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The Comprehension Toolkit
INTERMEDIATE

Content Literacy

Lessons and Texts for Comprehension Across the Curriculum

Heinemann
DEDICATED TO TEACHERS™

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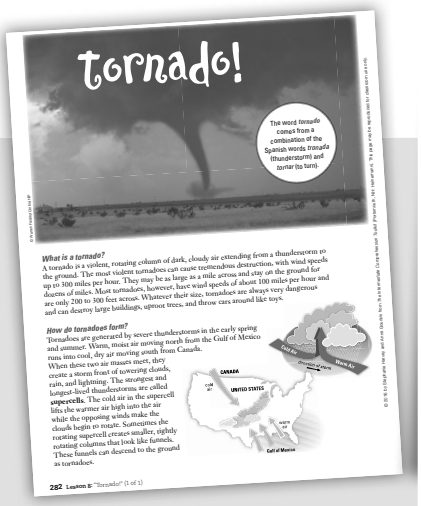
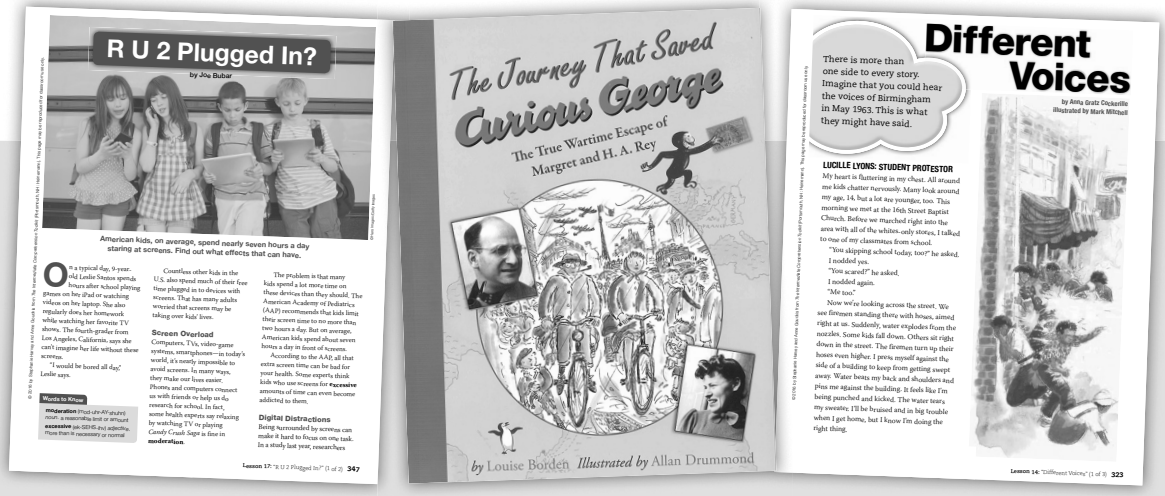




Content Literacy: **Lesson Titles and Lesson Texts**

LESSON	TEXT	ALTERNATIVE TEXTS
1. **Keep the Big Ideas in Mind:** Synthesize details to get the big picture	*Surprising Sharks* by Nicola Davies (Candlewick Press, 2003)	Nonfiction texts that encourage kids to stop, think, and react to information as well as synthesize the details into big ideas should • grab kids' interest from the get-go • contain a lot of interesting facts, visuals, and text features that beg them to interact • include details that come together in support of a bigger idea
2. **Distinguish Between Complex and Simple Ideas:** Think about real-life problems	*Surprising Sharks* by Nicola Davies (Candlewick Press, 2003)	To help kids distinguish between simple and complex ideas, choose text that has • some relatively simple ideas • some bigger, more complex ideas
3. **Make Sense of Infographics:** Read text closely to get the big idea	"Fin-Win Situation," United Airlines *Hemispheres* magazine (January 2012)	When first teaching kids to get information from infographics, choose one that • focuses on an engaging topic that most kids know a bit about and are interested in: sharks, black holes, endangered species, texting while driving, etc. • has a navigable and appealing design • presents the information clearly
4. **Infer from Infographics:** View closely to analyze graphics and discern complexity	"Fin-Win Situation," United Airlines *Hemispheres* magazine (January 2012)	This lesson focuses on the graphic elements in infographics, so look for infographics that • convey a lot of information • require close scrutiny to access that information • represent a complex idea or problem
5. **Notice Contradictory Information:** Research conflicting facts to resolve contradictions	"Fin-Win Situation," United Airlines *Hemispheres* magazine (January, 2012) *Surprising Sharks* by Nicola Davies. (Candlewick Press, 2003)	To teach kids how to handle discrepancies, select • at least two texts or sources on the same topic • sources that contain conflicting facts about the topic
6. **Use Parallel Annotation:** Synthesize important information and jot down thinking	"You Can Grow Your Intelligence," Mindset Works, Inc. (2002–2014)	When launching the parallel annotation practice, choose text that • is likely to spur a lot of questions, connections, and reactions • has information worth remembering
7. **Attend to Signal Words and Phrases:** Recognize these cues and understand their purposes	"What's on the Menu? School Lunch Gets a Makeover" by Heather Anderson. (2015)	For a lesson on signal words, choose a text that • has an abundance of signal words and signal phrases • uses signal words and phrases in common but varied ways (signaling sequence, emphasis, contrast, transition, etc.)
8. **Organize Your Thinking:** Analyze information to discern causes and effects	"Tornado!" by David Johnson. (2015) "Tornado Damage—the F-Scale" (www.spc.noaa.gov)	Texts for this lesson—videos, photographs, articles, etc.—should • be about a topic that can be explained or understood in terms of cause and effect • clearly depict several cause-and-effect relationships
9. **Identify Issues:** Synthesize information to explore complex ideas	"The Matchless Girl of Matches" from *Real Kids, Real Stories, Real Change* by Garth Sundem. (Free Spirit Publishing, 2010)	For this lesson, choose texts that • define a clear issue or set of issues • highlight issues that are compelling or of immediate concern to kids • provide enough detail to encourage kids to explore many facets of complex issues

LESSON	TEXT	ALTERNATIVE TEXTS
10. Collaborate to Learn: Jigsaw to synthesize and discuss big ideas	"The Power of Speech" from *Speak Out* (National Geographic *Ladders* series)	Effective text for this lesson • begins with an overview of a specific topic • has at least three following sections (generally headed with subheads) that share specific examples on the topic
11. Explore Concepts in Multiple Media: Synthesize information from video, text, and graphics	"Meltdown: Antarctic ice is melting faster than ever before" by David Johnson (2015)	For this lesson, choose • video and text on a shared topic that depict a significant event with clear consequences • media that present interesting, timely information • images that illustrate key concepts and ideas
12. Read Complex Text Closely: Focus on what you know; ask questions to infer and understand	A transcription of the Mayflower Compact	Primary source documents are perfect for this lesson. Choose documents that are • extremely important to a topic under study • about big ideas related to that topic • relatively short
13. Immerse Yourself in Sources: Explore images and text to understand historical events	"Why the Children of Birmingham Marched" by Cynthia Levinson. From *Kids Fight for Civil Rights* (*Appleseeds*, October 2013)	Look for texts and images that • depict actual events • are vivid and compelling • strike a personal chord in the reader
14. Recognize Perspectives: Understand different points of view	"Different Voices" by Anna Gratz Cockerille. From *Kids Fight for Civil Rights* (*Appleseeds*, October 2013)	To encourage kids to understand that different people view the same event or phenomenon in different ways, choose • multiple accounts of the same event or phenomenon • texts that represent different points of view or perspectives about the same topic
15. Form an Educated Opinion: Discern the difference between an opinion and an informed opinion	"Animals Can!" and "The Navy Marine Mammal Program" from *Lend Me a Paw* (National Geographic *Ladders* series)	Choose text that • is about a topic that kids are likely to have strong opinions about • has an issue, idea, or problem that has two sides • provides credible evidence for both sides
16. Debate an Issue: Use evidence to support your claim	"The Navy Marine Mammal Program" from *Lend Me a Paw* (National Geographic *Ladders* series)	Ideally, texts that support a debate should relate to • an issue, idea, or problem that has two definitive sides • credible evidence for both sides • most importantly, an issue most kids care deeply about
17. Examine Evidence: Evaluate the credibility of sources	"R U 2 Plugged In?" *Scholastic News* (April 28, 2014)	The text for evaluating sources should • discuss a specific issue or problem that engages kids • include information based on research or from experts and other credible sources • prompt kids to examine or reexamine an issue
18. Recognize Persuasion: Identify purpose and evaluate evidence	"The Elephant in the Room," a World Wildlife Foundation infographic	For this lesson, choose a text • that takes a clear point of view • whose purpose is persuasive
19. Ask Questions to Read Critically: Use the Definition/Consequence/Action question framework	"Where Your Electronics Go to Die," *Junior Scholastic* (April 2014)	Text for this lesson needs to feature a problem or issue that • can be clearly defined • has obvious consequences (usually negative) • is relevant enough that kids might be inspired to take action to solve it
20. Interview an Expert: Question an author	*The Journey That Saved Curious George* by Louise Borden (HMH Books for Young Readers, 2006)	To launch author interviews, choose a text that is • substantive and engaging • by a contemporary author with a website or other available biographical information

Introduction

You can't help but ask questions and wonder in a room that is filled to bursting with great text, stirring images, engaging artifacts, magnifying glasses, Erector sets, and so forth. Content-rich classrooms make wondering irresistible. Stimulating environments fuel kids' natural curiosity. Teachers who create classrooms like this instill in their students a disposition to explore, investigate, read on, and learn more about the real world. The real world is rich, fascinating, and compelling, and, because kids are living in it, let's replicate it in the content literacy classroom.

