Short Performance Assessment: **MS-LS1-7**

Grade Level: **Middle School**

Adapted from SNAP[1]

Title	**Energy Levels**		
Designed by		Course(s)	**Middle School**

Performance Expectation	**MS-LS1-7**: Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism. **Clarification Statement**: Emphasis is on describing that molecules are broken apart and put back together and that in this process, energy is released. **Assessment Boundary**: Assessment does not include details of the chemical reactions for photosynthesis or respiration.

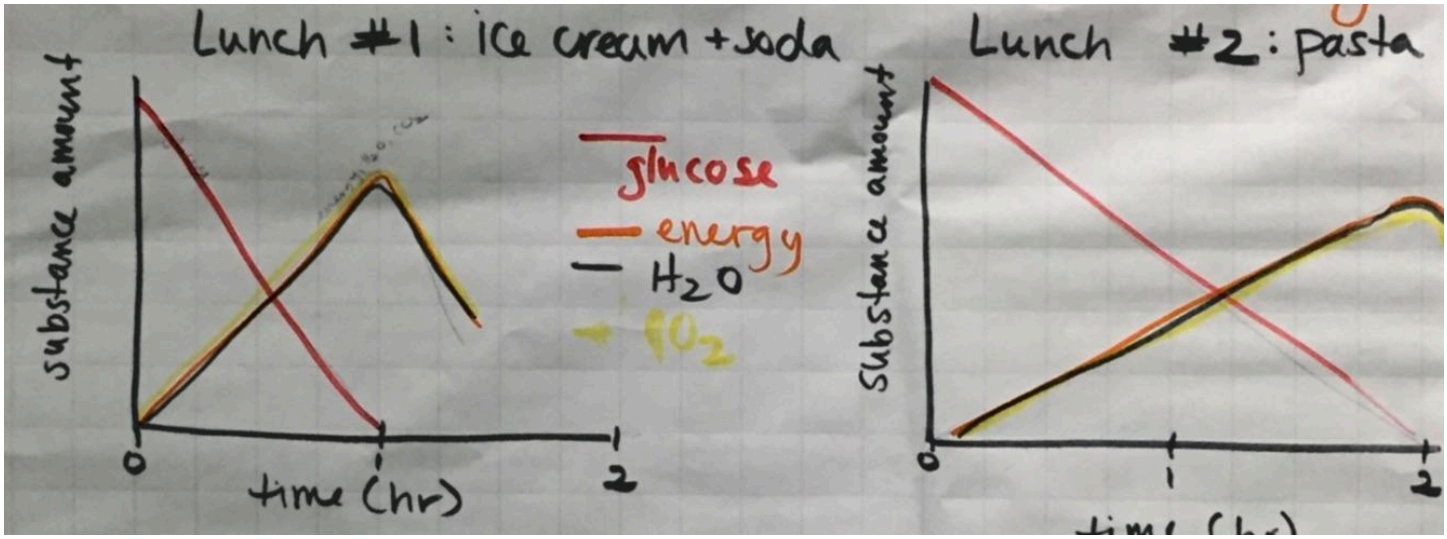
Science and Engineering Practice	**Developing and Using Models** • Develop a model to describe unobservable mechanisms.
Disciplinary Core Ideas	**LS1.C: Organization for Matter and Energy Flow in Organisms** • Within individual organisms, food moves through a series of chemical reactions in which it is broken down and rearranged to form new molecules, to support growth, or to release energy. **PS3.D: Energy in Chemical Processes and Everyday Life** • Cellular respiration in plants and animals involve chemical reactions with oxygen that release stored energy. In these processes, complex molecules containing carbon react with oxygen to produce carbon dioxide and other materials.(secondary)
Crosscutting Concept	**Energy and Matter** • Matter is conserved because atoms are conserved in physical and chemical processes.

Student Performance	1. Components of the model 2. Relationships 3. Connections

[1] The Short Performance Assessment (SPA) and the Assessment Rubric adapted from the Stanford NGSS Assessment Project http://snapgse.stanford.edu/

Name_____

Tyler is a hockey player. He eats a meal at lunch before his afternoon game. The charts below predict his substance levels over the course of the game.



1. State why the energy level drops in both charts

2. Describe the relationship between glucose, CO2 and Energy.

3. Create a model to describe how glucose becomes available from the pasta to the cells. (Include pasta, glucose and enzymes)

4. Explain (CER) which meal you would suggest to maximize energy for the whole game.

Assessment Rubric* - Question 1				
	Emerging	Developing	Approaching Proficiency	Excelling
Description of performance				
Sample student responses				

Assessment Rubric* - Question 2				
	Emerging	Developing	Approaching Proficiency	Excelling
Description of performance				
Sample student responses				

Insert additional Assessment Rubrics (if needed) here.