

# Grade 6: Module 2A: Unit 2: Lesson 16 Introducing Research Folders and Generating a Research Question

#### Long-Term Targets Addressed (Based on NYSP12 ELA CCLS)

I can cite text-based evidence to support an analysis of an informational text. (RI.6.1)

I can summarize an informational text using only information from the text. (RI.6.2)

I can use several sources in my research. (W.6.7)

I can conduct short research projects to answer a question. (W.6.7)

Supporting Learning Targets	Ongoing Assessment
• I can identify norms to make group discussion more successful.	Research question on researcher's notebook
• I can determine the difference between a relevant and an irrelevant research question.	
I can write a research question for my topic.	

Agenda	Teaching Notes
<ol> <li>Opening         <ul> <li>A. Unpacking Learning Targets (2 minutes)</li> </ul> </li> <li>Work Time         <ul> <li>A. Introducing Research Teams and Creating Group Norms (8 minutes)</li> <li>B. Topic Chalk Talk: Rules to Live By (8 minutes)</li> <li>C. Evaluating Research Materials and Generating a Research Question (22 minutes)</li> </ul> </li> <li>Closing and Assessment         <ul> <li>A. Recording Research Question (5 minutes)</li> </ul> </li> <li>Homework         <ul> <li>A. Continue independent reading. Answer this question: "Who is the intended audience of your book? Why do you think that?"</li> </ul> </li> </ol>	<ul> <li>Although this lesson is in Unit 2, like Lesson 15 it is actually part of Unit 3. This is to give you time to look over the draft end of unit assessments before handing them back to the students with feedback in Lesson 17.</li> <li>Students begin their research with their teams using Research Folders that contain a small number of previously selected research materials for each of the countries identified (see supporting materials for the list of texts).</li> <li>Have these folders ready in advance. See the "Articles for Research Folders" list in the supporting materials of this lesson. Each team needs a Research Folder containing the materials relevant to the topic they have chosen to research, including a glossary of words they may not be familiar with. Have enough of each text for every student in the group, so students can self-select texts.</li> <li>In advance: Using the exit tickets from Lesson 15, divide students into groups of three or four according to the topic they chose to focus on (either 'Healthy habits,' 'Reduce, reuse recycle,' or 'Bullying'). Mixed-ability grouping of students will provide a collaborative and supportive structure for reading complex texts.</li> <li>Review Chalk Talk protocol (Appendix 1)</li> </ul>



Lesson Vocabulary	Materials
norms, irrelevant	Articles for Research Folders (for Teacher Reference; see Teaching Notes above)
	Lined paper (three pieces per student)
	Chart paper (one per team)
	Markers (one per student)
	Research Folders (one per team according to the topic the team has chosen—see supporting materials)
	Discussion Tracker (from Lesson 15; one for display)
	Criteria for Research Questions anchor chart (new; co-created with students during Work Time C)
	Researcher's Notebook (from Lesson 15)

Opening	Meeting Students' Needs
<ul> <li>A. Unpacking Learning Target (2 minutes)</li> <li>Invite students to read the learning targets with you:</li> <li>"I can identify norms to make group discussion more successful."</li> <li>"I can determine the difference between a relevant and an irrelevant research question."</li> <li>"I can write a research question for my topic."</li> <li>Ask:</li> <li>"What are norms? Why are they important?"</li> </ul>	Posting learning targets for students allows them to reference them throughout the lesson to check their understanding. The learning targets also provide a reminder to students and teachers about the intended learning behind a given lesson or activity.
<ul> <li>Listen for students to explain that <i>norms</i> are positive behaviors that we would like to follow and practice to make sure group work and discussion is productive and enjoyable.</li> <li>* "How does adding the prefix 'ir-' to 'relevant' change the meaning?"</li> <li>Listen for students to explain that the prefix "ir-" means not, so <i>irrelevant</i> means not relevant.</li> </ul>	



Work Time	Meeting Students' Needs
<ul> <li>A. Introducing Research Teams and Creating Group Norms (8 minutes)</li> <li>Post the research team assignments in a place where all students can read them. Ask students to get into their teams.</li> <li>Remind students that when they start working in a new group, it is a good idea to create some group norms to make sure group discussion is productive and enjoyable for everyone.</li> </ul>	Creating norms for conversation helps to establish a positive group dynamic and make clear the expectations for collaboration.
• Distribute lined paper.	
• Display the <b>Discussion Tracker</b> from Lesson 15. Ask students to discuss in their research teams:	
* "Looking at the Discussion Tracker and the skills you need to be working toward, what might some good norms be to make sure that you successfully practice all of those skills in your discussions?"	
* "What other norms might it be useful to have that aren't part of the Discussion Tracker?"	
• Tell teams to record their ideas for norms on their lined paper to refer to in later lessons.	
• Circulate to assist teams that are struggling. Based on the Discussion Tracker, suggestions could include:	
Listen carefully when someone is speaking.	
• Ask questions when you aren't sure, to get more information or to encourage the speaker to think more deeply about their ideas.	
Be respectful when asking questions and when comparing someone else's ideas with your own.	
Acknowledge other people's ideas and perspectives.	
B. Topic Chalk Talk: Rules to Live By (8 minutes)  • Post the question:	
* "What rules to live by do you already have for the topic you have chosen?"	
• Tell students that now they are in research teams they are going to have a Chalk Talk to brainstorm some rules to live by that they already have for the topic they have chosen.	
• Remind students that this technique only works if everyone is writing and responding. Make it clear that everyone is responsible for writing, reading other people's comments, and responding; there should be no talking; and no one should sit down until the time period is over. Opinions must be freely expressed and honored, and no personal attacks are allowed.	
Distribute <b>chart paper</b> and <b>markers</b> and invite students to begin their chalk talk.	

#### Work Time (continued)

#### C. Evaluating Research Materials and Generating a Research Question (22 minutes)

- Distribute **research folders** to each team. Explain that students are going to spend some time familiarizing themselves with the informational texts in their folder before they actually dig into researching in the next lesson.
- Model the process of sifting through the research materials in one of the folders to evaluate the resources and get to know the texts they will be reading. Take a healthy habits research folder and flip through the pages.
- Pick out the glossary and model looking over that, discussing the organization. For example: "So, I can see that there is a glossary for each of the informational texts in the research folder, so if I am stuck on what a word means, I can use this to help me figure it out and move on with my research."
- Pick out an informational text and skim the title. Then point out any tables, charts, or graphics that you can see and explain what they tell you at a glance about the content of the informational text.
- Invite students to pair up in their research teams to familiarize themselves with their research folders. Circulate and support students in their initial review of their material. Ask questions such as:
  - \* "What do you think this text is going to be about?"
  - \* "How might this specific material help you in your research?"
- Refocus students. Tell them that now they have chosen their research topic, generated some possible rules to live by and have an idea of the resources in their research folders, they need a question to guide their research so that they can narrow their focus on the research materials and choose the ones to read that are most relevant to their research question.
- Model generating questions about a topic that could be researched with student assistance. Do a think-aloud and record the questions you generate on the board: "So which of the healthy habits rules you have brainstormed seem like they might have supporting evidence in the research folder? What is important about my topic? How does my topic contribute to improving the lives of my peers? My topic is healthy habits, and it is important because it is about helping my peers to stay healthy. It looks like the rules about healthy eating and exercise might have supporting evidence in the research folder. I am particularly interested in exercise, so now that I have had a quick look through the informational texts in my research folder, some of the questions that come to mind as I think about exercise are:
  - $^{st}$  How often do I need to exercise to stay healthy? Why?
  - \* Is running better than gymnastics?
  - \* Why is exercising every day good for you?"

 Generating a research question is not a sixth-grade standard; however, this process is a good scaffold toward later grades.
 Consider providing select students with pre-generated questions to evaluate their potential as research questions.
 Other students may benefit from being provided the final research question they will work with throughout this process.

**Meeting Students' Needs** 



Work Time (continued)	Meeting Students' Needs
• Invite students to look at the questions you have recorded on the board. Ask them to refer to their norms and discuss in research teams:	
* "Which of these questions do you think will be the most effective to research to write an evidence-based essay about a rule to live by? Why?"	
Select volunteers to share their suggestions with the whole group.	
• Guide students to recognize that "Is running better than gymnastics?" is not a good research question because it is a very narrow question, which means it will be of interest only to people who like running and gymnastics. It will also require very specific resources to research.	
• Record criteria on a new anchor chart: Criteria for Research Questions:	
<ul> <li>Broad question, the answer of which is of interest to many people.</li> </ul>	
• Guide students to recognize that "Why is exercising every day good for you?" already assumes that exercising every day is good for you, whereas research questions should not make assumptions—the research should help us make claims, not the other way around.	
• Record criteria on a new Criteria for Research Questions anchor chart:	
<ul> <li>Questions to help us make claims rather than make assumptions.</li> </ul>	
• Guide students to recognize that the most effective research question in this list is "How often do I need to exercise to stay healthy? Why?" because the "why?" part of the question will lead us to find evidence to help us justify the rule.	
Record criteria on the anchor chart:	
<ul> <li>Leads us to find evidence to justify claims using words like "Why?"</li> </ul>	
Ask students to discuss in their teams:	
* "What is important about your topic?"	
* "How does it contribute to improving the lives of your peers?"	
• Distribute <b>lined paper</b> . Tell students to work in their research teams to generate questions for research about their topic. Give teams 5 minutes to record all of the questions that come to mind. Discourage them from evaluating the questions at this stage.	

#### **GRADE 6: MODULE 2A: UNIT 2: LESSON 16**

#### **Introducing Research Folders and Generating a Research Question**

Work Time (continued)	Meeting Students' Needs
• After 5 minutes, stop the group and encourage teams to spend time evaluating the questions using the criteria on the anchor chart to determine which of the questions would be the most effective for research. Emphasize at this stage they don't have to evaluate the list down to one question—they just need to eliminate those questions that aren't going to be as effective for research.	
Circulate to support students by asking:	
* "Would the answer to this question be of interest to many different people?"	
* "Do the questions make any assumptions?"	
* "Will the question lead you to find evidence to support a rule to live by?"	