David Pearson suggests a simple motto that says it all when it comes to content literacy: READ IT, WRITE IT, TALK IT, DO IT! (Pearson, Moje, and Greenleaf 2010). And he's talking about across the day, across the curriculum, and across the year. This active process is a hallmark of effective, engaging content teaching and learning. In content-rich classrooms, kids are asking questions, inferring, discussing, debating, inquiring, making things, and generating new ideas.

Content literacy practices must be thinking and learning intensive, so say no less than the President and Fellows of Harvard College (2007). To build intrigue, knowledge, and understanding, students read, learn about, and interact with the questions, mysteries, controversies, discoveries, events, issues, and drama that are the real stuff of content learning.

In this twenty-first-century information age, researchers highlight the importance of content literacy—reading and understanding in a variety of disciplines. Pearson et al. (2010) go so far as to say the following:

> *"Without systematic attention to reading and writing in subjects like science and history, students will leave schools with an impoverished sense of what it means to use the tools of literacy for learning or even to reason within various disciplines."*

In recent years, content has taken a back seat on the curricular bandwagon. Kids have spent more than a decade reading to answer story questions or fill in test-prep bubbles and blanks while at the same time science and social studies slid off the radar screen. But not in literacy-rich classrooms, where reading and writing are not about reading and writing in general but rather about reading

and writing to build knowledge. We don't read simply to amass information or, as teachers, to cram information into kids' heads. Instead, we read to tackle real problems, explore authentic issues, and puzzle through ideas to make sense of the world. Gina Cervetti, Carolyn Jaynes, and Elfrieda Hiebert (2009) say simply, "Kids should be learning real things for real reasons as they read."

Comprehension at the Core

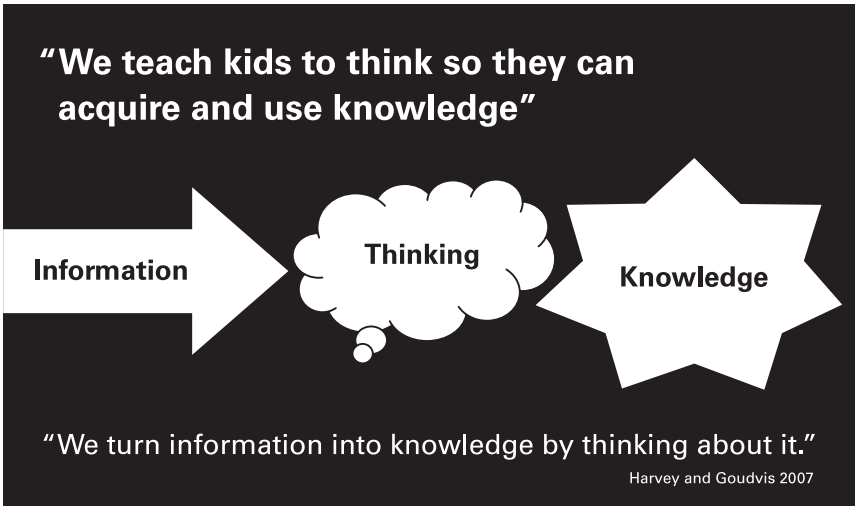
We don't save teaching comprehension just for the literacy block. We teach comprehension strategies across the curriculum so kids can learn, understand, and remember the content. In fact, content literacy is about laying down a foundation of thinking strategies and then merging the content with them in science, social studies, and any other subject areas. The amount of information we are bombarded with every day requires that we have strategies to reason through it to decide what's worth learning and remembering.

We live in the information age, but we are not sure that kids understand the difference between information and knowledge. If we don't think about information, it is merely information in, information out—or garbage in, garbage out. However, if we do think about it, we have a good shot at turning information into knowledge. And no one can do the thinking for us; we have to construct meaning ourselves.

Art Costa reminds us that we can't teach kids to think because humans are born thinking (Costa 2008). But to prepare them for living in the twenty-first century, we can and must teach them to

- Be aware of their thinking
- Think strategically
- Recognize the power of their own thinking

We'd like to see this graphic shared with kids in classrooms around the world because it sends the message that the power of learning and understanding



From *Scaffolding the Comprehension Toolkit for English Language Learners* by Anne Goudvis, Stephanie Harvey, Brad Buhrow, and Ann Upczak-Garcia, 2012, Portsmouth, NH: Heinemann.

resides between their ears. Kids need to do the thinking, but it is our responsibility to share a repertoire of strategies so kids learn how to think about the information in a way that promotes learning, understanding, and remembering.

Years ago, reading researchers identified a collection of strategies that proficient readers use to construct meaning when they read, listen, and view (Dole et al. 1991). Much of our work, including the lessons and practices in this book, is grounded in and builds on this body of research. We believe readers need to

- Monitor comprehension
- Activate and connect to background knowledge
- Ask questions
- Infer and visualize meaning
- Determine importance
- Summarize and synthesize

Once students have had explicit instruction in these thinking strategies and have learned how to use them independently and flexibly, we engage them in lessons that rely on a repertoire of strategies for understanding. For instance, we've noticed when asking questions, we immediately attempt to infer an answer. When synthesizing information, we rely on myriad strategies to come up with the big picture.

In this book, the content literacy lessons integrate a variety of strategies and provide for a more robust experience across disciplines. For example when kids read complex primary sources, they focus on their background knowledge, ask questions and draw inferences to gain insight. When they debate an issue, they find the most important evidence to support their claim. When considering an historic event, they read, question, and synthesize different perspectives to come to a more complete understanding of the time period. They synthesize information across multiple media sources to infer central scientific concepts and issues.

In classrooms that foster a strategic spirit, reading, writing, and thinking occur in an environment rich with text talk, discussion, debate, and purposeful collaboration. Reading and writing are not ends in themselves. They truly are a means to an end, so students can acquire and actively use knowledge to build understanding and gain insight.

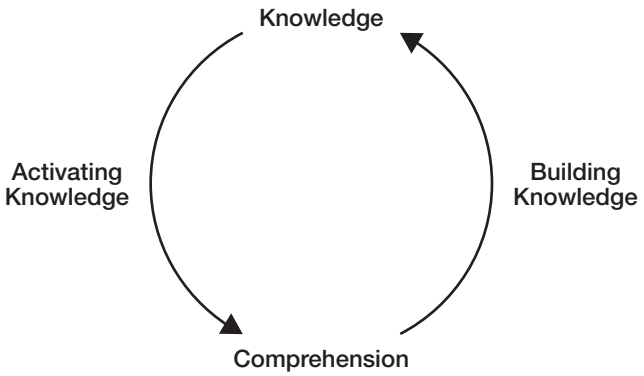
Building Knowledge Across the Curriculum

Too often content literacy, or "reading in the content areas," has been viewed as memorizing an endless stream of facts and dates—or answering end-of-chapter questions. No wonder kids often report that social studies is the most boring part of the day. Who wouldn't be bored slogging through a textbook the size of an encyclopedia? Sometimes science is no better when it's all about filling in lab reports or memorizing formulas.

How unfortunate. We believe it is the content that is seductive! We have never met a student we can't engage in something in the real world. We've watched as kids marvel at a praying mantis gnawing on a honeybee, wonder about the nature

of black holes, or empathize with a Civil War soldier their age, who had to fight against his brother.

In reviews of the research, Cervetti and colleagues (Cervetti and Hiebert 2009; Cervetti, Jaynes, and Hiebert 2015) argue persuasively that "knowledge building is the next frontier in reading education" because "evidence is beginning to demonstrate that reading instruction is more potent when it builds and then capitalizes upon the development of content knowledge." This is a reciprocal process. As students build their knowledge through reading, they create a foundation that in turn supports ongoing thinking, learning, and understanding.



Researchers emphasize the knowledge-building side of this figure, which underscores the idea that when we comprehend, we add to and enhance our store of knowledge. So above all, **comprehension is a knowledge-building activity**. In turn, as we continue to learn about and comprehend the world, our comprehension is strengthened by existing and new knowledge. "Knowledge from this perspective does not refer to a litany of facts, but rather to the discipline based conceptual understandings . . . [which] engage students in becoming experts on the world around them" (Cervetti et al. 2009). So "knowledge begets knowledge." The more content knowledge we have, the more likely we are to grow it.

The Comprehension Continuum

We have long advocated for explicit comprehension instruction—in *Strategies That Work* (Harvey and Goudvis 2007), in our *Primary Comprehension Toolkit* (Harvey and Goudvis 2008, 2016b), and in our *Intermediate Comprehension Toolkit* (Harvey and Goudvis 2005, 2016a). Acquiring and actively using knowledge is of paramount importance, particularly in this era of twenty-first-century learning. But as Costa (2008) says, the acquisition of knowledge is only the beginning. "The deeper [the] knowledge one has, the more analytical, experimental and creative one's thought processes." (23)

Acquiring knowledge is a powerful jumping-off point. As Costa suggests, content literacy is all about what kids do with their new knowledge—how they make sense of it and use it in their daily lives. To explore the multiple ways that knowledge and experience interact, it is helpful to think about the many different

purposes of comprehension—a continuum of understanding that runs the gamut from answering literal questions to actively using knowledge. This continuum, which first appeared in *Comprehension and Collaboration*, includes five comprehension processes and the teaching language that matches each (Harvey and Daniels 2011, 2015).

