Britannica

WHITE PAPER SERIES

TEACHING ARGUMENTATION AND READING FOR EVIDENCE

WITH ONLINE RESOURCES

innovative

INTRODUCTION

There is a noticeable shift occurring in K-12 instructional settings that promises to upend the curriculum across every subject area – from English/Language Arts to science. This shift is changing the traditional emphasis on narrative reading and writing in every grade to one which focuses on **argumentation** paired with **evidence-based reading and writing**. A variety of aspects of teaching and learning are being affected, from professional development and lesson preparation to the types of curriculum materials being used and assessment being administered.

This white paper will review current thinking on this topic, with an initial look at the factors bringing it to the forefront and the reasons why. Sample activities using Britannica's online resources[1] are then presented as ways to motivate and help students acquire the key skills they need to read for evidence, think critically about what they have read, and convey solid arguments.

[1] Educators may adapt the lessons to incorporate other sources of informational text if Britannica's online resources are not readily available.

EVIDENCE-BASED ARGUMENTATION: MORE THAN HE SAID, SHE SAID

While most people use the word "argument" or "argumentation" to refer to a verbal disagreement, the term has a slightly different meaning when it's used to describe a set of skills that educators now expect students to demonstrate earlier in their school careers and in greater depth than before. Argumentation is at the center of critical thinking, suggests G. Hillocks.[2] The International Reading Association describes argumentation as logic supported by verifiable examples and facts; i.e., a statement of a claim (What do I think?), an indication of reasons (Why do I think this?), and the citation of available evidence (How do I know this is the case?).[3]

Why is it important for students to develop proficiency in argumentation? Many adults may believe that their children already argue with them quite expertly without needing to focus on it in school! However, the Common Core State Standards (CCSS) spell out expectations intended to transform students into not just better arguers, but also more critical thinkers who are adept at constructing evidence-based arguments. In addition, national assessments are being built specifically to evaluate students' mastery of these skills. These drivers of instruction and assessment in evidence-based argumentation are discussed further in the next section.

[2] Hillocks, G. ,"Teaching argument for critical thinking and writing: An Introduction." English Journal 99 (6): 24-32. 2010.
[3] International Reading Association. "Developing Evidence-Based Arguments from Texts." <http://www.readwritethink.org/professional development/strategy-guides/developing-evidence-based-arguments-31034.html>

ALIGNING INSTRUCTION TO NEW CURRICULUM STANDARDS AND ASSESSMENTS

According to the National Governors' Association Center for Best Practices and the Council of Chief State School Officers, the creators of the CCSS, "The ability to frame and defend an argument is particularly important to students' readiness for college and careers. Students must frame the debate over a claim, presenting the evidence for the argument and acknowledging and addressing its limitations."[4]

In a survey conducted by the American College Testing Service (ACT), college faculty agreed that the ability to develop ideas by using specific reasons, details, and examples, and to support claims with multiple and appropriate sources of evidence are essential for college. Employers also point to critical thinking as a key skill required in the modern workplace.[5]

David Liben, who also was involved in the creation of the CCSS, cites yet another reason for focusing on evidence-based argumentation in the classroom. "When class discussions and writing assignments are limited to personal experience, it favors kids from the most educated or affluent families. If the discussion is about the text itself, then everyone can participate. It levels the playing field."[6]

The CCSS are emphatic about having students read text of an adequate range and complexity. Just as important, the Standards focus intently on having students read closely to draw evidence from the text itself and to explain that evidence orally and in writing.

According to Pegg and Adams, making evidence-based claims about texts is a core literacy and critical thinking proficiency.[7] When students read simple texts in elementary school and begin citing evidence from them, they are learning a structure for reaching conclusions and making decisions as well as

Anchor Standards for Reading

KEY IDEAS AND DETAILS

CCSS.ELA-LITERACY.CCRA.R.1
Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.

INTEGRATION OF KNOWLEDGE AND IDEAS

CCSS.ELA-LITERACY.CCRA.R.8
Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.