Closing and Assessment	Meeting Students' Needs
<ul> <li>A. Recording Research Question (5 minutes)</li> <li>Tell students that now that they have evaluated their original questions, and eliminated questions that aren't going to be as successful for researching to write an evidence-based essay about a rule to live by, they need to choose one question to focus their research.</li> <li>Invite students to write their question on Part I of their Researcher's Notebook.</li> </ul>	Developing self-assessment and reflection supports all learners, but research shows it supports struggling learners most.
Homework	Meeting Students' Needs
• Continue independent reading. Answer this question: "Who is the intended audience of your book? Why do you think that?"	
Note: Consider explaining what you mean by "intended audience." Say something like: "Who do you think this book was written for? What kind of person do you think the author had in mind?"	



# Grade 6: Module 2A: Unit 2: Lesson 16 Supporting Materials



**Articles for Research Folders** 

(For Teacher Reference)

**Directions**: Before Lesson 16, prepare folders for each research team with all texts plus a glossary for each team member. As described in the Teaching Notes for Lesson 16, students begin their research with their teams using Research Folders that contain a small number of previously selected research materials for each of the countries identified.

#### Reduce, Reuse, Recycle Research Folder

- Rainsford, Blair, "A Skateboarder Goes Green," www.scholastic.comactionmag. April 16, 2012.
- "Live by Design, Not Default," Skipping Stones, Sept.-Oct. 2009. Print.
- "Earth Day, Your Way: Celebrate Earth Day, April 22," *Current Health 1, The Weekly Reader Corporation*, Apr.—May 2006. Print.
- "The Life of a Cell Phone," United States Environmental Protection Agency.

#### **Glossary for Healthy Habits Research Folder**

Article: "A Skateboarder Goes Green"		
activist	person who works to support a cause	
asthma	an illness that makes breathing difficult	
bird sanctuary	a place where birds are protected	
spew	gush	
slew	a large number of something	

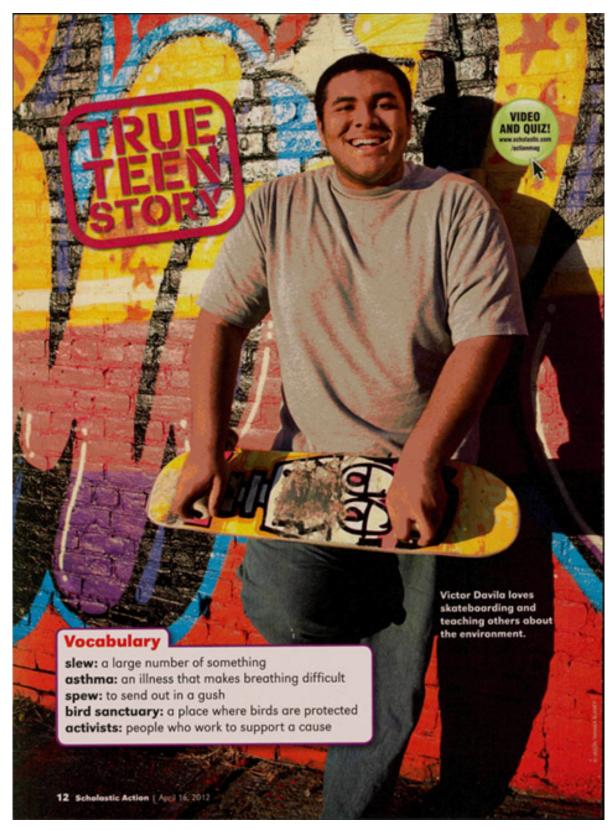


#### **Articles for Research Folders**

(For Teacher Reference)

Commentary: "Live by Design, Not Default"		
advocate	a person who supports or promotes the interest of others	
compassionate	sympathetic	
controversial	relating to a topic that sparks opposing viewpoints	
sustainable	a practice of using a resource that prevents the resource from being depleted or damaged	
Article: "Earth Day, Your Way: Celebrate Earth Day, April 22"		
conservation	planned management of a natural resource to prevent exploitation, destruction, or neglect	
nutrient	a substance that provides nourishment	
profit	a gain	
renewable	capable of being replaced	
Informational Poster: "The Life of a Cell Phone"		
consume	to use goods	
dematerialization	to use less stuff	
resources	a source of supply	
toxicity	containing poisonous material	







# A Skateboarder Goes Green

Victor aims to change the world, one skateboarder at a time.

Victor Davila, 18, hops on his skateboard and rolls down a cracked sidewalk. The air is filled with exhaust from cars and trucks. That's because giant highways crisscross the neighborhood. There are also huge garbage dumps. Plus, factories often leave a stinky smell in the air. Welcome to Hunts Point, a poor community in the Bronx in New York City.

"In Hunts Point, we have a **slew** of environmental problems," says Victor. He wants to fix those problems, because he loves his neighborhood. To get other teens involved, Victor is giving away something else he loves: skateboards.

#### **Eco Ryders**

Last year, Victor started a group called Eco Ryders. The group meets during the summer at The Point, a community center. There, Victor and two of his friends teach kids how to design and build skateboards. When they are done,

the kids get to keep the skateboards. But they have to earn them.

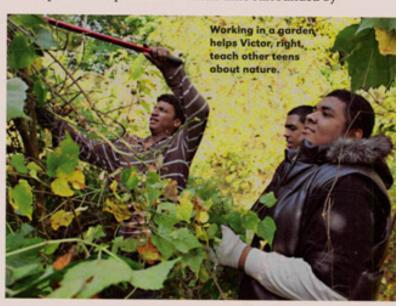
"To receive those skateboards, they have to go through all of our environmental workshops," Victor explains.

In the workshops, kids learn about the local environment. For example, "we talk about different animals that live in the Bronx River," says Victor. He also explains how pollution affects the community.

Hunts Point has one of the highest **asthma** rates in the country. "That's largely due to the trucks," says Victor. "We have about 15,000 trucks driving in and out of the area every day." Those trucks **spew** fumes into the air.

#### **Back to Nature**

Kids who live in Hunts Point spend most of their time surrounded by



www.scholastic.com/actionmag | April 16, 2012 13



concrete. They may not often think about animals and plants.

"A big thing we teach about in Eco Ryders is the connection to nature," says Victor. "Just because you live in a city doesn't mean you can't have that connection. There is nature all around!"

Victor takes his students to a park that borders the Bronx River. There, just offshore, they can see an island that is a **bird** sanctuary. Many types of birds nest there.

The Eco Ryders also go to a community garden. They dig, plant, and trim plants to keep them healthy.

"When we're gardening, there are so many trees that you can't really see the buildings," says Victor. "The kids can just get lost in the work with nature that they have to do."



#### **Learning to Care**

Victor hopes that kids who go through the Eco Ryders program will start to care about the environment. He hopes that once that happens, they will go on to become environmental activists.

At The Point, there is another group for teens who work to make changes in the community. That's where Victor started learning about the environment, when he was 13. So far, five Eco Ryders have joined that activist group too.

#### **Future Ryders**

What's next for Victor? He'd like to create New York City's first environmentally friendly skate park. It would have ramps made of recycled wood.

His biggest dream is to set up more Eco Ryder groups across the country. He wants kids to get involved in their communities, no matter where they live.

Victor knows that when an area has problems, some people want to leave. But he would rather work on fixing the problems, even when it's hard.

"I don't have to move out of my neighborhood to live in a better neighborhood," says Victor. "I can make my neighborhood better."

-Blair Rainsford



14 Scholastic Action | April 16, 2012



Answer these questions about	t You Know "A Skateboarder Goes Green."
Fill in the bubble next to the	best answer to each question.
1. This story is mainly about  A a teen who lost his skateboard  a teen who teaches others about the environment  asthma	7. Which statement is an opinion?  (a) Victor started the Eco Ryders. (b) Skateboarding is really hard. (c) Victor is 18. (d) Hunts Point has garbage dumps.
© trucks and highways  2. This story takes place in  ® New Hampshire © New Mexico ® New Jersey © New York	8. Victor wants  (a) to create a new skate park (b) to set up more Eco Ryders groups (c) both A and B (d) neither A nor B
3. The Eco Ryders  (a) learn about animals (b) garden (c) design and build skateboards (d) all of the above	9. In Victor's quote "I can make my neighborhood better," the word better is:  (a) a noun (c) an adjective (d) a verb (d) an adverb
Which is the best summary of the section "Back to Nature"?  Victor moved into a tent.  The Eco Ryders learn about plants and animals in the city.  The Eco Ryders bought a farm.  Victor wants to destroy buildings and highways.	10. The author's purpose for writing this story was probably to  (a) inform readers about a teen environmentalist (b) instruct readers on how to skateboard (c) entertain readers with a fable (d) persuade readers to move out of their neighborhoods
The Eco Ryders meet	In 2010, Victor was chosen to go on a trip to Antarctica to
<ul> <li>6. Why doesn't Victor just move to a cleaner place?</li> <li>A He loves his neighborhood.</li> <li>B He's lazy.</li> <li>There is no cleaner place.</li> <li>He's afraid of trucks.</li> </ul> Answers are in the Teaching Guide.	learn about the environment. His ship sailed past areas that were stinky from penguin poop. "It reminded me of the smell in Hunts Point," says the teen.

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Live by Design, Not Default

#### Live by Design, Not by Default \*\* Guest Editorial \*\*

During the 20 years that I have been a high school science teacher, I have watched environmental degradation and global inequities become more severe. The planet is at risk because of our actions. You didn't cause climate change, species extinctions and other global problems, you are inheriting them from my generation and those before me, but you still must share in the responsibility of solving them. You are flexible thinkers, you are smart and creative, you are passionate and have a lot of energy—we need what you have to offer in order to fix the mess our planet is in.