The five comprehension processes are the following:

Answering Literal Questions Answering literal questions is the least sophisticated practice of comprehension. Students may demonstrate that they can recall information, but simply skimming and scanning to find the answers to questions at the end of a paragraph or a chapter does not guarantee understanding. It goes without saying that literal understanding is an important foundation of knowledge acquisition and use, but practices that begin and end with literal questions, be they from the textbook or the teacher, are unlikely to lead readers to a deep understanding and do little to engage the reader in learning.

Retelling Retelling involves short-term recall and recounting a sequence of events. We recognize that retelling is a foundational skill for learners and that it is more sophisticated than answering literal questions, but retelling in and of itself does not demonstrate understanding.

Merging Thinking with Content True comprehension begins when we merge thinking with content. Here's where kids use thinking strategies so that understanding takes root—engaging and connecting, questioning, inferring, visualizing, determining importance, and synthesizing information. These strategies facilitate kids' active engagement with their reading and provide them with an arsenal of tactics to construct meaning.

Acquiring Knowledge Once readers begin to consciously merge their thinking with the content, they are able to turn that information into knowledge. Integrating content and comprehension instruction means that "strategies . . . help students make sense of the content, and the content gives meaning and purpose to the strategies" (Wilkinson and Son 2011).

Actively Using Knowledge Understanding strategies and having the disposition to use them encourages students to take an active rather than a passive stance towards learning. We can integrate our knowledge and actively apply it to experiences, situations, and circumstances in our daily lives. In this way, we come to realize the power of our own thinking. We may come to care about what we learn and apply that knowledge in practical, authentic ways. Knowledge undergirds informed decisions about how to behave, persuade, and act in the real world.

Content Matters

Research (Anderson and Pearson 1984) has long supported the strong relationship between background knowledge and school learning. Nothing colors our

Comprehension Continuum

Answers Literal Questions	Retells	Merges Thinking with Content	Acquires Knowledge	Actively Uses Knowledge
Answering literal questions shows that learners can skim and scan for answers, pick one out that matches the question, and have short-term recall. ***Only demonstrates surface understanding.***	Retelling shows that learners can organize thoughts sequentially and put them into their own words. Shows short-term recall of events in a narrative and bits of information in nonfiction. ***Does not, in and of itself, demonstrate understanding.***	Real understanding takes root when learners merge their thinking with the content by connecting, inferring, questioning, determining importance, synthesizing, and reacting to information. ***Understanding begins here.***	Once learners have merged their thinking with the content, they can begin to acquire knowledge and insight. They can learn, understand, and remember. ***Shows more robust understanding.***	With new insights and understandings, learners can actively use knowledge and apply what they have learned to the experiences, situations, and circumstances at hand to expand understanding and even take action. ***Understanding used for problem solving and acting.***
Teacher Language	**Teacher Language**	**Teacher Language**	**Teacher Language**	**Teacher Language**
What is...? Where did...? Who was...? How did...? How many...?	Tell me what happened. Tell me what this was about. Retell what you read. What comes first, second, third? When did...?	What do you think? What did you learn? What does this remind you of? What do you wonder? What do you visualize? What do you infer? What is this mostly about? What makes you say/think that? How did you come up with that? What, if anything, confuses you?	What did you learn that you think is important to remember? Why does it matter? What do you think the author most wants you to get out of this? What evidence can you cite to make your claim? What do you think are some big ideas here? What difference does it make? Say more about that.	What do you want to do about this? Why do you want to take action? Is there a way you can get involved? How do you think you can help? How would you convince others of your point of view? What is your plan? How might you engage the help of others?

learning and understanding more than what we bring to it, especially in content reading. David Perkins advocates for the power of knowledge, suggesting that "knowledge does not just sit there. It functions richly in people's lives so they can learn about and deal with the world" (Perkins 1992). After all, what is education for if it isn't about learning and understanding the world?

Unfortunately, rather than tackling real stuff in disciplines such as economics, history, and ecology, schools seem to feel obligated to cover a "mile-wide, inch-deep, one-size-fits-all" curriculum that is of little to no use outside of the classroom. Too often textbooks become the default curriculum. When they do, Diane Ravitch (2010) notes that students get "boring, abbreviated pap in the history textbook that reduces stirring events, colorful personalities and riveting controversies to . . . a few leaden paragraphs" (237). From our perspective, nothing could be more inside out and backward. It is reading about fascinating events, ideas, and issues that motivates kids to read more and better.

History and science, more than many subjects, demand that students have a context for their learning. In history, students need to understand the essential ideas that emerge within a larger time span. Science understanding is built upon knowledge of certain vocabulary and concepts that provide a foundation for further understanding.

The lessons and practices in this book were created to give kids the tools they need to read the complex text they come across when reading in the content areas. We hear a lot about complexity these days, particularly complex text. Complexity is not merely about dense text, Lexile level, or technical vocabulary. Complexity is about ideas, not merely words. Complexity resides in issues and problems with multiple perspectives that can be presented in myriad ways. The reader's background knowledge—prior knowledge and experience—is the greatest factor in whether a text is complex or not. In fact, complexity is in the eye (or mind) of the beholder.

One of the main reasons we teach strategies is to hurdle the background knowledge gap. The more complex the text, the more strategic the reader needs to be. In content reading, we are apt to encounter unfamiliar information and new ideas, so inferring, activating background knowledge, and questioning all help readers overcome the background knowledge gap. As David Pearson (2006) so aptly says, "Today's new knowledge is tomorrow's background knowledge."

Reading, writing, and thinking across disciplines promotes literacy in the broadest sense of the term. We'd argue that life in the twenty-first century demands that kids build their knowledge store about the world so that they read, listen, and view with a critical eye and a skeptical stance. They mustn't swallow whole everything they read, view, and hear. They need to be ready, willing, and eager to engage in dialogue at school, at home, and, someday, at work. Above all, they must continually ask questions to become informed, engaged, thoughtful citizens. Eleanor Roosevelt punctuates the point: "Every effort must be made to teach the young to use their own minds. For one thing is certain, if they don't make up their own minds, someone will do it for them" (Roosevelt, in Beane 2005).

About This **Resource**

The lessons in this *Content Literacy* resource are designed to build on the original lessons in *The Comprehension Toolkit*. Each of the original *Toolkit* lessons zeroed in on one of six proficient reader strategies listed in this introduction (page x). We designed several lessons for each strategy to help kids fully understand how to use the strategy in their reading. Although kids were asking questions during inferring lessons and making connections during synthesizing lessons, the purpose of the lessons was to give kids a clear and in-depth understanding of each individual strategy.

The lessons and practices in *Content Literacy* are designed to teach kids to use a repertoire of strategies to further their thinking and actively use knowledge. It is our belief that kids are more able to read and think flexibly and recursively when they have an in-depth understanding of the foundational comprehension strategies we teach in *The Comprehension Toolkit*. When kids have had time to practice and use comprehension strategies extensively in their own reading, the strategies become tools for further understanding. Kids internalize these comprehension strategies to the point where they exhibit a strategic disposition using "thinking strategies in response to thinking and learning challenges" (Tishman, Perkins, and Jay 1994).

Comprehension Across the Curriculum

Content Literacy lessons engage kids in analysis, synthesis, critical reading, and thinking across the curriculum. The lessons are not defined by strategy but instead integrate several strategies. Kids use inferential thinking and questioning to analyze climate change in Antarctica based on scientific data. They gather information, synthesize it, and debate whether or not to use marine mammals in the military. They read and analyze arcane language in primary source documents such as the Mayflower Compact. They create questions and determine importance as they prepare to interview an author about her purpose for writing. They learn the power of public speaking to persuade and inform through the likes of Martin Luther King, Jr., and Sandra Day O'Connor.

All of these lessons and practices are grounded in science and social studies and reflect some of the varied ways we think in different disciplines. So even though you may not be studying colonial times, sharks, or climate change, the thinking routines and processes that we teach are applicable to any of your science or social studies topics and units. These lessons are content literacy lessons; that is, they are designed to teach our kids ways to get the most out of their nonfiction reading so they can build content knowledge and actively use it.

Comprehension Across Various Texts

We have included a wide variety of nonfiction texts to go along with this resource, ranging from infographics to articles to trade books. The infographics and articles are included in this book. The trade books are available from Heinemann in the

Toolkit Trade Book Pack or wherever you ordinarily order books. We selected these texts for their compelling content and diversity. They highlight bigger ideas, central concepts, and key understandings in the disciplines of science and social studies. Articles and texts about history focus on analyzing primary sources, synthesizing different perspectives, inferring the essence of issues and problems, etc. Science articles focus on cause-and-effect relationships, analyzing different media sources to explore a concept, rethinking misconceptions, etc.

All of the content literacy lessons work with many different kinds of content-related texts. Feel free to use the texts we chose to launch the practices if you like. But know this: You can use any nonfiction text you choose to teach these lessons. As a matter of fact, the most effective way to teach these content literacy lessons is with your own texts, topics, and units. The "Lesson Frame" at the beginning of each lesson includes only the lesson moves and some teaching language; the topic-specific content has been stripped away. These frames are "cheat sheets" of sorts to serve as a scaffold as you create your own lessons with your choice of text and topic.

