

Grading Practices for Physics (Standards-Based Grading) updated as of September 2, 2020 for students and parents

(also, this will be on my website at <https://www.pickphysics.com>)

After a discussion with my physics classes, we're moving forward with Standards Based Grading (SBG). I used this the last two years in some of my physics classes, and it was well received by students. I hope to continue to improve how I use SBG in my physics classes. This year my goal is to have a set about forty standards that we will try to master throughout the year. These will be a mix of both process standards (such as Lab Skills or Habits of Mind) and content standards (such as those relating to Forces or DC Circuits).

My goal is that each standard will count for 10 points. You will have multiple attempts to attain each standard, and you will be allowed to retake a content standard at any point during the year (up to one a week) if you fill out a form requesting this and complete certain reasonable requirements prior to the retake date. You may earn points for content standards from labs, activities, or tests/quizzes, but the final score will often be from a test or quiz.

Your grade at any point in time for a certain standard will depend on two methods of scoring. For content standards and Habits of Mind standards, your grade for each standard will be determined as an average between your **highest score** and your **most recent (latest)** score for that standard, with at least two unique assignments making up your average. In other words, the two averaged scores must be unique. For example, if your most recent score was also the highest score, then I would not count that twice. However, if you have a most recent score and an earlier score on another assignment which are both the highest score, I would average those. For Habits of Mind, we will have you fill out a performance rubric toward the end of the quarter which allows you to reflect on how you've done in each area, and a place where I can give you individualized feedback. Things in the Habits of Mind area include aspects of homework, effort, participation in class discussions (or synchronous meetings if we have virtual instruction), timeliness of getting work done, willingness to improve your work, etc.

Lab Skills and Scientific Reasoning standards reflect the lab work we do all year, and for these standards your grade will be determined by **averaging your best score and the average of all your scores for each standard**. This is called a decaying average, by the way. You can also ask to reassess the lab standards, although most likely this will be a lab activity.

As discussed in class early on, *this year I want to use cumulative grading, where your grade as the year goes on reflects your mastery of the standards up to that point. Therefore, your final grade for the year would be forced to be the same as your 4th quarter grade since it reflects your mastery of the content and process skills all year long.* To allow you to improve all year, I'll have opportunities throughout the year for improving your scores in any standard we've covered up to that point. At times, this might mean having parts of a test or lab require you to demonstrate understanding from much earlier in the year, but it also means you're likely to really learn it, not just memorize and forget that content or skill. I'll also allow for retakes all year. My intention is to allow students to retake up to one standard every week if they want, as long as I have enough notice for you to do so. We'll discuss the details of this in class or a synchronous session (if virtual). My goal is to be as fair as possible, and help you really learn as much as possible without wasting your time. It also involves trust. I trust my students to give a good faith effort in class, and I hope you trust me to have a grading system that's fair and clear. I'll get feedback from you all year long, and if we don't think things are going well, we can adjust how this goes. If you retake a standard and still don't show a solid understanding, but you still want to improve, we will come up with an additional opportunity to allow you to try and do so.

A NOTE TO PARENTS AND STUDENTS: Don't fret! Often times the first attempt at a standard isn't going to be the best. That's expected and normal. What it means is you need to NOT PANIC and understand that there will be multiple attempts at every content standard, and that normally this means your score in a standard will go up over time. Sometimes it may take a while, but you will have these extra attempts. If for some reason we won't have multiple attempts at a standard, I won't end up having that count toward your grade.

My intention is to provide you with a list of the standards to be assessed, although early in the year this is subject to change. Obviously if we don't get to cover a certain topic in class, I wouldn't assess you on standards related to that content. I'll update grades once a week in something called SBGBook online (<https://www.sbgbook.xyz/gbook/login/>) after I get that set up the weekend of September 12-13. The grading average is what will be reported to Infinite Campus, not any other details.

My hope is this will be clearer and fairer way to score students' ability to perform in class. Some of the best physics teachers nationally use this system, and one of the best English teachers I've known (Mr. Baptist, who's now an assistant principal at Lakeview Junior High) used a similar system at Pickerington North! Now, I want to take class time to answer specific questions you may have.



