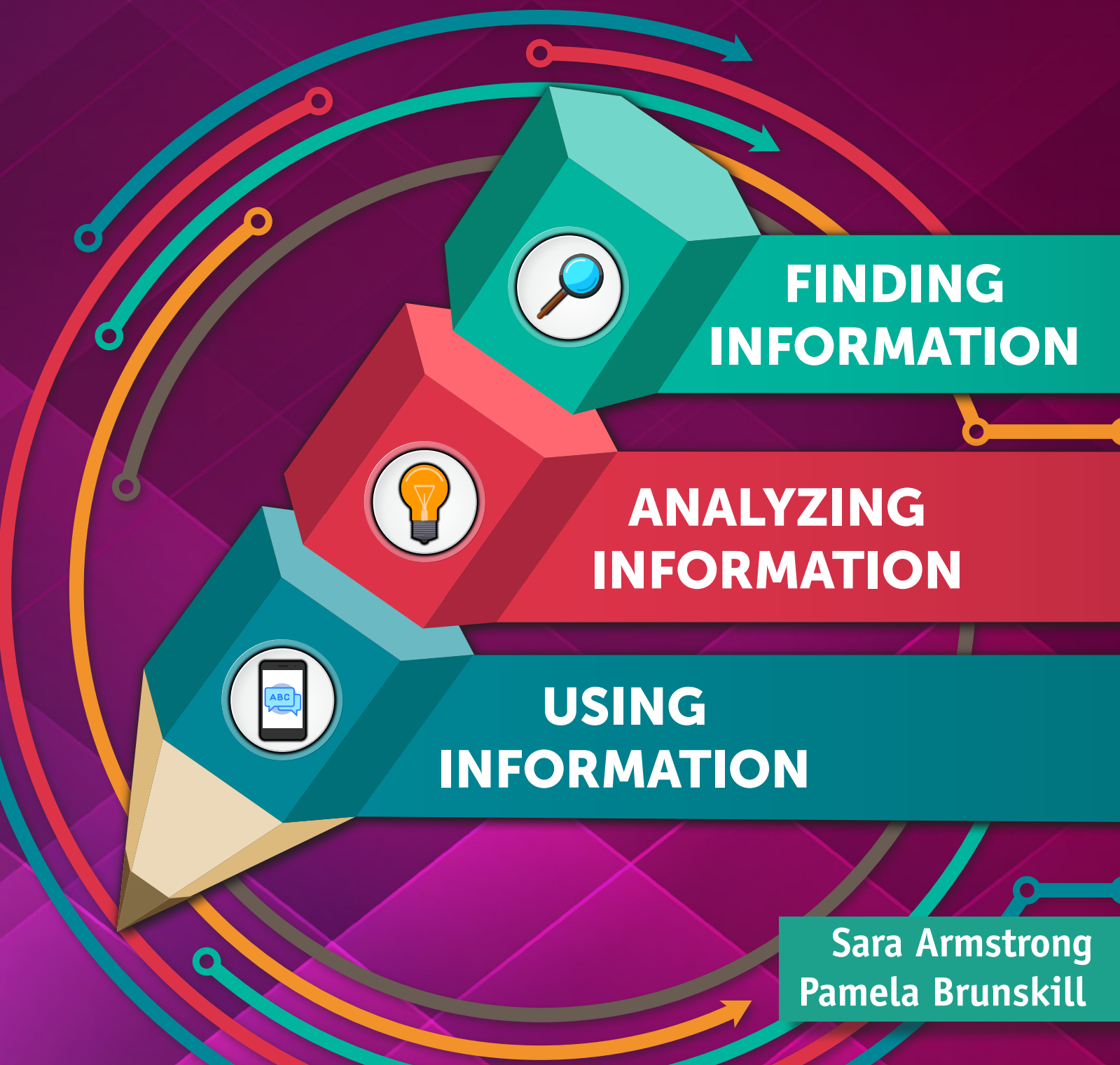


INFORMATION LITERACY

Separating Fact from Fiction



**FINDING
INFORMATION**

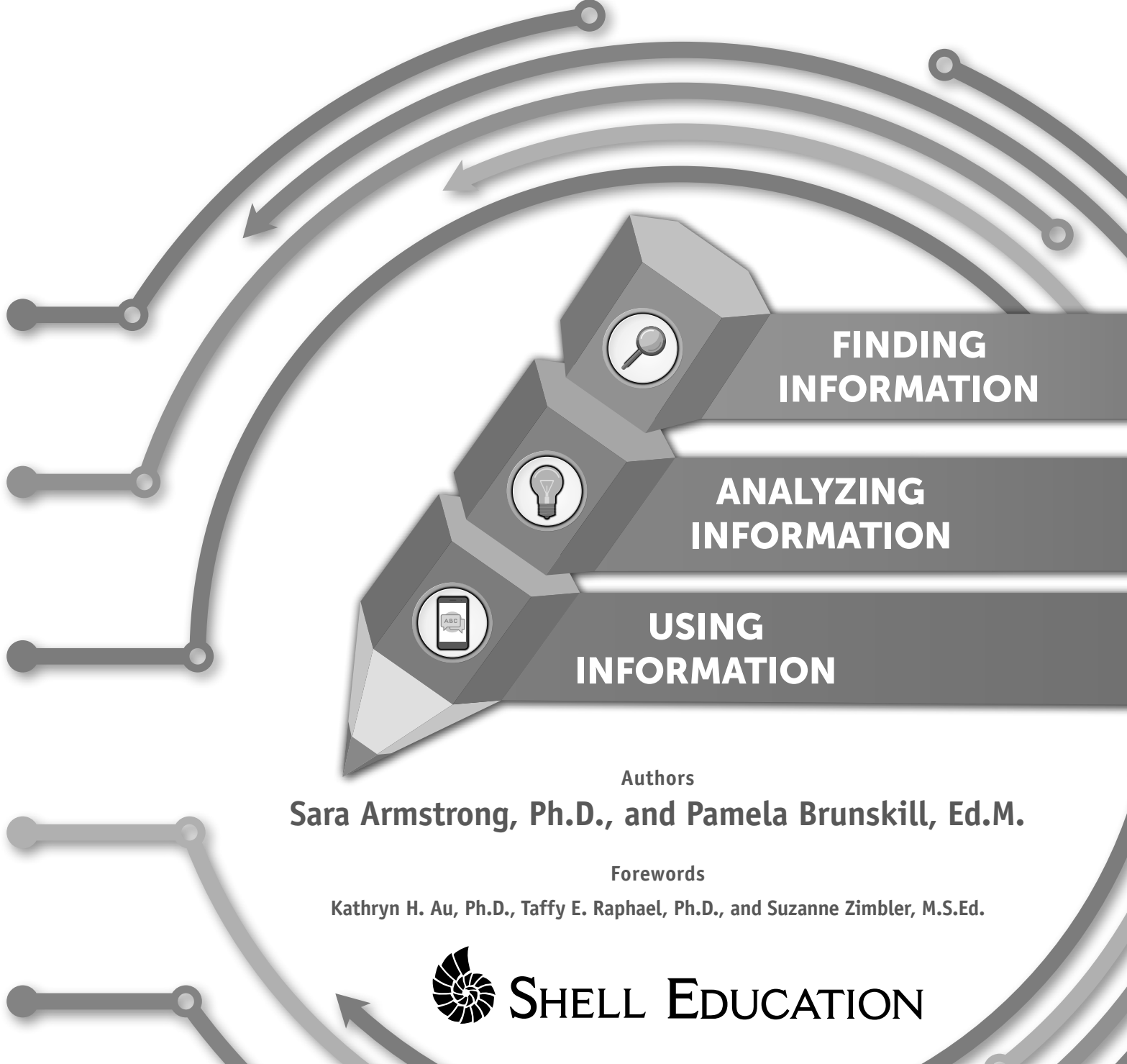
**ANALYZING
INFORMATION**

**USING
INFORMATION**

Sara Armstrong
Pamela Brunskill

INFORMATION LITERACY

Separating Fact from Fiction



**FINDING
INFORMATION**

**ANALYZING
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**USING
INFORMATION**

Authors

Sara Armstrong, Ph.D., and Pamela Brunskill, Ed.M.

Forewords

Kathryn H. Au, Ph.D., Taffy E. Raphael, Ph.D., and Suzanne Zimbler, M.S.Ed.



