

# CHEMISTRY AND PHYSICS OF ENERGY

## COMPETENCIES STUDENT SELF-EVALUATION FORM

**Unit: Newton s Second Law of Motion**  
**Module: Impact Damage from Hail Storms**

Using the following guidelines, evaluate your performance in each of the objectives listed on the following pages. The guidelines were given to you at the beginning of the unit.

	ADVANCED	PROFICIENT	NEEDS IMPROVEMENT	FAIL
<b>ACADEMIC SKILLS AND KNOWLEDGE</b>				
<b>INFORMATION-BASED TOPICS</b>	The student has a complete and detailed understanding of the information important to the topic.	The student has a complete understanding of the information important to the topic but not in great detail.	The student has an incomplete understanding of the topic and/or misconceptions about some of the information. However, the student maintains a basic understanding of the topic.	The student s understanding of the topic is so incomplete or has so many misconceptions that the student cannot be said to understand the topic.
	<b>SKILL- OR PROCESS-BASED TOPICS</b>	The student can perform the skill or process important to the topic with no significant errors and with fluency. Additionally, the student understands the key features of the skill process.	The student can perform the skill or process important to the topic without making significant errors.	The student makes some significant errors when performing the skill or process important to the topic but still accomplishes a rough approximation of the skill or process.
<b>NUMERIC SCALE</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
	In Depth Understanding and Can Apply Creatively	Accomplished and Can Apply Concept	Developing	Beginning
				<b>0</b>
			No Idea	

**NAME**

**BLOCK**

**DATE**

**OBJECTIVE  
I AM ABLE TO**

**4    3    2    1    0**

<b>General</b>					
Develop an understanding of Newton's Second Law					
Identify the factors affecting the motion of a falling object					
To model with STELLA and develop simple and dynamic models					
Develop of a dynamic model of a falling hailstone utilizing the various factors affecting the motion of a falling object					
<b>Content</b>					
State Newton's Second Law of Motion and give at least two examples to illustrate the law.					
Use Newton's Second Law of Motion as a guide for thinking, analyzing and solving problems.					
Distinguish between the mass and the weight of an object.					
Know that force is a vector.					
Draw free body diagrams to determine the net force on an object.					
Add vectors that are in the same direction or opposite direction.					
Explain why all objects regardless of mass (falling without air near the surface of the earth) will accelerate at the same rate.					
Identify factors that affect the air resistance force on an object moving relative to the air.					
Describe the effect of air resistance on a falling object in terms of the net force on the object and object's motion.					
Relate energy to the ability of an object to cause change.					
<b>Skill</b>					
Assess a scientific explanation.					
Do organized problem-solving.					
Graph and interpret graphs.					
Define, explain, describe and summarize clearly.					
Use a computer and other appropriate technology to acquire data, make graphs, analyze data and create mathematical models.					