How Did Copper Contribute To The 'Age Of Modern Revolution'?

1. How did copper find its way to Michigan?

2. How did copper foster cooperation and/or conflict within human societies?

3. How did copper contribute to changes during the threshold of 'Modern Revolution'?

"The Wiring of History: Copper and Its Conductivity to New Histories" (with special connections to Michigan)	
Designed by:	Gregory Dykhouse
Unit Overview:	This "new history" explores the larger story of Copper
Grade Level(s):	9-12, but the approach may resonate well with younger students
Connection to Primary Source Materials	Productive connections are made through resources with Michigan Technological University and its collection "Copper County Historical Images" (https://cchi.mtu.edu/); Grand Rapids Public Museum, "Teacher Galleries: Mining in Michigan" (https://grpmcollections.org/Gallery/2422 and https://www.grpmcollections.org/Search/Objects?search=copper)
Michigan Social Studies Standards Addressed:	WHG Era 4 – Expanding and Intensified Hemispheric Interactions, 300-1500 CE

WHG Era 5 – The Emergence of the First Global Age, 15th to 18th Centuries

WHG Era 6 – An Age of Global Revolutions, 18th Century-1914

WHG Era 7 – Global Crisis and Achievement, 1900-PRESENT DAY |
| **C3 Indicators** | Each of the four Dimensions of the C3 Framework are employed with this Unit and Lessons:

As students enter the exploration of Copper, consider directing students to complete "historical inquiry," which represents the actual work of historians. Direct students to 1) Pose a question of inquiry: How? Why? 2) Conduct research by identifying details of interest or importance from different episodes of the story of Copper; 3) Formulate an argument, position, or thesis statement. What claim may be made from the story of Copper? 4) Support the statement with specific evidence, and share it with your classmates and broader community. One way to provide a platform for this information is through the design and development of a website. The websites—and findings in any other format—can be shared at a public forum for community members. |

Disciplinary Literacy Essential Practices:	1. Inquiry-based instruction 2. Diverse texts and abundant reading opportunities in the school 3. Intentional and standards-aligned instruction in disciplinary reading 4. Intentional and standards-aligned instruction in disciplinary writing 5. Higher-order discussion of increasingly complex text across varying participation structures 6. Opportunities for and instruction in speaking and listening 7. Intentional efforts to build vocabulary and conceptual knowledge 8. Ongoing observation and assessment of students' language and literacy development that informs their education 9. Community networking to tap into available funds of knowledge in support of developing students' social science knowledge and identities 10. Metadiscursive awareness within and across academic and cultural domains (attention to language use at the "meta" level, e.g. talking about talk)
Other Relevant Standards, Connections to the CCSS, or the Context for the Unit	**CCSS.ELA-LITERACY.RH.9-10.1** **CCSS.ELA-LITERACY.RH.9-10.2** **CCSS.ELA-LITERACY.RH.9-10.3** **CCSS.ELA-LITERACY.RH.11-12.1** **CCSS.ELA-LITERACY.RH.11-12.2** **CCSS.ELA-LITERACY.RH.11-12.3** **CCSS.ELA-LITERACY.RH.9-10.4** **CCSS.ELA-LITERACY.RH.9-10.5** **CCSS.ELA-LITERACY.RH.9-10.6** **CCSS.ELA-LITERACY.RH.11-12.4** **CCSS.ELA-LITERACY.RH.11-12.5** **CCSS.ELA-LITERACY.RH.11-12.6**

Compelling Question:		
"How did Copper contribute to the 'Age of Modern Revolution'?"		
Supporting Question 1	Supporting Question 2	Supporting Question 3
"How did Copper find its way to Michigan?"	"How did Copper foster cooperation and/or conflict within human societies?"	"How did Copper contribute to changes during the threshold of 'Modern Revolutions'?"

