


**FUTURE-READY STUDENTS:  
Developing Critical  
Thinking Skills  
& Habits**



**FIRST BOOK** 



# Future-Ready Students: Developing Critical Thinking Skills & Habits

In our fast-paced, technological world, young people are bombarded with information. Political polarization, the 24-hour news cycle, and paradigm-altering innovations like AI have heightened the urgency of equipping students with the skills to navigate this “noise” with confidence and discernment.

In a survey by the [Reboot Foundation](#), 95 percent of respondents agreed critical thinking skills are important and should be taught in schools.

A survey by the [Cambridge University Press & Association](#) found that while 93 percent of educators think developing students’ critical thinking skills is an educational priority, only 21 percent think they have the resources and training to do so effectively.

The widespread support among educators and the public for critical thinking education underscores the challenges today’s youth face in developing the skills needed to critically evaluate the information and opinions they encounter. With practice and explicit instruction about critical thinking strategies, students will be able to:

- Evaluate the credibility and relevance of sources
- Analyze information and break it down into parts
- Reason logically (e.g., compare, contrast, and make inferences and deductions)
- Consider alternative answers and explanations
- Make informed decisions and judgments
- Reevaluate based on new evidence

First Book created this guide to help educators understand the key components of critical thinking and how to cultivate this vital skill set in PreK-12 students. Use the strategies outlined in this resource to teach students how to refine their thinking process and transform data, facts, and opinions into knowledge.

## INSIDE THIS GUIDE:

**What Is  
Critical Thinking?**

**Why Is Critical Thinking  
Important for Students?**

**How to Teach  
Critical Thinking**

**Critical Thinking  
in the Classroom**

# What Is Critical Thinking?

Critical thinking is a toolbox of diverse, interrelated skills and habits that can be applied in various contexts and subjects. The toolbox includes reasoning and analytical abilities as well as social-emotional skills such as perspective-taking and self-management.



## CRITICAL THINKING IS

- ✓ Adapting thinking strategies to fit the topic and context
- ✓ Employing social-emotional skills such as humility, active listening, and self-reflection
- ✓ Being curious
- ✓ Analyzing and reasoning
- ✓ Asking strategic questions
- ✓ Seeking out multiple and diverse sources of information
- ✓ Considering opposing viewpoints
- ✓ Reflecting on one's thought process and patterns
- ✓ Reevaluating views in light of new evidence



## CRITICAL THINKING IS NOT

- × Relying on a single thinking strategy in all situations
- × Discounting all emotions
- × Being certain or inflexible
- × Merely memorizing facts
- × Believing you always know the answer
- × Relying on just one source
- × Only seeking confirmation and supporting opinions
- × Being unwilling to explain or explore your thinking
- × Refusing to change your mind

In *Thinking Fast & Slow*, Nobel Prize–winning psychologist and behavioral economist Daniel Kahneman explains how two distinct systems in the brain affect our judgment and decision-making. The “fast” system is **automatic and impulsive**, while the “slow” system is **conscious and deliberate**.

The fast system helps us make split-second decisions to keep us safe — like instinctively jumping out of the way of an oncoming car. When used in the wrong context, this impulsive system can lead to poor decision-making based on incomplete or incorrect information.

Critical thinking is associated with the slow system — the part of the brain that carefully evaluates, compares, contrasts, and analyzes before making judgments and taking action.

# Why Is Critical Thinking Important for Students?

In today's rapidly changing, unpredictable world, critical thinking has become an even more essential life skill. As the pace of life accelerates, it's more important than ever that students learn to do the opposite: pause and reflect.

By developing the ability to slow down and think carefully before making consequential decisions, students will be better prepared to thrive in all areas of their lives. Students who cultivate a habit of critical, independent thinking will be equipped to make well-reasoned and well-informed decisions about serious issues, such as their finances, health, and education.

**In the classroom, critical thinking instruction translates to:**



**Increased achievement and engagement** because students become active participants who analyze, question, and understand content on a deeper level



**More productive classroom interactions** as students learn to be specific with their critiques and confidently express their opinions



**More selective media consumption** as students learn to evaluate the credibility of information and assess for bias



**Fewer behavioral issues** because students understand the value of different perspectives



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**Giving students the opportunity to use critical and creative thinking in all areas allows them to gain real-life skills and helps them to think on their feet. This will help them with everyday problems around the house or on the job.**


CARISSA, FIRST BOOK EDUCATOR AND GIFTED INTERVENTION SPECIALIST

# How to Teach Critical Thinking

You're already doing it!

