there is no paper shuffling on both ends. Count on there being a “webassign” every week of school. Ten minutes of every second class will be dedicated to eager students presenting their solution to particularly hard problems. I also encourage students to use each other for help and form study groups. Even chatting online can sometimes help. Be resourceful and tenacious. If you see your student working on problems with no notebook/journal being written in, you should stop them immediately. The online nature is for immediate feedback only. It is not to exempt them from working the problem by hand first.

Also, as discussed above, homework will be reading the book, taking notes from a study guide, or finishing an important lab write-up. Most big assignments (lab write-up, project) have a “3 block day” due date. (It is due on the 3rd block day after it is assigned.)
What do I do if I forget to do my homework?

Given that I post a calendar of the goings on each day, I will not tolerate any excuses for missed assignments. But hey, it happens to all of us once in a while. So what do you do?

First, sometimes you just have to chalk it up to water under the bridge. If you miss a 10 point assignment once, it will not change your grade at semester. If you miss webassign.com assignments, the good news is that each assignment is worth 25 points but only 20 points go in the gradebook out of 20. So there are 5 built in points of extra credit in each assignment. There will also be opportunities to earn extra points here and there (especially on tests where it counts even more.)

What I don’t tolerate is excuses after the fact. For instance, “Mr. Mac, I was in Hawaii for 2 weeks and never talked to you before I left. Not even once via email. Now I am missing all these assignments. When can I make them up?”

My answer: “The department policy is that you can turn in anything up to the unit test for 50% credit of what you earn. And I think that is BEYOND generous. I am interested in making students take responsibility for their actions. There’s no excuse to not communicate to your teacher PROACTIVELY.”

What do I do if I simply miss one day of class and it’s excused?

No problem. Turn it in ASAP or the very next time I see you in class. But, for webassign.com, the due dates are simply what they are. I am generous with my due dates to accommodate busy lives. (like mine ;)

BUT . . . I am not going to remind you to turn it in because it just won’t be on my mind. When in doubt, put the work in the inbox and go from there. Sometimes I grade things for feedback and grading things that are not in the main stack is a whole other chore. Often, students take a picture or scan it and email it. I really appreciate that.

What if I miss a bunch of class?

Well, then we’ll figure out something together. If it is because of an emergency (bad illness, family emergency, my kidney fell out, . . . ) just have someone contact me from the homefront. I am a compassionate person. If you miss a bunch of class because you went on a band trip to Canada and you didn’t do a Pre-Arranged Absence form, then that was your poor choice. See “50% Department policy” above.
What resources do I have to help my struggling student?

1) Try to encourage your student to do homework with a “study-buddy” or group. Peers are probably the best first line of defense against getting stuck. Chances are, if everyone is stuck, we’ll address it in class at some point.

2) I have important links on my webpage that will link you to only the best online resources to help a student out. There are lots of step by step walkthroughs/podcasts online that can illustrate how to get past a tough point. Be resourceful.

3) Encourage your student to use their book. I know it is tough, but there are examples identical to many problems I assign. I find that students who struggle have often times NEVER opened the book.

4) Encourage your student to be engaged in class by asking questions, talking with peers, and engaging in activities. Also, not staying up all night playing video games, or chatting on Facebook helps. The amount of chronic sleep deprivation I observe is almost epidemic.

5) Verify that your student is working on webassign.com problems for less than an hour a few times per week. If they are spending more than 2 hours on webassign on any given night, make them stop. Often too, when students say they’ve spent 5 hours on webassign it is because they waited until the last night to finish. Students tend to obsess about what they don’t know. Remember, a 15/25 is actually 15/20 in the gradebook. Sometimes assignments are just challenging. So is life.

6) Communicate with your teacher. Email is the best and quickest way for me to respond. Talk to me in class, after class, etc. and let me know if you are struggling. Come in on Thursdays after school for extra help to clarify things. But I’ll only help you if you have actually tried first.

7) Demand to see their work in their journal. Where are the notes they took? Where are the worked examples from class? Where is the GUESS method work from the problem they are “stuck” on? If you can’t find any of these things, they aren’t stuck, they never started. Encourage problem solving.

8) Studying. How is your student studying? Did they go back to the learning targets and assess their knowledge? Did they complete the review sheet and ask questions/check work in class? Did they prepare their cheat sheet for the test? Basically, often times students are “studying” by reading over the things they ALREADY KNOW. You cannot earn a good grade in the class by turning in busy work. Tests matter- a lot.
How is my grade determined?

**Semester In-Progress (Weighted as 70% of total semester grade)**
Summative Assessments (assessed with IB criteria)
- Unit Tests, Lab Write-Ups & Projects: 50%  
  35% semester grade

Formative Assessments (things that help you reach the learning targets)
- Quizzes: 15%  
  10% semester grade
- Homework/Classwork: 35%  
  25% semester grade

**Semester Exam (Weighted as 30% of total semester grade)**
Final Exam
- (IB Style Exam/IB Practice Exams): 80%  
  24% semester grade
- Holistic Portfolio: 20%  
  6% semester grade

(Top 2 lab scores in each criteria 10%,
Learning Journal Thoroughness 5%,
Daily Participation Marks 5%,
Homework Bonus (1 or fewer missing assignments))
IB Students: Your grades will be accompanied by an IBO Mark from 1 to 7 each quarter so you can see how you are doing on their scale.

Grades will be updated frequently. Students and parents can check progress through the MyCampus portal which can be found on the RHS website. Grade Graphs will be recorded in their journals about every 4 weeks.

What is Mr. Mac looking forward to this year?
1) Helping students perform well in May on the IB Exam.
2) The Group 4 project being meaningful to all of us.
3) A very small class size, not mixed with honors.
4) A classroom focused on student learning.
5) Excursions out of the building to apply our knowledge.
6) Calling lines at the volleyball games.
7) Our Knowledge Bowl team continuing its success.
8) Emphasizing 20th century physics during 2nd semester.
9) High Trails
10) Being done remodeling my entire home in 5 months mostly by myself.
11) Riding my motorcycle.
12) Teaching shooting classes.
13) Camping, hiking, golfing, shooting, biking, and anything else I love to do.
14) Spending time with my family.
15) Watching my favorite TV shows like Adventure Time, Walking Dead . . .
16) Leaving the school building before 4pm once or twice.
17) Working with motivated students who want to really learn something.
First Assignment
The first assignment for students is for their parents to verify that they have read and understood this document. An email needs to be sent to me by a parent or guardian at john.macfarlane@asd20.org saying:

Cut and Paste the following:

Subject Line: “Expectations Email”

“I have read and understood the information discussed in the “Expectations and Important Info 2013” document.”

AND

Write me a few lines about what is the best way to help your student succeed.