



BE THE CHANGE

COMPANION GUIDE





Title: *Be the Change: Rob Greenfield's Call to Kids—Making a Difference in a Messed-Up World*

Authors: Rob Greenfield and Antonia Banyard

Genre: Nonfiction

Themes: sustainable and zero-waste living, waste, clutter culture, water and energy use, the food system, climate crisis, making small changes, challenging yourself, spreading the word, human connection

Suitable for: Ages 8–12, Grades 3–7

Guided Reading Level: N

Lexile Level: 930

Common Core Standards:

RI.5.1,2,3,4,5,6,7,8,9

W.5.1.1a,1b,1c,1d,2,2a,2b,2c,2d,2e,4,5,6,7,8,9b

SL.5.1,1a,1b,1c,1d,2,3,4,5,6

L.5.1,2,2a,2b,2c,2d,2e,3,3a,4,4a,4b,4c,5b,5c,6

Skills and Competencies: asking questions; making connections; using nonfiction text features; reading a graph; summarizing; predicting; collecting data; recording data in a table; multiplying; calculating a total; using tally marks; applying strategies; inferring; researching a topic; evaluating information; drawing conclusions; identifying areas for growth; setting goals.

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Book Summary

Be the Change explores the many small things that readers can do to raise awareness about the climate crisis and challenge themselves to live more sustainably. From this book, you'll learn about some of the extreme things that Rob Greenfield has done to spread awareness about zero-waste living. Rob wants to bring attention to important topics like:

- food and water waste
- our dependency on fossil fuels
- our piles of stuff (and the energy required to produce it)
- our disconnection from community and the wider world.

In this uplifting book, Rob uses his own experiences—backed by solid information and a ton of great ideas—to show you that no one is too young to make a difference, and no action is too small to make a start.

About the Authors

ROB GREENFIELD is an activist and humanitarian dedicated to leading the way to a more sustainable and just world. His work has been covered by media worldwide, including *National Geographic*, and France 2 TV named him “the Robin Hood of modern times.” Rob donates 100 percent of his media income to grassroots nonprofits.

ANTONIA BANYARD's books for kids include the award-winning *Water Wow!: An Infographic Exploration* (co-authored with Paula Ayer). Originally from South Africa and Zambia, she now lives in British Columbia.

About this Guide

This companion guide was created by Becky Noelle, an experienced teacher and passionate sustainability advocate. Use this guide to help you fully engage in the book and create changes in your life that will help both you and the planet!



BEFORE READING

Reflect on the Topic

1. Look at the cover of the book and flip through the pages. Is this a fiction or a nonfiction book? How do you know?
2. What do you already know about sustainable living?
3. Make a list of things you already do in your life to live sustainably. For example, do you do any of the following things?
 - eat fresh fruits and veggies instead of packaged foods
 - shop at thrift stores
 - recycle
 - compost food waste
 - drink from a reusable water bottle
 - buy food at farmers' markets
 - grow food in a garden
 - turn off lights when you're not using them
 - turn off the faucet when you're not using it (For example, while brushing your teeth or soaping up your hands)
 - ride a bike or walk to school
 - borrow books from the library instead of buying them new
4. Write a list of questions you have about sustainability. What are you hoping to learn from the book? You can use a mind map like the one on page 32 of this guide to keep track of your questions.



5. Write a reflection on the following questions:
- Why is sustainability an important topic to discuss and learn more about?
 - Whose responsibility is it to protect the environment?
 - How might you be able to make “a difference in a messed-up world” like the title of the book says?
 - What are you most looking forward to about this book?

Practice Using Text Features

You don't always have to read a nonfiction book from start to finish. You can use the text features to help you find the information you need. Text features can also help you understand the information better because they show it in different ways.

Find the following text features in the book and consider how they can help you as you read.

Table of Contents

What information does the table of contents include? How might it be useful if you weren't going to read the whole book, if you were only looking for specific information? Which topic in the table of contents interests you the most?

Glossary

The glossary includes the definitions of some important words from the book. Find the glossary on pages 78 to 79. How will it come in handy as you read?

Index

Learn about how to use the index by reading the information at the top of page 85. What words stand out to you in the index? Practice using the index to look up a few words that are interesting to you.



