


Short Performance Assessment: HS-LS1-7

Grade Level: **High School**

Adapted from [SNAP](#)¹

Title	Yeast & Sugar		
Designed by		Course(s)	High School
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Performance Expectation	<p>HS-LS1-7: Use a model to illustrate that cellular respiration is a chemical process whereby the bonds of food molecules and oxygen molecules are broken and the bonds in new compounds are formed resulting in a net transfer of energy.</p> <p>Clarification Statement: Emphasis is on the conceptual understanding of the inputs and outputs of the process of cellular respiration</p> <p>Assessment Boundary: Assessment should not include identification of the steps or specific processes involved in cellular respiration.</p>
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Science and Engineering Practice	<p>Developing and Using Models</p> <ul style="list-style-type: none">• Use a model based on evidence to illustrate the relationships between systems or between components of a system.
Disciplinary Core Ideas	<p>LS1.C: Organization for Matter and Energy Flow in Organisms</p> <ul style="list-style-type: none">• As matter and energy flow through different organizational levels of living systems, chemical elements are recombined in different ways to form different products.• As a result of these chemical reactions, energy is transferred from one system of interacting molecules to another. Cellular respiration is a chemical process in which the bonds of food molecules and oxygen molecules are broken and new compounds are formed that can transport energy to muscles. Cellular respiration also releases the energy needed to maintain body temperature despite ongoing energy transfer to the surrounding environment.
Crosscutting Concept	<p>Energy and Matter</p> <ul style="list-style-type: none">• Energy cannot be created or destroyed; it only moves between one place and another place, between objects and/or fields, or between systems.

Student Performance	<ol style="list-style-type: none">1. Components of the model2. Relationships3. Connections
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¹ The Short Performance Assessment (SPA) and the Assessment Rubric adapted from the Stanford NGSS Assessment Project <http://snappgse.stanford.edu/>

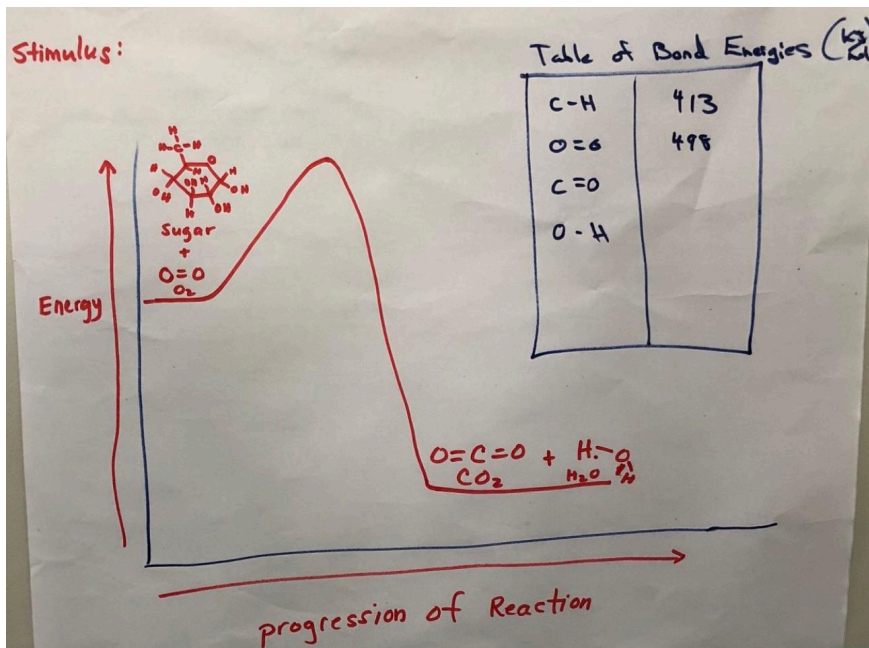


Name_____

Phenomena

Yeast is a sugar. Use venier probes to measure CO₂ and O₂ levels.

Stimulus



1. Explain how the data in the graph supports the idea that cellular respiration is a process of bond making and bond breaking.
2. Explain the changes in energy that take place.

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.



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