The good news for time-strapped educators and other youth-serving professionals working within specific curricular constraints is that critical thinking education can, and should, be woven into domain-specific instruction. Incorporating teaching and assessment strategies that prioritize critical thinking — class discussions, debates, project- and problem-based learning, and reflective writing — into existing lessons and activities will help students learn to reason and reflect while also acquiring domain-specific content knowledge.

The best practices outlined below explain how to incorporate critical thinking into any learning environment, from classrooms and clubs to after school programs and camps.

-  **Encourage Curiosity**
-  **Incorporate Social-Emotional Learning**
-  **Talk About Metacognition**
-  **Make It Fun!**
-  **Prioritize Problem-solving**
-  **Embrace Differing & Evolving Opinions**
-  **Teach Media Literacy**



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**At the beginning of the year, we have a lesson on growth mindset. We talk about our brains growing when we have challenging work. Easy work does not make our brains grow. We also talk about how scientists, mathematicians, and engineers have trial and error. At the end of the lesson, we walk through that it is okay to make mistakes, as long as we are constantly improving.**

CLAUDIA, FIRST BOOK EDUCATOR

## Encourage Curiosity

### WHY?

Curiosity is a key driver of learning and academic success. A study of over 50,000 students found that curiosity is as important as intelligence in predicting students' academic achievement, and this is true regardless of economic background. An authentic desire to gain new knowledge and insight is the first step in approaching new information with a critical mind.

### HOW?

#### Survey students.

Engage students by aligning lessons with their interests. Before beginning a new unit, survey students to identify which aspects of the curriculum capture their attention and what they are eager to learn.

#### Support inquiry.

Foster an environment where students feel comfortable asking questions and are supported in finding answers. Create an "I Wonder" wall where students can post questions and provide answers. Or explore Wonderopolis, a site that celebrates wonder and allows students to ask questions like Do All Sharks Live In Saltwater? and Who Invented the Super Soaker? while also encouraging interaction through upvotes on other students' questions.

#### Create curious classrooms.

Not stifling curiosity is as vital as encouraging it. According to Olivia Odileke, the author of *Spark Curiosity: A Guide to Quick Inquiry Tasks* and a former Title I teacher, the following can kill curiosity: excessive test preparation, lecture-heavy instruction, overreliance on computer programs, a lack of connection and relevance to students' lives, and worksheet overload.

Source: How to Stifle Student Curiosity in 5 Steps (and What to Do Instead) | EdWeek

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**[My go-to strategy] is teaching curiosity, using questions such as *Why? How do you know? [Can you] explain your thinking? and Can you tell me more?* When I allow students to go deeper with the questioning strategies, it allows me to learn more about their thought process and understand where they might need additional support.**

WHITNEY, FIRST BOOK PRINCIPAL

**Schools should be a place where children experience a world beyond that which they experience on a daily basis. Through the wonder inspired by schools, children's eyes should be opened to great literature and art, fascinating histories, and intriguing ideas in math and science.**

GARFIELD GINI-NEWMAN,  
ONTARIO INSTITUTE FOR  
STUDIES IN EDUCATION



# Incorporate Social-Emotional Learning

## WHY?

While logical reasoning is essential, especially in STEM fields, critical thinking also requires social-emotional intelligence. Empathy and social awareness are essential when making decisions about issues that could have complex repercussions for individuals and communities. Self-awareness and self-management are needed to assess implicit bias and personal thinking tendencies.

## HOW?

### Encourage intellectual humility.

Intellectual humility is a hallmark of critical thinking. Share examples of your own learning hurdles and evolving opinions to help students see that learning isn't always linear and is more than the acquisition of factual knowledge.

*Model it:* "That's a good question, and I don't know the answer. Let's investigate together."

*Celebrate it:* "I appreciate how you approached this issue with an open mind and considered all sides."

### Talk about decision-making and judgments.

Our fast-paced world encourages quick decision-making and snap judgments, but thinking too quickly can lead to bias and faulty reasoning.