To be an effective advocate for sustainability, I believe there are three guiding practices that should be followed: compassionate communication, hope, and action. These three practices are contrary to the more common practices of violent communication, despair, and apathy. I challenge you today to live your life in a humane and ecologically friendly manner,

which will sometimes mean acting in ways radically different from those of your peers. These practices are not always easy, but they are worth the effort.

The first guiding practice is compassionate communication. In any conversation about environmental or social justice issues, there are usually controversial topics that come up. These topics are often emotional, and if there are disagreements, the conversation can easily become a shouting match. It is important to always have compassion for the person with whom you are speaking, no matter how much you might disagree, and to practice positive communication strategies for sharing difficult information. Unfortunately, you rarely observe people in disagreement use conversation that leads to real understanding and growth. You mostly see what is often called "violent communication," where the purpose is not learning, but rather being "right" or at least being the loudest and hopefully having the last word. Avoid this approach. You want people to hear what you have to say, and you need to hear and understand their perspective as well. If the way you communicate prevents people from hearing your message, re-evaluate your delivery style. In other words, don't let how you deliver your message get in the way of what your message is about.

Also, remember that not all communication is verbal. Don't underestimate the importance of modeling compassion and sustainable practices in your everyday life. It is critical to "walk the talk." I'm sure all of you can think of someone who speaks about an issue in one way, but then acts in a way completely opposite. Don't be that person! To paraphrase the timeless words of Mahatma Gandhi, "Let your life be your message." If you truly revere and respect the Earth and all her inhabitants, and if you want others to do the same, have compassion even for those with whom you disagree, and

> let your words and actions be consistent.

The second guiding practice is *hope*. With all the bad news about the environment, it is far too easy to fall into despair. Do any of you ever feel despair when thinking about the state of our world? I certainly do, and I have to stay vigilant to avoid it.

The Cycle of Despair goes

something like this.

- You find out about a problem, and you want to do something to help.
- You don't see how you can help so you don't do anything about it.
- You feel sad, powerless, and angry. You decide nothing can be done, so you want to know less and less about problems.

These steps take no effort, which is why so many people end up in this cycle. However, the cycle of despair just leads to indifference and inaction, with no chance for the positive change we need. In the words of Horace Mann, "A different world cannot be built by indifferent people." We need a different world, so practice the cycle of hope. I have to warn you that hope isn't always easy. Hope takes work, and it takes effort! But hope is worth it.

#### Here is the Cycle of Hope.

Step 1. You take personal responsibility for your choices. This means you pay attention to the choices you make—even the small ones—and acknowledge they are your choices and no one else's.

Step 2. You seek quality information about the

Sept. – Oct. 2009 Skipping Stones Page 3



#### Live by Design, Not Default



world's problems, you think critically to distinguish between accurate and inaccurate information, and you analyze sources for validity. There is a **lot** of false information out there; you must determine what is fact and what is not. Being a critical thinker is not just important at school, it's absolutely necessary in the real world. Don't be fooled by pseudoscience or the media that claim to have the truth without the data to back it up.

Step 3. You create a vision of a better world based on accurate information, your values, and your sense of responsibility; you discover practical options for action; you act in line with your values; and you understand the impact your actions have on the planet.

As you can see, if you practice hope, you naturally reach the third practice, of taking action. I applaud those of you who choose to make a difference by your efforts, but I must tell you that the planet needs more from you—it needs more from all of us. I heard a couple of scientists on the radio recently, and one of them said, "The environment is not a luxury item." Well, duh! But we all know people who treat the environment exactly that way. We in this country are especially hard on the earth. If everyone lived like we do here in the United States, we would need four more planets to support them. We don't have four more planets! We need to change our perception of the environment from something we can change when it is convenient for us, to an issue we must act on now.

A lot of people think the only worthwhile actions involve spending a lot of money to buy solar panels or a hybrid car. As it turns out, you can have a very positive impact on the planet by buying less stuff. Remember the phrase "reduce, reuse, recycle" begins with reduce. Buying less stuff is a really earth-friendly thing to do. And if you do buy something, you can still make a positive difference by choosing carefully. Every time you buy something, whether you realize it or not, you are voting. Spending money on an item is the same as voting in support of all the practices that went into producing it. You are supporting the way the workers were treated, the way the environment was treated, and the way animals and other species were treated. As a young consumer, you have a lot of voting power; in 2004 alone, teens (aged 12-17) spent more than \$124 billion, which is close to what adults between the ages of 40 and 58 spent. That is a lot of spending and a lot of voting. You need to know what you are voting for. Money can be an effective tool to facilitate change, and companies do pay attention to consumer expectations and will change their practices. Here's just one example.

I'm sure most of you like ice cream and are familiar with Tillamook ice cream. A few years ago, Tillamook Farms fed their cows bovine growth hormone (BGH) that made the cows produce more milk, which increased Tillamook's profits. And more milk means more ice cream. Yum! Well, as it turns out, not so yum, because BGH was bad for cows' health and potentially bad for human health as well. Understandably, consumers wanted ice cream that didn't hurt cows or people, so they stopped buying Tillamook ice cream. What do you think happened? Tillamook stopped feeding their cows BGH and consumers began buying their ice cream again. That is the power of the consumer vote. So, research where the stuff you buy comes from and how it was made, everything from the food you eat to the clothes you wear. Become an informed consumer and only purchase items made in an ecologically friendly way-that is, in a way that is friendly to the workers, to the local population and to the environment. Other actions are up to you!

I'd like to share three quotes I reflect on every day before I teach. They inspire me and give me hope even when I feel like things will never get better.

The first quote might be familiar to most, if not, all of you, a classic from Gandhi: "Be the change you want to see in the world."

> The second quote is more obscure, but it's my favorite. It is from Richard Bach, who is best known for his book, Jonathan Livingston Seagull: "Argue for your limitations, and sure enough, they're yours."

> Lastly, one from Margaret Mead: 
> "Never doubt that a small group of thoughtful, committed citizens can change the world.
> Indeed, it is the only thing that ever has."

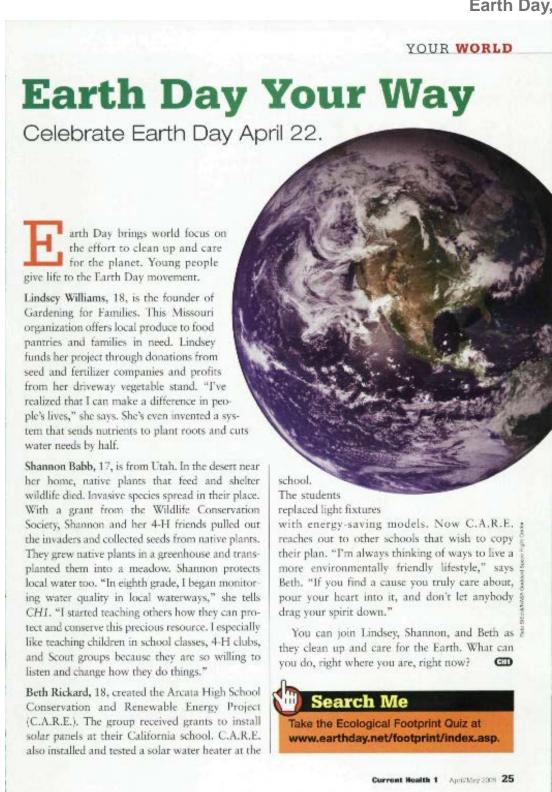
I challenge you today to be the change you hope to see, to argue not for your limitations, but for your possibilities, and to consider yourselves to be the small group that can change the world.

—Peg Cornell teaches science at a high school in Oregon.

Page 4 Skipping Stones Sept. – Oct. 2009



Earth Day, Your Way



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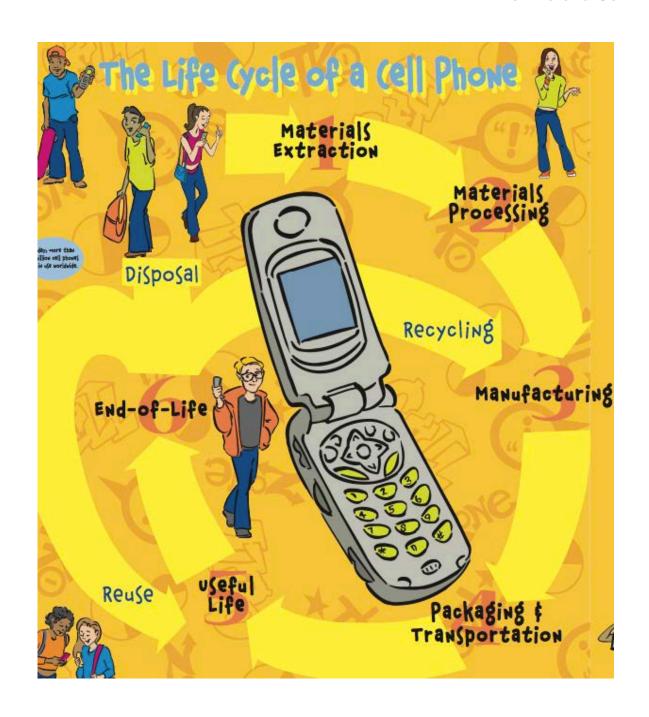
You have one, your parents have one, your friends each have one—owning a cell phone has become as common as having a traditional land-line in your home. More than 156 million Americans now use cell phones—including about 20 percent of American teens! In a way, cell phones have become a necessity of everyday life—we use them to call home when we're late, make plans with friends, or get directions when we're lost. But have you ever thought about how cell phones are made and what happens to them when you don't need them anymore?

