

Exploring the Extreme			
2009 Science			
Core Curriculum			
Iowa Science			
Grades K-2			
Activity/Lesson	State	Standards	
Finding the Center of Gravity Using Rulers	IA	SCI.K-2.1.1.1	Students should answer their questions by seeking information from their own observations, investigations and from reliable sources of scientific information.
Finding the Center of Gravity Using Rulers	IA	SCI.K-2.1.2.1	In earliest years, investigations are largely based on direct observations. As students develop, they design and conduct simple investigations to answer questions.
Finding the Center of Gravity Using Rulers	IA	SCI.K-2.1.3.1	Students use tools such as rulers, thermometers, watches, balances, spring scales, magnifiers and microscopes to extend their senses and their abilities to gather data.
Finding the Center of Gravity Using Rulers	IA	SCI.K-2.1.6.1	Students should begin to develop the abilities to communicate, critique, and analyze their work and the work of other students.
Finding the Center of Gravity Using Rulers	IA	SCI.K-2.1.6.2	Students should communicate orally, through writing or through drawings.
Finding the Center of Gravity Using Rulers	IA	SCI.K-2.3.3.1	The position of an object can be described by locating it relative to its background.
Exploring the Extreme			
2009 Science			
Core Curriculum			
Iowa Science			
Grades 3-5			
Activity/Lesson	State	Standards	
Finding the Center of Gravity Using Rulers	IA	SCI.3-5.1.3.1	Students should engage in systematic observation, making accurate measurements, and identifying and controlling variables.
Finding the Center of Gravity Using Rulers	IA	SCI.3-5.1.6.3	Students' explanations should reflect the evidence they have obtained in their investigations.
Finding the Center of Gravity Using Rulers	IA	SCI.3-5.1.7.1	Students should communicate, critique, and analyze their work and the work of other students.
Finding the Center of Gravity Using Rulers	IA	SCI.3-5.3.5.1	The motion of an object can be described by its position, direction of motion, and speed. That motion can be measured and represented on a graph.

Finding the Center of Gravity Using Plumb Lines	IA	SCI.3-5.1.1.1	Students ask questions that they can answer with scientific knowledge combined with their own observations.
Finding the Center of Gravity Using Plumb Lines	IA	SCI.3-5.1.7.1	Students should communicate, critique, and analyze their work and the work of other students.
Finding the Center of Gravity Using Plumb Lines	IA	SCI.3-5.3.5.1	The motion of an object can be described by its position, direction of motion, and speed. That motion can be measured and represented on a graph.
Changing the Center of Gravity Using Moment Arms	IA	SCI.3-5.1.3.1	Students should engage in systematic observation, making accurate measurements, and identifying and controlling variables.
Changing the Center of Gravity Using Moment Arms	IA	SCI.3-5.1.7.1	Students should communicate, critique, and analyze their work and the work of other students.
Changing the Center of Gravity Using Moment Arms	IA	SCI.3-5.3.5.1	The motion of an object can be described by its position, direction of motion, and speed. That motion can be measured and represented on a graph.
Jet Propulsion	IA	SCI.3-5.1.7.1	Students should communicate, critique, and analyze their work and the work of other students.
Jet Propulsion	IA	SCI.3-5.1.7.2	Students should share procedures and explanations through various means of communication.
Vectoring	IA	SCI.3-5.1.6.3	Students' explanations should reflect the evidence they have obtained in their investigations.
Vectoring	IA	SCI.3-5.1.7.1	Students should communicate, critique, and analyze their work and the work of other students.
Vectoring	IA	SCI.3-5.1.7.2	Students should share procedures and explanations through various means of communication.
Center of Gravity, Pitch, Yaw	IA	SCI.3-5.3.5.1	The motion of an object can be described by its position, direction of motion, and speed. That motion can be measured and represented on a graph.
Exploring the Extreme			
2009 Science			
Core Curriculum			
Iowa Science			
Grades 6-8			
Activity/Lesson	State	Standards	
Jet Propulsion	IA	SCI.6-8.1.1.2	Students should develop the ability to connect their questions with scientific ideas, concepts, and quantitative relationships that guide investigations.