Anchor Standards for Writing

TEXT TYPES AND PURPOSES

CCSS.ELA-LITERACY.CCRA.W.1
Write arguments to support claims in an analysis of substantive topics or texts using valid reasoning and relevant and sufficient evidence.

CCSS.ELA-LITERACY.CCRA.W.9
Draw evidence from literary or informational texts to support analysis, reflection, and research.

[4] National Governors' Association Center for Best Practices and the Council of Chief State School Business Officers, "College and Career Ready: Standards for Reading, Writing, and Communications." 2009.
[5] Matthiessen, Connie, "Read like a detective, write like an investigative reporter." Greatschools.org.
[6] Ibid.
[7] Pegg, Jerine and Adams, Anne, "Reading for claims and evidence: using anticipation guides in science," Science Scope, October 2012, p. 74.

ALIGNING INSTRUCTION TO NEW CURRICULUM STANDARDS AND ASSESSMENTS (cont'd)

completing future tasks, such as writing college-level papers or creating presentations for their jobs. This is a more rigorous activity than what was asked for in pre-Common Core standards, which focused primarily on having students relate literary themes to their own lives.

In the current version of the CCSS, ten Anchor Standards for Reading and English/Language Arts are bounded at the beginning and end by a specific focus on close reading of complex text for evidence. In Anchor Standard 1, for example, students are asked to read closely to determine what the text says explicitly, make logical inferences from it, and cite specific textual evidence when writing or speaking to support conclusions drawn from the text. Anchor Standard 10 specifies that students should read and comprehend complex literary and informational texts independently and proficiently. Citing sources is a key task included throughout the grade levels. Several of the Writing Standards, including most explicitly Standard 9, also require students to draw evidence from a text or texts to support analysis, reflection, or research.

This focus on evidence-based reading and writing is further repeated throughout the Common Core's literacy standards in the content areas. These standards for science and social studies, for example, emphasize students' ability to draw specific evidence from text as well as other multimedia sources, such as video, in supporting claims and arguments. Pegg and Adams believe it is essential that students understand the importance and purpose of making evidence-based claims which "… are at the center of many fields of study and productive civic life."[8] In science, for example, building explanations of how the universe works requires testing ideas with evidence to build scientific arguments. "Scientific arguments involve the idea (a hypothesis or theory), the expectations generated by that idea (frequently called predictions), and the actual observations relevant to

Anchor Standards for Speaking and Listening

COMPREHENSION AND COLLABORATION

CCSS.ELA-LITERACY.CCRA.SL.3
Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric.

PRESENTATION OF KNOWLEDGE AND IDEAS

CCSS.ELA-LITERACY.CCRA.SL.4
Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.

CCSS.ELA-LITERACY.CCRA.SL.5
Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.

[8] Pegg, Jerine and Adams, Anne, "Reading for claims and evidence: using anticipation guides in science," Science Scope, October 2012, p. 74.
[9] Ibid.

ALIGNING INSTRUCTION TO NEW CURRICULUM STANDARDS AND ASSESSMENTS (cont'd)

those expectations (the evidence). Making predictions and supporting claims with evidence and reasoning are science and engineering practices integral to laboratory work, and these skills also can be developed by engaging students in reading scientific texts."[9]

In order to determine the extent to which students have mastered the skills indicated in the CCSS, the Smarter Balanced Assessment Consortium (SBAC) and the Partnership for Assessment of Readiness for College and Careers (PARCC) have developed national assessments in which students are asked to construct an argument, find supporting details in the text, quote passages accurately, and put concepts into their own words. According to Linda Darling-Hammond, professor of education at Stanford University and a SBAC senior research advisor, "Performance tasks ask students to research and analyze information, weigh evidence, and solve problems relevant to the real world. The Smarter Balanced assessment system uses performance tasks to measure skills valued by higher education and the workplace – critical thinking, problem solving, and communication."[10]

Assessments developed by PARCC feature complex literary and informational text and academic language with questions devoted to students providing technical evidence. An initial question about a text passage is asked and then followed by a second question that asks students to identify support for whatever they inferred for the original question. To do this, students need explicit and consistent instruction in the process of finding and using textual evidence to support a claim.