SHELL EDUCATION



Foreword Authors

Taffy E. Raphael, Ph.D.

Kathryn H. Au, Ph.D.

Co-founders & Senior Advisors, SchoolRise LLC

Suzanne Zimbler, M.S.Ed.

Executive Editor, Special Projects
TIME For Kids

Publishing Credits

Corinne Burton, M.A.Ed., *President*

Conni Medina, M.A.Ed., *Managing Editor*

Emily R. Smith, M.A.Ed., *Content Director*

Shaun Bernadou, *Art Director*

Stephanie Bernard, *Assistant Editor*

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In the summer of 2017, a video purportedly showing a bolt of lightning striking a river went viral on social media. An Arkansas meteorologist even posted the clip on his Facebook page, along with the comment, “If you aren’t terrified of lightning in a swimming pool, you will be now!” Later, the meteorologist updated his post to let followers know that the video did not show what he had thought. The apparent lightning bolt came from a wire on a hill. “It’s not lightning, but instead a detonation cord!” he clarified. The video had already racked up millions of views.

Not long ago, we relied on professional journalists for all our news. Now, anyone with Internet access can disseminate information to a wide audience. The good news? Students today have access to more information than at any time in the past. The bad news? A fair amount of that information cannot be trusted.

When I was teaching fifth grade at a New York City public school, my colleagues and I put much of our effort into building our students’ reading comprehension skills. But it has recently become clear that being able to understand what we read is not sufficient. We need to know how to critically evaluate the information we come across.

As an editor at TIME For Kids for more than 10 years, I have seen evidence of a shift in how students approach text. In response to my articles, I receive emails—and sometimes still, good old-fashioned letters—from kids around the country. In more and more of these messages, students are taking a critical stance. “I completely disagree,” one 12-year-old wrote after she read that some scientists had suggested a government tax on heavily sweetened foods. These correspondences reveal that teachers are taking on the task of giving their students the tools to think critically.

Julie Coiro, a professor who specializes in digital literacy at the University of Rhode Island School of Education, warns against the “checklist approach” to evaluating sources of information. Simply giving students a list of things to look for and check the boxes, she points out, can lead to surface-level thinking.

In *Information Literacy: Separating Fact from Fiction*, Pamela Brunskill and Sara Armstrong provide research-based lessons and resources for developing critical consumers of information. Their thoughtfully crafted lesson plans and activities are sequenced to help students learn to locate relevant information, to analyze and evaluate the information they find, and finally, to apply that information, whether it be for a school project or a real-life decision.

Weeks before the 2016 election, I visited a middle school in Brooklyn, New York, to see a news literacy program in action. Seventh grader Danish was doing his best to make sense of the nonstop coverage of the candidates. Someday, “we’re going to have to elect a president,” the seventh grader told me. “Knowing what to believe about the candidates is important.” Indeed, in the not too distant future, today’s students will be making important decisions—who to vote for, where to go to college, what career to pursue. It is crucial that they have the skills and discipline to base those decisions on information that is credible.

**—Suzanne Zimbler
Executive Editor,
Special Projects
TIME For Kids**

Foreword (cont.)

Back in 2006, Don Leu and colleagues at the University of Connecticut conducted a now-famous experiment. These researchers created a spoof website dedicated to a supposedly endangered species—the Pacific Northwest Tree Octopus. In the study, all 25 middle school students, their school’s most proficient online readers, found the site to be “very credible.” Furthermore, the students continued to believe the fake information, even after being informed that the site was a hoax. Some students insisted adamantly that the information remained true!

Facebook, Twitter, the World Wide Web, 24/7 news channels, deep societal divisions, “Fake News”—what do these have to do with literacy instruction in today’s elementary schools? With much reading activity shifting from the page to the screen, it has become critical to prepare even young students to read in a discerning manner.

When we began our careers as elementary teachers several decades ago, Kathy in early primary and Taffy in intermediate grades, the very definition of reading was naively simple—reading = listening + decoding. Accountability was framed in terms of students’ personal enjoyment of reading (largely narratives and a few poems) and their abilities to read and respond to known-answer questions (primarily in short stories and activities associated with basal reading programs). It was a simpler time, not defined by high stakes testing and the need to evaluate critically a barrage of largely unfiltered and untrustworthy information. It was a time when students “learned to read” and then later “read to learn.”