Collaborative Discussion for Content Learning

Throughout *The Comprehension Toolkit* lessons—the original lessons as well as these content literacy lessons—our explicit instruction encourages collaborative discussions for building community and constructing meaning. Reading and thinking strategies support effective discussion and facilitate learning from text. They provide a variety of entry points into the text and its ideas, leading to richer conversations about it. Our discussions and conversations with the kids are springboards to their independent thinking, learning, and decision-making.

In the *Content Literacy* lessons, you will notice extensive conversations between teachers and kids and among the kids themselves. At every point in the lesson, our teaching is responsive to what kids are thinking and saying. We've included these dialogues to illustrate how kids internalize a common language of comprehension to express their learning and understanding and how we respond to it. Some of this common language relates to the processes that kids use to grapple with meaning in the text, make sense of unfamiliar concepts, and work out their thinking with each other. Other aspects of their language reflect their deep interest and insight into the content under discussion.

We actively model our own curiosity about these topics, talking and thinking aloud about them, so our kids adopt and adapt our teaching language as their learning language. We have a purpose and plan in mind as we teach the lessons, but it is the new insights and original perspectives kids bring that take our conversations in important and unanticipated directions. The conversations you facilitate with your kids will reflect the texts and content you are teaching at the time. Our conversations in this resource are examples of how we engage kids in discussion and weave their thinking into our lessons.

As we create and plan for content-rich classrooms, we keep the following hallmarks in mind.

LESSON

19 Ask Questions to Read Critically

text matters

Text for this lesson needs to feature a problem or issue that

- can be clearly defined (It is helpful if the problem appears in the title, so the reader can read with that question in mind.)
- has obvious consequences (usually negative)
- is relevant enough that kids might be inspired to take action to solve it

Articles on problems like climate change, child labor, endangered species, and bullying, for example, are the types of issues that lend themselves to this lesson. Once the problem has been defined, which generally occurs in the text quite early on, the reader can focus on the consequence question and read with that in mind. Finally, if they get hooked on the issue, they may want to address the action question and think about what they can do.

resources | materials

Lesson Text

"Where Your Electronics Go to Die," *Junior Scholastic* (April 2014) [See the back of this book or the downloadable resources.]

Classroom Supplies

- Thinksheet with sections labeled *Definition Question, Consequence Question*, and *Action Question* and two columns labeled *Notes* and *Thinking* [See the back of this book or the downloadable resources.]
- Document camera or other means of projecting the Thinksheet
- Tablet or other device for online research *(optional)*

Student Supplies

- A copy of "Where Your Electronics Go to Die"
- A copy of the *Definition|Consequence|Action* Thinksheet
- Pencil or pen

Use the Definition/Consequence/ Action *question framework*

why | what

Teachers frequently ask how we get kids to go deeper, to read beyond the surface level of the text. One of the most helpful frameworks for deeper reading in the content areas is the *Definition, Consequence,* and *Action* line of questioning (Harvey and Daniels 2015). This takes reading with a question in mind to a deeper level. (See *Infer & Visualize* Lesson 14.)

When kids are reading nonfiction, particularly in science and social studies, we can scaffold their critical reading by teaching them the *Definition/Consequence/Action Question* framework. First, we ask readers to ask a definition question, such as *What is happening? What is this?*, which is generally answered explicitly in the text relatively early on. Once they have answered the definition question, we ask them to address a consequence question: *Why does it matter? So what?* The answer often needs to be inferred. Finally, once they have addressed the consequence question, they may care enough to act and think about an action question, such as *What can we do? How can we help?* In conventional schooling, kids may only be required to answer the definition question. The consequence question leads readers to deepen thinking. Ultimately, the action question nudges them to go beyond the text, do some research, and act if they are so inclined.

Related Lessons: If students have worked through *Infer & Visualize* Lesson 14, they are well prepared to tackle asking questions to read critically.

how | gradual release of responsibility

Connect / Engage

- Get kids thinking about the issue in the text.

Model

- Preview the lesson.
- Introduce the Thinksheet and the definition and consequence questions.
- Read aloud the beginning of the article and model note taking.

Guide

- Read on and discuss answers to the consequence question.

Collaborate / Practice Independently

- Confer with kids as they finish reading.

Share the Learning

- Create a web chart of kids' ideas for taking action.

goals | assessment

We want students to:

- define an issue or problem by asking the definition question.
- follow up the definition question with the consequence question—why does it matter.
- think through and determine ways to take action to correct the problem.

19 frame Ask Questions to Read Critically

Use the Definition/Consequence/Action *question framework*

Use this Lesson Frame with any issue-based text or situation to help students define a problem, determine its impact, and think about taking action.

Teaching Moves	Teaching Language
	Connect / Engage
Get kids thinking about the issue in the text.	○ I'm wondering about the issue in this text. ○ What do you think? Turn and talk about that.
	Model
Preview the lesson.	○ We're going to look into this issue today. ○ We'll read the article and take notes in a two-column format. Remember that information from the text goes in the left-hand *Notes* column, while any of our own thinking goes in the right *Thinking* column. In addition to taking notes about the article, we'll use the new *Definition*/*Consequence*/*Action* question framework to help us think about this issue.
Introduce the Thinksheet and the definition and consequence questions.	○ The top of this form says *Definition Question*. The definition question tells us what is going on or what the issue is. I'm going to turn the issue into a question and write a definition question. To understand what's going on, I need to find the answer to that question, so I'll read with that question in mind. The definition question is usually answered in the text; we'll see. ○ Now I'm going to think about another type of question, called the consequence question. Turn to each other and talk. What is a consequence? A consequence is something that happens as a result of an action. The consequence question has to do with why it matters when something happens.
Read aloud the beginning of the article aloud and model note taking.	○ I'm going to jot down some important information in the left-hand *Notes* column and then add my thinking and/or a question in the right-hand *Thinking* column. ○ As I read on, it says . . . Aha! I think I get it now. I can answer the definition question. I'll put *A* for *answer* next to the spot where I answered the definition question. You go ahead and do that too if you like.

Teaching Language	Teaching Moves
Guide	
○ Now that we've answered the definition question, we can focus on the consequence question. Why does it matter if . . .? What are the consequences if . . .? ○ Just answering the definition question is not enough. Addressing the consequence question lets us get a deeper, more complete understanding of the problem. We may need to infer the answer.	**Read on and discuss answers to the consequence question.**
Collaborate / Practice Independently	
○ Now it's your turn. Go ahead and read the rest of the article with a partner. ○ If you look at the bottom of the form, you'll see a place for the action question. If we care enough about a problem or an issue and the consequences of that issue, we may want to do something to change the situation or to help out in some way. You might write the question, *How can I help?* in the Action Question space and perhaps jot down some of the ways on the back of your paper.	**Confer with kids as they finish reading.**
Share the Learning	
○ OK, let's come back together and address the action question. Anybody want to help to try and solve this problem? Who's got some suggestions about how we could help? ○ Let's co-construct a web with ideas for how we could make a difference by addressing this problem.	**Create a web chart of kids' ideas for taking action.**

reflect | assess

Did your students:

- ○ define an issue or problem by asking the definition question?
- ○ follow up the definition question with the consequence question—why does it matter?
- ○ think through and determine ways to take action to correct the problem?

19 in action

WHERE YOUR ELECTRONICS GO TO DIE

by Layla Acaroglu

Old electronics often become toxic trash around the world. What can you do to make sure your gadgets are recycled safely?

Americans replace their cell phones, on average, every 22 months, junking about 150 million of them every year. Ever wonder what happens to all those old phones?

Many of them end up in countries like China, India, and Ghana, where they're piled up into mountains of electronic waste (e-waste). Workers—many of them kids—then burn the gadgets so they can extract metals, including copper, gold, and silver. They sell the metals to recycling merchants for only a few dollars. That may not sound like a lot of money to Americans, but it can be enough to help their families survive.

In India, young boys smash computer batteries with mallets to recover cadmium, a toxic metal that covers their hands and feet as they work. Women bend over vats of hot, poisonous lead, "cooking" circuit boards so they can remove slivers of gold.

Other people inhale the smoke from burned cell phones as they separate different kinds of plastics.

Exposure to these and other substances can cause serious health problems, especially to children and pregnant women. The World Health Organization says that even a low level of exposure to lead, cadmium, or mercury—all of which are found in cell phones—can cause irreversible damage to the nervous system. The chemicals in e-waste can also damage the environment when they seep into the ground, water, or air.

What Can *We* Do?

There are several things that manufacturers, governments, and consumers can do to make sure that e-waste is recycled safely.

Some countries put the burden of safe product disposal on manufacturers.

The **European Union** (E.U.) requires electronics companies to accept—for free—any of their used products brought in by customers for recycling. In Japan, electronics manufacturers are required to establish their own recycling facilities or hire companies to recycle a range of products, from computers and cell phones to TVs and air conditioners.

About 180 countries and the E.U. have ratified the Basel Convention, an international treaty that makes it illegal to export toxic e-waste. The U.S. is the only **industrialized nation** that hasn't ratified the treaty.

Words to Know

European Union (n): an economic and political partnership of 28 European nations

industrialized nation (n): a country that has a highly developed economy and advanced technologies

Lesson 19: "Where Your Electronics Go to Die" (1 of 2) 351

Lesson Text

"Where Your Electronics Go to Die" is a perfect fit for this lesson because we can immediately turn that title into the definition question, What happens to your used electronics? That question is answered within a few paragraphs of the beginning of the article, which then takes us to the deeper question, Why does it matter where a bunch of old electronic devices go? Kids learn a lot about the problem here and the consequences of the original question. Most want to take some action after learning about this problem.