*Model it:* "What principles should we use to make this decision? Can you think of similar situations or issues?"

*Celebrate it:* "It's great how you persevered in investigating this issue and revised your original thesis."

### Develop a growth mindset.

Critical thinking involves continuous learning and self-reflection — acquiring new information and reassessing long-held beliefs and assumptions. This process requires learning from mistakes and persevering through challenges.

*Model it:* "I think that analogy confused you more than it helped. Let's try another one."

*Celebrate it:* "I see how you tried several different strategies to solve that problem."

Source: [Character Lab](#)



**Real-life scenarios, SEL, and emotional content usually make students have a personal connection to the topics. Anything that the students can relate to, a book about a dog or cat, riding the bus, rain, bullying, all those topics that students go through will create critical thinking because they can tie it back to their own lives.**

CASSANDRA, FIRST BOOK LIBRARIAN

# Talk About Metacognition



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## WHY?

Many students don't actively think about how they learn until they encounter challenges. Metacognition — the awareness and modification of one's learning and thinking habits — enhances focus, reflection, error identification, self-regulation, and agency.

## HOW?

Use a KWHLAQ chart.

Add metacognitive and action-oriented questions to the commonly used KWL (Know, Want to Know, Learned) chart. Ask students to strategize how they will learn and consider what actions they could take based on what they learned.

**Metacognitive thinking helps students learn not just how they have come to a conclusion, but the thought processes and different kinds of knowledge they utilized in order to answer the question. This will help them when they need to think on their own and gives them the confidence that they can do it.**

BONNIE, FIRST BOOK EDUCATOR AND DYSLEXIA SPECIALIST

### KWHLAQ Chart

K	W	H	L	A	Q
What do I <b>KNOW</b> ?	What do I <b>WANT</b> to know?	<b>HOW</b> do I find out?	What have I <b>LEARNED</b> ?	What <b>ACTION</b> will I take?	What new <b>QUESTIONS</b> do I know?

Source: [Flickr](#). Used with permission of Silvia Rosenthal Tolisano (@Langwitches)

## METACOGNITION: THINKING ABOUT THINKING

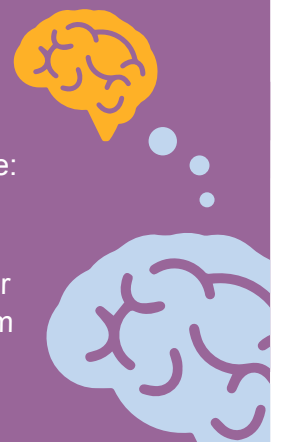
Metacognition is a type of reflection that involves thinking about one's own thinking to assess and modify learning and thinking strategies. Examples of metacognition include:

Being aware of how your stress level is affecting your focus

Using different learning strategies in different subjects and situations

Determining which study habits and strategies work best for you

Reflecting about what went well, or not, after an exam or assignment





## Ask questions throughout the learning process.

### Pre-learning questions

- What do I expect to learn?
- What skills am I using to do this assignment?
- What should I do first?
- If I learn this, how will it help me?

### During-learning questions

- Am I considering all sides of an issue?
- Did I settle on the first conclusion?
- Am I overestimating what I know about this topic?
- Have I seen other problems/ issues like this that could inform my approach?

### Post-learning questions

- What worked well?
- What could I have done better?
- Can I apply what I learned to other situations?

## Teach & Model Specific Metacognitive Strategies.

Metacognition is an abstract topic, and some students, especially younger ones, may have trouble understanding and applying the concept. To make metacognition more accessible, explicitly teach strategies like self-questioning, monitoring comprehension, and thinking aloud. Look for opportunities to model these techniques while teaching.

### Self-questioning

*Teach it:* Encourage students to ask questions like, “Do I really understand this concept?” and “What is my reasoning behind this answer?”

*Model it:* While solving a math problem in front of the class, share your inner monologue: “Do I understand the question? Let me break it down...” or “Is this approach working? It doesn’t seem to be, so I’ll try a different strategy.”

### Monitoring Comprehension

*Teach it:* After a lesson, ask students to summarize the key points or create a concept map to visually organize what they’ve learned. This monitoring process will let them know how well they understand the material.