Information for access to grade book for STUDENTS and PARENTS in Physics 2020 for Mr. Forrest

To access you (or your child's) detailed grade book:

- 1) Google: SBGBook
- 2) To log in as a student, type in your username as their email (all lower case).
- 3) Type in your password which has been set to **pickphysics2020**. Please change this to something more secure after your first login. If a student will not share the password with their parents, let me know as I can reset the password.

Physics standards**Habits of Mind: Unit 0-A**

Standard	Description	Score
HM1	I actively participate in labs, small group discussions, and whole class discussions during synchronous sessions and/or in class to increase my own understanding as well as that of my peers. I also am active in discussion boards as they are used for online assignments.	
HM2	I focus on physics during physics required synchronous sessions and/or in class and use technology to help my understanding of physics rather than distract me. My attitude, involvement and actions help learning in synchronous sessions/in class and I am willing to offer and ask for help from my teacher and peers.	
HM3	I perform deliberate practice to improve my understanding of physics, as shown by: class involvement, contacting the teacher for extra help, and completing formative homework, labs/simulations, practice problems and classwork to the best of my ability. I review and reflect on my work, as shown by comments to feedback on graded assignments. I can implement a plan for improvement based on feedback from my teacher and peers. Compared to my best effort, I'm performing well.	
HM4	I am well prepared and put full effort into formative assignments such as homework and reading quizzes. I show evidence of self-directed preparation to allow me to be successful on the formative assessment.	
HM5	Persistence. If my understanding of a topic or performance on a project isn't at a high level, I make the effort to improve by attempting to get extra help in person or with a 1-on-1 Google Meet, complete extra work to show mastery, retake an assessment/standard if necessary, and revise and improve upon a project that performs poorly.	
HM6	I communicate at least weekly with my instructor about my progress in class. This includes successes, struggles, and questions and can take the form of in person communication (in class on a Google Meet) or via a Google Form.	
HM7	Netiquette and classroom atmosphere and respect. During synchronous sessions, in class, and during collaborative work (online or in person) I help foster an atmosphere conducive to learning by being respectful and treating others professionally. I treat my classmates and instructor with respect, dignity, and honesty.	
HM8	I am actively involved in any building, design, or other collaborative projects - including work needed asynchronously outside of class. I show effort, thought, creativity and a willingness to complete the project at a high level.	

Laboratory Skills and Scientific Reasoning: Unit 0-B

Standard	Description	Score
LSSR1	I can design and carry out experiments or online simulations based on the task at hand using a working hypothesis and selecting appropriate lab equipment or online tools and technology along with using those tools correctly. I'll maximize the amount and range of data collected within the time allowed and available materials. I can also communicate and represent the details of an experimental procedure clearly and completely using words, graphs, equations, and/or diagrams.	
LSSR2	I can make a reasonable judgement about the results of a given experiment or online simulation supported by evidence and reasoning and use this to revise a hypothesis when necessary. I can identify possible sources of uncertainty and/or error, evaluate how they affect my results, and suggest ways to minimize them. When asked, I can explain the difference between accuracy & precision, error & uncertainty, and identify experimental variables as independent, dependent or controlled and analyze these within a given experiment or online simulation.	
LSSR3	I can analyze data, and lab or online simulation results appropriately and analyze the information clearly and completely. I can make a claim about the data or results and support the claim with data, evidence and reasoning support the correct physical model in the situation. I can compare and analyze how an online simulation might be different than a similar hands-on lab activity and discuss what challenges there are with each format.	
LSSR4	I can identify patterns in data and represent the data mathematically and graphically, along with providing physical meaning to the slope, y-intercept, and area where appropriate. When making a graph, I can place variables correctly, label axes, and follow other graphing norms to show a possible relationship between two variables. I can explain the physical significance of a graph's slope, including if the slope is changing.	
LSSR5	choose a correct graphical relationship and write the mathematical model for the relationship, if any, that's shown. If necessary	

Math Skills and Vectors: Unit 0-C

Standard	Description	Score
	<i>I can solve various algebraic equations for any variable. I can solve problems with right angle trigonometry (sine, cosine, tangent, Pythagorean theorem). I can interpret how the shape of a graph relates to a mathematical relationship. I can use conversion factors to express quantities in other units (metric-metric, English-metric). I can use proportional reasoning to explain mathematical models and formulas. NOTE: This will not be a separate standard, but it is the math that will be embedded within problem-solving for a number of the content standards.</i>	
MV1	I can show a clear understanding of the similarities and differences between scalar and vector quantities, including representing vector quantities with diagrams.	