What changes four decades have brought! Our now rich body of research—on multiple literacies, cognitive and social contributors to meaning-making, text difficulty and text diversity, and reading skills for a digital era—informs both literacy pedagogical practices and the materials through which our students become literate. Four decades have also seen a shift from a dominance of vetted, relatively credible information sources to the current “anything goes” platforms afforded by new technologies and a wealth of propaganda and sales-oriented information sources. If we could draw only one conclusion from all these years of research, it would be that teachers and students should be extraordinarily well prepared to handle the range and quality of information available. Furthermore, this preparation should begin in the early grades.

Brunskill and Armstrong’s text, *Information Literacy: Separating Fact from Fiction*, is a timely resource for teachers, with useful background and engaging activities appropriate for students from 3rd grade through 8th grade—and those students in 9th–12th who are working to shore up their informational literacy repertoire of strategies. The book is designed for easy access to specific activities to introduce students to concepts fundamental for acquiring, interpreting, and applying information from a range of resources, from traditional print materials to those available through twenty-first century tools and sites.

The authors have used a reader-friendly format that teaches through background knowledge and models of activities. The book is organized in terms of three key areas—finding, analyzing, and using information—applicable to thematic or topical projects using multiple texts or an individual lesson using a single text. This framework is relevant not only to literacy instruction but is a way of conceptualizing information literacy practices that will benefit both educators and their students across school subjects and real-world tasks.

The format Brunskill and Armstrong created parallels the very point they are making about the “stuff” of information literacy and the strategies that readers employ. We found a range of pathways through the text, depending on the various purposes we set for ourselves. To answer the question, “What is information literacy, and how should I think about it conceptually in planning for the school year?” we valued the authors’ guiding us step-by-step through each section (finding, analyzing, using), introducing us to key researchers and concepts for each aspect of information literacy, and viewing the range of activities as illustrations. As active readers, we could tease out basic principles that we would follow in adapting for our particular learners. We could see the importance of classroom talk. This included conventional teacher-led opportunities to introduce a new concept or learn a new strategy, small-group discussion as students collaborated to create products or shared products they had developed individually, and paired discussions. We could see the importance of student products that allow teachers to build in accountability and see where students might need additional support.

In contrast, we could also use the text in applying search strategies of our own. For example, to answer the question, “What can I do to improve my students’ abilities to analyze the trustworthiness of an article?” we were able to dive into various activities within each section, choosing ones that led our students to think about who wrote a particular article, what their purposes might be, and where their position may vary from other sources.

In short, Brunskill and Armstrong have created a timely text that practicing teachers, literacy coaches, and preservice teachers will find both conceptually useful and practically valuable. Conceptually, the authors have pulled together decades of research in a way that helps readers develop or fine-tune their concept of information literacy and how it can be taught. Through words and graphics, they demonstrate that information literacy is not solely about using digital tools as ends in and of themselves. Practically, the authors present a wide variety of activities that teachers can easily adapt to readers of different age and ability levels and of different cultural and linguistic backgrounds.

Guiding your students through these activities will keep them from being fooled the next time a Pacific Northwest Tree Octopus comes their way.

—Taffy E. Raphael, Ph.D.
—Kathryn H. Au, Ph.D.
Co-founders & Senior Advisors
SchoolRise LLC



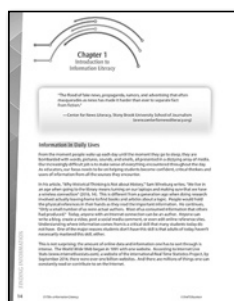
People today live in a world of information overload. Each day, information is shared from countless sources through numerous devices. Learning how to handle this information has become an important daily task for everyone. Teachers and students in today's classrooms benefit from finding, analyzing, and using online information, but students must be taught how to reason critically as they interact with information.

Online reasoning skills serve students in their personal lives as well. By the time they reach upper elementary school, most students are on smartphones, social media, video websites, blogs, and interactive digital games. Students need coaching on how to take in all these information sources, critically think about the content, and apply it to their decision-making. To that purpose, this book was created with research, explanations, and easy-to-use activities to support teachers as they teach the key skills of harnessing and understanding information.

