

Unit 7.3 Lesson 5: Assessment of the Check Your Progress Activity

Teacher notes: Using the Lesson 5 Check Your Progress phase as an assessment

The Check Your Progress phase in this lesson is one opportunity to gauge what your students know and can do in relation to the big ideas in this lesson and the targeted performance expectations for this unit. In particular, this activity requires students to demonstrate and use their understanding of the big idea by identifying and explaining what processing was used to transform natural resources into a final, manufactured product.

Lesson 5 Big Idea (related to this activity):

- Natural resources are processed through chemical and physical changes to create the synthetic materials humans use.

In the Check Your Progress activity the students are asked to explain the origin of the material(s) that constitute the product they are analyzing. Further, they are asked to analyze the properties of the product's materials, and how these properties are critical for the intended function of the product. In doing so, they should be using the items in their Gotta Have Checklist.

Example Gotta Have Checklist for 7.3 Lesson 5

- How the properties of the reactant(s) are similar or different than the product(s).
- How and why the reactants changed during the reaction.
- How a synthetic material (product) can be made from natural resources (reactants).
- How some synthetic materials have an altered structure with enhanced properties that make them more useful to humans.

Possible Modifications to the Check Your Progress Embedded Assessment

In the 7.3 Lesson 5 Check Your Progress activity students use a material and answer the lesson questions. This activity could be used as an assessment, either formatively or summatively. However, if using it as an assessment you should consider the following:

- Will students complete this activity in groups or as an individual assignment?
- Will you allow students to have access to their Gotta Have Checklist while completing this activity?

Rubrics

Rubric - Suggested Scoring Guide [0-10 points]

We have provided a rubric that you can use or adapt as fits the needs of you and your students. We have divided this into three parts, corresponding to the three tasks that students are asked to complete in the Check Your Progress phase. These point values are suggestions, and can be modified or scaled as needed. The list below shows the different levels of explanation and analysis that you might see with your students.

Part I. CARS Worksheet Completed (yes/no) [1 point]

Part II. Quality of Explanation [0-6 points]

- Exemplary explanation - Includes appropriate claim, adequate evidence, and appropriate reasoning
- Good explanation - Includes appropriate claim, partial evidence, and/or no/inappropriate reasoning
- Poor explanation - Includes no evidence or inappropriate evidence, no reasoning or inappropriate reasoning

Part III. Quality of Analysis [0-3 points]

- Exemplary analysis - Contrasts multiple properties of the natural & synthetic material(s); describes how the properties of the synthetic material are appropriate for its intended function; describes why the physical processing was needed for its intended function.
- Good analysis - Contrasts at least one property of the natural & synthetic material(s); states the intended function but does not connect the function to the properties of the synthetic material or the physical processing
- Poor analysis - Does not compare a property of the natural & synthetic material; does not state the intended function or states the function but does not connect it to the properties of the synthetic material or the physical processing

Rubric - Matrix Format

These are three rubrics, one for each of the activities.

Part I - CARS worksheet

Worksheet (0-2)		Good (2)	Poor (1)
Completion		CARS worksheet completed	CARS worksheet partially completed

Part II. Explanation

Quality of Explanation (0-6)	Exemplary (6)	Good (4)	Poor (2)
		Includes appropriate claim, adequate evidence, and appropriate reasoning	Includes appropriate claim, partial evidence, and/or no/inappropriate reasoning
Claim	Makes a claim that the natural material underwent processing to produce the final product, AND identifies the type of processing (physical / chemical) used to produce the final product.	Makes a claim that the natural material underwent processing to produce the final product, but is only partially correct in identifying the type of processing (physical or chemical) used to produce the final product.	Makes an either no claim that the natural material underwent processing, or incorrectly identifies the type of processing (physical or chemical) used to produce the final product.
Evidence - chemical processing	<ul style="list-style-type: none"> Identifies the reactants (natural materials and/or synthetic materials) Identifies the products (synthetic materials; "waste" products) Provides evidence to indicate that a chemical reaction occurred 	<ul style="list-style-type: none"> Identifies the reactants (natural materials and/or synthetic materials) Identifies the products (synthetic materials; "waste" products) Does not provide evidence to indicate that a chemical reaction occurred 	<ul style="list-style-type: none"> Does not identify the reactants (natural materials and/or synthetic materials) Does not identify the products (synthetic materials; "waste" products) Does not provide evidence to indicate that a chemical reaction occurred
Evidence - physical processing	<ul style="list-style-type: none"> Identifies the manufacturing process that was used to change physical properties of the product. Provides evidence to indicate that physical processing occurred 	<ul style="list-style-type: none"> Identifies the manufacturing process that was used to change physical properties of the product. Does not provide evidence to indicate that physical processing occurred 	<ul style="list-style-type: none"> Does not identify the manufacturing process that was used to change physical properties of the product. Does not provide evidence to indicate that physical processing occurred
Reasoning	Provides reasoning to describe how the evidence supports their claim that both chemical and physical processing was used to turn the natural material(s) into the final product	Provides reasoning to partially describe how the evidence supports their claim that both chemical and physical processing was used to turn the natural material(s) into the final product OR provides reasoning to describe how the evidence supports their claim that either physical OR chemical processing was used to turn the natural material(s) into the final product.	Provides incomplete or inaccurate reasoning based on evidence to support their claim that either physical or chemical processing was used to turn the natural material into the final product.

Part III. Analysis

Quality of Analysis (0-3)	Exemplary (3)	Good (2)	Poor (1)
Analysis	Contrasts multiple properties of the natural & synthetic material(s); describes how the synthetic properties are appropriate for its intended function	Contrasts at least one property of the natural & synthetic material(s); states the intended function but does not connect the function to the properties of the synthetic material	Does not compare a property of the natural & synthetic material; does not state the intended function or states the function but does not connect it to the properties of the synthetic material