

Physics Standards				
Code	Description	Courses	Subject	Strand
HS.P.D.01	I can differentiate between position, distance, and displacement.	SCI101	Physics	DYNAMICS
HS.P.D.02	For the motion of an object moving with a constant velocity I can recognize the features of a diagram that represent constant velocity vs. changing velocity.	SCI101	Physics	DYNAMICS
HS.P.D.03	For the motion of an object moving with a constant velocity I can translate from one graph to another and describe the motion in words based on the graph.	SCI101	Physics	DYNAMICS
HS.P.D.04	For the motion of an object moving with a constant velocity I can find the average velocity using the slope of an x-t graph.	SCI101	Physics	DYNAMICS
HS.P.D.05	For the motion of an object moving with a constant velocity I can find the change in position using the area beneath a v-t graph.	SCI101	Physics	DYNAMICS
HS.P.D.06	For the motion of an object moving with a constant velocity I can draw and interpret position-vs-time graphs, velocity-vs-time graphs, & motion maps.	SCI101	Physics	DYNAMICS
HS.P.D.07	I can solve problems involving average speed and average velocity.	SCI101	Physics	DYNAMICS
HS.P.D.08	For the motion of an object moving with a changing velocity I can draw and interpret diagrams that includes position-vs-time graphs, velocity-vs-time graphs, and motion maps.	SCI101	Physics	DYNAMICS
HS.P.D.09	For the motion of an object moving with a changing velocity I can find the instantaneous or average velocity from the slope of the x-t graph.	SCI101	Physics	DYNAMICS
HS.P.D.10	For the motion of an object moving with a changing velocity I can find average acceleration from the slope of a v-t graph.	SCI101	Physics	DYNAMICS
HS.P.D.11	For the motion of an object moving with a changing velocity I can find change-in-position from the area beneath a v-t graph.	SCI101	Physics	DYNAMICS
HS.P.D.12	For the motion of an object moving with a changing velocity I can find change-in-velocity from the area beneath an a-t graph.	SCI101	Physics	DYNAMICS
HS.P.D.13	For the motion of an object moving with a changing velocity I can describe the motion of an object in words based on a motion diagram/graph.	SCI101	Physics	DYNAMICS
HS.P.D.14	I can differentiate between acceleration and velocity.	SCI101	Physics	DYNAMICS
HS.P.D.15	I can differentiate between velocity and change-in-velocity.	SCI101	Physics	DYNAMICS
HS.P.D.16	I correctly interpret the meaning of the sign of the acceleration.	SCI101	Physics	DYNAMICS
HS.P.D.17	I can match the sign of the acceleration with the sign of the slope on the velocity-vs-time graph.	SCI101	Physics	DYNAMICS
HS.P.D.18	I can describe the motion of an object in words using the velocity-vs-time graph.	SCI101	Physics	DYNAMICS
HS.P.D.19	I can solve problems using kinematics concepts.	SCI101	Physics	DYNAMICS
HS.P.D.20	For objects experiencing projectile motion I can identify when an object is in free fall (the only force acting on it is $F_g$ ).	SCI101	Physics	DYNAMICS
HS.P.D.21	I can solve problems for objects experiencing projectile motion with constant x-direction velocity and constant y-direction acceleration	SCI101	Physics	DYNAMICS
HS.P.D.22	For objects experiencing projectile motion I can draw separate graphs for the x-direction and y-direction components of position.	SCI101	Physics	DYNAMICS
HS.P.D.23	For objects experiencing projectile motion I can draw separate graphs for the x-direction and y-direction components of velocity.	SCI101	Physics	DYNAMICS
HS.P.D.24	For objects experiencing projectile motion I can draw separate graphs for the x-direction and y-direction components of acceleration.	SCI101	Physics	DYNAMICS
HS.P.F.25	I can draw a force vector addition diagram for an object representing the net force on the object.	SCI101	Physics	FORCES & NEWTON'S LAWS
HS.P.F.26	I can draw a properly labeled free body diagram showing all forces acting on an object.	SCI101	Physics	FORCES & NEWTON'S LAWS
HS.P.F.27	I can identify surrounding objects interacting with an object, and the forces they exert on the object.	SCI101	Physics	FORCES & NEWTON'S LAWS
HS.P.F.28	I use multiple diagrams and graphs to represent objects moving at a changing velocity. For example: Motion graphs (x-, v-, a-t), motion map, free body diagram, vector addition diagram, system schema.	SCI101	Physics	FORCES & NEWTON'S LAWS
HS.P.F.29	My free body diagrams look qualitatively accurate (balanced or unbalanced in the correct directions, relative sizes of forces).	SCI101	Physics	FORCES & NEWTON'S LAWS
HS.P.F.30	I can relate balanced forces to an object's constant motion.	SCI101	Physics	FORCES & NEWTON'S LAWS
HS.P.F.31	I can relate unbalanced forces to an object's changing motion.	SCI101	Physics	FORCES & NEWTON'S LAWS
HS.P.F.32	I can determine the direction of the net force based on the object's motion.	SCI101	Physics	FORCES & NEWTON'S LAWS
HS.P.F.33	I can use Newton's first law to quantitatively determine the forces acting on an object moving at a constant velocity.	SCI101	Physics	FORCES & NEWTON'S LAWS
HS.P.F.34	I can draw a force vector addition diagram for an object experiencing a net force of zero.	SCI101	Physics	FORCES & NEWTON'S LAWS