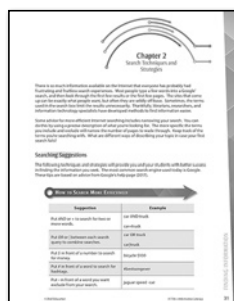
The book is divided into three sections to guide teachers through the necessary lessons and activities needed to encourage critical reasoning. Additional resources are also provided in the appendices to further support teachers. Digital resources are included with this book to better support teachers. (See page 198 for more information.)

Finding Information

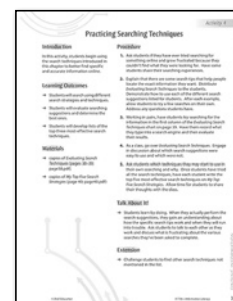
This section introduces terms such as *information literacy*, *online reasoning*, and *digital literacy*. The content and activities answer these and other questions: *What is information?* *What are the information sources people encounter every day?* and *What kinds of information are shared and how?*



Chapter 1—Introduction to Information Literacy: Learn about the history of digital information and communication.



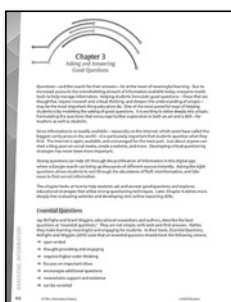
Chapter 2—Search Techniques and Strategies: Discover how to use advanced searches to gather focused information on the Internet.



Introduction *(cont.)*

Analyzing Information

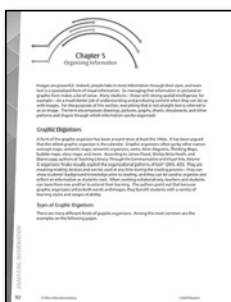
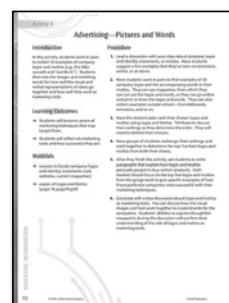
This section provides opportunities to practice critically analyzing and questioning information wisely. Today's students need to become the future's intelligent digital citizens. The content and activities give strong, easy-to-use online reasoning strategies to help students carefully and critically analyze the information they encounter daily. It answers these and other questions: *What makes a good question? Can I trust this source and why? and How do I organize and make sense of information?*



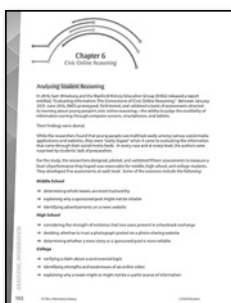
Chapter 3—Asking and Answering Good Questions: Study strong questioning techniques and the differences between open and closed questions, which is at the heart of critical thinking.



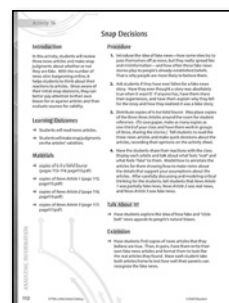
Chapter 4—Thinking Visually: Learn how to find meaning in pictures and words, with an introduction to evaluating the purposes of the information shared.



Chapter 5—Organizing Information: Gather tips for how to harness information into organized collections, so it can be reviewed and applied.

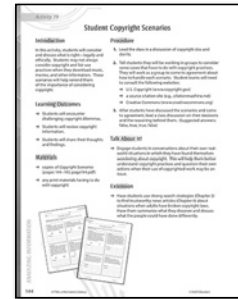


Chapter 6—Civic Online Reasoning: Develop civic online reasoning in students to help them evaluate resources and news on the Internet.





Chapter 7—Citing Online Sources: Investigate copyright regulations and fair use of materials.