In its 2013 position statement on the newest set of curriculum standards to be released, the Next Generation Science Standards (NGSS), the National Science Teachers Association also asserted the importance of focusing on evidence-based reading and writing. "All students can develop science proficiency if the instruction provides them with opportunities for a range of scientific investigations and thinking, including – but not limited to – inquiry and investigation, collection and analysis of scientific evidence and explanations, logical reasoning, and communication and application of information."[11]

[9] Ibid.

[10] Brown, Sheila and Kappes, Lee, "Implementing the Common Core State Standards: A Primer on Close Reading of Text," The Aspen Institute, October 2012, p. 1.

[11] NSTA Position Statement : The Next Generation Science Standards. November 2013.

ARGUMENTATION AND READING FOR EVIDENCE AT DIFFERENT GRADE LEVELS

As schools implement the CCSS and NGSS, even very young children will be expected to present evidence to demonstrate how they know what they know. In kindergarten, for example, students too young to write may "show evidence" about a story's setting by pointing to pictures in a book. Later on, students may be required to cite key facts from books or articles and by the fourth grade, students will take notes and then write argument papers with opinions backed up by concrete pieces of evidence from credible sources. As David Coleman, one of the principal architects of the CCSS, puts it, "The goal is to read like a detective and write like an investigative reporter."[12]

To help students adopt an evidence-based mindset, Roz Linder's 2013 blog post suggested that teachers share a series of sentence starters with students to introduce the textual evidence they find. (See sidebar).

High school students' writing has been dominated in recent years by personal essays based on their opinions and experiences. "It's been common to ask students their opinions of what they're reading, how their experiences compare to the experiences of the characters in the story, how the reading makes them feel, or how the reading relates to what they know about the world," says Liben.[14] The trouble is, this kind of reading and writing doesn't prepare students for the demands of college and the workplace. "It is rare in a working environment that someone asks you for a market analysis along with a compelling account of your childhood," notes Coleman.

A proposed shift across Grades 4-12 from narrative writing to that focused on argumentation and evidence-based writing is shown in the diagram on page 8.[15]

TEXTUAL EVIDENCE SENTENCE STARTERS[13]

1. On page ____, it said...
2. The author wrote...
3. The graphic showed...
4. An example is...
5. In the text it said...
6. I know because...
7. For instance, ...
8. From the reading, I know that...
9. Based on what I read, ...

[12] Matthiessen, Connie, "Read like a detective, write like an investigative reporter." Greatschools.org.

