Name: _____

Date: _____
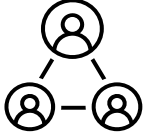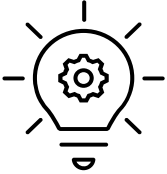
Cotton Industry Innovations:
Engineering Solutions to Removing Seeds from Cotton Lint

Driving Question: How have scientists and engineers affected cotton farming and production practices?

- Obtain and evaluate information from several reliable sources on your specific problem (_____).
- Use the graphic organizer to summarize the information you find.
- Construct a clear explanation for how _____ affected cotton farming and production practices.
- Prepare to share your information with your classmates in a 3-minute elevator speech.
- Requirements:

  - Describe the problem to be solved. In your description, develop a model of the cotton plant including labels of its different structures and how it is categorized. Refer to the model in your description of the problem.

  - Describe the stakeholders affected by the problem and how it impacted their decision-making. Include the location of primary agricultural locations and explain at least three factors that influenced farming and production practices.

  - Develop a model of two cotton engine prototypes (designs).Label the components of each design and then use the models to construct an explanation comparing the two.

  - Describe the effects of the cotton engine(s) on price of cotton, trade, resulting products, and economic activity both in the United States and with Europe.

Graphic Organizer:

Define the problem	Source 1	Source 2	Source 3

Develop and use a model of the cotton plant structure.			
Describe the stakeholders.			
Develop and compare models of the solutions.	Model of Solution 1		Model of Solution 2 (improvement to 1)
Describe the effects of the solution.	Price of Cotton	Trade/Economic Activity	Livelihood

Rubric: Engineering Solutions to Removing Seeds from Cotton Lint

	Exemplar Response	Meets Expectations	Needs More Practice
Define the problem.	➜ Plus Sources other than those provided by the teacher were used in explanation.	Multiple sources of information used <u>and</u> cited to accurately explain the problem.	Missing citation of multiple sources and/or the explanation of the problem was inaccurate.
Develop and use a model of the cotton plant structure.	➜ Plus Labels on the cotton model include the function of each structure in parentheses.	Accurate model and labels of life cycle for cotton plant structure used to enhance the explanation of the problem.	Missing labels and/or reference to the model in an accurate way in the explanation.
Describe the stakeholders.	➜ Plus More than three stakeholders are completely described.	Describe three stakeholders and factors that influenced their livelihood <u>and</u>/or how they made decisions.	Two or fewer stakeholders are described and/or descriptions of three stakeholders are incomplete.
Develop and compare solutions.	➜ Plus Labels of the cotton gins include the function of distinguishing components in parentheses.	Two accurate models of the cotton gins designed and used in Georgia are labeled <u>and</u> used in a comparison of how they solved a problem.	One or more component is missing and/or inaccurately explained.
Describe the effects of the solution.	➜ Plus More effects than required are included in the description.	Describes the effects of the cotton gin(s) on price of cotton, trade, resulting products, and economic activity both in the United States and Europe.	Description is missing two or more effects and/or does not include effects on both the United States and Europe.

GPB EDUCATION

Writing Mechanics	Topic is clearly introduced as a compound sentence.	Topic is clearly introduced.	Topic is unclear or introduced in several simple sentences.
	Related information is grouped logically in more than one paragraph.	Related information is grouped logically in a paragraph.	Information is not grouped logically.
	Facts, concrete details, quotations, or other information and examples used to thoroughly develop the topic in multiple paragraphs.	Facts, concrete details, quotations, or other information and examples used to develop the topic.	Missing relevant facts, details, and other information needed to develop the topic.
	Ideas and transitions between paragraphs are linked using words, phrase, and clauses (e.g., in contrast, especially).	Ideas within the paragraph are linked using words, phrases, and clauses (e.g., in contrast, especially).	Ideas are not linked using words, phrases, and clauses.
	Precise language and specific vocabulary support explanation of the topic.	Language and vocabulary support explanation of the topic.	Anticipated language and vocabulary are not used in support of the explanation.
	A concluding paragraph summarizes the explanation presented.	A concluding statement summarizes the explanation presented in the paragraph.	Conclusion is missing and/or does not summarize the topic.
Points Earned _____ / 100	_____ / 100 **(9.1 points each)**	_____ / 80 **(7.25 points each)**	_____ / 65 **(5.9 points each)**