Unit 2: Science Research-Analyzing Research Articles

Content Area: **Science**
Course(s):
Time Period: **Full Year**
Length: **Yearlong**
Status: **Published**

General Overview, Course Description or Course Philosophy

Science Research 8 provides students with the IQWST science program and an embedded science research experience in which students will learn how to research and develop an investigation for a regional Science Fair. Students will be expected to complete all laboratory work and additional research for the scientific research project outside of school hours. In both the IQWST and science research program, student engagement comes from actively *doing* and *making sense of* science and mathematics.
Students investigate and explain phenomena, gather and analyze data, develop and use visual models, and solve multi-step problems. They develop important life skills as they work collaboratively in groups and explore individually with technology supports. Our program helps students to articulate their thinking, critique the reasoning of others, and persevere in completing rich tasks and tackling complex problems.

OBJECTIVES, ESSENTIAL QUESTIONS, ENDURING UNDERSTANDINGS

Authors choose evidence to shape and support their arguments. Individuals evaluate the line of reasoning and evidence to determine to what extent they believe or accept an argument. Scientific journals are peer-reviewed and provide information that can be used to reproduce scientific work in the laboratory or in the field.

CONTENT AREA STANDARDS

LA.RST.6-8.1	Cite specific textual evidence to support analysis of science and technical texts.
LA.RST.6-8.2	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
LA.RST.6-8.4	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 6-8 texts and topics.
LA.RST.6-8.6	Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text.
LA.WHST.6-8.1	Write arguments focused on discipline-specific content.
LA.WHST.6-8.1.A	Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically.
LA.WHST.6-8.1.B	Support claim(s) with logical reasoning and relevant, accurate data and evidence that

	demonstrate an understanding of the topic or text, using credible sources.
LA.WHST.6-8.1.C	Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence.
LA.WHST.6-8.2.D	Use precise language and domain-specific vocabulary to inform about or explain the topic.
LA.WHST.6-8.7	Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.
LA.WHST.6-8.8	Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.
LA.WHST.6-8.9	Draw evidence from informational texts to support analysis, reflection, and research.

RELATED STANDARDS (Technology, 21st Century Life & Careers, ELA Companion Standards are Required)

STUDENT LEARNING TARGETS

Declarative Knowledge

Students will understand that:

1. How to employ reading strategies such as annotating text, highlighting, summarizing, and presenting verbally to gain a greater understanding of scientific writing.
2. How to effectively discuss topics in class using various techniques to further understand the scientific text.
3. That scientific evidence must be evaluated for credibility and validity by examining the primary source document.
4. Topics may have multiple points of view and may produce conflicting studies that may need to be evaluated.

Procedural Knowledge

Students will be able to:

1. Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
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 6-8 texts and topics.
3. Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text.
4. Write arguments focused on discipline-specific content.
5. Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically.
6. Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources.
7. Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence.
8. Use precise language and domain-specific vocabulary to inform about or explain the topic.
9. Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.
10. Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.
11. Draw evidence from informational texts to support analysis, reflection, and research.

EVIDENCE OF LEARNING

Formative Assessments

Article Summaries/Notebook

Articles Annotations

Student biweekly self assessment

group discussions

Summative Assessments

Article Summaries

Article presentations

RESOURCES (Instructional, Supplemental, Intervention Materials)

1. https://sspcdn.blob.core.windows.net/files/Documents/SEP/BCM/2019/Program-Books/Top-300-MASTERS.pdf
2. www.Sciencebuddies.com
3. https://www.aaas.org/
4. https://www.sciencenews.org/
5. https://www.discovery.com/
6. https://www.sciencejournalforkids.org/
7. https://www.usnews.com/science/news
8. https://time.com/section/health/
9. https://student.societyforscience.org/2019-broadcom-masters-project-showcase
10. https://student.societyforscience.org/broadcom-masters
11. https://sspcdn.blob.core.windows.net/files/Documents/SEP/ISEF/2020/Rules/Book.pdf

INTERDISCIPLINARY CONNECTIONS

Students will work with the media specialist to learn about proper research methods and the proper ways to cite sources used in the scientific research project. Students in this course will be picking topics from a wide range of categories and may be making interdiciplinary connections within thier own research projects. https://student.societyforscience.org/isef-categories-and-subcategories

Researching based writing

Media Literacy

ACCOMMODATIONS & MODIFICATIONS FOR SUBGROUPS

See link to Accommodations & Modifications document in course folder.