Teaching Moves	Teaching Language
Get kids thinking about the issue in the text.	**Connect / Engage** Look around the room. How many different types of electronic devices do you see in here? Turn and talk about what you see. *[Kids mention desktop computer, laptops, projection screens, tablets, a cell phone.]* So many different types of electronics, and that's just here in this room! Think about all of the electronics people might have in their homes or at their work: TVs, cell phones, DVD players, etc. See those two old desktop computers in the back of the room? The principal just mentioned that they'll be replacing those with two new updated computers soon. I'm wondering: Where do all of these old electronic devices go when they break or get old? What do you think? Turn and talk about that. *[Kids turn and talk and then share out a few ideas. Most have not thought much about this.]*
Preview the lesson.	**Model** We're going to look into this issue today. We have this article titled "Where Your Electronics Go to Die." I think we may learn some surprising information when we read it. And we may even want to do something about this issue after reading about it. You never know. We'll read the article and take notes in a two-column format. Remember that information from the text goes in the left-hand *Notes* column; any of our own thinking goes in the right-hand *Thinking* column. If we run out of room, we'll write our notes on Post-its and stick them on the left or right. In addition to taking notes

on the article, we'll use the new *Definition/Consequence/Action* question framework to help us think about this issue. I'm going to explain and then model it for you.

Introduce the Thinksheet and the definition and consequence questions.

[I read aloud the title.] When we're reading about an issue like this, we usually read because we're interested and curious. This title made me wonder what happens to all of the electronics out there once they break or are used up. I hadn't thought about that much. Technology changes so fast that people always seem to want the newest phone or the newest TV. Have you noticed that? *[Kids nod.]*

[I project the Definition/Consequence/Action *Thinksheet.]* The top of this form says *Definition Question*. The definition question tells us what is going on or what the issue is. Luckily, our title told us right away what the issue is. I'm going to turn the issue into a question and write a definition question: *What happens to our used electronics?* You can jot that down on your Thinksheet where it says *Definition Question*. To understand what's going on, I need to find the answer to that question, so I'll read with that question in mind. Once I get it answered, I'm going to think about another type of question, called the consequence question. Turn to each other and talk. What is a consequence? *[Kids turn and talk.]*

Gilbert: *A consequence is what happens to you when you do something bad.*

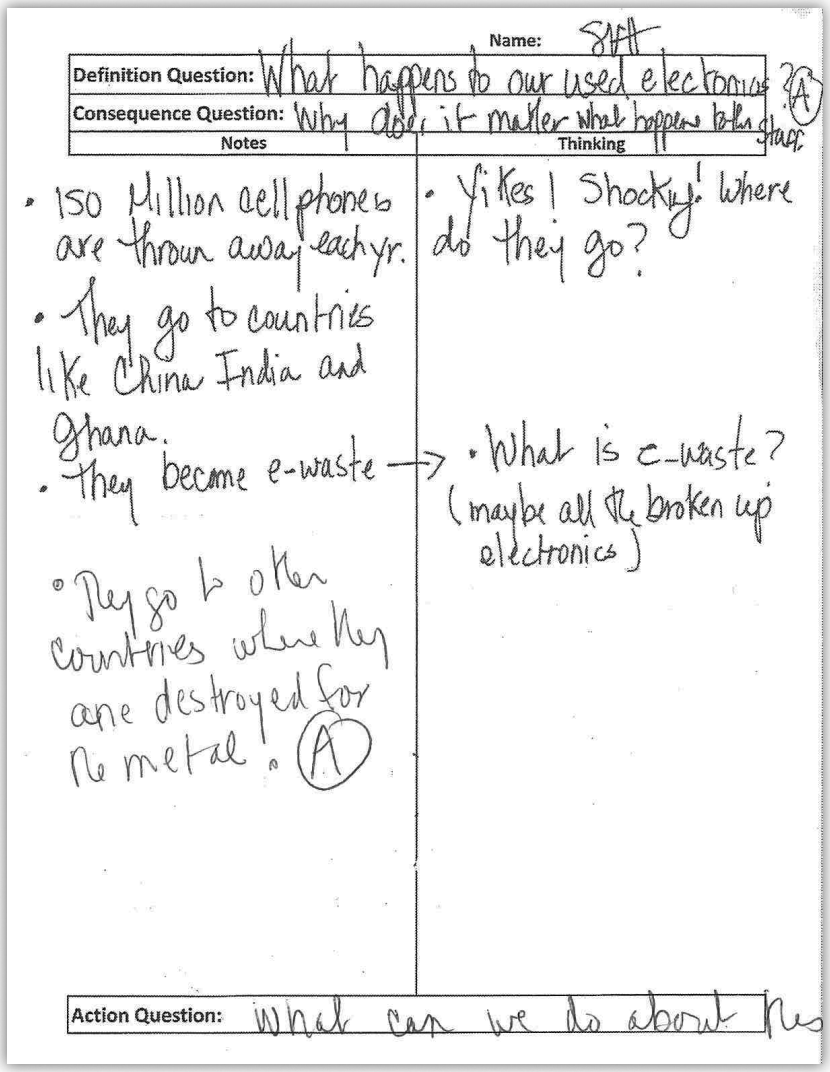
Ashley: *Or good!*

Exactly. A consequence is something that happens as a result of an action. The consequence question has to do with why it matters when something happens. I'll show you as I read and annotate this article.

Read aloud the beginning of the article aloud and model note taking.

[I read aloud the first paragraph.] Whoa! 150 million cell phones get thrown out each year! I'm going to jot down *150 million cell phones thrown away each year* in the left *Notes* column and then add my thinking and a question on the right. Shocking! Where in the world do they end up? *[I model annotation on the projected form.]* I'll read on. *[I begin the second paragraph.]* Hmm, those old phones go to China, India, and Ghana where they become e-waste. I'll write that in my *Notes* column. *[I do.]* I'm thinking those countries have many poor people in them. What is e-waste, I wonder? I'll jot down these thoughts and questions in the *Thinking* column.

When I look at the picture on page 7, I think I can figure out what e-waste is. It's all the broken-up stuff that used to be electronics. I'll jot that down. I am wondering why workers even want this stuff. *[I read aloud the rest of the second paragraph.]* As I read on, it says that people burn the e-waste down into metals that they can sell to make enough money to feed their families. Aha! I think I get it now. I can answer the definition question: *What happens to our used electronics?* They go to other countries where they are broken down or burned to get the metals that are left over, so workers can sell the metal to provide for their families. I'll write *A* for *answer* next to the spot where I answered the definition question. You go ahead and do that too if you like. Turn and talk about what you are thinking about this issue so far. *[Kids turn and talk.]*



Name: Sift

Definition Question: What happens to our used electronics? (A)	
Consequence Question: Why does it matter what happens to these used electronics?	
Notes	**Thinking**
• 150 Million cell phones are thrown away each yr.	• Yikes! Shocking! Where do they go?
• They go to countries like China India and Ghana.	
• They become e-waste →	• What is e-waste? (maybe all the broken up electronics)
• They go to other countries where they are destroyed for the metal. (A)	
Action Question: What can we do about this?	

Read on and discuss answers to the consequence question.

Guide

Now that we've answered the definition question, we can focus on the consequence question: *Why does it matter what happens to these used electronics?* Jot down the consequence question in the blank. I'm going to read the last two paragraphs in this section. *[I read from* In India *to* the ground, water, or air.*]* Jot down important information in the *Notes* column and your thinking in the *Thinking* column. *[I give kids a few minutes to take notes.]*

Now turn and talk about the consequence question: *Why does it matter what happens to these used electronics?* Think about what we read. Share some thoughts you wrote down. What are some consequences that happen when we export this e-waste to other countries? *[Kids turn and talk.]*

Mason: *E-waste is dangerous to people's health.*

Jacquin: *Women and children are hurt the most.*

Sophia: *It can be bad for the environment.*

Good thinking, all of you. There are some very serious consequences that can occur from exporting this e-waste to other countries. This is why we have to ask the consequence question. Just answering the definition question is not enough. Addressing the consequence question lets us get a deeper, more complete understanding of the problem.

Collaborate / Practice Independently

Confer with kids as they finish reading.

Now it's your turn. Go ahead and read the rest of the article with a partner. Start at the section heading, "What Can We Do?" If you look at the bottom of the form, you'll see a place for the action question. If we care enough about a problem or an issue, we may want to do something to change the situation or to help out in some way. This section may give you some ideas. You might write the question, *How can I help?* in the *Action Question* space and perhaps jot down some of the ways on the back of your paper.

Go ahead and read to learn more. Continue to fill in your *Notes* and *Thinking* columns, and keep in mind some of the suggestions for taking action. By the time you finish reading, you may want to take action. *[Kids read the remainder of the article, working with a partner, in a small group, or independently, while I move about the room and confer with some.]*

What are you thinking, Savannah?

Savannah: *I read something that really makes me mad.*

What's that?

Savannah: *Look. Here it says that the United States is the only industrialized country that hasn't signed a treaty that agrees to quit shipping e-waste out of the country to other places. One hundred and eighty countries signed it, but not the United States.*

Interesting. What does that make you think about?

