

High School Chemistry Task

Writing Prompt (Must incorporate and be relevant to the business/industry in which you worked and must require students to read two texts to complete).

Task Title: Electrical Conductors

Course: Honors Chemistry

Grade: 10th

Prompt: Why is knowledge of chemical and physical properties of conductive/insulating materials necessary and how is it applied in manufacturing industry where electrical conductors are produced?

Common Core State Standards

List the Common Core State Standards associated with your task.

Reading Standards for Literacy in Science and Technical Subjects 6–12

Grades 9–10 students:

1. Determine the central ideas or conclusions of a text; trace the text's explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text.
2. Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to *grades 9–10 texts and topics*.
3. Analyze the structure of the relationships among concepts in a text, including relationships among key terms (e.g., *force, friction, reaction force, energy*).
4. Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, defining the question the author seeks to address.
5. Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information

expressed visually or mathematically (e.g., in an equation) into words.

6. Assess the extent to which the reasoning and evidence in a text support the author's claim or a recommendation for solving a scientific or technical problem.

Writing Standards for Literacy in History/Social Studies, Science, and Technical Subjects 6–12

Grades 9–10 students:

2. Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.

a. Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.

b. Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.

c. Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among ideas and concepts.

d. Use precise language and domain-specific vocabulary to manage the complexity of the topic and convey a style appropriate to the discipline and context as well as to the expertise of likely readers.

e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.

f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).

4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

Essential Understandings

What key insights should students take from participating in this task?

- Knowledge of basic chemistry principles is used in many fields, including manufacturing
- Problem-solving techniques are used throughout industry from operators to engineers
- A better understanding of the principles of electrical conductivity
- An understanding of real world applications of electrical conductivity

Text Dependent Questions

At least 5 open-ended text dependent questions.

1. What are the important properties of a good conductor? Cite specific information/evidence from both text 1 and text 2.
2. Citing information from text 1, does the author prove that one metal is better than another for use in electrical conductivity? Give at least 3 reasons from the text to support your stance.
3. Based on evidence from both texts why choose one metal over another for use in electrical conductivity applications?
4. Are “non-standard” conductors better than metals for common electrical conductivity applications? Cite evidence from text 2 to support your stance.
5. Citing from both texts, what environmental concerns are associated with both standard and non-standard materials used for electrical conductivity applications?

Texts

Links to two texts used. Include a brief synopsis (2-3 sentences describing the texts).

- 1) <http://www.geindustrial.com/>

A Comparison of Aluminum vs. Copper as used in Electrical Equipment

Larry Pryor, P.E. – Sr. Specification Engineer, GE Consumer & Industrial
Rick Schlobohm, P.E. – Sr. Specification Engineer, GE Consumer & Industrial
Bill

Brownell, P.E – Specification Engineer, GE Consumer & Industrial

A detailed comparison of aluminum and copper as used in electrical components. The text uses the chemical and physical properties of Al and Cu to discuss why one metal is better than the other for a particular electrical purpose.

2) <http://www.scribd.com/doc/26247685/Practical-Applications-of-Electrical-Conductors>

Practical Applications of Electrical Conductors

This text provides an overview of materials used for electrical conductivity and their properties. It also discusses applications and uses of these materials in industrial settings.