Lesson 1: Reading a major work, cover-to-cover; assembling support material	
Supporting Question 1:	How do you take information out of a major work of "non-fiction"? (Mary Doria Russell, The Women of the Copper Country) Support material: Readers Guide (https://www.michiganhumanities.org/wp-content/uploads/Final-GMR-Readers-Guide-2021-8.9.21-sm.pdf); Teachers Guide (https://www.michiganhumanities.org/wp-content/uploads/Final-GMR-Teachers-Guide-8.9.21-sm.pdf)
Step 1	Using a template, students provide the following information from the book: "Chapter"; "Title"; "Pages" Target vocabulary: Interesting sentences or phrases: Connections I make (connect this material with something else): What do readers need to know from this section? What is the main idea?
Step 2	Students design websites as a platform to display knowledge of book Website platform is to share: good CONTENT VISUALS and ORGANIZATION "HISTORICAL THINKING SKILLS" (driving question; research; strong argument statement; evidence to support argument; "change/continuity over time"; "causation"; "contextualization"; or "compare/contrast" CONNECTIONS to OTHER TOPICS "WORKS CITED" PAGE

Step 3	Students engage with archival work, to identify photographs that reflect dramatic action and events in the book (combination of genres "historical fiction" with "archival fact")
Formative Assessment Task	Completion of reading templates, website design check-points, and photograph collections in advance of the final product, a website platform; total time for this work may be 6-7 weeks

Lesson 2: Introducing the "actual" work of Historians: Historical Inquiry and Historical Thinking Skills	
Supporting Question 2:	How do Historians practice their craft? How do Historians "think" about the past (present and future)?
Step 1	Introduce "Historical Inquiry" (pose a How/Why question; conduct research; formulate a strong argument/thesis/position; support statement with specific evidence)
Step 2	Introduce "Historical Thinking Skills (compare/contrast; change/continuity over time; causation; contextualization)
Formative Assessment Task:	Utilize a target reading with which students may give evidence of these routines (an article such as Amanda Foreman's "A Brief History of Lemonade" may be used by students to apply these practices; https://www.wsj.com/articles/a-brief-history-of-lemonade-1502383362); total time may be 2 class periods

Lesson 3: Honing analytical skills	
Supporting Question 3:	How do Historians analyze documents?
Step 1	Introduce basis questions for students to apply to primary sources: What is this "OBJECT" about? Why do you think it was created? Whose story is being told? Whose story is absent? What do you observe? What do you think? What do you wonder?
Step 2	Introduce more sophisticated questions for students to apply: Who produced this source? Is the author's biography (i.e., viewpoints and personal background) relevant to understanding this source? Was the author biased or dishonest? Did he or she have an agenda? When was this source created? Where? Is it representative of other sources created at the same time? In what ways is it a product of its particular time, place, or context? Why did the author produce this source? For what audience and purpose? Did the author make this purpose (or argument) explicit or implicit? Was it intended for public or private use? Is it a work of scholarship, fiction, art, or propaganda? How does this source compare with other sources you have analyzed for this assignment? Does it privilege a particular point of view? Incorporate or neglect significant pieces of evidence? Structure its argument according to similar (or different) time periods, geographies, participants, themes, or events?
Step 3	Various resources suggest approaches for analysis; encourage students to explore the following suggestions: AP European History Course and Exam Description, https://apcentral.collegeboard.org/pdf/ap-european-history-course-and-exam-description-0.pdf Evaluating Primary Sources, USC, https://libguides.usc.edu/primarysources/evaluate Harvard College Writing Center, https://hwpi.harvard.edu/files/hwp/files/bg_writing_history.pdf Teaching with Primary Sources, https://www.loc.gov/programs/teachers/getting-started-with-primary-sources/guides/

Formative Assessment Task	Students select a photograph from the Michigan Technological University collection and apply questions for analysis; total time may be 2 or 3 class periods