Like any product, making a cell phone and its parts uses natural resources and energy, which can potentially impact the air, land, and water. Understanding the life cycle of a product can help you make environmental choices about the products you use, and how you dispose of them. **You** can help minimize your environmental impact of using a cell phone by:

- **<u>\*Keeping your phone longer.</u>** Choose your cell phone service provider carefully. Pick a phone with features you need and a style you like so you will keep it longer.
- **Charging your battery correctly.** Increase the life span of your phone and battery by following the manufacturer's directions for charging the battery.
- **Reusing or recycling your phone.** Find ways to reuse or recycle your phone and accessories when you're finished with them. Many companies recycle or reuse cell phones—visit the "Resources" section of this poster for a list of suggestions.

Follow the life-cycle diagram to learn more about cell phones, their parts, and their potential impact on the environment...







#### The Nine Lives of a Cell Phone

Cell phones consist of nine basic parts, each of which has its own life cycle:

- Circuit board/printed wiring board
- ➤ Liquid crystal display (LCD)
- > Battery
- > Antenna
- Keypad
- > Microphone
- > Speaker
- Plastic casing
- > Accessories (such as adapters, headsets, carrying cases, and decorative face plates

Between 1999 and 2003,
2.5 million phones were
collected to be recycled or
reused, accounting for less than
1 percent of the millions of
phones retired or discarded
each year.





#### 1) Material Extraction

A cell phone is made up of many materials. In general, the handset consists of 40 percent metals, 40 percent plastics and, and 20 percent ceramics and trace materials.

The **circuit board** (also called a printed wiring board) located in the handset, is the 'brain' of the cell phone because it controls all of its functions.

➤ Circuit boards are made from mined, raw materials including copper, gold, lead, nickel, zinc, beryllium, tantalum, coltan, and other metals. The manufacturing of these boards requires crude oil for plastic, and sand and limestone for fiberglass. Many of these materials are known as "persistent toxins" and can stay in the environment for long periods of time, even after disposal.

The **liquid crystal display (LCD)** is a low-power flat panel display on the front of your phone that shows information and images. It becomes opaque (hard to see through) when electric current passes through it. The contrast between the opaque and transparent (see-through) areas forms visible characters.

➤ Various liquid crystalline substances, either naturally occurring (such as mercury, a potentially dangerous substance) or human-made, are used to make LCDs. LCDs also require the use of glass or plastic.

The **rechargeable battery** is used to power the phone.

➤ Cell phones can use several types of batteries: nickel-metal hydride (Ni-MH), lithium-ion (Li-Ion), nickel-cadmium (Ni-Cd), or lead acid. Ni-MH and Ni-Cd batteries contain nickel, cobalt, zinc, cadmium, and copper. Li-Ion batteries use lithium metallic oxide and carbon-based materials, all mined from the earth.





Approximately 20 percent of American teens (more girls than boys) own a cell phone. By the end of 2005, nearly two-thirds of all u.s. teens will be wireless!

#### 2) Materials Processing

Most raw materials must be processed before manufacturers can use them to make products. For example, in cell phones:

- Crude oil is combined with natural gas and chemicals in a processing plant to make plastic.
- ➤ Copper is mined, ground, heated, and treated with chemicals and electricity to isolate the pure metal used to make circuit boards and batteries. The resulting copper pieces are shipped to a manufacturer where they are formed into wires and sheets.

#### 3) Manufacturing

Plastics and fiberglass are used to make the basic shape of the **circuit board**, which is then coated with gold plating. The board is also composed of several electronic components, connected with circuits and wires (primarily made of copper) that are soldered to the board and secured with protective glues and coatings.

**LCDs** are manufactured by sandwiching piqued crystal between layers of glass or plastic.

**Batteries** consist of two separate parts, called electronics, made from two different metals. A liquid substance, called electrolytes, touches each electrode. When an outside source of electricity such as an outlet is applied, chemical reactions between the electrodes and the electrolytes cause an electric current to flow, giving batteries their "juice" or power.



By 2005, cell
phones will be discarded
at a rate of more than
125 million phones each
year, resulting in more
than 65,000 tons
of waste!



#### **Using Less Stuff**

Cell phone companies have made great strides in "dematerialization" (using less materials) as shown by the decreasing size of today's cell phones. Years ago, the technology needed for a cell phone would have filled the entire floor of an office building; now everything needed for a cell phone weighs only 7.7 ounces!

#### 4) Packaging and Transportation

Cell phone parts and the finished products need packaging and transportation to get from longer need or want them extends their useful one place to another. Transportation by plane, truck, or rail all require the use of fossil fuels for energy, which can contribute to global climate change.

While packaging protects products from damage, identifies contents, and provides information, excessive or decorative packaging can be wasteful. Packaging consumes valuable natural resources, such as paper (from trees), plastic (from crude oil in the earth), aluminum (from ore), or other materials, all of which use energy to produce and can result in waste. Some packaging, however can be made from recycled materials.





IN 1985, about 340,000 people used cell phones in the united States; in 2003, more than 140 million people used cell phones.

#### 5) Useful Life

Unlike other countries, cell phone companies in the United States sell their own phones, which are usually not interchangeable from company to company. Even though regulations now allow consumers to transfer their phone number to a new phone company, most companies have unique technologies in their phones that only work in their own networks.

This means that switching cell phone companies can mean having to purchase a new phone. One way to extend the useful life of your phone and prevent waste, is to use the same company for continuing phone service. Always comparison-shop to be sure you get the service and phone that's right for you.

You can also extend the life of your phone by taking care of it—protecting it from damage by storing it in a case, avoiding dropping it, and keeping it out of extreme heat and cold and away from water and other liquids.

The use of **rechargeable batteries** in cell phones reduces the amount of waste and toxicity that disposable batteries create. Be sure to follow the manufacturer's instructions for charging your batteries so you can extend their lives as long as possible.



(ell phones are only used for an average of 18 months before being replaced—even though they can function for much, much longer.



#### 6) End-Of-Life

Donating or recycling cell phones when you no longer need or want them extends their useful lives, and prevents them from ending up in the trash where they can potentially cause environmental problems.

#### Reuse

Many organizations—including recyclers, charities, and electronics manufacturers—accept working cell phones and offer them to schools, community organizations, and individuals in need. Reuse gives people, who could not otherwise afford them, free or reduced cost access to new phones and their accessories. Plus, it extends the useful lifetime of a phone.

#### Take-Back Programs

Many cell phone manufacturers and service providers offer a "take-back" program. Under this system, manufacturers accept used cell phones and accessories and either recycle, re-manufacture, or dispose of them using systems designed to handle the specific types of waste cell phones produce. Contact your manufacturer by using the information that came with your phone or via the Internet.



#### Recycle

Electronics recyclers are springing up everywhere! Today, many stores, manufacturers, and recycling centers accept cell phones for recycling. While some electronics recyclers only accept large shipments, communities, schools, or groups can work together to collect used cell phones for shipment to electronics recyclers.

Some rechargeable batteries can also be recycled, as several retail stores and some communities have started collecting them. When rechargeable batteries are recycled, the recovered materials can be used to make new batteries and stainless steel products.

Check the "Resources" section of this poster for a list of organizations that will accept your phone and accessories for reuse or recycling. You can also use the Internet or phone book to search for local contacts that recycle and refurbish cell phones.

#### **Disposal**

By 2005, the rate at which cell phones are discarded is predicted to exceed 125 million phones each year, resulting in more than 65,000 tons of waste! Cell phones that are thrown in the trash end up in landfills (buried in the ground) or incinerators (burned). Because cell phones contain metals, plastics, chemicals, and other potentially hazardous substances, you should always recycle, donate, or trade in your old cell phone. It's free and easy. Don't throw it away! Phones that are thrown away waste energy and result in the loss of valuable resources.

#### **Crank Up The Volume**

A major cell phone manufacturer recently developed a way to recharge cell phone batteries using "muscle power." This hand-powered device provides 20 minutes of talk time after just three minutes of squeezing a hand-held generator! Other new technologies, such as hydrogen fuel cells and zinc-air and solar-powered batteries, are under development and might ultimately replace current battery technology.

These new alternatives will conserve natural resources and reduce waste.



# what IS a Life (ycle?

ave you ever considered where the products you use every day come from, or what happens to them when you finish using them? Do you know how each of the products you use impacts the environment?

Just as living things are born, get older, and die, products also complete a life cycle. Each stage of a product's life cycle can affect the environment in different ways. Some products, such as cell phones, have many different components, each of which has its own life cycle in addition to the life cycle of the composite product. The stages of a product's life cycle usually include:

\*Design. A product's design can influence each stage of its life cycle and in turn the environment. Design affects which materials will be used to manufacture a product. For example, cheaper materials are often less durable, which means the product will have a short useful life. Product design can also prevent waste in many ways. Products can be designed with modular components that can be easily replaced so that the

entire product does not have to be thrown away if only one piece breaks. Items meant to last a long time can avoid trendy designs so they are not thrown away when they go

out of style.

\*Materials Extraction. All products are made from materials found in or on the earth. "Virgin" or "raw" materials, such as trees or ore, are directly mined or harvested from the earth, a process that can create pollution, use large amounts of energy, and deplete limited natural resources. Making new products from materials that have already been used (recycled materials) can reduce the amount of raw materials we need to take from the earth.

- \*Materials Processing. Once materials are extracted, they must be converted into a form that can be used to make products. For example, paper is made from trees, but the wood has to undergo several different processes before we can use it.
- \*Manufacturing. Products are made in factories and require a great deal of energy to create. The manufacturing process can also produce pollution. Many products require the use of packaging as well, to prevent spoilage, damage, contamination, and tampering.
- \*Packaging & Transportation. The use of packaging can protect products from damage and provide product information. However, packaging consumes valuable natural resources and when used excessively can be wasteful. Some packaging can be made from recycled materials.

Finished products are transported in trucks, planes, and trains to different locations where they are sold. All of these forms of transportation burn fossil fuels, which can contribute to global climate change.

- \*Use. The way products are used can impact the environment. For example, products that are only used once create more waste than products that are used again and again.
- \*Reuse/Recycling/Disposal. Using a product over and over again prevents the need to create the product from scratch, which saves resources and energy while also preventing pollution. Recycling or re-manufacturing products also reduces the amount of new materials that have to be extracted from the earth. Throwing a product away means that it will end up in a land-fill or incinerator and will not be useful again.