*Model it:* At the end of a lesson, make time to monitor comprehension in the form of an exit ticket or class discussion: “What questions do we still have? “What strategies did we use to understand today’s lesson?”

### Think-alouds

*Teach it:* Help students name specific steps in the writing process. For example, “I need a strong topic sentence here. I’m going to write down all my ideas before choosing the best one.”

*Model it:* When reading aloud to the class, pause and share when you need more time to think about a sentence or passage. For example, “I’m not sure what the author means here, so I’ll reread these sentences.”

# Make It Fun!

## WHY?

Students don't need to know about logical fallacies and deductive reasoning to practice their critical thinking skills. Brain teasers and riddles engage various skills in the critical thinking toolbox:

- Pattern recognition
- Attention to detail
- Memory
- Attention\*
- Processing speed
- Reasoning

\*A study on the attention spans of six-year-olds found that brain teasers were effective at boosting children's attention spans

## HOW?

### Take productive brain breaks.

Brain teasers and riddles have many uses in the classroom, including:

- Engagement-boosting activities before or after lessons
- Bonus questions in assignments and tests
- Optional “free time” activity
- Team building exercises
- Lesson supplements — choose brain teasers related to the subject you're teaching



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**One of my favorite lessons for incorporating critical thinking in early childhood is a ‘Mystery Box’ activity. You take a box and fill it with various objects that the children can't see. Then, they have to ask yes or no questions to figure out what's inside. It really gets them thinking about the characteristics of objects and how to ask the right questions to narrow down possibilities. Plus, it's super fun and engaging for the kids!**

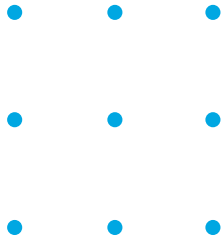
SONAL, FIRST BOOK EDUCATOR

Challenge your students with these classic brain teasers and riddles.

### The 9 Dot Problem

Using no more than 4 straight lines and never lifting your pencil from the paper, connect all nine dots.

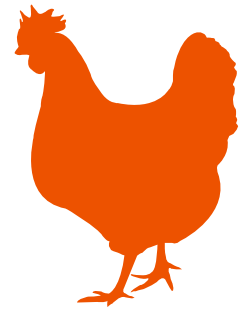
Click for the [solution](#).



### The River Crossing Problem

A farmer is traveling with a fox, a chicken, and a bag of grain. During his journey, he comes across a river with a boat to cross it.

The farmer can only fit one thing in the boat with him at a time. If left alone together, the fox will eat the chicken, or the chicken will eat the grain. How does the farmer get everything across the river safely?



Click for the [solution](#).

### The Light Bulb Problem

There are three light switches outside of a room, which are labeled #1, #2, and #3. The door to the room is closed and you can't see in. All three switches are off.

You need to figure out which switch belongs to which bulb. You can use the switches however you want to, but you can only enter the room once. How do you do it?



Click for the [solution](#).

### Classic Riddles

*Question:* It's as light as a feather, but the strongest person can't hold it for more than five minutes. What is it?

*Answer:* Breath

*Question:* A cowboy rode into town on Friday. He stayed in town for three days and rode back out on Friday. How is this possible?



*Answer:* The horse is named Friday.

## ? Prioritize Problem-solving

### WHY?

Project-based learning has become a popular educational strategy because having students solve real-world problems reinforces conceptual knowledge, rewards innovation, and builds resilience.

### HOW?

#### Make real-world connections.

Pose authentic questions that engage students' curiosity, such as, "What is in our drinking water?" or "How can we create a sustainable garden on a budget?" Make connections to real-world situations by asking "Why is this information useful?" and "How could we apply this in our lives?" rather than only fact-based questions like "What is the solution?"

#### Use the 5-step problem-solving process.

Model real-world scenarios by guiding students through the following steps:

- 1) Define the problem
- 2) Brainstorm solutions
- 3) Evaluate and choose solutions
- 4) Implement the solution
- 5) Review the process and outcomes

#### Take time to assess the data.

Expert problem-solvers take the time to review data and background information before diving into the problem. Encourage students to take their time and ask these questions before rushing to a solution or conclusion:

- What do we know about the context of the problem?
- What assumptions are part of the problem?
- What relative information (e.g., data) is available?
- What are important trends and patterns?