Lesson Lesson 4: Beyond Calumet: "Copper over scales of time and physical space"	
Supporting Question 4:	"How has Copper changed throughout its history?"; "How has our understanding of Copper changed over time?"; "How does the story of Copper in Michigan compare to/contrast with that in other regions across time and physical space?"
Step 1	The Past: Using disciplinary discourse from "The Big History Project" (part of "The OER Project"; www.oerproject.com), explore the history of copper, from a large scale perspective, through the lenses of cosmology, physics, chemistry, geology, biology (thresholds of The Big Bang, Stars, Chemical Elements, Planets and Solar Systems, Life)
Step 2	The Present: Within human societies, explore how copper served early people and societies, civilizations and empires, and "the Modern World" (https://www.copper.org/publications/pub_list/pdf/civilization-and-copper.pdf; the "Modern Revolutions" in The Women of the Copper Country)
Step 3	The Future: Explore how copper serves the manufacture of AI equipment and challenges of energy and sustainability
Formative Assessment Task:	Design of a comic strip (storyboard) evidences knowledge of "Thresholds of Increasing Complexity" (The Big Bang, Stars, Chemical Elements, Planets and Solar Systems), which is a narrative of how Copper arrives at our planet's surface

Design organizers that depict copper use with various human societies over time

Design brochures that highlight the use of copper in future technology

Total time may be 5-6 class periods |

Summative Assessment
May include short essay writing, visual display (website), presentation, peer collaboration, public exhibition

Rubric				
Summative Assessment Criteria	Expert	Proficient	Developing	Novice
WRITING Claim and Focus Make a clear claim about the topic early in the essay and focus on proving it.	The essay makes a precise and significant claim based on the topic and/or source(s). The essay maintains a strong focus on defending a directly stated position, using the whole essay to support and develop the claim and counterclaims while thoroughly addressing the demands of the prompt.	The essay makes a clear claim based on the topic and/or source(s). The essay maintains focus on defending an identifiable position, using most of the essay to support and develop the claim and counterclaims while addressing the demands of the prompt.	The essay makes a claim based on the topic and/or source(s), but it may not fully address the demands of the prompt. Counterclaims may not be acknowledged, and the essay may not stay focused on the purpose and task.	The essay makes an overly simplistic or vague claim, or a position on the topic and/or source(s) may not be stated. Counterclaims are not acknowledged, and the essay does not address the purpose, task, or demands of the prompt.
Analysis and Evidence Choose the right evidence and explain how it supports the claim and analysis.	The essay cites the most appropriate and valid evidence to support its claim, drawing information substantively from multiple sources to defend its position and effectively refute counterclaims. The essay demonstrates insightful reasoning and careful understanding of the sources, acknowledging inconsistencies or weaknesses in evidence, and fully explains the relationship between claims and support.	The essay cites sufficient and appropriate evidence to support its claim, drawing information from multiple sources to defend its position and refute counterclaims. The essay demonstrates reasoning and understanding of the sources, potentially acknowledging inconsistencies or weaknesses in evidence, and adequately explains the relationship between claims and support.	The essay cites evidence to support its claim, but it may be insufficient or draw unevenly from available sources. Support may be inadequate in defense of the position and refutation of the counterclaim or rely too heavily on summary. The essay demonstrates some reasoning and/or understanding of the sources, though explanations of the relationship between claims and support are not always clear.	The essay cites minimal or irrelevant evidence to support its claim. Support may rely primarily on opinion, reasoning, or summary of the source(s) without clear cited evidence. The essay demonstrates little to no reasoning and/or understanding of the sources. An explanation of the relationship between claims and support is not present.
Organization Present ideas in a structure that enhances the analysis. Use transitions throughout the essay to make connections clear.	The essay incorporates precise transitions within a sophisticated organizational structure that enhances the relationships between and among ideas and promotes cohesion and clarity. A well-executed, logical progression of ideas is clearly constructed, including an effective introduction and a conclusion which follows from and supports the claim and analysis.	The essay employs an organizational structure that shows the relationships between and among ideas, yielding a cohesive analysis. Clear transitions support a logical progression of ideas, including an effective introduction and a conclusion which follows from and supports the claim and analysis.	The essay uses a simplistic organizational structure, though relationships between ideas may not be consistently clear. Use of transitions is sparse, repetitive, and/or does not show the connections among sections of the text. A progression of ideas is evident, however, the introduction and/or conclusion may not be fully developed or follow from and support the claim and/or analysis.	An organizational structure is not evident, and relationships between ideas are not consistently clear. The essay may read as a series of unrelated ideas, as the absence of transitions makes it difficult to see connections among sections of the text. An introduction and/ or conclusion is missing from the essay.