MV2	I can add, subtract, and find the vector product of multiple vectors both graphically and using mathematics such as the Pythagorean Theorem and trigonometry and I can break down a resultant vector into components using the same techniques.	
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Forces: Unit 1

Standard	Description	Score
F1	I can solve both static and dynamic force problems using multiple models to check for consistency (e.g. Balanced Force Particle Model vs. Unbalanced Forces Particle Model) and relate gravitational force with the mass of an	
F2	I can correctly draw, label, and interpret Free Body Diagrams (FBD's) based on a situation, use FBD's to help describe the motion of an object, and identify different types of forces (applied, friction, drag, normal).	
F3	I can relate and apply Newton's Laws (1st [Law of Inertia], 2nd [Law of Acceleration] and 3rd [Law of Interaction]) to 1-D and 2-D motion using mathematics, graphs, diagrams, and verbal or written descriptions in various situations including those that involve static, kinetic or rolling friction and stretched or compressed springs.	

Momentum and Impulse: Unit 2

Standard	Description	Score
MI1	I can demonstrate that momentum is conserved in an isolated system before and after a collision or explosion, and that the change in momentum in a non-isolated system is equal to the impulse applied to the system by an outside force. I can also explain how force and collision time are inversely related and understand this can be used to protect an object in a collision (such as with an airbag) with the idea that for the same impulse a smaller force can be applied over a larger time interval.	
MI2	I can mathematically apply the law of momentum conservation to various types of collisions using correct vector resolution to determine the motion of center of mass of a system (which is conserved before and after a collision) and the speed and direction of individual objects that collide.	

1-Dimensional Motion: Unit 3

Standard	Description	Score
1D1	I can use mathematical models to solve physics problems involving 1-D motion and I can distinguish between vector and scalar quantities in 1-D motion to solve problems appropriately (e.g., the difference distance and displacement, average speed and average velocity)	
1D2	I can draw and interpret motion graphs (position, velocity, acceleration), motion maps, mathematical models, and verbal or written descriptions to represent the motions of constant velocity or accelerating objects, and to determine the correct model of motion (constant velocity, constant acceleration, uniform circular motion, etc.)	
1D3	I can explain the meaning of slope (changing or constant), area and y-intercept as needed for kinematics graphs representing constant speed or accelerated motion, as well as other types of graphs that come up during the course.	

2-Dimensional Motion and Universal Gravitation: Unit 4

Standard	Description	Score
2D1	I can explain the horizontal and vertical motion of a projectile using constant velocity and constant acceleration models and solve mathematical problems involving projectile motion using 1-D motion concepts in numerous ways learned earlier in the course, including mathematically, graphically, with motion maps, and through descriptions. I can demonstrate the independence of horizontal and vertical motion for projectiles.	
2D2	I can identify what factors affect the amount of torque on an object, and use proportional reasoning to solve problems involving torque and forces. ($T = F \times d$)	
2D3	I can correctly use and apply Newton's Law of Universal Gravitation mathematically, and conceptually to predict how gravitational forces change as positions and masses of objects change	

Energy conservation and transfer: Unit 5

Standard	Description	Score
E1	I can demonstrate a deep understanding of the Law of Conservation of Energy by showing an understanding of a system, including that energy can't be created or destroyed, only transferred in or out of a system (in the form of work) or transformed to a different form of energy (such as kinetic energy being converted into thermal [heat] energy).	