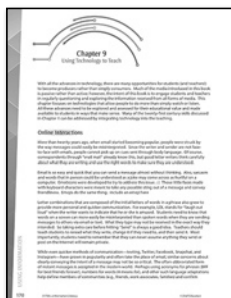
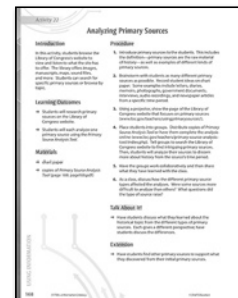


Using Information

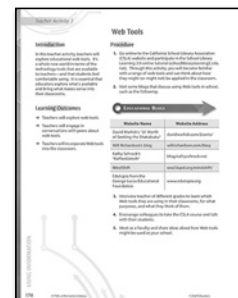
This section provides guidelines for how students can effectively move online information from their devices into knowledge they can use to create and share products. The content and activities answer this question: *How do we use various types of information in our lives?*



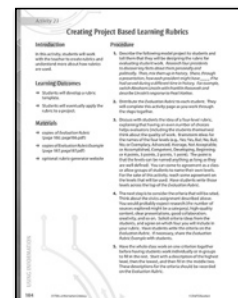
Chapter 8—Using Primary Sources: Discover guidelines for using primary sources in the classroom.



Chapter 9—Using Technology to Teach: Learn about key programs and apps that encourage digital literacy.



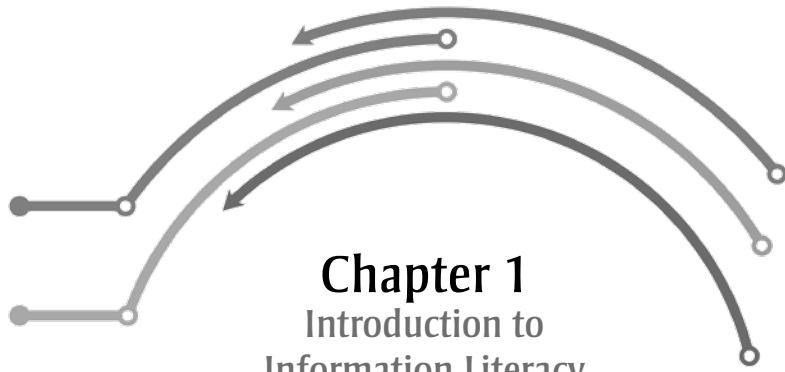
Chapter 10—Project Based Learning with Technology: Bring everything together for students to apply what's been learned from the activities in this book.





Finding Information





Chapter 1

Introduction to Information Literacy

“The flood of fake news, propaganda, rumors, and advertising that often masquerades as news has made it harder than ever to separate fact from fiction.”

—Center for News Literacy, Stony Brook University School of Journalism
(www.centerfornewsliteracy.org)

Information in Daily Lives

From the moment people wake up each day until the moment they go to sleep, they are bombarded with words, pictures, sounds, and smells, all presented in a dizzying array of media. Our increasingly difficult job is to make sense of everything encountered throughout the day. As educators, our focus needs to be on helping students become confident, critical thinkers and users of information from all the sources they encounter.

In his article, “Why Historical Thinking is Not about History,” Sam Wineburg writes, “We live in an age when going to the library means turning on our laptops and making sure that we have a wireless connection.” This is different from a generation ago when doing research involved actually leaving home to find books and articles about a topic. People would hold the physical references in their hands as they read the important information. He continues, “Only a small number of us were actual authors. Most of us consumed information that others had produced” (2016, 14). Today, anyone with an Internet connection can be an author. Anyone can write a blog, create a video, post a social media comment, or even edit online reference sites. Understanding where information comes from is a critical skill that many students today do not have. One of the major reasons students don’t have this skill is that adults of today haven’t necessarily mastered this skill either.

This is not surprising; the amount of online data and information one has to sort through is intense. The World Wide Web began in 1991 with one website. According to Internet Live Stats (www.internetlivestats.com), a website of the international Real Time Statistics Project, by September 2014, there were over one billion websites. And there are millions of things one can constantly read or contribute to on the Internet.



INTERNET STATISTICS

In August 2017, Internet Live Stats reported that in every second there are:

						
795 Instagram photos uploaded	1,269 Tumblr posts	2,697 Skype calls	7,704 Tweets	61,707 Google searches	70,220 YouTube videos viewed	2,611,203 emails sent

Source: *Internet Live Stats*—www.internetlivestats.com/one-second/

And the amount of data is increasing daily. There is no way to consume everything. One must be critical and responsible when navigating information online. To demonstrate to students the many sources of information, you may want to brainstorm with them various sources of information. Many sources combine text, images, and sound in a variety of ways. Use this list as a reference while you brainstorm.