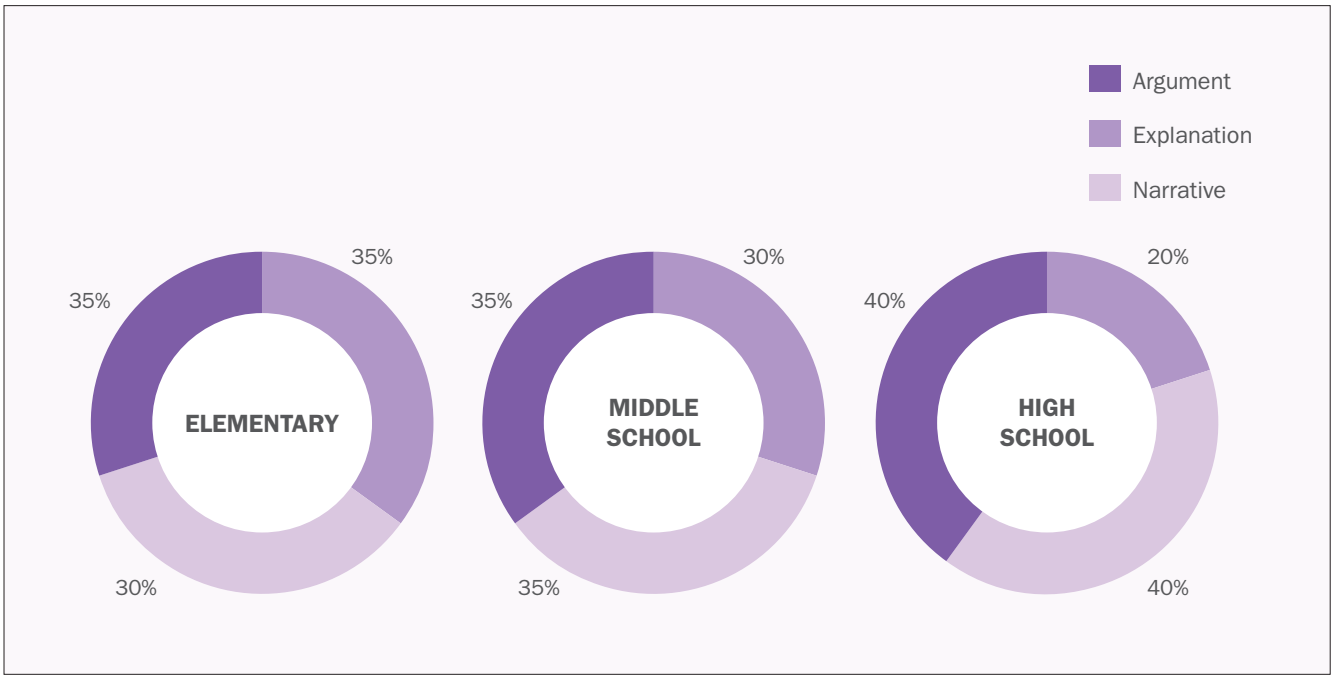
[13] "Teaching Students to Use Anchor Standard #1: Textual Evidence in the Common Core Classroom," In the Classroom with Roz Linder Blog, http://ontheweb.rozlinder.com, Jan. 11, 2013.

[14] Ibid.

[15] Criteria for Curriculum Materials, Common Core State Standards in ELA & Literacy, Grades 4-12.

RECOMMENDED BALANCE OF STUDENT WRITING

Grades 4-12



Source: Criteria for Curriculum Materials, Common Core State Standards in ELA & Literacy, Grades 4-12.

ACTIVITIES FOR TEACHING EVIDENCE-BASED READING/WRITING AND ARGUMENTATION

Sample activities using Britannica's online resources are presented on the following pages as ways to motivate and help students acquire the key skills they need to read for evidence, think critically about what they have read, and convey solid arguments. In each activity, suggestions are provided for using the lesson with students in the elementary grades, middle school, or high school. Educators may adapt these lessons to incorporate other sources of informational text in addition to Britannica's online resources.

ACTIVITY 1

CLAIM, REASON, OR EVIDENCE?

Description:

Students are asked to identify authors' claims or argument in a text, and evaluate the validity and relevance of supporting reasons and evidence. To accomplish this, students look for what is said explicitly in the text and also what is inferred by "reading between the lines."

Vocabulary Used in This Activity:

Claim: A claim is a statement that is arguable. Examples might be a solution to a problem, an opinion about a social issue, or something the author believes to be true. A claim often answers the question that starts with the word *what*. *What do I think? What is the problem that needs to be solved?*

Reason: A reason is a statement that supports the claim. Reasons often answer the question *why*. *Why do you say that?* If you can answer the question *why* with the word *because* in the sentence, you have a reason.

Evidence: Evidence supports the reason and gives proof to the claim. Evidence can include examples, case studies, testimonials, and statistics. Evidence often answers the question *how*. *How do I know this is true?*

Elementary Grades:

Students read a *Britannica® School* article in the Elementary level. Using sentence strips created by the teacher, students identify which sentence is a "claim," and which sentences are "reasons" and "evidence." Students place the sentence strips below one of three index cards, created by the teacher, entitled: "CLAIM," "REASONS," and "EVIDENCE." Included in this sample activity are the following: 1 claim sentence, 2 reason sentences, and 2 evidence sentences. This activity can be used with a variety of *Britannica School* articles.