Rubric				
Summative Assessment Criteria	Expert	Proficient	Developing	Novice
Language and Style Use specific, interesting language and clear sentence structure to communicate ideas.	The essay has an established, formal style and objective tone that is maintained throughout. The essay uses varied sentence structure, precise language, and domain-specific vocabulary in a way that addresses the complexity of the topic. Few errors are present, and they do not interfere with meaning.	The essay has an established, formal style that is maintained throughout. The essay uses mostly correct, varied sentence structure and generally uses precise language and domain-specific vocabulary in a way that generally addresses the complexity of the topic. The essay may have some errors, but they do not interfere with meaning.	The essay attempts to establish a formal style that may not be maintained throughout. The essay attempts to vary sentence structure and uses some precise language that may be domain-specific at times but may address the complexity of the topic inconsistently. The essay contains some errors that may interfere with meaning.	The essay does not establish and/or maintain a formal style. The essay uses little variety in sentence structure, and the language is general and not domain-specific. The essay contains errors that interfere with meaning.
Applying Target Concepts Choose and accurately apply the relevant target concepts in a way that shows understanding, and further supports the argument and evidence presented in the essay.	The essay applies at least two target course-level concepts and/or unit-level concepts or content. The concepts or content are connected to the argument or evidence in the essay, and misconceptions are avoided. There are no errors in applying target concepts or content, and the essay demonstrates a clear understanding of the topic and the concepts. The essay might include information about the overall time period discussed in the essay and might make use of broader historical or scientific knowledge than is located in the course.	The essay applies one target course-level concept and/or unit-level concept or content. The concept or content is connected to the argument or evidence in the essay, and misconceptions are avoided. There are no errors in applying target concept or content to illustrate or support concepts and claims, or to inform the essay	The essay tries to apply at least one target course-level and/or unit-level concept or content, but does not fully articulate the concept's meaning or connection to the argument and/or evidence. It does avoid explicit misconceptions of the concept but may make an occasional minor error in applying target facts or concepts to illustrate or support concepts and claims, or to inform the essay	The essay incorrectly or inappropriately mentions at least one target course-level concept and/ or unit-level concept or content, and it may include misconceptions of that concept. The essay may make many minor errors or a major error in applying target facts or concepts.

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Website Design Project; this project may be a work that you wish to share with other people, such as College Admission officers ("Look how well I work with technology!"). These people are interested in knowing that you can read well!

1. Read our book well; you are encouraged to note interesting and important information, using the model template (see reverse side)

2. Design a website platform (multiple pages) to display your work; use an engine such as Google Sites, Weebly, Wix, Wordpress (dozens of others)

3. Your website platform is to share good CONTENT, VISUALS/ORGANIZATION, "HISTORICAL THINKING SKILLS," and "WORKS CITED" PAGE