Savannah: *It angers me. It even says that the reason they won't sign is because it is cheaper for the U.S. to ship e-waste overseas than to recycle it in their own country. It's irresponsible!*

Good thinking. So maybe you should be thinking about the action question. Caring about an issue and even getting angry about it often leads people to take action. What could you do about this?

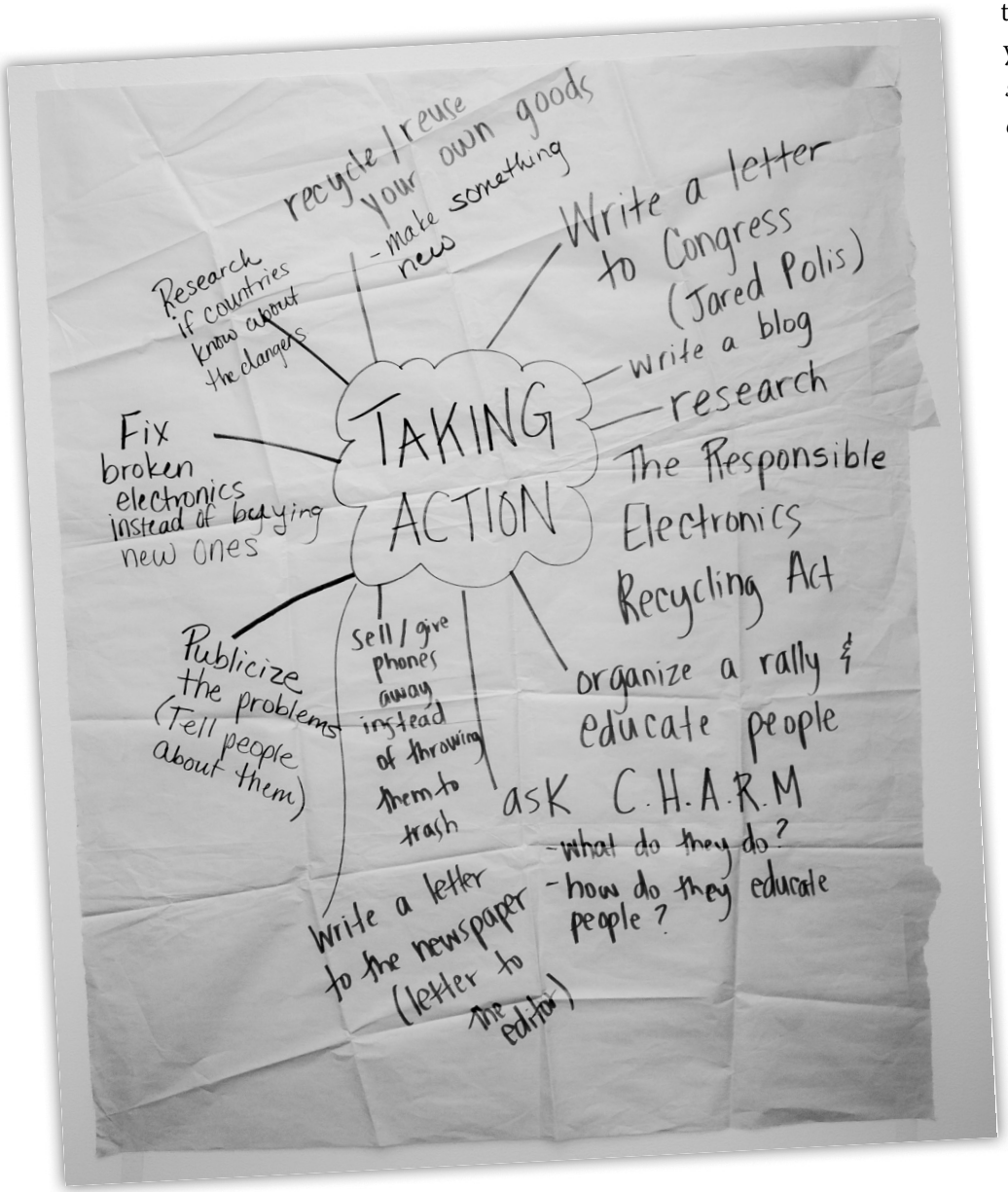
Savannah: *I could write a letter to someone, the governor or somebody.*

I think that's a good idea. When we share, we can find out if someone else is interested in taking action by writing a letter about this. Then you all could start by doing some research to find out who would be the best person or group to write to about this problem.

Share the Learning

Create a web chart of kids' ideas for taking action.

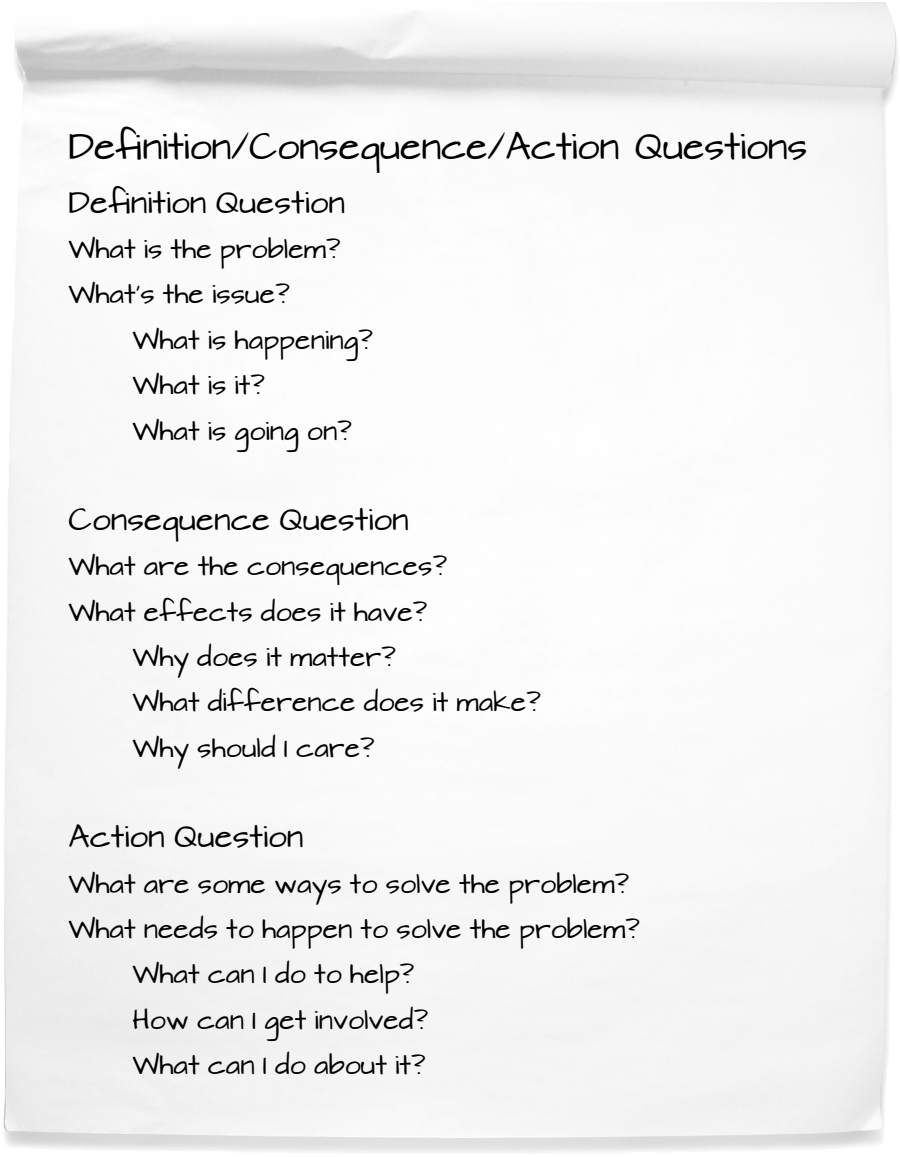
OK, let's come back together and address the action question. Anybody want to help to try and solve this problem? *[Quite a few kids nod.]* Who's got some suggestions about how we could help? There were several in the text, and you may have your own ideas. Let's co-construct a web with ideas for how we could make a difference by addressing this problem. Savannah, I know you had an idea. *[Savannah enlists several other kids to help her find out whom to write to. Kids share a range of possibilities, and I list them on a web.]*



How many of you were surprised by this problem? *[Most raise their hands.]* How many of you think your family knows about this problem? *[Most shake their heads no.]* Well, one thing you can do right away is educate your family about this issue when you get home tonight. One way to take action is by informing people and making them aware of a problem they might not have known about before. That's a great way to begin to help out, along with the many other ways you came up with. Good job!

Follow-Up

- *Co-construct an Anchor Chart that shares some different types of generic questions for each category. Here are several. Together come up with more for each category.*



Definition/Consequence/Action Questions

Definition Question

What is the problem?
What's the issue?
What is happening?
What is it?
What is going on?

Consequence Question

What are the consequences?
What effects does it have?
Why does it matter?
What difference does it make?
Why should I care?

Action Question

What are some ways to solve the problem?
What needs to happen to solve the problem?
What can I do to help?
How can I get involved?
What can I do about it?