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**Problem-based learning is [a] key strategy I use. PBL engages students in real-world problems that don't have clear-cut solutions, requiring them to apply critical thinking throughout the process. This method not only fosters critical thinking but also encourages collaboration, creativity, and persistence.**

FELICIA, FIRST BOOK EDUCATOR  
AND STEM COORDINATOR

# Embrace Differing & Evolving Opinions



 **FIRST BOOK EDUCATOR**

## WHY?

In our increasingly polarized world, we need young people who approach critical issues with curiosity rather than certainty. As Maya Angelou said, “Do the best you can until you know better. Then, when you know better, do better.” Acknowledging different perspectives and revising opinions based on new information are key critical thinking skills.







**Whether it’s through group discussions, classroom debates, or group projects, peer interaction will help students develop the ability to think critically.**

## HOW?

**DORIS, FIRST BOOK EDUCATOR AND SPECIAL EDUCATION TEACHER**

### Put on different “thinking hats.”

Have students work in groups of six to analyze information. Each person in the group wears a different type of thinking hat.

 <p><b>WHITE:</b> analytical, focused on facts</p>	 <p><b>RED:</b> emotional, focused on feelings</p>	 <p><b>BLACK:</b> skeptical, focused on risks or problems</p>
 <p><b>YELLOW:</b> optimistic, focused on the best-case scenario</p>	 <p><b>BLUE:</b> structured and holistic, focused on the big picture</p>	 <p><b>GREEN:</b> creative, focused on making associations</p>

For example, the problem could be what to do about an old playground in need of restoration.

Different perspectives about this problem could include:

 <p><b>WHITE:</b> We can't do anything without talking about the budget and the schedule and figuring out how to complete the project before the first day of school.</p>	 <p><b>RED:</b> Let's talk about the importance of play for kids and how broken equipment impacts their experience of recess.</p>	 <p><b>BLACK:</b> Is the investment worth it? Will students even like the new equipment? What if they prefer the old playground because it's familiar?</p>
 <p><b>YELLOW:</b> What impact will the new playground have on students' well-being and readiness to learn?</p>	 <p><b>BLUE:</b> How can we listen to different people and synthesize diverse opinions to best coordinate our efforts?</p>	 <p><b>GREEN:</b> What if we upcycle the playground equipment? We can turn a broken slide into a butterfly garden.</p>

### Visually represent a range of opinions.

Find an age-appropriate, semi-controversial topic (e.g., homework) and label two sides of the classroom with the most extreme opinions (e.g., students should have homework every day of the week vs. students shouldn't have any homework ever) and have students place themselves between these extremes by discussing the issue and comparing opinions. This will expose them to logic and reasoning and the range of possible opinions that naturally emerge. These debate topics from [We Are Teachers](#) are a good source for low-stakes, humorous opinions.

**We shouldn't see our opinions as cherished possessions. We should treat them like everyday clothes. Look at the views in your closet that were trendy once. Discard the ones that look silly to you now. Wear the ideas that fit you today. Be ready to outgrow some of them tomorrow.**

ADAM GRANT,  
ORGANIZATIONAL PSYCHOLOGIST

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## WHY?

In many ways, students are fortunate to have so much information at their fingertips — the latest news and educational content as well as entertainment. But easy access comes with responsibilities and risks. The prevalence of misinformation and AI-generated content means students need explicit instruction on how to “access, analyze, evaluate, create, and act using all forms of communication” ([The National Association for Media Literacy Education](#)).

## HOW?

### Be specific.

Help students avoid misclassifying and oversimplifying by encouraging them to be specific in their critiques. Instead of claiming an article or opinion is true or false, provide details: Is the data wrong? Is it propaganda? Is it a conspiracy theory? Is it biased? Is there a logical fallacy?

### Analyze social media.

In addition to long-form articles and other traditional sources of news, teach students to analyze videos, memes, and social media images since these are the formats they tend to consume. Analyzing popular formats like memes and YouTube videos teaches students that these sources of information can and should be scrutinized.