HS.P.F.35	I can solve problems using Newton's 2nd Law ( $F_{net} = ma$ ).	SCI101	Physics	FORCES & NEWTON'S LAWS
HS.P.F.36	I know when two surfaces must be experiencing a friction interaction.	SCI101	Physics	FORCES & NEWTON'S LAWS

HS.P.F.37	When given one force, I can describe its Newton's third law force pair.	SCI101	Physics	FORCES & NEWTON'S LAWS
HS.P.E.38	I can use words, diagrams, pie charts, and bar graphs to represent the way the type and total amount of energy in a system changes (or doesn't change).	SCI101	Physics	WORK & ENERGY
HS.P.E.39	I identify when the total energy of a system is changing or not changing, and I can identify the reason for the change.	SCI101	Physics	WORK & ENERGY
HS.P.E.40	I can differentiate between when energy is stored in a system and when energy is transferred into or out of a system.	SCI101	Physics	WORK & ENERGY
HS.P.E.41	I can use the relationship between the force applied to an object and the displacement of the object to calculate the work done on that object.	SCI101	Physics	WORK & ENERGY
HS.P.E.42	I can calculate the work done when the force and the displacement are not in the same direction.	SCI101	Physics	WORK & ENERGY
HS.P.E.43	I can calculate the work done by a particular force as well as the net work done to an object or system.	SCI101	Physics	WORK & ENERGY
HS.P.E.44	I can find the change in energy for an object by calculating the area under an F-displacement graph.	SCI101	Physics	WORK & ENERGY
HS.P.E.45	I can use the conservation of energy to solve problems.	SCI101	Physics	WORK & ENERGY
HS.P.E.46	I can identify multiple snapshots (states) to analyze the energy for a system in a given situation.	SCI101	Physics	WORK & ENERGY
HS.P.E.47	I can define different systems for the same situation, and I can represent the energy and how it changes (or doesn't change) for each system definition.	SCI101	Physics	WORK & ENERGY
HS.P.E.48	I can calculate the momentum of and the impulse on an object (or system) with direction and proper units.	SCI101	Physics	MOMENTUM
HS.P.M.49	Know the difference between momentum and velocity and which is conserved in a collision.	SCI101	Physics	MOMENTUM
HS.P.M.50	Identify when the impulse on a system is zero or non-zero.	SCI101	Physics	MOMENTUM
HS.P.M.51	I treat momentum as a vector quantity.	SCI101	Physics	MOMENTUM
HS.P.M.52	I can explain a situation in words using momentum concepts.	SCI101	Physics	MOMENTUM
HS.P.M.53	I can use the conservation of momentum to solve 2-D problems.	SCI101	Physics	MOMENTUM
HS.P.M.54	I can determine whether or not a collision was elastic by analyzing the motion information.	SCI101	Physics	MOMENTUM
HS.P.M.55	I can qualitatively represent the energy stored before and after any collision.	SCI101	Physics	MOMENTUM
HS.P.M.56	I can solve a problem involving a collision or explosion by employing two fundamental principles.	SCI101	Physics	MOMENTUM
HS.P.M.57	I can calculate the magnitude and direction of the acceleration for a particle experiencing uniform circular motion.	SCI101	Physics	CIRCULAR MOTION
HS.P.C.58	I can use Newton's 2nd Law to solve problems for a particle experiencing uniform circular motion	SCI101	Physics	CIRCULAR MOTION
HS.P.C.59	I can use Newton's 2nd Law in component form to solve problems for a particle experiencing uniform circular motion.	SCI101	Physics	CIRCULAR MOTION
HS.P.C.60	I can use the Universal Law of Gravitation to solve problems.	SCI101	Physics	CIRCULAR MOTION
HS.P.C.61	I can calculate the torque acting on an object and determine if the net torque acting on an object is balanced.	SCI101	Physics	CIRCULAR MOTION
HS.P.C.62	I treat vectors and scalars differently and distinguish between the two. Vectors have a magnitude and a direction. Scalars only have a magnitude.	SCI101	Physics	GENERAL
HS.P.C.63	I can graphically add and subtract vectors. Add vectors head-to-tail. Subtract vectors tail-to-tail.	SCI101	Physics	GENERAL
HS.P.G.64	I can break a vector into components. Turn the vector into a right triangle and use trigonometry.	SCI101	Physics	GENERAL
HS.P.G.65	I report answers with a reasonable amount of precision, given the measurements provided. Consider the range of each number and the possible range of your answer when choosing how specifically to report it.	SCI101	Physics	GENERAL
HS.P.G.66	I can use a graphical vector construction to calculate 2-D kinematics quantities.	SCI101	Physics	GENERAL
HS.P.G.67	I can convert units within the metric system of measurement and between the metric and English systems of measurement.	SCI101	Physics	GENERAL
HS.P.G.68	I can recognize the relative size of a measurement based on its metric prefix.	SCI101	Physics	GENERAL
HS.WHA.1	Student understands the importance of completing high quality homework	SCI101	Physics	WORK HARD
HS.WHA.2	Student understands the core value of democracy and that participating in class is the key to academic success.	SCI101	Physics	WORK HARD
HS.WHA.3	Student understands that being prepared for success is a key to success.	SCI101	Physics	WORK HARD
HS.WHA.4	Student understands the importance of turning in assignments on time.	SCI101	Physics	WORK HARD