Jet Propulsion	IA	SCI.6-8.1.3.1	Some investigations involve observing and describing objects, organisms and events; some involve collecting specimens; some involve experiments; some involve seeking more information; some involve discovery of new objects and phenomena; and some involve making models.
Jet Propulsion	IA	SCI.6-8.1.6.1	Students should base their explanations on observations and they should be able to differentiate between description and explanation.
Jet Propulsion	IA	SCI.6-8.1.6.2	Developing explanations establishes connections between the content of science and the contexts in which students develop new knowledge.
Jet Propulsion	IA	SCI.6-8.1.6.3	Models are often used to think about processes that happen too slowly, too quickly, or on too small a scale to observe directly, or are too vast to be changed deliberately, or are potentially dangerous.
Jet Propulsion	IA	SCI.6-8.1.6.4	Different models can be used to represent the same thing.
Jet Propulsion	IA	SCI.6-8.1.7.3	Students should begin to state some explanations in terms of relationships between two or more variables.
Jet Propulsion	IA	SCI.6-8.1.9.1	Students should become competent in communicating experimental methods, describing observations and summarizing the results of investigations. Explanations can be communicated through various methods.
Jet Propulsion	IA	SCI.6-8.3.3.1	The motion of an object can be described by its position, direction of motion, and speed. That motion can be measured and represented on a graph.
Vectoring	IA	SCI.6-8.1.2.2	Students should develop general abilities such as making systematic observations, taking accurate measurements, and identifying and controlling variables.
Vectoring	IA	SCI.6-8.1.2.3	Students should develop the ability to clarify ideas that are influencing and guiding their inquiry, and to understand how those ideas compare with current scientific knowledge.
Vectoring	IA	SCI.6-8.1.3.1	Some investigations involve observing and describing objects, organisms and events; some involve collecting specimens; some involve experiments; some involve seeking more information; some involve discovery of new objects and phenomena; and some involve making models.

Vectoring	IA	SCI.6-8.1.6.2	Developing explanations establishes connections between the content of science and the contexts in which students develop new knowledge.
Vectoring	IA	SCI.6-8.1.6.3	Models are often used to think about processes that happen too slowly, too quickly, or on too small a scale to observe directly, or are too vast to be changed deliberately, or are potentially dangerous.
Vectoring	IA	SCI.6-8.1.6.4	Different models can be used to represent the same thing.
Vectoring	IA	SCI.6-8.1.7.3	Students should begin to state some explanations in terms of relationships between two or more variables.
Vectoring	IA	SCI.6-8.1.8.1	Students should develop the ability to listen to and respect the explanations proposed by other students. They should remain open to and acknowledge different ideas and explanations, be able to accept the skepticism of others, and consider alternative explanations.
Vectoring	IA	SCI.6-8.1.9.1	Students should become competent in communicating experimental methods, describing observations and summarizing the results of investigations. Explanations can be communicated through various methods.
Vectoring	IA	SCI.6-8.3.3.1	The motion of an object can be described by its position, direction of motion, and speed. That motion can be measured and represented on a graph.
Center of Gravity, Pitch, Yaw	IA	SCI.6-8.1.3.1	Some investigations involve observing and describing objects, organisms and events; some involve collecting specimens; some involve experiments; some involve seeking more information; some involve discovery of new objects and phenomena; and some involve making models.
Center of Gravity, Pitch, Yaw	IA	SCI.6-8.1.6.3	Models are often used to think about processes that happen too slowly, too quickly, or on too small a scale to observe directly, or are too vast to be changed deliberately, or are potentially dangerous.
Center of Gravity, Pitch, Yaw	IA	SCI.6-8.1.6.4	Different models can be used to represent the same thing.
Center of Gravity, Pitch, Yaw	IA	SCI.6-8.3.3.1	The motion of an object can be described by its position, direction of motion, and speed. That motion can be measured and represented on a graph.

Fuel Efficiency	IA	SCI.6-8.1.2.4	Students formulate questions, design investigations, execute investigations, interpret data, use evidence to generate explanations, propose alternative explanations, and critique explanations and procedures.
Fuel Efficiency	IA	SCI.6-8.1.6.2	Developing explanations establishes connections between the content of science and the contexts in which students develop new knowledge.
Fuel Efficiency	IA	SCI.6-8.1.6.3	Models are often used to think about processes that happen too slowly, too quickly, or on too small a scale to observe directly, or are too vast to be changed deliberately, or are potentially dangerous.
Fuel Efficiency	IA	SCI.6-8.1.6.4	Different models can be used to represent the same thing.
Fuel Efficiency	IA	SCI.6-8.1.8.1	Students should develop the ability to listen to and respect the explanations proposed by other students. They should remain open to and acknowledge different ideas and explanations, be able to accept the skepticism of others, and consider alternative explanations.
Fuel Efficiency	IA	SCI.6-8.1.9.1	Students should become competent in communicating experimental methods, describing observations and summarizing the results of investigations. Explanations can be communicated through various methods.
Fuel Efficiency	IA	SCI.6-8.3.3.1	The motion of an object can be described by its position, direction of motion, and speed. That motion can be measured and represented on a graph.