Strategy: **C-R-E: Claim-Reason-Evidence** – Students identify and/or create a claim, and then identify reasons and evidence from the text for support.

Article Example:

RECYCLING

This *Britannica School* article introduces the topic of recycling, identifies items that can be recycled, describes types of recycling, and the importance of recycling to our environment. There are many claims or statements that can be created from this article. For example:

CLAIM: Recycling helps our environment.

REASON: Garbage in landfills often produces pollution in our water, land, and air.

EVIDENCE: When something is recycled, it is reused and not put in a landfill to cause pollution.

REASON: Food waste, grass clippings, and leaves can be put into a compost pile instead of the garbage can.

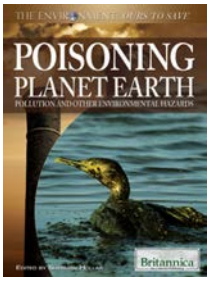
EVIDENCE: When compost is added to our garden, it creates nutrient-rich soil for better plant growth.

NOTE: A similar activity can be performed using all or part of a Britannica E-book; e.g., Recycling Earth's Resources or Filling Our Earth with Trash.

CLAIM, REASON, OR EVIDENCE? (cont'd)

Middle School:

Students read Chapter I in the Britannica E-book Poisoning Planet Earth. Students identify a text section which either has a stated claim or content with which students can create a claim (i.e., restates a main idea from the article or states a solution to a problem and then identifies reasons and evidence in the text to support the claim.) Provide or have students create a graphic organizer with 3 columns. At the top of each column, are the letters C – R – E or the words "claim," "reasons," and "evidence." As they read the text section, students write their claim, reasons, and evidence in the appropriate column.



Strategy: **C-R-E: Claim-Reason-Evidence** – This strategy helps students identify and/or create a claim, and identify reasons and evidence from the text for support.

Article Example:

POLLUTION

CLAIM: Efforts to improve the living conditions for humans have had the unintentional effect of polluting and contaminating the environment.

REASON: The environment has become polluted because humans have worked to control nature and develop new products to make life easier (e.g., cars, factories, housing, etc.).

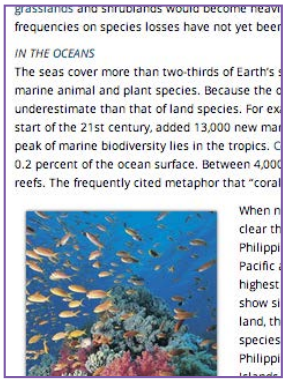
EVIDENCE: Chemical waste from industrialization has poisoned much of the Earth's air, water, and land, threatening the human population with disease.

NOTE: A similar activity can be performed using an article from Britannica School (for example, Conservation – Middle School Level, text section: "Abuse of Natural Resources") or a selection of images from *Britannica® ImageQuest™* based on connected key words (pollution or population growth).

CLAIM, REASON, OR EVIDENCE? (cont'd)

High School:

Provide or have students create a graphic organizer with a text box at the top of the page for the "claim." Below that, students create 3 text boxes labeled "reason," each linked to the "claim" box with a line. Students then create 2 – 3 text boxes labeled "evidence," each linked to the "reason" boxes above (see example below).


grasslands and shrublands would become heavi
frequencies on species losses have not yet beer
IN THE OCEANS
The seas cover more than two-thirds of Earth's s
marine animal and plant species. Because the c
underestimate than that of land species. For ex
start of the 21st century, added 13,000 new mar
peak of marine biodiversity lies in the tropics. C
0.2 percent of the ocean surface. Between 4,000
reefs. The frequently cited metaphor that "coral
When n
clear th
Philippi
Pacific
highest
show si
land, th
species
Philippi

Have students read the *Britannica School* article "Conservation" in the High School level, text section: "Factors that cause extinction," subsection: "Predictions of extinction based on habitat loss," "in the oceans."