### Hand-Held Hunt

hether at school, home, or out running errands, people use hand-held electronic devices everywhere they go. Take an informal survey to find out who uses the following items in the various locations you visit during a single day. This activity will illustrate how many people own and use cell phones and their accessories. You may discover interesting trends in who is buying and using cell phones and their accessories in your community!

Consider whether the people are kids, teenagers, or adults and whether they are male or female. For example, spend a half-hour at the mall and

identify how many people in each category are using the items listed below. Perhaps adult men use belt clips more than younger women. Is that true? Find answers to these questions, and turn your results into a graph or chart.

HeadSet:



Many people use a cell phone headset while they are driving or walking around to keep their hands free. Most models of headsets can be reused when you buy a new phone.

Belt clip:

Some people buy belt clips to carry cell phones while not in use. Reusing or donating your belt clip when you are finished using it prevents waste.

Face plate:



Decorative face plates can be trendy and fun, but you don't need them to use a cell phone. The best way to prevent waste is to simply not buy products you don't need. If you do buy face plates, donate unwanted ones to a charity or swap them with your friends instead of throwing them away.

Portable games and (D players: Cell phones have a lot of the same parts as hand-held video game consoles and portable CD players, including speakers, circuit boards, and LCDs. Old or broken consoles and players can also be reused or recycled when no longer wanted.

Personal Digital Assistant (PDA):



Advances in cell phone technology have given phones many uses, such as storing phone numbers and searching the Internet. An emerging trend is to create one device with many uses, such as a PDA that also functions as a cell phone. This consolidation reduces waste by reducing the number of individual items a person has to buy.



#### (omponents (rossword se the following clues about the different parts of a cell phone to fill in the crossword. Across The battery, the LCD, and the board create 98 percent of a cell phone's environmental impacts. 4. Cell phones that are thrown away waste energy and result in the loss of valuable \_\_\_ 7. Each part of a cell phone must be \_\_\_\_ and transported, which requires energy and often creates waste. Some facilities will recycle \_ batteries when they can no longer be reused. 10. Cell phones are actually not phones at all but sophisticated two-way 11. LCDs are a low-power, flat panel display made by sandwiching liquid between layers of glass or plastic. DOWN Circuits and wires on a circuit board are primarily made from \_\_\_\_\_. Ni-MH and Ni-Cd batteries contain nickel, cobalt, cadmium, \_\_\_\_\_, and copper, metals that need to be mined and processed, which creates pollution and waste. Many cell phone parts can be removed from the phone and \_\_\_\_\_ or recycled. Batteries consist of two separate parts, called \_\_\_\_ Plastics and \_\_\_\_\_ are used to make the basic shape of a circuit board. Crude oil is combined with natural gas and chemicals to make \_\_\_\_\_.



### Resources



#### Options for Reuse & Recycling

#### \*Collective Good

#### www.collectivegood.com

Collective Good refurbishes donated cell phones and uses them to provide affordable wireless service throughout the Caribbean and Latin America.

#### \*Cellular Telecommunications & Internet Association (CTIA)

#### www.ctia.org

CTIA is an international association for the wireless telecommunications industry.

#### **★Charitable Recycling**

#### www.charitablerecycling.com

Charitable Recycling Program encourages the donation of used cell phones.

#### \*Plug-in to eCycling Program www.plugintoecycling.org

EPA, in partnership with several companies and organizations, is helping consumers of electronic products tap into a network of recycling opportunities nationwide.

#### ★ReCellular, Inc.

#### www.recellular.com or www.wirelessrecycling.com

ReCellular, Inc. is a recycler and reseller of used wireless phones and accessories.

#### \*Rechargeable Battery Recycling Corporation (RBRC)

#### www.rbrc.org

RBRC is a nonprofit, public service organization that recycles rechargeable batteries.

#### **★The Wireless Foundation**

#### www.wirelessfoundation.org

Established by CTIA, this foundation is involved with several programs that use wireless communications to make communities safer, families more secure, and teachers more effective.

### \*National Recycling Coalition's (NRC's) Electronic Recycling Initiative

#### www.nrc-recycle.org/resources/ electronics/index.htm

NRC's Electronics Recycling Initiative promotes the recovery, reuse, and recycling of obsolete electronic equipment.

#### Life (yole web Sites

#### \*U.S. Environmental Protection Agency, Product Stewardship Program

#### www.epa.gov/epr

This program provides information on life cycle environmental impacts of products.

#### **★U.S. Environmental Protection Agency,** Green Engineering Program

#### www.epa.gov/opptintr/greenengineering

This program advocates designing products with their entire life cycle in mind.

#### \*United Nations Environment Programme, Life Cycle Initiative

#### www.unepie.org/pc/sustain/lca/lca.htm

This web site provides information about products and services over their entire life cycle.

#### Other Information

#### \*HowStuffWorks.com, Inc.

#### www.howstuffworks.com/cell-phone.htm

This web site provides a straightforward and easyto-read discussion of the technical components of a cell phone and the technology that makes it work.

#### \*Electronic Industries Alliance (EIA) www.eia.org

A trade association for the electronics industry, EIA maintains information on how member companies are incorporating environmental attributes into electronic products.



# The Big Debate: Reuse, Recycle, or Dispose?

Cn	nak om	hones are complicated products, which es recycling or disposing of them just as plicated. This activity examines options for , recycling, or disposing of cell phones at	the end of their useful life. It can be a research project for individuals or assigned to teams for discussion.
1.	What are some of the end-of-life options for cell phones? List the options and discuss the pros and cons of each.		
	Pr	ros	CONS
	_		
	_		
	-		
<ol> <li>Find out what cell phone manufacturers, recyclers, and local authorities have to say about options for cell phones.</li> </ol>			s, and local authorities have to say about end-of-life
	Conduct Internet research or call a company that produces cell phones. Find out what it consists to be the useful life of a cell phone. Ask what the policy is for accepting its cell phones back for recycling or remanufacturing.		
	<ul> <li>Find out what your teachers do with their cell phones at the end of their useful life.</li> <li>Contact a local recycling center and ask it if accepts old cell phones.</li> <li>Contact a cell phone recycler to learn about its recycling practices and what products are made from recycled cell phones.</li> </ul>		phones at the end of their useful life.
			ccepts old cell phones.
			s recycling practices and what products are made
	*	Contact your local waste management agenc cell phones.	y and ask what its policy is regarding discarded

3. After conducting this research, write a summary of your findings, including who you contacted, the

you view to be a good end-of-life choice for cell phones.

date, and what information you obtained. Or, present the results to your classmates and discuss what



## Math Activity 1: (ell Phone users

- Cell phone users in the United States increased from 340,000 people in 1985 to approximately 140 million people in 2003.
  - A. This means that on average, how many NEW cell phone users are there per year?
  - In 2003 there were roughly \_\_\_ times more American cell phone users than in 1985.
- Approximately 20 percent of teenagers in the United States own a mobile phone.
  - If 200 teenagers go to your school, about how many of them own a cell phone?
  - What if 1,500 teenagers go to your school? Then about how many own a cell phone?

## Math Activity 2: On-Hold

- Did you know that, on average, cell phones are used for only 18 months before being replaced?
   Most unused phones are stored in drawers or closets before eventually being thrown away. In fact,
   more than 30 million mobile phones are lying unused in American homes and businesses.
  - A. If a person buys a new cell phone every 18 months, how many phones will they buy in 6 years?
- Starting in 2005, it is predicted that more than 125 million cell phones—65,000 tons of waste—will
  be discarded annually. This potentially serious environmental problem can easily be avoided by
  understanding how to reuse and recycle phones, prolonging their useful life.
  - Suppose that 300 million cell phones have already been discarded by the end of 2004. Using the cell phone discard rate above, how many TOTAL cell phones will be discarded by the end by 2005?
  - 8. At the predicted 2005 rate of discarding cell phones, how many years will it take to discard 750 million phones?
  - 750 million discarded cell phones is equal to \_\_\_ tons of waste?
  - Can you name three alternatives to throwing out your cell phone?





Some of the things that are part of your everyday life didn't exist when your grandparents were your age. While we might think we need these things, many people hot along fine without them in the times past.

First, write down your views on whether the following items are necessary or optional, and why. Then interview an older relative or friend (more than 50 years old) to ask what they think about the same things. Compare and discuss your answers. How different or similar are they? Why? Discuss how new products reduce waste, and how new products increase waste.

Compare your thoughts on the following items with those of someone older than you. Here's how:

<u>Item</u>	Your Thoughts	Older Generation Thoughts
Microwave Oven		
Cell Phone		
Pager		
Camera		
Compact Disc		
Video Game		
Radio		
Sport Utility Vehicle		
Computer		
VCR		
Answering Machine		



			_
8. Plastic	11. Crystal		
6. Fiberglass	20ibsA .01		
5. Electrodes	9. Rechargeable	D. Recycle, donate, or trade in your old cell phone.	B. 300
3. Reused	7. Packaged	C. 390,000 tons: (750 million/125) x 65,000	Q. A. 40
2. Zinc	4. Resources	B. 6 years: (750 million / 125 million	(000,04£\noillim 04f)
1. Copper	1. Circuit	noillim 3S1 + noillion: 300 million - A . S	S. Roughly 412
ММОД	NotoA	۱ ۲ ط	:088,887,7 yldguoA .A .f 81\(000,046 - noillim 041)
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	279W2HA		219W2HA
1144			

 $Environmental\ Protection\ Agency. "The\ Life\ of\ a\ Cell\ Phone".\ http://www.epa.gov/osw/education/pdfs/life-cell.pdf.$ 



**Articles for Research Folders** 

(For Teacher Reference)

#### **Healthy Habits Research Folder**

"Health Rocks," Skipping Stones, Jan./Feb. 2013. 23: Print.