Sources of Information		
advertisements	journals	plays
apps	magazines	political organizations
billboards	manuals	radio stations
blogs	maps	social media
books	memes	stories
charts/graphs	movies	television
church/scouts/teams/other groups	music	text messages
emails	newspapers	video games
family/friends/other people	paintings	videos
GPS	pamphlets	vlogs
instant messages	photographs	websites

However, it's not only important for students to think about where they get information. They also need to always be thinking about what information they are sharing. In 2017, an American university rescinded acceptance offers to rising freshman based on social media posts the teenagers had made. Students need to understand "that the things you type, post and share behind a computer screen can still impact your life" (Ajayi 2017). Decisions made by young people can have far-reaching consequences with unexpected results. The information and activities in this book may help educate your students about the potential consequences of their behavior. "For your average teen, a quick class in the rules of online conduct could mean the difference between a youthful indiscretion kept private and a life derailed by immaturity that became public" (Ajayi 2017).



Information in Schools

For K–12 teachers, the ultimate goal is to produce citizens who critically and actively think, assess, and apply their learning. Teachers want students to assimilate information and discard unusable facts. Good teachers enter the field of education and stay there because learning every day intrigues them. This becomes all the more important as the world shrinks into our phones. Today's citizens are dealing with a society where the available online information increases exponentially. Whereas people used to rely on editors and publishers to filter their news, today people must all be savvy enough on their own to recognize the sources of information.

Some organizations, such as the Metiri Group (metiri.com) and the Partnership for 21st Century Learning (www.p21.org), have conducted research about what employers expect from students who hope to join the workforce. What both groups uncovered is the idea that while reading, writing, and mathematical fluency are extremely important, there are other skill sets that schools generally do not cover that are also vital today. These research groups agree that students need more practice with collaborating, thinking critically, engaging with a variety of sources, working with technology tools, and creating high-quality work.

- The Metiri Group and the North Central Regional Educational Laboratory (2003) studied the need for schools to teach twenty-first century skills in the digital age. They divided the necessary skills into four categories: digital-age literacies, inventive thinking, effective communication, and high productivity.
- The Partnership for 21st Century Learning (2007) has developed a framework of skills. They identify four key skills that people need to succeed today: critical thinking, communication, collaboration, and creativity. These are called the 4Cs. Along with these key learning and innovation skills, workers in the twenty-first century need life and career skills and information, media, and technology skills. All this is on top of the K–12 content that is already being taught in schools!

The International Society for Technology in Education, which is more commonly known as ISTE® (www.iste.org), has educational technology standards to meet today's unique needs. It is gratifying to note that these standards support the twenty-first century skill ideas described above since they focus on transformative learning with technology. The chart on page 17 indicates the seven categories of their standards for students. (A version of this chart to display in your classroom is provided on page 194.)





ISTE STANDARDS FOR STUDENTS

- **Empowered Learner**—Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences.
- **Digital Citizen**—Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act and model in ways that are safe, legal and ethical.
- **Knowledge Constructor**—Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.
- **Innovative Designer**—Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.
- **Computational Thinker**—Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.
- **Creative Communicator**—Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals.
- **Global Collaborator**—Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.

Source: *ISTE Standards for Students 2016*, © 2016, ISTE® (International Society for Technology in Education), iste.org. All rights reserved.

The idea that students need tools to evaluate what they see and hear becomes more compelling with recent research findings. Pre-existing knowledge—that is, what students come to school knowing or thinking they know—is a powerful force on learning. Therefore, it is imperative that teachers assess student knowledge about online digital literacy and their abilities to think critically about what they see online. This will help teachers determine what misconceptions need to be clarified as well as what new knowledge needs to be learned.

In November 2016, Sam Wineburg and others at the Stanford History Education Group (sheg.stanford.edu) published a report, “Evaluating Information: The Cornerstone of Civic Online Reasoning.” During the previous 18 months, the research team had “prototyped, field tested, and validated a bank of assessments that tap civic online reasoning—the ability to judge the credibility of information that floods young people’s smartphones, tablets, and computers” (3). They developed an online analysis assessment tool that teachers can use to evaluate student knowledge. (An informative summary of the results of their research as well as a copy of the assessment tool is available at their website.)



