

Qtr: _____ Your name: _____

Quarter 4 Stanards	
Laboratory skills	
Standard	Description
LB1	I can communicate and represent the details of an experimental procedure clearly and completely
LB2	I can design and carry out experiments based on the task at hand using a working hypothesis and selecting appropriate lab equipment that is used correctly
LB3	I can consider the precision of the measuring device when recording data and performing calculations, I will maximize the amount and range of data collected within the time allowed, and I have correct units on answers
LB4	I can make a reasonable judgement about the results of a given experiment supported by evidence and reasoning and use this to revise a hypothesis when necessary
LB5	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. If slope is changing, I can explain the physical significance of this

Habits of Mind	
Standard	Description
HM1	I actively participate in labs, small group discussions, and whole class discussions to increase my own understanding as well as that of my peers
HM2	I focus on physics during physics class and am ready to learn through the entire class period; I limit my use of electronics to situations that help me learn physics. I help foster an atmosphere conducive to learning and am willing to ask and offer help from my teacher and peers
HM3	I perform deliberate practice to improve my understanding of physics, as shown by: class involvement, coming in for extra help, and completing homework, labs, practice AP problems and classwork to the best of my ability and review and reflect on my work. I can implement a plan for improvement based on feedback from my teacher and peers. I work hard in and out of class. 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 out-of-class preparation to allow me to be successful in my in-class work
HM5	I demonstrate competence in material learned from previous quarters, thus showing I am preparing for the AP exam and reviewing content that may have been difficult for me earlier in the year

NOTE: To complete this quarter's content standards you will often need to demonstrate understanding and connections with previous standards. These will not be assessed separately, but rather as part of this quarter's standards

Rotational motion, angular momentum, and torque	
Standard	Description
ROT1	I can make analogies to linear motion and acceleration by using torque and rotational motion with Newton's 2 nd Law for rotation $(a = \frac{Force_{net}}{Mass} \text{ compared with } \alpha = \frac{Torque_{net}}{Rotational\ inertia\ (I)})$
ROT2	I can make predictions about whether a system will be in rotational and/or translational equilibrium by analyzing given information about a system

4th quarter update! As with the 3rd quarter, we will have one retake test toward the end of the quarter. I want every student to know that each test is important, and not to fool themselves into thinking, "Oh, I can just retake a test later." Often times, this just hasn't happened, or when it does students have performed worse! This quarter there will be ONE replacement test taken toward the end of the quarter during class time. You may select four total standards (from any of the quarter's previous tests) to retake and let me know this at least a week in advance of your test. I'll likely ask you to complete a small assignment for the retake. If you do so, you can get up to 10/10 on all the standards you retake. If not, you can earn up to 8/10 on all the standards you retake. Be careful NOT to miss a test before this – if you do, and are unable to take it before the test is handed back you will be required to retake the standards on the test you missed! If you'll have a preplanned absence and you know about it, see me in advance. So overall, the goal of the modified retake policy is to (a) have students focus, study and prepare better for initial tests, (b) be able to have ALL students retake standards during class time, and (c) be better prepared for your AP exam in May.

ROT3	I can determine the rotational inertia (aka moment of inertia, "I") of a system by knowing various factors such as mass, radius and mass location
ROT4	I can apply my understanding of mechanics to rotational systems (Newton's Laws, rotational energy and work, angular momentum, angular accelerations, angular velocities and angular displacements)
ROT5	I can apply conservation of angular momentum and linear momentum to predict the motion of rotating objects that undergo a collision, as well as show that angular momentum within a given system is always conserved unless the system experiences an outside torque

Charge and Electrostatics

Standard	Description
EL1	I can mathematically apply Coulomb's Law and my understanding of vectors to determine the net force (magnitude and direction) on a charged object.
EL2	I can predict whether charges will be attracted, repelled or have no interaction with other charges based on my understanding of electrostatics
EL3	I can compare and contrast Coulomb's Law with the Law of Universal Gravitation

DC Circuits

Standard	Description
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
DC2	I can trace the conducting paths in circuits to apply Kirchhoff's junction rule and loop rule as examples of conservation of matter and conservation of energy
DC3	I can determine and explain the relationships of current, voltage, resistance and power in simple series, parallel, and combined circuits using Ohm's Law
DC4	I can predict how the voltage, current and brightness (power) of elements in a circuit will change by adding or subtracting another element
DC5	I can demonstrate an understanding of resistivity, resistance (and what factors affect resistance) and whether a material is Ohmic or not

Waves

Standard	Description
WA1	I can identify the different types of mechanical waves and the parts that make up each of those waves
WA2	I can use the general wave equation to relate the wavelength, frequency and speed of a mechanical wave
WA3	I can demonstrate understanding of the Law of Superposition for mechanical waves with explanations as well as drawing wave pulses and interactions of wave pulses to show how particles and energy move in mechanical waves
WA4	I can analyze standing waves on a string and sound waves for patterns of constructive and destructive interference (nodes, antinodes, and resonance) under various conditions

Our focus this quarter will be on preparing you for the AP exam on Tuesday, May 7 (afternoon). Therefore, categories HM4 and HM5 (showing effort in formative assignments and demonstrating competence in material from previous quarters) will likely be more heavily weighted than shown. They may be weighted as 20 point categories instead of 10 points, or be listed in two different columns with scores going in each column. Each quarter you will be assessed on the Lab Skills and Habits of Mind. Scores in each of these standards 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. 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 completion, effort, participation in class discussion, timeliness of getting work done, etc. Each quarter there will be different content standards. Unlike the Lab Skills and Habits of Mind, these may not necessarily be repeated for different quarters. Since mastery of the content is the goal here, 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.