### Ask questions.

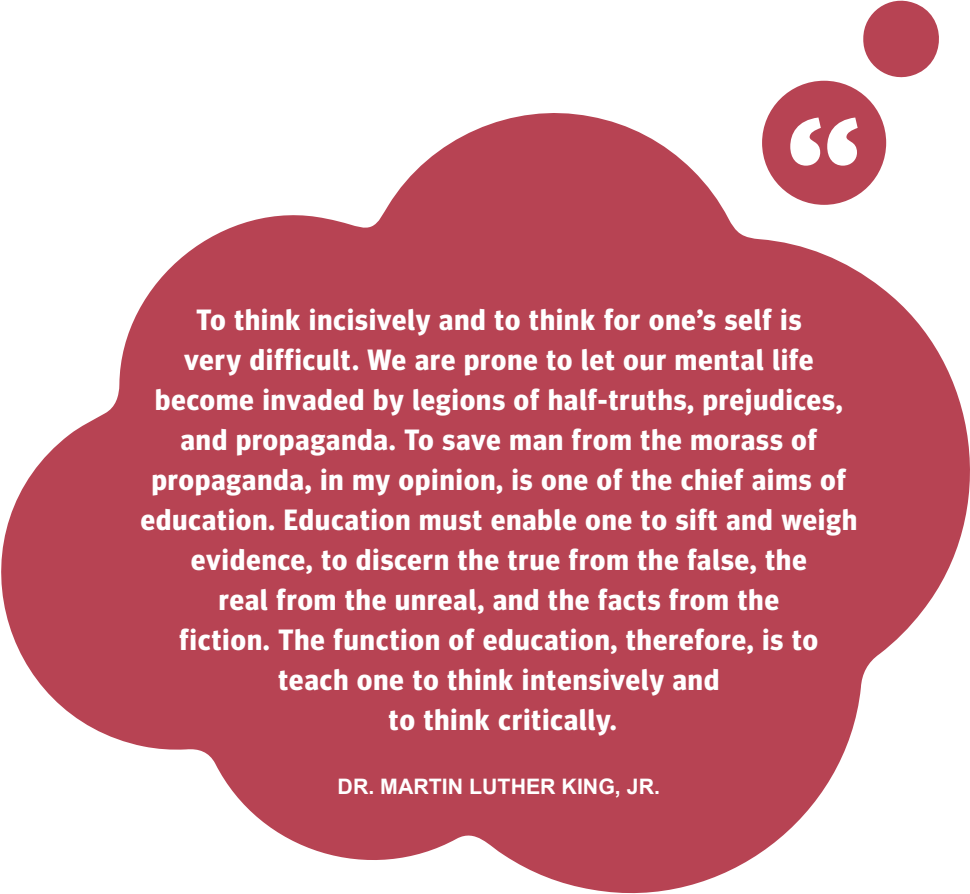
Teach students to ask strategic questions before, during, and after they read or view content online. Rather than passively accepting whatever they encounter as truth, demonstrate how to evaluate the source and consider assumptions, biases, and motives.

### Pre-Reading Questions

- What is the genre and format? (e.g., an essay in an online magazine, an infographic on a government website, or a video on TikTok)
- Who created the message or content?
- What does the About Us or FAQ section reveal about the source?
- What seems to be the point of view of the source and its content?
- Is the source data-heavy or opinion-heavy?
- After scanning the information, do you see typos, spelling, and grammar mistakes, and/or lots of ads?
- What techniques are used to attract your attention?
- What do all these pre-reading assessments suggest about the credibility of the source?

**I strongly believe that students need to be able to determine fact from fiction in the world we live in, [where] misleading information is rampant, and be able to make connections on their own.**

NADIA, FIRST BOOK EDUCATOR



**To think incisively and to think for one's self is very difficult. We are prone to let our mental life become invaded by legions of half-truths, prejudices, and propaganda. To save man from the morass of propaganda, in my opinion, is one of the chief aims of education. Education must enable one to sift and weigh evidence, to discern the true from the false, the real from the unreal, and the facts from the fiction. The function of education, therefore, is to teach one to think intensively and to think critically.**

DR. MARTIN LUTHER KING, JR.

