Unit 1			
Experimental Design & Measurement			
Duration	2 weeks		**Assessed**
Priority Standard(s)	3.A	All forces share certain common characteristics when considered by observers in inertial reference frames.	
Supporting Standard(s)	3.A.1.3	The student is able to analyze experimental data describing the motion of an object and is able to express the results of the analysis using narrative, mathematical, and graphical representations. [SP 5.1]	
	4.A.1.1	The student is able to use representations of the center of mass of an isolated two-object system to analyze the motion of the system qualitatively and semiquantitatively. [SP 1.2, 1.4, 2.3, 6.4]	

Unit 2			
Uniform Motion			
Duration	4 weeks		**Assessed**
Priority Standard(s)	3.A	All forces share certain common characteristics when considered by observers in inertial reference frames.	
Supporting Standard(s)	3.A.1.1	The student is able to express the motion of an object using narrative, mathematical, and graphical representations. [SP 1.5, 2.1, 2.2]	
	3.A.1.2	The student is able to design an experimental investigation of the motion of an object. [SP 4.2	
	3.A.1.3	The student is able to analyze experimental data describing the motion of an object and is able to express the results of the analysis using narrative, mathematical, and graphical representations. [SP 5.1]	

Unit 3			
Acceleration			
Duration	2 weeks		**Assessed**
Priority Standard(s)	4.A	The acceleration of the center of mass of a system is related to the net force exerted on the system, where a=F/m	
	3.A	All forces share certain common characteristics when considered by observers in inertial reference frames.	
Supporting Standard(s)	3.A.1.1	The student is able to express the motion of an object using narrative, mathematical, and graphical representations. [SP 1.5, 2.1, 2.2]	
	3.A.1.2	The student is able to design an experimental investigation of the motion of an object. [SP 4.2	
	3.A.1.3	The student is able to analyze experimental data describing the motion of an object and is able to express the results of the analysis using narrative, mathematical, and graphical representations. [SP 5.1]	
	4.A.2.1	The student is able to make predictions about the motion of a system based on the fact that acceleration is equal to the change in velocity per unit time, and velocity is equal to the change in position per unit time. [SP 6.4]	
	4.A.2.3	The student is able to create mathematical models and analyze graphical relationships for acceleration, velocity, and position of the center of mass of a system and use them to calculate properties of the motion of the center of mass of a system. [SP 1.4, 2.2]	

Unit 4			
Falling & 2D Motion			
Duration	weeks		**Assessed**
Priority Standard(s)	3.A	All forces share certain common characteristics when considered by observers in inertial reference frames.	
	4.A	The acceleration of the center of mass of a system is related to the net force exerted on the system, where a=F/m	
Supporting Standard(s)	3.A.1.3	The student is able to analyze experimental data describing the motion of an object and is able to express the results of the analysis using narrative, mathematical, and graphical representations. [SP 5.1]	
	4.A.1.1	The student is able to use representations of the center of mass of an isolated two-object system to analyze the motion of the system qualitatively and semiquantitatively. [SP 1.2, 1.4, 2.3, 6.4]	
	4.A.2.1	The student is able to make predictions about the motion of a system based on the fact that acceleration is equal to the change in velocity per unit time, and velocity is equal to the change in position per unit time. [SP 6.4]	
	4.A.2.3	The student is able to create mathematical models and analyze graphical relationships for acceleration, velocity, and position of the center of mass of a system and use them to calculate properties of the motion of the center of mass of a system. [SP 1.4, 2.2]	

Unit 5			
Forces & Newton's Laws			
Duration	5 weeks		**Assessed**
Priority Standard(s)	Big Idea 3	The interactions of an object with other objects can be described by forces.	
	Big Idea 4	Interactions between systems can result in changes in those systems.	
Supporting Standard(s)	1.A	The internal structure of a system determines many properties of the system.	
	1.C	Objects and systems have properties of inertial mass and gravitational mass that are experimentally verified to be the same and that satisfy conservation principles.	
	2.B	A gravitational field is caused by an object with mass.	
	3.A	All forces share certain common characteristics when considered by observers in inertial reference frames.	
	3.B	Classically, the acceleration of an object interacting with other objects can be predicted by using a=F/m.	
	3.C	At the macroscopic level, forces can be categorized as either long-range (action-at-adistance) forces or contact for	

Unit 6			
Universal Gravitation			
Duration	3 weeks		**Assessed**
Priority Standard(s)	Big Idea 3	The interactions of an object with other objects can be described by forces.	
	Big Idea 4	Interactions between systems can result in changes in those systems.	
Supporting Standard(s)	1.C	Objects and systems have properties of inertial mass and gravitational mass that are experimentally verified to be the same and that satisfy conservation principles.	
	2.B	A gravitational field is caused by an object with mass.	
	3.A	All forces share certain common characteristics when considered by observers in inertial reference frames.	
	3.B	Classically, the acceleration of an object interacting with other objects can be predicted by using a=F/m.	

Unit 7			
Energy			
Duration	5 weeks		**Assessed**
Priority Standard(s)	Big Idea 4	Interactions between systems can result in changes in those systems.	
	Big Idea 5	Changes that occur as a result of interactions are constrained by conservation laws.	
Supporting Standard(s)	3.E	A force exerted on an object can change the kinetic energy of the object.	
	4.A	Interactions with other objects or systems can change the total energy of a system.	
	5.A	Certain quantities are conserved, in the sense that the changes of those quantities in a given system are always equal to the transfer of that quantity to or from the system by all possible interactions with other systems.	
	5.B	The energy of a system is conserved.	

Unit 8			
Momentum / Collisions			
Duration	4 weeks		**Assessed**
Priority Standard(s)	Big Idea 3	The interactions of an object with other objects can be described by forces.	
	Big Idea 4	Interactions between systems can result in changes in those systems.	
	Big Idea 5	Changes that occur as a result of interactions are constrained by conservation laws.	
Supporting Standard(s)	3.D	A force exerted on an object can change the momentum of the object.	
	4.B	Interactions with other objects or systems can change the total linear momentum of a system.	
	5.A	Certain quantities are conserved, in the sense that the changes of those quantities in a given system are always equal to the transfer of that quantity to or from the system by all possible interactions with other systems.	
	5.D	The linear momentum of a system is conserved.	