Effective Instructional Strategies

A number of effective teaching and learning pedagogies can be supported by the information and activities in this book. For example, Dr. Howard Gardner's popular theory of multiple intelligences honors the many ways people take in and process information—the ways various people learn best. The multiple intelligences of learners can be supported by engaging students in work that allows them to move, draw, talk about their learning, and explore ideas, patterns, and a variety of forms of expression. As of 2017, there are eight intelligences identified by Gardner. The following chart illustrates instructional strategies that support Gardner's multiple intelligences. For more information on Gardner's theory of multiple intelligences, visit his official website (multipleintelligencesoasis.org/about/the-components-of-mi).

MULTIPLE INTELLIGENCES

Type of Intelligence	What It Means	Instructional Strategies
Bodily-kinesthetic	Students learn best by touching or moving.	taking field trips; using artifacts; making models; using movement
Interpersonal	Students learn best by talking with others.	collaborative work groups; games or competitions
Intrapersonal	Students learn best by working alone.	setting goals; independent learning projects and reports
Linguistic	Students learn best by reading, writing, listening, and speaking information.	reading text; using audio recordings; talking or chatting with experts; using video; making recordings (such as a news broadcast); conducting debates; paired, small group, or class discussion
Logical-mathematical	Students learn best by analyzing information.	classifying or categorizing information; using graphic organizers; thinking abstractly; forming relationships between and among concepts; using charts or other numerical data such as dates
Musical	Students learn best using rhythm and melody.	hearing music from a particular era; writing songs about information; putting content to a patterned beat (such as a rap)



Type of Intelligence	What It Means	Instructional Strategies
Naturalistic	Students learn best by working with nature.	using artifacts; making connections to Earth science concepts (i.e., movement of populations and their impact on the environment)
Spatial	Students learn best by seeing or drawing.	taking students on virtual tours (such as battlefields); using video; using graphic organizers; creating visual representations of information (such as concept maps)

Project Based Learning enables teachers to provide opportunities for students to complete cross-curricular activities that challenge their thinking and deepen their understanding of a problem or task. Ideas throughout this book could be executed as meaningful projects. Chapter 10 brings it all together by building and evaluating different project based learning scenarios.

On the following pages are activities teachers can use to introduce the idea of information literacy to their students.

- Activity 1: Communication Time Line
- Activity 2: Information Then & Now
- Activity 3: Library Linkup

Communication Time Line

Introduction

In this activity, students study important milestones in the history of communication. Starting with the development of spoken languages, students explore other communication processes (e.g., smoke signals, written language, books and newspapers, radio, television, the Internet, smartphones, tablets, smart watches) and develop time line(s) of these developments.

Learning Outcomes

- Students will research milestones in communication throughout time.
- Students will reflect on the many information sources available today.

Materials

- chart paper
- copies of *Communication Resources* (page 21; page21.pdf)
- copies of *Reflecting on Communication* (page 22; page22.pdf)

Procedure

1. Introduce the idea of *communication*—one-to-one and one-to-many—and how people throughout time have coped with the need to know important information.
2. Have student groups brainstorm as many communication devices as possible. Suggest that students list the devices in groups, such as written, visual, audio, or by their earliest introduction. Have groups share their ideas and record them on chart paper.
3. Explain to students that they will be working together to create a large classroom time line that shows how people have communicated throughout history. Form small groups that can work together to research the history and/or various time periods. Then, distribute copies of *Communication Resources* (page 21). Tell students to use these sources and others they find to explore communication and technology time lines.
4. Have the groups work collaboratively to share what they have learned. Guide students as they collaboratively create a class time line. Have students create a physical time line to post on the classroom wall or develop a digital time line. If you have a particularly large class, you might consider creating more than one time line.
5. Suggest that students draw illustrations of the communication sources they identify and include them on the time line(s).
6. Distribute copies of *Reflecting on Communication* (page 22). Ask students to use this sheet to make lists of all the ways people currently share and take in information. Have them also list ways that people may do so in the future.

Talk About It!

- As students explore different kinds of communication over time, discuss the importance of communication in today's classrooms and for today's students.

Extension

- Ask students to share their ideas about communication needs of the future. Have them add their predictions to the time line(s).