### Post-Reading Questions

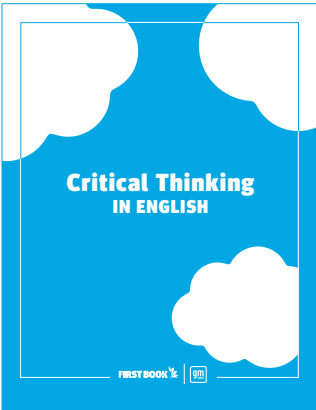
- After viewing the information, who do you think is the intended audience?
- Do you think the writer or publisher is trying to convince you to believe something? If so, what?
- What is the author assuming you will agree with?
- Does the author adequately defend their argument? What kind of proof do they use?
- Does the information seem up to date?
- Choose one statement that is presented as a fact or statistic and try to verify or disprove it by consulting 2-3 other sources.
- What opinions or ideas are missing from this information source?
- What questions do you have after viewing or reading this content?
- What are two additional searches you could try to find additional information to answer your questions?



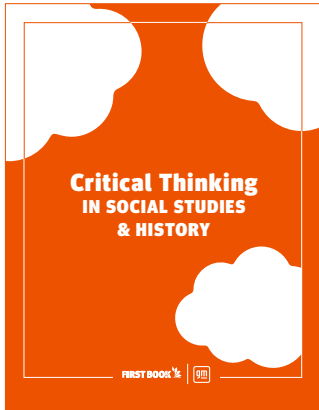
# Critical Thinking in the Classroom

To become well-rounded, sophisticated thinkers, students must develop both content knowledge and critical thinking skills. The Partnership for 21st Century Learning (P21) Framework recommends that “within the context of key knowledge instruction,” students also learn “the essential skills for success in today’s world, such as critical thinking, problem-solving, communication, and collaboration” ([battelleforkids.org](http://battelleforkids.org)).

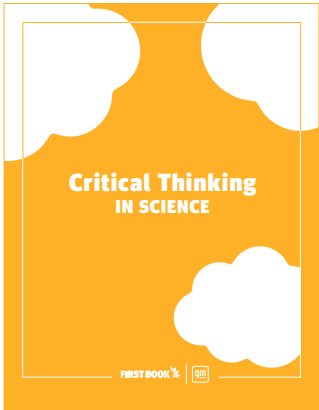
**THE FOLLOWING GUIDES OFFER STRATEGIES FOR TEACHING CRITICAL THINKING AS PART OF STANDARDS-ALIGNED INSTRUCTION IN ENGLISH, SOCIAL STUDIES & HISTORY, SCIENCE, AND MATH.**



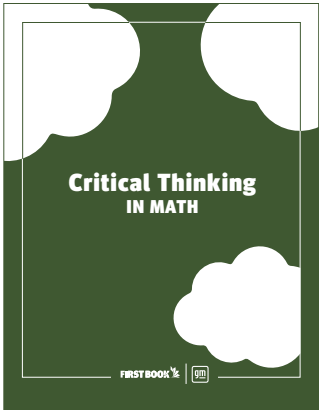
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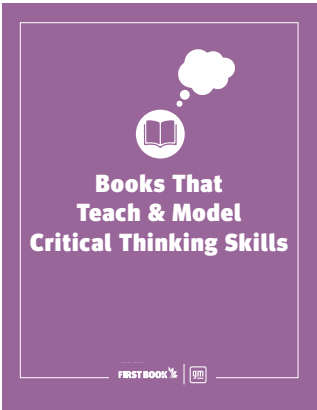
**SOCIAL STUDIES & HISTORY**



**SCIENCE**



**MATH**



Across all ages and subjects, books are one of the best ways to engage students’ critical thinking skills. Reading requires perspective-taking, analysis, and judgment. Explore a [PreK-12 reading list](#) curated by First Book’s Title Selection for inspiring and engaging books that encourage students to read and think critically.



**Math, reading, social studies, science all lend themselves to incorporating critical thinking: defending their strategy, error analysis, making predictions, defending their findings.**

SALLY, FIRST BOOK EDUCATOR AND EXTENDED LEARNING PROGRAM (ELP) TEACHER

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[Ways to Improve Student Problem-Solving | Edutopia](#)

## About General Motors

At General Motors, we are guided by our vision of a world with zero crashes, zero emissions and zero congestion. We are using our talent, technology and resources to adapt to an ever-changing world and help support a better and safer future for all. That future extends to the communities where we live, work and play.