Jennifer Marino-Walters, "Make Your Move," Scholastic News Edition 4, May 10, 2010. Print.

Emily Sohn, "Recipe for Health," Science News for Kids, April 2, 2008.

Susan Heavey, "Adults cut back fast food, but U.S. kids still eat too much fat: CDC," *Washington Post*, February 21, 2013. Print.

#### **Glossary for Healthy Habits Research Folder**

Article: "Health Rocks"		
affluent	having a generous supply of material possessions	
immunity	being able to resist disease	
obesity	excessive fat in the body	
regulations	a rule or order issued by an authority	
Article: "Make Your Move"		
alliance	a relationship that benefits both parties	
luxury	something that you don't really need, but that is enjoyable to have	
Article: "Recipe for Health"		
health	the condition of being sound in mind, body, and spirit	
nutrition	the act of taking in and using food substances	
obese	having excessive body fat	
pediatric nutritionist	a professional who helps children eat healthfully	



#### **Articles for Research Folders**

(For Teacher Reference)

Article: "Adults cut back fast food, but U.S. kids still eat too much fat: CDC"		
caloric intake	the number of calories a person eats	
consume	to eat or drink, especially in a large quantity	
obese	excess fat in the body	
sedentary	not physically active	



**Health Rocks** 

# Health Rocks!

Imagine visiting your family doctor for issues such as asthma, attention-deficit disorder, vitamin D deficiency or weight issues. Your doctor tells you to spend more time outdoors. S/he tells you to go for an hour walk in the woods, city park or forest. Chronic conditions associated with a sedentary lifestyle and physical inactivity have greatly contributed to the numerous health problems children face today. There is a connection between the two, and doctors know that these health conditions can lead to pulmonary, cardiovascular and mental health problems in adulthood. The U.S. Forest Service has begun a public service announcement campaign to "unplug," or to motivate families and their children to disconnect from their electronics and reconnect with nature. Viewers are directed to DiscovertheForest.org, where they can search for areas to explore and ideas on what to do outdoors.

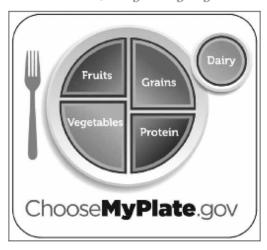
Did you know that drinking tap water is better for our environment and almost a thousand times cheaper? A bottle of water costs more than 1,000 gallons of tap water. And, with tap water, there is less pollution from plastic bottles. There are many easy ways to purify tap water, ranging from filters that attach to the faucet to special pitchers that you can keep in the fridge.

#### Emotional Health: Where Are You At?

Fill in Yes, No or At Times as answers to these questions.

- 1. I like to argue with my family and friends. -
- I am always angry with my siblings/parents.—
- I argue because it allows me to express my displeasure about how things are going in life. —
- 4. I go for long walks in nature when I feel down. -
- I tend to do more activities alone or with my friends but not with my parents. —
- Sometimes, I just want to be alone for long times in my room. I don't like socializing with friends.—
- I often feel anxious or worried about things. —
- 8. I often feel overwhelmed or stressed out. -
- I get emotional when things go wrong, but I feel better when I talk to someone I like.—
- 10. I listen to quiet, classical music when I am sad. -

Being Healthy Every Day!



The U. S. Department of Health and Human Services (HHS) has launched a nationwide *Tobacco Education Campaign*, "Tips From A Former Smoker," on the health risks of smoking. Tobacco use causes nearly 1/3 of all cancer deaths, or about 170,000 people every year. However, cancer is only one of the many ways that tobacco kills people, according to the AACR Task Force on Tobacco and Cancer. With all the prevention efforts, one in five Americans still continue to smoke! Tobacco is the single largest cause of preventable deaths in the country and causes no fewer than 18 different types of cancer. Yet every day nearly 4,000 young people try their first cigarette, and about 1,000 become addicted to the nicotine in these products.

The HHS campaign hopes to increase public awareness about the health risks of smoking and secondhand smoke exposure, to motivate smokers to quit, to encourage smokers who need help to call 1-800-QUITNOW and to encourage parents to actively protect their children from exposure to secondhand smoke. A new report from the Surgeon General, "Preventing Tobacco Use Among Youth and Young Adults," details the scope, health consequences and influences that lead to youth tobacco use and specifies proven strategies to help prevent tobacco use. It also provides further scientific evidence on the addictive nature of nicotine. The best way to prevent people from dying from cancer is simply to prevent them from getting hooked on tobacco. Let's end tobacco use now!

May - August 2012 Skipping Stones Page 31

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Make Your Move

# Get Up and Go

# Make Your Move!

Practice isn't just for homework. It can also help you get healthy.

It's a new school year. You probably have new teachers, new classes, and maybe you're even at a new school. You will be learning a lot of new stuff and developing new skills. One of those skills should be making healthy exercise habits a part of your life. Just like learning to play the trumpet or dribble a basketball, healthy habits take practice.

Ready to get started? Check out these tips and ideas from David Missimer, a personal trainer in Wayne, Pa. You can make this school year your healthiest yet!

- Add up your daily physical activity. If you aren't getting at least 60 minutes of fast-moving exercise every day, you aren't getting enough for good health. We're here to help! Download our exercise log, and fill it in whenever you get some exercise. (Find it online at www.weeklyreader.com/getupandgo.) Every little bit counts—so even if you walk the dog for just 15 minutes in the morning and 15 minutes at night, you'll have a half hour right there.
- Test your abilities. Total fitness includes a strong heart and lungs, strong muscles, and good balance. Maybe you are better in some areas than others: You may run fast and be able to lift heavy things, but you can't stay on the balance beam in PE class for more than a few seconds, for example. Make it a goal to get better in all three areas of fitness.

#### **BOREDOM BUSTER!**

Sydney K., a fifth grader from Oaks, Pa., enjoys doing many different activities to stay in shape and meet new people. "Karate makes me stronger, and softball helps my handeye coordination," she says.



"My dance classes keep me flexible." Sydney joined the Fitness Club at school to learn how to use exercise machines. With so much variety, she never gets bored!

Set reasonable goals. Do you want to run longer or faster? Do you wish you could hit a home run? Figure out what you want to do better, and then set small goals to meet along the way. For example, if you want to run longer, add a minute to each daily run until you have

20 SEPTEMBER 2011 Current Health Kids



**Make Your Move** 



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Everybody wants to be healthy, but today's world is full of roadblocks. You know you should eat broccoli, for example, but it's a lot easier to buy French fries (and they taste better). You know you should exercise, but your friends are playing video games.

For many people, the temptation to indulge is irresistible. But all of that indulging is catching up with us.

In the United States, two out of three adults now weigh more than they should, according to the Centers for Disease Control and Prevention (CDC). More than 30 percent of Americans over 20 have so much body fat that they're considered obese. Only half as many adults were obese in the 1980s.

Young people are also getting way too heavy. The proportion of overweight kids between the ages of 6 and 11 more than doubled in the past 2 decades, according to CDC data, from 7 percent to nearly 19 percent. Over the same period, the proportion of overweight teens more than tripled, from 5 percent to 17 percent. Healthy body weight is evaluated in terms of a number known as your body mass index, or BMI. You can check out whether you or a family member is overweight by plugging some numbers into a calculator at an online site (see sidebar: "Understanding Body Mass Index").

These statistics are alarming because weighing too much increases the risk for heart disease, diabetes, cancer, sleeping troubles, and other **health** problems (see "Packing Fat"). People form lifelong eating habits when they're still kids. And studies show that overweight children tend to become overweight adults. Indeed, some kids are already developing weight-related diseases such as type 2 diabetes, which used to show up only in adults.

"Children are primed to learn about eating," says Susan Johnson, a pediatric nutritionist at the University of Colorado-Denver School of Medicine. "We need to start young with healthy habits."

And it's not as hard as you may think. Research shows there are plenty of simple things you can do to eat better, control your weight, and improve your **health**, even while you're still a kid.

How do you start? Focus on three things: when, what, and how much.

The 'when'

There's no single explanation for why kids' waistlines have been expanding, according to experts. The problem is more complicated than that.



For one thing, food is everywhere, almost all the time: from candy in school vending machines to popcorn at the movies. Fast-food restaurants are convenient and cheap. All too often, one meal runs into the next.

"It is practically impossible to avoid opportunities to eat," Johnson says. "I'm only 49, but when I was a child, people did not eat all day long."

Johnson, who studies eating behaviors, recommends eating three solid meals every day, and adding no more than two or three snacks to that total. Keep in mind, she says, that snacks include not only solid foods but also beverages such as juice and soft drinks.

Eating should be part of your daily routine, she says, just like brushing your teeth, practicing an instrument, or doing homework. For eating, just as for each of these other activities, there should be a definite time to begin and end.

That routine should start with breakfast, suggests a recent study by researchers from the University of Minnesota School of Public **Health**. For a large number of kids, it doesn't. Between one in four and one in eight children and teenagers regularly skip the first meal of the day, these researchers estimate. Previous studies have linked skipping breakfast to poorer grades--possibly, in part, because it's hard to think well when you're low on energy.

To investigate the effects of breakfast on weight, the Minnesota researchers followed 2,200 adolescents for 5 years. At the end of their study, they found that kids who ate breakfast tended to gain the least weight. Breakfast diners also tended to eat healthier foods and to exercise more than kids who skipped breakfast.

Scientists haven't proved that eating breakfast causes people to stay slimmer. But starting the day with a bowl of cereal or eggs and toast is clearly linked to better **health**.

Studies suggest that if you skip breakfast, Johnson says, "you more than make up for it in the later part of the day."

The 'what'

What you eat matters as much as when you eat. You probably know that an apple is more nutritious than a cookie. But supposedly healthy foods, such as granola bars and yogurt, can also lead to weight gain if you don't pay attention to how much sugar they contain.



Sugar is full of calories. We need the energy those calories provide to fuel our activities and the bodily processes that keep us healthy. But our bodies turn excess calories into body fat.

