Short Performance Assessment: **MS-PS1-3**

Grade Level: **Middle School**

Adapted from SNAP[1]

Title	**Natural vs. Synthetic Materials**		
Designed by	**John Mark Filcik - Colegio Nueva Granada**	Course(s)	**Grade 7 Integrated NGSS**

Performance Expectation	**MS-PS1-3**: Gather and make sense of information to describe that synthetic materials come from natural resources and impact society. **Clarification Statement**: Emphasis is on natural resources that undergo a chemical process to form the synthetic material. Examples of new materials could include new medicine, foods, and alternative fuels. **Assessment Boundary**: Assessment is limited to qualitative information.

Science and Engineering Practice	**Obtaining, Evaluating, and Communicating Information** • Gather, read, and synthesize information from multiple appropriate sources and assess the credibility, accuracy, and possible bias of each publication and methods used, and describe how they are supported or now supported by evidence.
Disciplinary Core Ideas	**PS1.A: Structure and Properties of Matter** • Each pure substance has characteristic physical and chemical properties (for any bulk quantity under given conditions) that can be used to identify it. **PS1.B: Chemical Reactions** • Substances react chemically in characteristic ways. In a chemical process, the atoms that make up the original substances are regrouped into different molecules, and these new substances have different properties from those of the reactants.
Crosscutting Concept	**Structure and Function** • Structures can be designed to serve particular functions by taking into account properties of different materials, and how materials can be shaped and used.

Student Performance	1. Obtaining information 2. Evaluating information

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

Natural vs. Synthetic Materials Summative Instructions + Rubric

MS-PS1-3

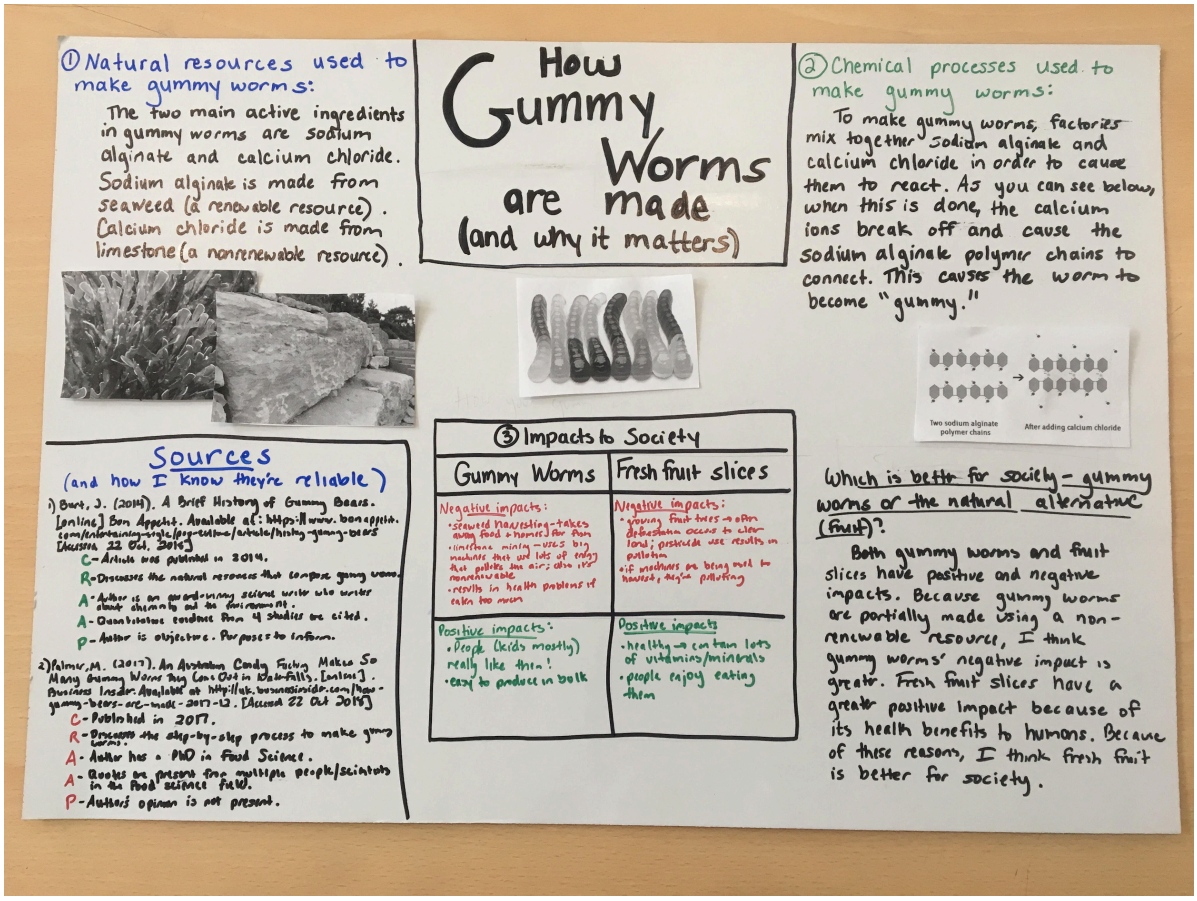
Directions: For this summative task, you will be gathering, reading, and evaluating evidence in order to answer THREE questions about the synthetic product of your choice. The three questions you must answer are:

1) What natural resources are used to make the synthetic product?
2) What chemical processes are used to make the synthetic product?
3) What are the negative and positive impacts of making and using the synthetic product, compared to making and using a more natural product with a similar function?

Once you have completed your research, you will make a scientific poster about your findings.Your poster must include answers to all three questions, citations for at least two sources, evidence that your chosen sources are reliable, and a neat and professional appearance.

Consult the rubric ON THE NEXT PAGE to ensure that you earn full points on this summative.

Exemplar:



Rubric:

	4	3	2	1
Obtaining Information	Students obtain information from published, grade-level appropriate material from **at least two** sources about the relationship between synthetic materials and natural resources, the chemical processes used to create synthetic materials, and the societal need for the synthetic material. All sources used are cited in proper format on their poster.	Students either only use ONE source that effectively relates to the subject matter listed to the left OR the chosen materials do NOT all correctly cited on their poster.	Students only use ONE source that effectively relates to the subject matter AND the chosen material is NOT correctly cited on their poster.	None of the student's sources adequately address any part of the subject matter.
Evaluating Information	Student evaluates each source's information to determine its relevance to the topic using the CRAAP Test. The student **effectively and convincingly** explains why the source is reliable.	Student evaluates the source's information using the CRAAP Test. This is done correctly but not effectively and convincingly.	Student either evaluates their sources in a way that reveals a misunderstanding OR the student does NOT explain their evaluation with sufficient detail.	Student does not evaluate the the source's information to determine its relevance to the topic and its credibility, accuracy, and possible bias.
Synthesizing Information	Student synthesizes the information in order to answer the following questions completely: 1) What natural resources are used to make the synthetic product?, 2) What chemical processes are used to make the synthetic product?, and 3) What are the negative and positive impacts of making and using the synthetic product, compared to making and using a more natural product with a similar function?	Student synthesizes answers to two of the three questions completely.	Student synthesizes answers to one of the three questions completely. .	Student does not completely synthesize answers to either question.
Communicating Information	Student communicates their information in a way that is neat, organized, visually-appealing, creative, and complete with helpful and relevant images.	The student's communication is either NOT neat, not organized, not visually appealing, not creative, or lacking of any helpful image.	The student's communication is either NOT neat, not organized, not visually appealing, not creative, or lacking of any helpful image.	The student's communication is either NOT neat, not organized, not visually appealing, not creative, or lacking of any helpful image.

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.