

Pushing the Envelope			
2009 Science			
Core Curriculum Content Standards			
New Jersey Science			
Grades 5-6			
Activity/Lesson	State	Standards	
Chemistry (pgs. 25-41)	NJ	SCI.5-6.5.2.6.B.1	Compare the properties of reactants with the properties of the products when two or more substances are combined and react chemically.
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2009 Science			
Core Curriculum Content Standards			
New Jersey Science			
Grades 7-8			
Activity/Lesson	State	Standards	
Types of Engines (pgs. 11-23)	NJ	SCI.7-8.5.2.8.E.a	An object is in motion when its position is changing. The speed of an object is defined by how far it travels divided by the amount of time it took to travel that far.
Types of Engines (pgs. 11-23)	NJ	SCI.7-8.5.2.8.E.1	Calculate the speed of an object when given distance and time.
Chemistry (pgs. 25-41)	NJ	SCI.7-8.5.2.8.A.3	Use the kinetic molecular model to predict how solids, liquids, and gases would behave under various physical circumstances, such as heating or cooling.
Physics and Math (pgs. 43-63)	NJ	SCI.7-8.5.2.8.E.b	Forces have magnitude and direction. Forces can be added. The net force on an object is the sum of all the forces acting on the object. An object at rest will remain at rest unless acted on by an unbalanced force. An object in motion at constant velocity will continue at the same velocity unless acted on by an unbalanced force.
Physics and Math (pgs. 43-63)	NJ	SCI.7-8.5.2.8.E.2	Compare the motion of an object acted on by balanced forces with the motion of an object acted on by unbalanced forces in a given specific scenario.
Rocket Activity (pgs. 69-75)	NJ	SCI.7-8.5.2.8.E.b	Forces have magnitude and direction. Forces can be added. The net force on an object is the sum of all the forces acting on the object. An object at rest will remain at rest unless acted on by an unbalanced force. An object in motion at constant velocity will continue at the same velocity unless acted on by an unbalanced force.
Rocket Activity (pgs. 69-75)	NJ	SCI.7-8.5.2.8.E.2	Compare the motion of an object acted on by balanced forces with the motion of an object acted on by unbalanced forces in a given specific scenario.
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Core Curriculum Content Standards

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Grades 9-12			
Activity/Lesson	State	Standards	
Types of Engines (pgs. 11-23)	NJ	SCI.9-12.5.2.12.E.1	Compare the calculated and measured speed, average speed, and acceleration of an object in motion, and account for differences that may exist between calculated and measured values.
Types of Engines (pgs. 11-23)	NJ	SCI.9-12.5.2.12.E.d	The magnitude of acceleration of an object depends directly on the strength of the net force, and inversely on the mass of the object. This relationship ($a=F_{net}/m$) is independent of the nature of the force.
Physics and Math (pgs. 43-63)	NJ	SCI.9-12.5.2.12.E.c	The motion of an object changes only when a net force is applied.
Physics and Math (pgs. 43-63)	NJ	SCI.9-12.5.2.12.E.3	Create simple models to demonstrate the benefits of seatbelts using Newton's first law of motion.
Physics and Math (pgs. 43-63)	NJ	SCI.9-12.5.2.12.E.d	The magnitude of acceleration of an object depends directly on the strength of the net force, and inversely on the mass of the object. This relationship ($a=F_{net}/m$) is independent of the nature of the force.
Physics and Math (pgs. 43-63)	NJ	SCI.9-12.5.2.12.E.4	Measure and describe the relationship between the force acting on an object and the resulting acceleration.
Rocket Activity (pgs. 69-75)	NJ	SCI.9-12.5.2.12.E.c	The motion of an object changes only when a net force is applied.
Rocket Activity (pgs. 69-75)	NJ	SCI.9-12.5.2.12.E.d	The magnitude of acceleration of an object depends directly on the strength of the net force, and inversely on the mass of the object. This relationship ($a=F_{net}/m$) is independent of the nature of the force.
Rocket Activity (pgs. 69-75)	NJ	SCI.9-12.5.2.12.E.4	Measure and describe the relationship between the force acting on an object and the resulting acceleration.