Reading nutrition labels can help you find the right balance. Try not to eat too many foods that list sugar or corn syrup (a sweetener) as one of the first ingredients. And watch out for high carbohydrate counts (see sidebar: "Understanding Major Nutrients").

You might also want to cut down on potato chips and other salty snacks. In 1997, researchers recorded everything 2,000 kids ate and drank for a solid week. All the participants were between 4 and 18 years old at the time of the study. Recently, scientists from St. George's University in London analyzed records from that study.

The researchers found that kids who ate more salt also drank more soft drinks, which are full of sugar but empty of nutrition. One behavior doesn't necessarily cause the other. But by eating fewer salty foods, the researchers concluded, kids might be able to cut out lots of unnecessary--and potentially fattening--calories.

Thinking too much about ice cream, onion rings, and all the other things you shouldn't eat is a sure way to fuel cravings for those foods, according to researcher Brian Wansink, who is executive director of the U.S. Department of Agriculture's Center for Nutrition Policy and Promotion.

Focusing instead on what you can have is a better strategy, he says in his book Mindless Eating: Why We Eat More than We Think. Wansink encourages kids to have one fruit and one vegetable with every meal.

You can fit in only so much food at one sitting, he says. Adding healthy foods to your plate can keep you from filling up on the unhealthy stuff.

One of the best ways to avoid eating junk food, Wansink adds, is to stop keeping it in your house. That's something you might want to tell the adults you live with: Studies show that the person who buys and prepares food for a household controls 73 percent of what the family eats.

The 'how much'

Determining how much you need is the final piece of the eating-well puzzle. This is often easier said than done.



In a study published this year, Wansink and his colleagues asked more than 250 people how they decided when to stop eating at mealtime. Thinner people tended to stop when they were full. Heavier ones, however, said they generally stopped when they'd eaten everything on their plates.

That can be a big problem, Wansink notes, because we're often served far more food than we need--at home and in restaurants. And overeating can start early. In one study, 5-year olds ate 26 percent more food when they were given bigger servings.

Wansink has turned up similar results with grown-ups. He took a group of adults who had just finished a meal and offered to let them watch a movie. Popcorn was offered to everyone during the movie. It wasn't good popcorn--in fact, it was stale. Nevertheless, people ate 53 percent more popcorn when given a large bucket instead of a medium-size one. In other studies, he found that people served themselves more food and went on to eat more food when they were given larger plates or bowls.

Using smaller dishes is an easy way to prevent mindless overeating. So is turning off the television. Not only does watching TV automatically make many people want to start chowing down, Wansink says, but it also distracts them from paying attention to how much they've eaten.

The average person makes more than 200 decisions about food every day, according to Wansink's research. With a little thought and planning, you can make those decisions smart ones.

Junk food, like chips, candy, and cookies, are easy to snack on--and often yummy. But they can pile on the calories and lead kids to become overweight. iStockphoto

Choosing when to eat should become a routine, like brushing your teeth. Even a burger between meals can be bad for the waistline. And a burger alone--even at meal time--does not offer the proper balance of nutrients you need. iStockphoto

Food is everywhere, but the smart thing to do is snack on items that offer vitamins and fiber--like this apple--not just sugar, like cupcakes, or salty and fatty foods, like French fries. iStockphoto

Eating well means stopping when you're no longer hungry, and including a fruit and vegetable with every meal--even when you're out picnicking. iStockphoto

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By Emily Sohn

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Adults cut back fast food, but U.S. kids still eat too much fat: CDC

Thu, Feb 21 2013 By Susan Heavey

WASHINGTON (Reuters) - American adults have made a little progress in recent years in cutting back on calories from fast food, but children are still consuming too much fat, U.S. health researchers say.

French fries, pizza and similar items accounted for about 11 percent of U.S. adults' caloric intake from 2007 to 2010, on average, down from about 13 percent between 2003 and 2006, the Centers for Disease Control and Prevention said in one of two reports released on Thursday.

Younger adults, black Americans and those who are already obese consumed the highest amounts of such food, which is often high in fat, salt and calories that can doom waistlines.

The CDC found in a separate report that while American children, on average, are consuming fewer calories overall than they used to, the percentage of their calories from artery-clogging saturated fat was still above optimal levels.

Recommended U.S. guidelines suggest that no more than 10 percent of one's daily calories should come from such fat, but American youth took in between 11 percent and 12 percent from 2009 to 2010, data from the CDC's National Center for Health Statistics showed.

Americans' diets and weight is a source of constant scrutiny and research in a country where two-thirds of the population is considered overweight or obese. According to the CDC, 36 percent of U.S. adults, or 78 million, and 17 percent of youth, or 12.5 million, are obese. Another third are overweight.

The slight decline in fast food consumption among adults reflects a growing trend toward healthier options. Many food and beverage companies have revamped their products or created new, healthier options to account for the shift in consumer tastes.

Still, Americans lead the world in calorie consumption. Portion sizes also have increased over the years, coupled with an increasingly sedentary lifestyle, have added up to extra pounds. Complications from obesity include diabetes, heart disease, arthritis and some cancers.

"Previous studies have reported that more frequent fast-food consumption is associated with higher energy and fat intake and lower intake of healthful nutrients," CDC wrote.



Adults cut back fast food, but U.S. kids still eat too much fat: CDC

Young black adults are especially a concern. Those aged 20 to 39 get more than one-fifth, or 21 percent, of their calories from fast food versus whites and Hispanics in the same age group who get about 15 percent from such foods, CDC found.

Obese and overweight adults also ate more fast food, it added.

Healthy weight is calculated by measuring body mass index, or BMI, using height and weight. For example, a 5-foot, 6-inch (1.7 meter) woman weighing 186 pounds (84 kilograms) would be considered obese as would a 6-foot (1.8 meter) man weighing 221 pounds (100 kilograms).

The CDC also said that American boys aged 2 to 19 took in about 2,100 calories daily during 2009 and 2010, a drop from 2,258 calories in 1999-2000. Girls saw their daily caloric intake fall to 1,755 from 1,831 during the same timeframe.

It is not yet clear how the recent change has affected childhood obesity rates, the agency added. Among the other findings:

- The consumption of calories from fast food "significantly decreased" with age;
- Fast food consumption was about the same for low-income and higher-income adults;
- More children are eating more protein, except for black girls;
- Carbohydrate consumption is lower among white boys and girls as well as black boys.

(Editing by Doina Chiacu)

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### **Articles for Research Folders**

(For Teacher Reference)

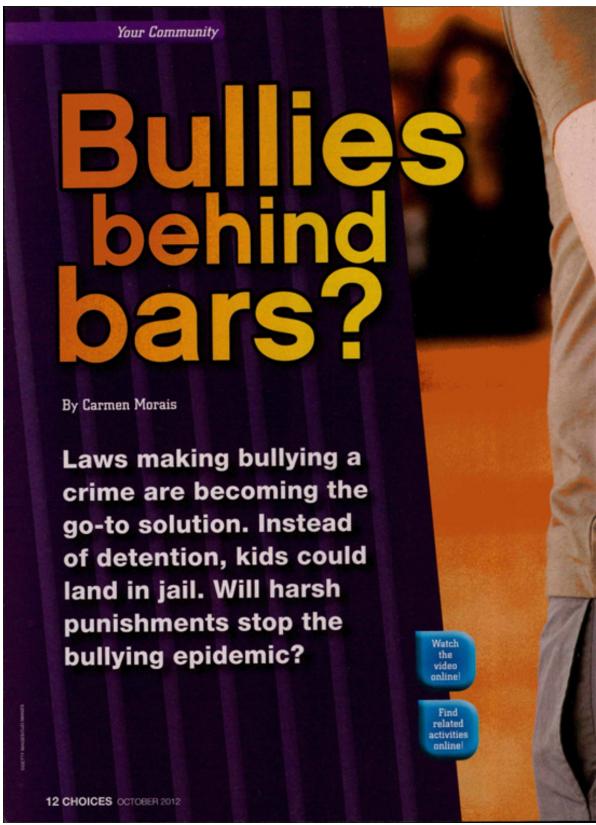
## **Bullying Research Folder**

- Carmen Morais, "Bullies Behind Bars," Scholastic News Choices, October 2012. Print.
- "Cyberbullying Statistics," www.bullyingstatistics.org.
- Elizabeth Larson and Justin O'Neill, "Is the Cafeteria Ruining Your Life?" *Scholastic Scope*, November 18, 2012. Print.

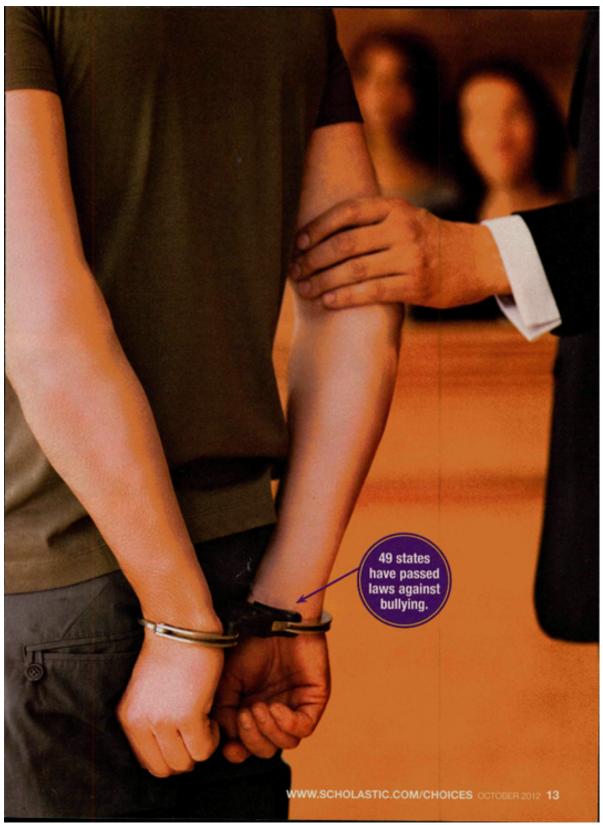
# **Glossary for Bullying Research Folder**

| Article: "Bullies Behind Bars"      |                                                  |
|-------------------------------------|--------------------------------------------------|
| cyberbullying                       | the electronic posting of mean-spirited messages |
| criminalize                         | to make illegal                                  |
| empathetic                          | showing understanding                            |
| grappling                           | struggling through                               |
| torment                             | inflicting pain                                  |
| Article: "Cyberbullying Statistics" |                                                  |
| camaraderie                         | a spirit of friendly companionship               |
| petition                            | a formal written request                         |
| tolerant                            | showing the capacity to endure pain or hardship  |











On a cold January day in 2010, 15-year-old Phoebe Prince was walking home from her high school in South Hadley, a small town in Massachusetts. Suddenly a car pulled up beside her. It was filled with kids from her school—the last people on earth Phoebe wanted to see. As Phoebe quickened her step,

one of the girls threw a soda can at her, shouted an obscene insult, and laughed as the car screeched away.