4. Other interesting connections (provide examples)

Rubric			
Summative Assessment Criteria	Proficient	Developing	Novice
VISUAL (WEBSITE DESIGN) Content	Website shares specific, useful information from all chapters Website offers a "review" of the book Website displays good knowledge of material; website displays good creativity	Website shares specific, useful information from more than half of the chapters Website displays some knowledge of material; website displays some creativity	Website shares specific, useful information fewer than half of the chapters Website displays little knowledge of material; website displays little creativity
Visuals, Organization	Website features several useful visuals/links and multiple pages; well organized	Website features a couple of visuals and suggests organization	Website does not feature visuals and organization is weak
Historical Thinking Skills	Website shares a driving question; research; strong argument statement; evidence to support argument Website shows "change/ continuity over time"; "causation"; "contextualization"; or "compare/contrast"	Website suggests "historical inquiry" steps and "historical thinking skills"	"Historical inquiry" and "historical thinking skills" not evident
"Works Cited" Page	Follows MLA format	Somewhat follows MLA format	No page offered

Rubric				
Summative Assessment Criteria	Expert	Proficient	Developing	Novice
PRESENTATION Explanation of Ideas and Informatio	Does an exceptional job presenting information, arguments, ideas, or findings clearly, concisely, and logically. Argument is well supported with robust, relevant, and interesting evidence. The line of reasoning is logical, easy to follow, well crafted, and uses information that is appropriate for the purpose and audience. Clearly and completely addresses relevant alternative or opposing perspectives.	Presents information, arguments, ideas, or findings in ways that are not always clear, concise, or logical. Argument is supported by only some robust evidence. The line of reasoning is sometimes difficult to follow. Uses information that is only sometimes in line with the overall purpose. Attempts to consider and address opposing or alternative perspectives but does not do so clearly or completely.	The essay attempts to establish a formal style that may not be maintained throughout. The essay attempts to vary sentence structure and uses some precise language that may be domain-specific at times but may address the complexity of the topic inconsistently. The essay contains some errors that may interfere with meaning.	Does not present information, arguments, ideas, or findings clearly, concisely, or logically. Argument lacks robust supporting evidence. It's difficult to follow the line of reasoning. Uses information that is not in line with the overall purpose. Does not consider opposing or alternative perspectives.
Organization	Meets and exceeds all presentation guidelines; this presentation is particularly interesting, dynamic, and thoughtfully organized. Has an introduction that hooks the audience and a conclusion that incites questions and further interest. Organizes and uses times in what appears to be the best way possible.	Meets all presentation guidelines. Has a proper introduction that is clear and logical. Uses the time allotted well and organized the time appropriately.	Meets most requirements for the presentation guidelines. Has a proper introduction and conclusion, but they are not clear or interesting. Uses the time allotted, but does not divide up that time logically (uses too little or too much time on a topic or idea).	Does not meet the presentation guidelines. Does not have a proper introduction or conclusion. Does not use time allotted (is too long or too short).
Eyes, Body, and Voice	Keeps eye contact with the audience throughout. Shows exceptional poise and confidence. Speaks clearly, and in an engaging way that is interesting to listen to.	Keeps eye contact with the audience most of the time—only glances at notes or slides. Shows poise and confidence. Speaks clearly and is easy to understand.	Makes infrequent eye contact with the audience. Shows some poise (limited fidgeting or nervousness). Speaks clearly most of the time, but may be difficult to understand or hear at times.	Does not look at the audience or make eye contact. Lacks poise (appears nervous, fidgety, slouchy). Speaks in a way that is hard to understand.
Response to Audience Questions	Answers audience questions clearly and completely; provides additional, relevant information. Admits not knowing the answer to a question, and provides ideas for how one might find the answers.	Answers audience questions clearly and completely. Freely admits not knowing the answer to a question.	Answers audience questions, but not always completely and clearly.	Does not directly address audience questions; goes off topic.

About the Inquiry Author

Gregory Dykhouse teaches students in grades 9-12 at Black River Public School in Holland, MI. He has taught various history courses at the school for 25 years. His favorite aspect of teaching history courses is exploring the creative expression and ideas presented in dramatic literature, with a driving question such as "How do theatrical performance and dramatic literature inform our understanding of the past, present, and future?" He may be contacted at dykhouseg@brpsk12.org

Learn More About the Inquiry Here:

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(Holland, MI)

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