Students should identify or create a claim from the information and write that claim in the appropriate graphic organizer section.

Students should then identify reasons and evidence in the text to support the claim, filling in the graphic organizer with their findings.

Next, using *Britannica ImageQuest*, students should gather additional support in the form of images to clarify and strengthen their claim, reasons, and evidence. Images can stand alone, added to the existing boxes as an illustration, or used to create an additional graphic organizer with explanatory text.

CLAIM:		
REASON A:	**REASON B:**	**REASON C:**
EVIDENCE A1:	**EVIDENCE B1:**	**EVIDENCE C1:**
EVIDENCE A2:	**EVIDENCE B2:**	**EVIDENCE C2:**
EVIDENCE A3:	**EVIDENCE B3:**	**EVIDENCE C3:**

Strategy: **C-R-E: Claim-Reason-Evidence** – This strategy helps students identify and/or create a claim, and identify relevant reasons and evidence from the text for support.

Article Example:

CONSERVATION

CLAIM: The greatest damage to ocean ecosystems is commercial fishing practices such as trawling using bottom-fishing gear.

REASON A: Each year, about six-million square miles of ocean floor is damaged by bottom-fishing practices.

EVIDENCE A1: Bottom trawling uses a cone-shaped net that is dragged along the ocean floor, disturbing the nutrient-rich waters and damaging or destroying the ecosystem.

EVIDENCE A2: The otter trawl plows the seafloor, crushing, burying, and creating deep furrows in its wake.

ACTIVITY 2

QAR: QUESTION ANSWER RELATIONSHIP

This activity gives students an opportunity to identify question types and characteristics of the answer. This understanding will guide students in answering appropriately, using information (reasons and evidence) found in the text, images, and illustrations to draw conclusions and make inferences. After frequent practice, predicting possible questions and internal questioning will become part of a student's inner dialogue as they read. Students will also gain an understanding of how to use claims or statements, reasons, and evidence to effectively answer an image, illustration, or text-dependent question.

TABLE 1
QAR – QUESTION ANSWER RELATIONSHIPS

QUESTION TYPE	DEFINITION
RIGHT THERE	The answer is found right in the text and is explicitly stated.
THINK & SEARCH	The answer is found in the text but in multiple locations. Information pieces may need to be combined to form an answer.
AUTHOR & ME	The answer is implicit in the text. The reader takes the information from the text as well as prior knowledge to make an inference.
ON MY OWN	The answer is based on an opinion formed from information found in the text.

Elementary Grades:

In this whole group or small group activity, the teacher explains the QAR question types in student-friendly terms, providing examples of questions and answers for each category. Using a projector or white board, the group looks at pictures from a *Britannica ImageQuest* key word search such as "children's illustrations" or "pet animals." The teacher then asks questions from each QAR category, guiding students to find answers by looking for clues in the images. As students respond, the teacher reiterates clues in the image or highlights prior knowledge the students used to answer a question.

TABLE 2
QAR – QUESTION ANSWER RELATIONSHIPS

QUESTION TYPE	EXAMPLE OF TEACHER-MODELED QUESTIONS
RIGHT THERE	"How many children do you see in this picture?" 
THINK & SEARCH	"We saw several pictures of pets. Can you name three?"
AUTHOR & ME	"What do you think is happening in this picture?" 
ON MY OWN	"Are there any animals we haven't seen in these pictures that you think would make nice pets?"

QAR: QUESTION ANSWER RELATIONSHIP (cont'd)

Middle School:

Divide students into groups of 2 – 4. Each student should read the *Britannica School* article "Titanic" and view image results from a key word search in *Britannica ImageQuest*.

Using both *Britannica School* and *ImageQuest*, students will collaborate with others in their small group to develop one question from each resource in each of the QAR categories, for a total of eight questions. Questions should focus on content found in the text and/or image, as well as information gathered from prior knowledge and inference.