- *Teach the language of social action. Teach what* advocacy *and* advocate *mean (See Content Literacy Lesson 18) and explain that there are different ways to advocate for a cause. Share these ideas as ways to advocate:*
  - *Awareness—educate others so they can learn*
  - *Activism—do something specific to advocate for a cause*
  - *Aid —contribute your own resources for a cause*

TIP: *An alternative approach to this lesson might be to provide students with a* Definition/Consequence/Action *Anchor Chart for reference at the beginning of the lesson instead of co-constructing the chart at the end. In this case, supply one or two of the prompts for each question on the Thinksheet itself to scaffold kids' thinking. See the back of this book or the downloadable resources for a copy of this chart.*

19 reflect | assess

goals | assessment

Did your students:

- define an issue or problem by asking the definition question?
- follow up the definition question with the consequence question—why does it matter?
- think through and determine ways to take action to correct the problem?

reflect | assess

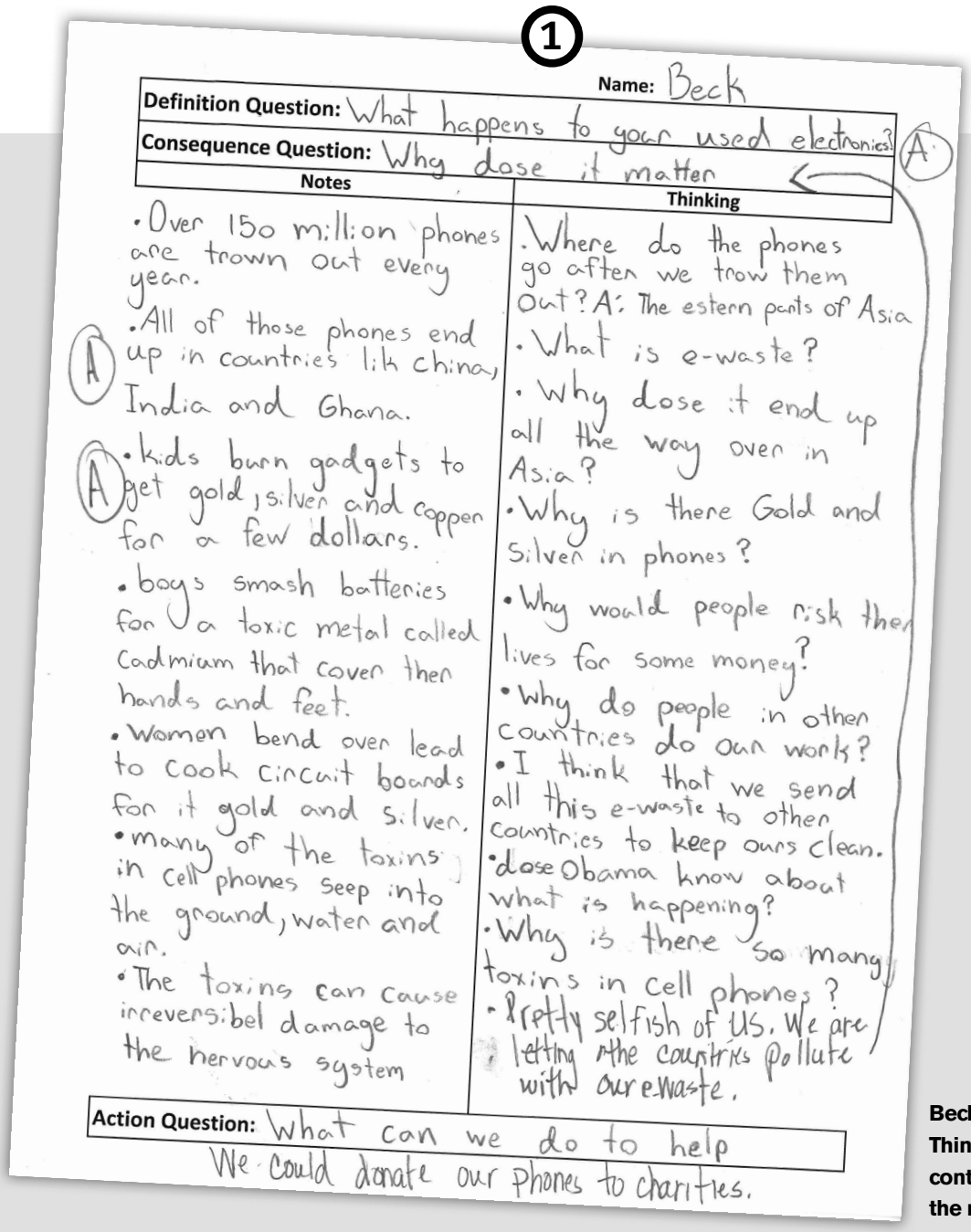
When reviewing the Thinksheets for this lesson, I look for evidence that

- kids asked and understood the definition question and found out what was happening.
- kids asked the consequence question of why it matters once they answered the definition question.
- kids thought about how they could take action, make a difference, and perhaps help.

adapt | differentiate

This lesson was done with sixth grade, but we introduce this line of questioning framework starting in third grade. We would scaffold throughout the entire process with third graders, guiding them as they work in pairs to discuss a complex issue in an article or video that answers the definition question and then explore why it matters. With third graders, much of the information gathering to answer the consequence question would occur through listening, viewing, discussing, and annotating. The good news is that third graders are at an age when taking action about an injustice or righting a wrong really fires them up. So we would read more and investigate the issue further and then think about things we might be able to do to take action that could make a difference.

Additionally, the sixth graders co-constructed the *Taking Action* web as a whole class so that kids would hear others' suggestions and see the wide range of possibilities to take action and make a difference when it comes to e-waste.



Name: Beck

Definition Question: What happens to your used electronics?

Consequence Question: Why dose it matter

Notes	Thinking
• Over 150 million phones are trown out every year. • All of those phones end up in countries lik china, India and Ghana. • kids burn gadgets to get gold, silver and copper for a few dollars. • boys smash batteries for a toxic metal called Cadmium that cover then hands and feet. • Women bend over lead to cook circuit boards for it gold and silver. • many of the toxins in cell phones seep into the ground, water and air. • The toxins can cause irreversibel damage to the nervous system	• Where do the phones go after we trow them out? A: The estern parts of Asia • What is e-waste? • Why dose it end up all the way over in Asia? • Why is there Gold and Silver in phones? • Why would people risk ther lives for some money? • Why do people in other countries do our work? • I think that we send all this e-waste to other countries to keep ours clean. • dose Obama know about what is happening? • Why is there so many toxins in cell phones? • Pretty selfish of US. We are letting othe countries pollute with our e-waste.

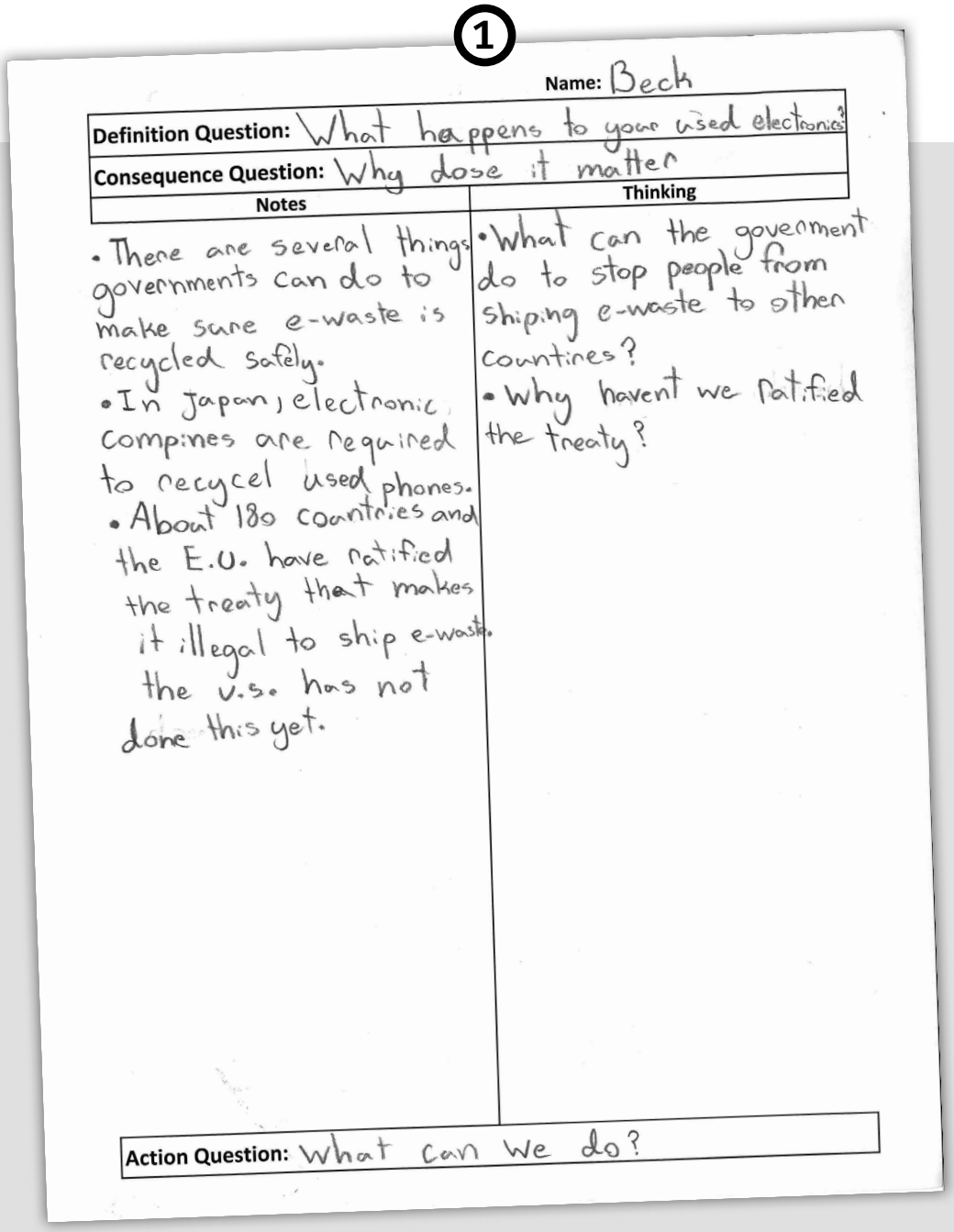
Action Question: What can we do to help

We could donate our phones to charities.