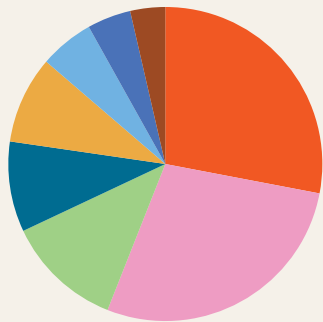
Graphs

This book includes pie graphs and bar graphs. Find each graph listed below, read all the labels on the graph, and consider the following questions:

- What information is the graph representing?
- Why might the authors have chosen to use a graph for that information?
- Why might the authors have chosen to use that kind of graph?

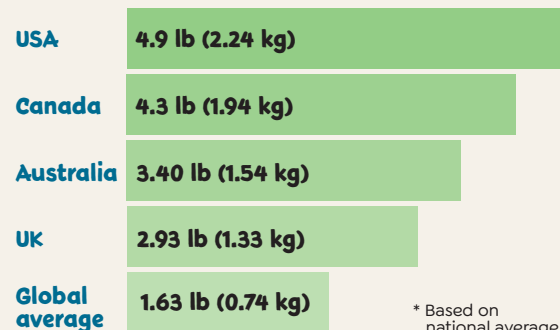
Bar graphs: pages 14, 22, and 55

Pie graphs: pages 14 and 15



28%	Food and green waste
28%	Paper and cardboard
12%	Plastic
9.3%	Metal
9%	Rubber and leather
5.6%	Wood
4.5%	Glass
3.6%	Other

How much waste do people in different countries produce?*



* Based on national average

Infographics

An infographic is a visual representation of information. Find the infographics on pages 7 and 39. Answer the following questions:

- What information is the infographic representing?
- Why might the authors have chosen to use an infographic for that information?

Headings

Many headings are used throughout the book. Why would the author use so many headings?

Sidebars

This book has three different kinds of sidebars. Find an example of each. (Hint: They have different background and heading colours.) What is the theme of each sidebar? Why might the authors have chosen to include different kinds of sidebars?

Photographs

Sometimes nonfiction books use illustrations, but often they use real photographs. Why might the creators of this book have chosen to use photographs? How might photographs help get the message across?

For example, look at the picture at the top of page 22. How does it make you feel? Now look at the picture at the top of page 25. Why might the authors have chosen to include both these photographs in the same chapter?

Captions

Captions are short pieces of text included underneath some photographs. The captions in this book are on a green background. Find some of the captions in the book. What kind of information do they include? How might they be useful as you read?

Lists

Most of the lists in this book are ideas of things the reader can try. Why might the authors have chosen to write this information as a list instead of paragraphs?

Look at the list on pages 46 to 47. What is included in the list? Why might the authors have used a list to describe this information rather than paragraphs?

Resources

On page 80 you will find a list of resources. These are books, reports, videos, and websites where you can learn more about the topics discussed in the book. Take some time to visit a few of the websites listed and see what you can learn!

Selected Sources

When writing nonfiction books like this, authors use reliable sources to collect information about the topic. Why might the authors include this information in the book? What makes a source reliable? Why is it important to use reliable sources?

DURING READING

Understand the Vocabulary

As you read, if you see a word you don't know, use the glossary or a dictionary to find out what it means. Here are some words used in the book that you may want to look up before you begin!

activist
addiction
antibiotics
auction
biodiversity
corporation
decluttering
developed/undeveloped
emissions
ethics
forage
greywater
growth hormones
hoarder
hypocrisy
imported
impulse buying
incinerated

inefficient
labor
low-income
luxuries
mannequin
minimalism
nonrenewable energy
pesticides
possessions
poverty
processed
pulp
purging
raw materials
renewable energy
salvaged
synthetic
vaccines

Make Connections

As you read the book, use the following suggestions to help you make connections.

1. Connect to what you already know: Refer to the list you wrote of things you already do to live sustainably (Question 3 from the “Before Reading: Reflect on the Topic” section of this guide).
 - Check off the items on your list that are also suggested in the book.
 - Add items to your list that the authors bring up in the book that you are also already doing.
 - Create a second list of things you'd like to try doing to live more sustainably (like the list Rob describes on page 3 of the book).

AFTER READING

Talk It Out

Write about or discuss the following questions with a friend or adult:

- What was your favorite part of the book?
- What inspired you the most?
- What surprised you?
- What do you want to learn more about?

