

Exploring the Extreme			
2009 Science			
Core Curriculum Content Standards			
New Jersey Science			
Grades K-2			
Activity/Lesson	State	Standards	
Finding the Center of Gravity Using Rulers	NJ	SCI.K-2.5.2.2.E.a	All students will understand that physical science principles, including fundamental ideas about matter, energy, and motion, are powerful conceptual tools for making sense of phenomena in physical, living, and Earth systems science. Students understand that objects can move in many different ways (fast and slow, in a straight line, in a circular path, zigzag, and back and forth).
Finding the Center of Gravity Using Rulers	NJ	SCI.K-2.5.2.2.E.1	Investigate and model the various ways that inanimate objects can move.
Finding the Center of Gravity Using Plumb Lines	NJ	SCI.K-2.5.2.2.E.1	Investigate and model the various ways that inanimate objects can move.
Changing the Center of Gravity Using Moment Arms	NJ	SCI.K-2.5.2.2.E.1	Investigate and model the various ways that inanimate objects can move.
Exploring the Extreme			
2009 Science			
Core Curriculum Content Standards			
New Jersey Science			
Grades 3-4			
Activity/Lesson	State	Standards	
Finding the Center of Gravity Using Rulers	NJ	SCI.3-4.5.1.4.A.b	Connections developed between fundamental concepts are used to explain, interpret, build, and refine explanations, models, and theories.
Finding the Center of Gravity Using Rulers	NJ	SCI.3-4.5.1.4.B.c	All students will understand that evidence is used to construct and defend arguments.
Finding the Center of Gravity Using Rulers	NJ	SCI.3-4.5.1.4.B.3	All students will understand that science is both a body of knowledge and an evidence-based, model-building enterprise that continually extends, refines, and revises knowledge. They will formulate explanations from evidence.
Finding the Center of Gravity Using Plumb Lines	NJ	SCI.3-4.5.1.4.A.b	Connections developed between fundamental concepts are used to explain, interpret, build, and refine explanations, models, and theories.
Finding the Center of Gravity Using Plumb Lines	NJ	SCI.3-4.5.1.4.A.2	Use outcomes of investigations to build and refine questions, models, and explanations.

Changing the Center of Gravity Using Moment Arms	NJ	SCI.3-4.5.1.4.A.2	Use outcomes of investigations to build and refine questions, models, and explanations.
Changing the Center of Gravity Using Moment Arms	NJ	SCI.3-4.5.1.4.A.c	Outcomes of investigations are used to build and refine questions, models, and explanations.
Exploring the Extreme			
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Core Curriculum Content Standards			
New Jersey Science			
Grades 5-6			
Activity/Lesson	State	Standards	
Jet Propulsion	NJ	SCI.5-6.5.4.6.E.1	Generate a conclusion about energy transfer and circulation by observing a model of convection currents.
Jet Propulsion	NJ	SCI.5-6.5.4.6.G.2	Create a model of ecosystems in two different locations, and compare and contrast the living and nonliving components.
Vectoring	NJ	SCI.5-6.5.2.6.E.1	Model and explain how the description of an object's motion from one observer's view may be different from a different observer's view.
Vectoring	NJ	SCI.5-6.5.2.6.E.c	Friction is a force that acts to slow or stop the motion of objects.
Center of Gravity, Pitch, Yaw	NJ	SCI.5-6.5.2.6.E.1	Model and explain how the description of an object's motion from one observer's view may be different from a different observer's view.
Center of Gravity, Pitch, Yaw	NJ	SCI.5-6.5.2.6.E.c	Friction is a force that acts to slow or stop the motion of objects.
Center of Gravity, Pitch, Yaw	NJ	SCI.5-6.5.2.6.E.3	Demonstrate and explain the frictional force acting on an object with the use of a physical model.
Center of Gravity, Pitch, Yaw	NJ	SCI.5-6.5.4.6.E.1	Generate a conclusion about energy transfer and circulation by observing a model of convection currents.
Fuel Efficiency	NJ	SCI.5-6.5.4.6.E.1	Generate a conclusion about energy transfer and circulation by observing a model of convection currents.
Exploring the Extreme			
2009 Science			
Core Curriculum Content Standards			
New Jersey Science			
Grades 7-8			
Activity/Lesson	State	Standards	
Jet Propulsion	NJ	SCI.7-8.5.1.8.A.c	Predictions and explanations are revised based on systematic observations, accurate measurements, and structured data/evidence.

Vectoring	NJ	SCI.7-8.5.1.8.A.a	Core scientific concepts and principles represent the conceptual basis for model-building and facilitate the generation of new and productive questions.
Vectoring	NJ	SCI.7-8.5.1.8.A.b	Results of observation and measurement can be used to build conceptual-based models and to search for core explanations.
Center of Gravity, Pitch, Yaw	NJ	SCI.7-8.5.1.8.A.a	Core scientific concepts and principles represent the conceptual basis for model-building and facilitate the generation of new and productive questions.
Center of Gravity, Pitch, Yaw	NJ	SCI.7-8.5.1.8.A.b	Results of observation and measurement can be used to build conceptual-based models and to search for core explanations.
Fuel Efficiency	NJ	SCI.7-8.5.1.8.A.a	Core scientific concepts and principles represent the conceptual basis for model-building and facilitate the generation of new and productive questions.
Fuel Efficiency	NJ	SCI.7-8.5.1.8.A.b	Results of observation and measurement can be used to build conceptual-based models and to search for core explanations.