Students will work together to create answers for the "Right There" and "Think and Search" categories. Answers should include reasons and evidence from the text, images, and inference. Answers for "Author and Me" and "On My Own" questions require students to use prior knowledge and personal opinion; therefore, students will not be able to collaborate on these responses.

Groups will cite the image identification number, print, or insert the image into a document with the corresponding question.

Each group will then exchange question/answer sets with another group and evaluate the questions and answers for strengths and/or weaknesses in the question type, format, and opportunity to use statements or claims, reasons, evidence, and inference in the response.

Once completed, groups return question/answer sets to original groups where students will have the opportunity to edit their questions and answers in light of peer feedback. Optional: the teacher uses questions from the groups as part of a quiz or homework assignment.

TABLE 3
QAR – QUESTION ANSWER RELATIONSHIPS

QUESTION TYPE	SAMPLE QUESTION FOR MS ACTIVITY
RIGHT THERE	"After hitting the iceberg, how long did it take the Titanic to sink?"
THINK & SEARCH	"What were two reasons lifeboats were not filled with people? Do you think more people could have been placed in the Titanic lifeboat pictured here?" 
AUTHOR & ME	"What do you think the artist is trying to say to the reader in this newspaper cartoon?" 
ON MY OWN	"Why do you think people are still interested in the Titanic story?"

QAR: QUESTION ANSWER RELATIONSHIP (cont'd)

High School:

Divide students into groups of 2 – 4 so that there are an equal number of students reading one of two texts. Half of the class will read the section "Document: Abraham Lincoln: The Gettysburg Address" from the Britannica E-book The American Civil War and Reconstruction 1850 – 1890. The other half will read "Abraham Lincoln: The Gettysburg Address" from the *Britannica School* article "Remembering the American Civil War," including the two accompanying images and captions.

Students will collaborate with others in their small group to develop one question for each category of the QAR, focusing on text content. Students will then create answers for their "Right There" and "Think and Search" questions, including reasons and evidence from the text. Responses to "Author and Me" and "On My Own" questions require the reader's prior knowledge and personal opinion, so collaborative responses are not appropriate. Creating high level questions for these categories, however, can be a group activity.

Groups will then exchange question/answer sets with a group that reads the alternate text. Students will read the associated text sections, evaluate the questions and answers for strengths and/or weaknesses in the question type, format, and opportunity to use statements or claims, reasons, and evidence in the response, and give appropriate feedback.

Once completed, groups return question/answer sets to original groups where students will have the opportunity to edit their questions and answers in light of peer feedback. Optional: the teacher uses questions from the groups as part of a quiz or homework.

TABLE 4
QAR – QUESTION ANSWER RELATIONSHIPS

QUESTION TYPE	ABRAHAM LINCOLN: THE GETTYSBURG ADDRESS
RIGHT THERE	Q: What was the occasion of Lincoln's Gettysburg Address? A: Lincoln spoke at the dedication ceremony for the National Soldiers' Cemetery at Gettysburg where several thousand Union and Confederate troops died.
THINK & SEARCH	Q: What were some things happening in Lincoln's political and personal life that might have kept him from accepting the invitation to speak at the dedication ceremony for the National Soldiers' Cemetery at Gettysburg? A: Lincoln was preparing his annual speech to Congress, the country was in the midst of the Civil War, his son Tad was sick in bed, and he was only asked to speak for a few minutes as a secondary speaker.
AUTHOR & ME	Q: President Lincoln said, "The world will little note or long remember what we say here, but it can never forget what they did here." In what way was Lincoln both correct and incorrect in his statement?
ON MY OWN	Q: What theme(s) or idea(s) from Lincoln's Gettysburg Address are relevant today either nationally or globally? Explain the relevance and how it is manifested in current events or community activities.

Evidence: Students will view an *ImageQuest* picture (115_2746574) "'Remember Dec. 7th!' Poster," which commemorates the attack on Pearl Harbor and includes a portion of the Gettysburg Address. Students will research the attack on Pearl Harbor, using Britannica E-books, *Britannica School*, and/or *ImageQuest* to answer the following writing prompt:

The poster "Remember Dec. 7th!" commemorates the attack on Pearl Harbor, adopting a phrase from Lincoln's Gettysburg Address.