Beck's Thinksheet continues on the next page.

1 **Beck's Thinksheet shows a deep grasp of an understanding of the issue as well as a beginning understanding of the *Definition/Consequence/Action* framework for questioning. He puts only factual information from the article in the *Notes* column and a great deal of thinking, including questions, inferences, and reactions, in the *Thinking* column. He has some thoughts about why all this matters, which addresses the consequence question, and he has an idea about how we might take some action.**

Beck's Thinksheet page 2.



①

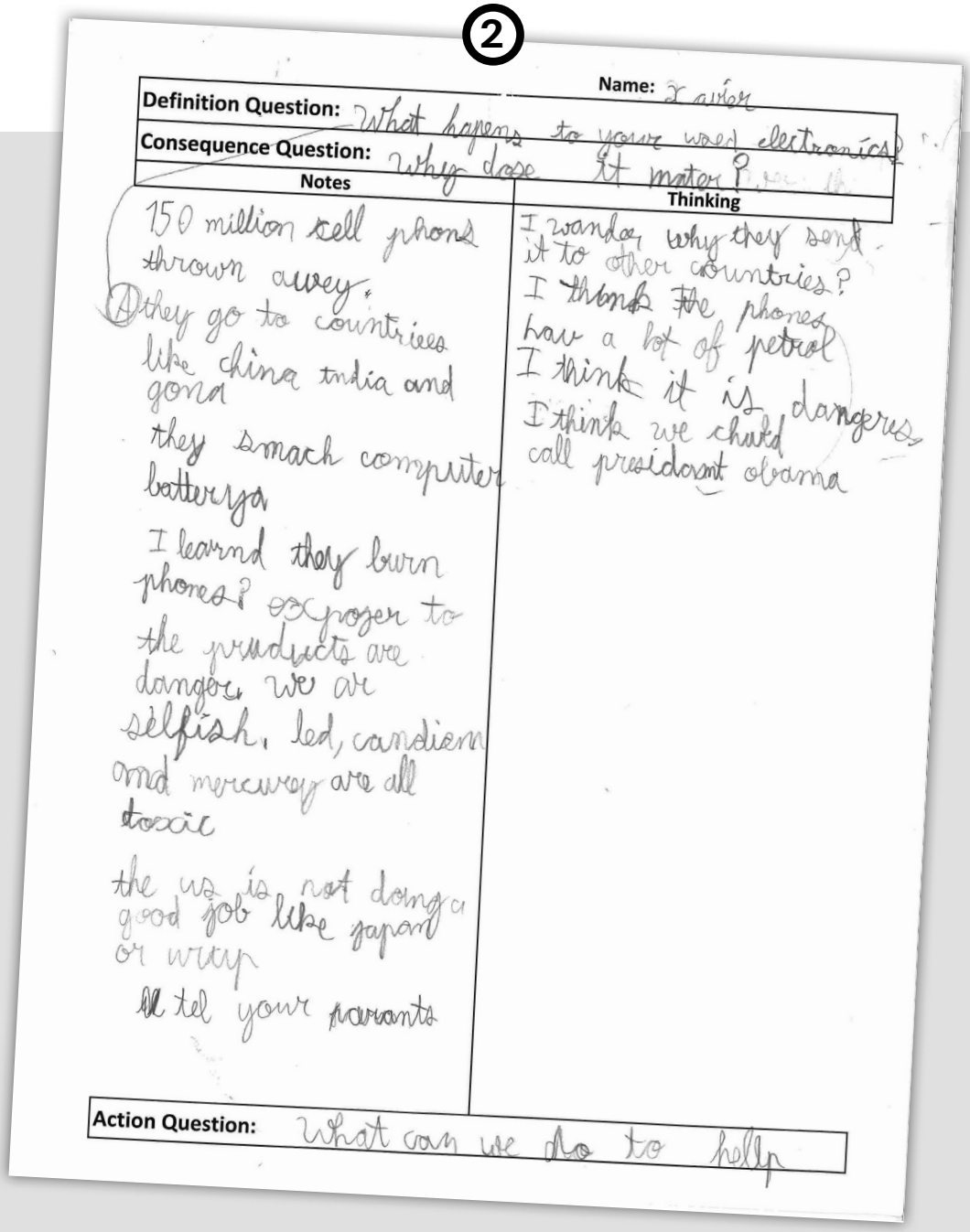
Name: Beck

Definition Question: What happens to your used electronics?

Consequence Question: Why dose it matter

Notes	Thinking
• There are several things governments can do to make sure e-waste is recycled safely. • In Japan, electronic compines are required to recycel used phones. • About 180 countries and the E.U. have ratified the treaty that makes it illegal to ship e-waste. the U.S. has not done this yet.	• What can the government do to stop people from shiping e-waste to other countines? • Why havent we ratified the treaty?

Action Question: What can we do?



Name: Javier

Definition Question: What happens to your used electronics?

Consequence Question: Why does it matter?

Notes	Thinking
150 million cell phons thrown away. they go to countriees like china india and gona they smach computer batterys I learnd they burn phones? exposer to the products are dangers. we are selfish. led, cardiem and mercuray are all toxic the us is not doing a good job like japan or wrap tel your parents	I wonder why they sent it to other countries? I think the phones hav a lot of petrol I think it is dangerus I think we chuld call presidorst obama

Action Question: What can we do to hellp

(2) Javier has some great thinking on his Thinksheet. He answered the definition question in the *Notes* column and did some good thinking, including asking a thoughtful question in the *Thinking* column. I would confer with him about some comments on the Notes side, where he added his thinking rather than merely sticking to the text. He mentioned that we are selfish, which is a great insight, but it belongs on the *Thinking* side, and he also suggested that we all tell our parents, another great suggestion but in the wrong column. This is a common misunderstanding when we introduce the Thinksheet, so we are always on the lookout for this.

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by Layla Acaroglu

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In India, young boys smash computer batteries with mallets to recover cadmium, a toxic metal that covers their hands and feet as they work. Women bend over vats of hot, poisonous lead, "cooking" circuit boards so they can remove slivers of gold. Other people inhale the smoke from burned cell phones as they separate different kinds of plastics.

Exposure to these and other substances can cause serious health problems, especially to children and pregnant women. The World Health Organization says that even a low level of exposure to lead, cadmium, or mercury—all of which are found in cell phones—can cause irreversible damage to the nervous system. The chemicals in e-waste can also damage the environment when they seep into the ground, water, or air.

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Some countries put the burden of safe product disposal on manufacturers. The **European Union** (E.U.) requires electronics companies to accept—for free—any of their used products brought in by customers for recycling. In Japan, electronics manufacturers are required to establish their own recycling facilities or hire companies to recycle a range of products, from computers and cell phones to TVs and air conditioners.

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Words to Know

European Union (*n*): an economic and political partnership of 28 European nations

industrialized nation (*n*): a country that has a highly developed economy and advanced technologies

Opponents of the treaty say that it's cheaper for U.S. companies to ship e-waste overseas than to safely recycle it at home.

The Responsible Electronics Recycling Act, which was re-introduced in Congress last summer, would make it illegal to export toxic waste to developing countries that have limited or no safeguards. It would also require safer waste management in the U.S. The bill was first introduced in 2011, and it continues to be debated in Congress.

Finally, consumers can recycle the electronics they no longer use. They can find certified recycling services through e-Stewards, a Washington nonprofit organization that runs certification programs for e-waste recyclers. Many charities accept old cell phones to donate to people who can't afford new ones.

Another option is to hold on to gadgets longer and repair—rather than replace— broken or outdated ones. In 2012, Americans generated more than 9 million tons of e-waste—more than any other country. That's up from about 2 million tons in 2009.

"E-waste is the fastest-growing waste stream in the United States," says Gene Green, a U.S. Representative from Texas. It "can pose serious environmental and health problems here and around the world when not handled properly."

COUNTRIES THAT RECEIVE THE MOST E-WASTE*

- CHINA
- INDIA
- PAKISTAN
- NIGERIA
- GHANA
- MALAYSIA
- VIETNAM
- INDONESIA
- THAILAND
- KENYA

*Most e-waste is illegally shipped to other countries, so specific data aren't available.

Name _____ Date _____

Definition/Consequence/Action

Definition Question:

Consequence Question:

Notes	Thinking

Action Question:

Name _____ Date _____

Definition/Consequence/Action Questions	
Definition Question	What is the problem? What's the issue? What is happening? What is it? What is going on?
Consequence Question	What are the consequences? What effects does it have? Why does it matter? What difference does it make? Why should I care?
Action Question	What are some ways to solve the problem? What needs to happen to solve the problem? What can I do to help? How can I get involved? What can I do about it?