For more than three months, this girl and her friends had been tormenting Phoebe, a recent immigrant from Ireland. They stalked her through the school hallways, called her names, encouraged other kids to exclude and harass her, and threatened to beat her up. The abuse continued on Phoebe's Facebook wall, where the girls posted cruel messages and humiliating rumors. Phoebe had told her mother about the harassment, and her mother had complained to the school. But the torment went on. That afternoon, after Phoebe got home, she texted her friend:

"I can't do it anymore."

Later that night, Phoebe killed

Phoebe's suicide devastated her family and shocked her small town. But it was what happened next that made headlines around the country. Within weeks, the kids who had bullied Phoebe—
four girls and one boy—were
arrested. They were charged with
crimes that included stalking and
harassment. If found guilty, the
students faced as many as 10 years
in jail.

Their arrests sparked a heated national debate.

Yes, what happened to Phoebe was a tragedy, and her tormentors should be punished. But did they deserve to go to jail? Would a law have stopped them?

Today, nearly three years later, the controversy rages on.



#### A Staggering Problem

Bullying has always been a fact of life in American schools. For generations, people accepted that bullying was simply a part of growing up. Some kids were going to be bullied—those who were different, brainy, awkward, eccentric—and this was just an unavoidable part of childhood, like falling off a bicycle.

But in recent years, attitudes have changed. Study after study has shown how deeply damaging bullying can be. And many believe that the problem has

14 CHOICES OCTOBER 2012





- 1. South Hadley High School, where Phoebe Prince and her tormentors were classmates
- 2. Phoebe, age 15
- 3. A candlelight memorial ceremony to honor Phoebe after her tragic suicide



become more widespread. Today, nearly 30 percent of all teens report that they have been bullied. For gay teens, the scope of the problem is truly staggering—9 out of 10 gay teens say they have been bullied in school, often violently and relentlessly.

Many states and schools have been struggling to address the problem, mainly through education programs. But Phoebe's case triggered a national outcry for stronger action.

Within months of Phoebe's death, Massachusetts passed

Phoebe's suicide devastated her family and shocked her small town. But it was what happened next that made headlines around the country.

laws that make bullying a crime punishable by jail time. Since then, 49 out of 50 states have passed antibullying laws. Many of the laws require school districts to provide antibullying education and to enforce strict punishments for bullying. But seven states go much further by **criminalizing** bullying. In North Carolina, for instance, a teen who creates a fake online profile and then uses it to

bully someone can be arrested. In Massachusetts, continually harassing someone—as Phoebe's tormenters did to her—is now officially a crime that could lead to a jail sentence. In states with these laws, kids found guilty of bullying crimes could end up with criminal records, which they would be required to reveal on college and job applications.

#### Failure to Protect

Many of the people supporting these tough state laws are parents of victims and the teen victims themselves, like 15-year-old Chelsea Little and her mother, Angela Stagge. Chelsea had been bullied since middle school—harassed in school and on Facebook. Yet her mother's repeated complaints to the school did no good. The abuse continued, until Chelsea finally left school and completed ninth grade online. This summer, the Stagge family

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These are the teens, pictured in court, after they were arrested for what prosecutors called the "unrelenting" bullying of Phoebe Prince. From left to right: Ashley Longe, Sean Mulveyhill, Kayla Narey, Sharon Chanon Velazquez and Flannery Mullins

moved to a neighboring town so Chelsea could go to a new school.

Chelsea's experience led her mother to believe that many schools aren't adequately equipped to protect victims of bullying. "It's too big a problem for the schools to handle," Stagge says. The organization she founded, Bullying for a Change, is devoted to pressing for tougher state laws, which Stagge believes will protect other kids from the suffering Chelsea and others have had to endure.

But many experts don't believe that tougher state laws are the solution. Many studies have shown that effective bullying programs focus not on punishment, but on changing the social climate of the school. These programs are designed to make kids more empathetic, more accepting of differences, and more likely to stand up if they see a friend being picked on.

The best programs are often led by students, like one in Canal Winchester Middle School in Ohio. There, it's the teens who speak up at assemblies about bullying and are recognized when they act as peacemakers. There's even a "wall of courage," where everyone is asked to share his or her thoughts about life and friendship. It is **prominently** located in the school's main hallway.

In the truly effective programs, bullies are punished, but in ways that have an immediate impact on their lives in and out of school. Students who harass other kids are yanked from activities, fired from school plays, banned from dances, and kicked off sports teams. Justice is swift. The message is clear to everybody: Being mean is not tolerated. Such punishments, say experts, are far more likely to "cure" a bully or discourage the behavior in the first place than are being arrested or sent to jail. In fact, arresting kids and putting them into the justice system can backfire, says

These five young people have paid a high price for what they did to Phoebe. The publicity made it impossible for them to remain in school.

Sameer Hinduja, co-director of the Cyberbullying Research Center. "Research shows that kids who are labeled as criminals often start to believe that they are criminals," he says. "Instead of changing for the better, they often commit more crimes."

#### **Getting Justice**

But what about extreme cases? Laws already exist to ensure that violent crimes are not tolerated. Nadin Khoury of Upper Darby,

16 CHOICES OCTOBER 2012





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Is the Cafeteria Ruining Your Life?

Debate

# Is the Cafeteria **Ruining Your Life?**

Students say the cafeteria is the top spot for fighting, bullying, and drama. Is assigned seating the answer?

By Justin O'Neill and Elizabeth Larsen

ate Allen will never forget the day in seventh grade when "the list" went up. She stepped into the cafeteria for lunch-her favorite part of the day-at Black River Falls Middle School in Wisconsin. And that's when she saw it.

"Assigned seating?" she croaked, staring at a paper taped to the wall. She scanned the room for her assigned table, desperately hoping to see at least one friend there. But no, it was a group of strangers.

It's not fair! she thought.

#### The Hunger Games Arena

Fair or not, Principal David Roou thought assigned seating was worth a try. The cafeteria had become ground zero for gossip, bullying, and fighting. Kids routinely wandered the room looking for a seat, choking back tears when no one would let them join a table.

For most kids, lunch is a time to catch up with friends, relax, and

trade Twinkies for chips. But for others, it is a time of acute anxiety. when simply finding a seat is a daily humiliation. For these kids, the lunchroom can feel more like the Hunger Games arena than what it should be-a much needed break from school-day stress.

Why is the cafeteria so crazy? First, there are the cliques: Band kids eat with band kids, soccer players with soccer players, and so on. If you're not in a group, it can be hard to feel welcome. Then there is the rock-concert-level noise and

rowdiness (flying french fries, milk squirting out noses, etc.). Without close adult supervision, chaos erupts-and cafeterias can turn into bullying hotspots.

#### Sense of Camaraderie

At Black River Falls, a computer program randomly assigns students to tables, guaranteeing everybody a seat. (Assignments are rotated every few weeks.) This way, students must interact with kids they wouldn't normally hang out with. Roou says the system has built a school-wide

20 SCHOLASTIC SCOPE - NOVEMBER 12, 2012



### Is the Cafeteria Ruining Your Life?

What Do You Think? sense of camaraderie. Students didn't see the Should cafeterias have assigned seating? benefits-at least not at first. Use evidence from the article to support each They circulated a petition to end side of this debate. Write the information assigned seating. Parents called to on the lines below. complain. As for Kate? She scarfed down her food so she could get out of there as fast as possible. **FREEDOM TO CHOOSE! BULLYING IS OFF THE MENU!** Other Options Assigned seating does have its 1 It would cut down drawbacks. Lunch is one of the few on cliques in the chances students have to socialize. Is it so unreasonable for kids to cafeteria. want to spend it with their friends? Besides, there are other solutions to cafeteria drama. At South View Middle School in Minnesota, for example, students sit at round tables rather than rectangular ones. That way, everyone can see and hear each other, and fewer kids feel left out of conversations. Another option is "Mix It Up at Lunch Day." Once a year, every student must sit with someone new at lunch. The idea is that interacting with kids from another social group will make you more tolerant of differences, and reduce bullying and prejudice. Thousands of schools participate in this program. It's successful, but it's just one small step in changing cafeteria culture. Assigned seating goes a lot EXAMINE POINTS ON BOTH SIDES—AS WELL AS YOUR OWN further than that. Just look at Black BELIEFS AND EXPERIENCES. Decide what you think. State your River Falls. Today, the cafeteria is opinion in one sentence below. This can become the thesis statement for an much calmer and nearly bullyingargument essay on this topic. free. Even Kate, now an adult, has changed her tune. "I gained a new perspective," she says. "I met kids I had never had the chance to talk TAKE THIS ACTIVITY FURTHER! WRITE AN with. I made new bonds." . ESSAY USING OUR SCOPE TEMPLATE. www.scholastic.com/scope - NOVEMBER 12, 2012 21

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