Based on the title of the poster, the artist is making a claim or declaration. Examine the images and text. What do the images represent? What would you say are the artist's reasons and evidence for why we should "Remember Dec. 7th"?

ACTIVITY 3

TARGET: MIDDLE & HIGH SCHOOL

PATHWAYS: SCIENCE

Britannica Pathways: Science is a digital resource that is used to supplement science instruction beginning in the middle grades, particularly around concepts that students typically find to be most difficult. This inquiry-based instructional resource helps to uncover and correct student misconceptions, as well as to introduce students to text, video, and image-based evidence to analyze, evaluate, and use to draw conclusions.

Each *Pathways: Science* lesson is structured such that students have a chance to make a prediction, encounter evidence that may or may not sync with their prediction, and draw conclusions based on the evidence collected. During this process, a teacher may choose to further focus students on the process of reading for evidence, thinking critically about the evidence they choose to record and about how it either supports or contradicts their initial prediction. Below are suggestions for how to focus students on these important skills through each stage of any *Pathways: Science* lesson:

TABLE 5
PATHWAYS: SCIENCE

STAGE 1	STAGE 2	STAGE 3
'PREDICT': Once students choose their idea, ask them to analyze it for key words, phrases, and claims. These are the items that students should use to focus their search for evidence to support/contradict their idea in the next stage.	**'INVESTIGATE':** In this section, students are given access to text, video, and image resources connected to the topic under discussion. Students are asked to use these resources to collect evidence that supports or contradicts their initial prediction. During this process, first remind students to focus on finding evidence around the key words/claim they identified in Stage 1. As students begin to collect their evidence notes, the teacher may ask students to list the key word/claim that is being supported/contradicted within each note. In addition, the teacher may 'require' students to collect evidence from a particular resource or resources, and then ask students to choose X more resources to use.	**'CONCLUDE':** During this stage, students analyze their evidence as compared to their initial prediction. In addition to having students fill out the analysis chart in this section, the teacher may ask students to share pieces of evidence they have found, highlighting ones that they found particularly useful, clear, or even surprising, along with why they thought so. The teacher can also ask students to share which resources they found most useful and why, including how text pieces vs. multimedia pieces were used to inform their understanding.

TEACH ARGUMENTATION AND EVIDENCE-BASED READING AND WRITING WITH BRITANNICA RESOURCES

The No. 1 PreK-12 Information Resource from the Leader in Trusted Research

The future of research is here today in one safe, organized place for all students and educators. In *Britannica School*, students will find thousands upon thousands of searchable encyclopedia and journal articles, images, videos, audios, primary source documents, detailed maps, editor-recommended Web sites, learning games, a world atlas, Merriam-Webster dictionary in English and Spanish, and a wealth of how-to research tools. Trust *Britannica School* to inspire, inform, and support exploration, discovery, and learning – any time, any place, and on any device.

Access to Nearly 3 Million Rights-Cleared Images from One Convenient Site

ImageQuest offers the best and broadest collection of proprietary educational images from more than 50 of the world's leading collections. Perfect for preparing lesson plans, student reports and projects, or school Web sites and flyers, *ImageQuest* provides safe and fast access to the highest quality images on all topics and for all ages. Photographs and illustrations – most of which are not freely available on the Web – come with complete metadata.

Inquiry-Based Explorations that Correct Students' Misconceptions About Science

Engaging lessons in *Pathways: Science* help students transform common misconceptions into solid understanding. Along the way, students meet literacy and writing standards for science and technical subjects by evaluating evidence, using scientific vocabulary, writing arguments, and expressing their ideas.

For access to the full Britannica White Paper Series, visit the 21st-Century Learning section of info.eb.com.

Britannica Digital Learning

Phone: (800) 621-3900 | E-mail: contact@eb.com | Web: info.eb.com