E2	I can use Work-Energy bar charts to demonstrate an understanding of energy conservation, and as a way to demonstrate energy flow (in the form of work) in or out of a system. I can also define a system and use that to explain energy conservation and interaction with the outside environment.	
E3	I can perform calculations for objects involving one or more types of energy, including elastic potential energy, gravitational potential energy, and kinetic energy. I can calculate the work done by a system or on a system, and demonstrate that power is the rate at which work is done. I can also explain the fundamental difference between potential energy and kinetic energy.	

Charge and electrostatics: Unit 6

Standard	Description	Score
EL1	I can predict whether charged particles will be attracted, repelled or have no interaction with other particles based on my understanding of electrostatics.	
EL2	I can mathematically apply Coulomb's Law and my understanding of vectors to determine the net force (magnitude and direction) on a charged object.	

DC circuits: Unit 7

Standard	Description	Score
DC1	I can identify the conditions needed to form a complete circuit, and what factors will affect the brightness of a bulb (which represents the power) of a circuit. I can predict how the brightness of a bulb will change if another element in the circuit is added or removed.	
DC2	I can determine and explain the relationships of current, voltage, resistance and power in simple series, parallel, and combined circuits using Ohm's Law and power calculations. I can use Kirchoff's rules for voltage and current to demonstrate conservation of energy and conservation of matter.	
DC3	I can demonstrate an understanding of resistance (and what factors affect resistance) and resistivity, and whether a material is Ohmic or not. I can make predictions about the resistance of various materials and wires of different thicknesses and lengths.	

Unit 8 (Project Performance and other topics - TBD)

Standard	Description	Score
P1	The quality of your design/project/lab/simulation when compared to others in class or the course as demonstrated by the standards described in the project handout (for example, a video relating a certain topic of physics to a sport of your choosing).	
P2	For collaborative or summative projects, the student demonstrates progress toward a finished project at checkpoints along the way as specified in the teacher instructions.	
P3	Collaborative or design projects will show a full understanding of the physics learned up to that point in the year, as demonstrated by the performance of the project and/or analysis of the performance verbally or in writing.	

Reassessment request (Physics)

Your name:

Today's date:

Class time or section:

Each week you may reassess one standard. For content and habits of mind standards, remember that your grade is determined by averaging your best score and most recent score (two unique assessments). For lab skills and scientific reasoning standards, your grade is determined by averaging all your scores and your most recent score. Therefore, even one reassessment can make a big difference.

Retake Policy

1. The retake score will override the original score for the standard that is retested.
2. Student may only retake one standard each week.
3. Student earns retake privilege only if all guidelines have been met that are checked below.
4. The retake test will **not** be identical to the original. Studying mistakes from the original test is advised, but while the new assessment will be over the same standard, it may be of different length and in even a different format (such as a verbal quiz).
5. Students must make arrangements to reassess at a time that is convenient to Mr. Forrest. This year, due to COVID-19, we are unable to have students stay after school, and at the start of the year we may not be able to have students move to E/I. So the retake would likely have to be scheduled during a Wednesday office hours, or another time that both Mr. Forrest and the student can agree upon.

I wish to retake the following standard: _____

I am requesting the opportunity to retest and I understand the expectations of the reassessment policy.

Student signature or printed name:

Teacher initials:

Original score on standard:

Retake score on standard:

Evidence of Preparation - Teacher approved plan

Teacher will check the requirements for this reassessment and will initial once completed. All requirements must be completed before the reassessment date for a student to be eligible.

- X Submit this form and schedule a time to reassess/submit your reassessment within two days (48 hours) of getting back the original assessment.
- ___ Conferences with teacher during class/online
- ___ Participate in ___ review sessions with teacher (to be scheduled ASAP)
- ___ Arrange time before or after school with the teacher for assistance
- ___ Complete or correct work that was leading up to the assessment
- ___ Complete an additional assignment related to the assessment, described below in teacher notes
- ___ Complete original assessment corrections with an explanation of why original answers were wrong
- ___ Write a paragraph explanation of why you want to reassess, what was learned during the revision process and (possibly) have this signed by a parent/guardian