Want to keep going? Answer the questions listed on page 67 in the book and come up with some more of your own!



– TRACK YOUR HABITS –

WEIGH YOUR WASTE

On page 18 under the heading “The Weight of Your Waste,” the authors describe how to weigh your waste.

Follow the steps below to track your waste for a week.

1. Use the table below to record your daily trash weight.
2. At the end of the week, add up all your daily totals to find a grand total.
3. Record your grand total at the bottom of the table.
4. Answer the following questions in a journal or by talking with a friend or adult:
 - What do you notice from the data you collected?
 - What surprised you?
 - What type of trash (paper, plastic, food, metal, glass, etc.) did you have the most of?
 - How might you decrease the amount of trash you create?



My Week in Trash

Day	Date	Weight (pounds)
1		
2		
3		
4		
5		
6		
7		
Grand Total:		

– TRACK YOUR HABITS –

GAUGE YOUR GALLONS



On page 38, the authors describe how much water we waste every day.

1. Choose a day to keep track of the water you use.
2. Throughout the day, count how many times you flush the toilet and measure how long you run the faucet or shower.
3. Use the table below to record the data you collect.
4. Multiply the number in column 2 by the number in column 3 to get your total for that water-using activity. (See the example at the top of the table.)
5. Add your totals up to get your grand total.
6. Answer the following questions in a journal or by talking with a friend or adult:
 - What do you notice from the data you collected?
 - What surprised you?
 - Where do you use the most water: flushing, showering, or using the faucet?
 - How might you decrease the amount of water you use?

My Daily Water Usage

Water-using activity	Number of flushes or minutes used	Amount of water per use	Total amount of water used (gallons or L)
Example: Flushing the toilet	10 flushes	1.6 gallons (6.1 L)/ flush	16 gallons (61 L)
Flushing the toilet		1.6 gallons (6.1 L)/ flush	
Showering		2 gallons (7.5 L)/ minute	
Running the faucet		2 gallons (7.5 L)/ minute	
Other			
GRAND TOTAL:			

– TRACK YOUR HABITS – WATCH YOUR WATTS



1. Use the table below to track how many times you use electricity in a day.
2. Each time you use electricity, add a tally mark to column 2 in the table below.
3. If the type of electricity you used isn't already listed in the table, add a tally mark to the last row beside "Other."
4. Answer the following questions in a journal or by talking with a friend or adult:
 - What did you notice when you tracked your electricity for the day?
 - What surprised you?
 - What type of electricity did you use the most?
 - How could you use less electricity in a day?

(Hint: Tallies can be made in groups of five. So, after you have four tallies in a row, add the fifth tally across the four already there. That way, you can easily add up your tallies by counting by five. See the example below.)



My Daily Electricity Usage

Activity	Number of uses
Turned on a light	
Used a computer	
Played video games	
Watched TV	
Used a cellphone	
Turned on the dishwasher	
Opened the fridge	
Cooked on the stove	
Turned on the washing machine or dryer	
Other	

– TRACK YOUR HABITS –
FREE YOURSELF FROM YOUR PHONE



On page 71, the authors describe how cellphone use might be making teens feel disconnected or even depressed. To be intentional about using cellphones as a tool, we first need to notice our “extremely habitual patterns” like the authors describe.

1. Choose to leave your cellphone in a different room or at home when you go out.
2. In column 1, write down the time when you left your phone.
3. In column 2, write down the time when you returned to your phone.
4. Use the information in columns 1 and 2 to calculate how long you were away from your phone.
5. Write the length of time in column 3.
6. Use columns 4 and 5 to write about what you did instead and how it felt.

Taking a Break from My Phone

Start time	End time	Time away from my phone (minutes or hours!)	What I did instead	How it felt

Plan for Change

Every chapter in the book includes a “What Can We Do About It?” section at the end. Revisit these sections to get some ideas for positive changes you can make. Use these pages to inspire your goal setting described below.

Chapter 1: Keep It Simple (pp. 10–11)

Chapter 2: Toward Zero Waste (pp. 18–19)

Chapter 3: Feed People, Not Landfills (pp. 26–27)

Chapter 4: The Planet-Friendly Diet (pp. 34–35)

Chapter 5: Be Water Wise (pp. 42–43)

Chapter 6: Lighten Up (pp. 50–51)

Chapter 7: Get Moving! (pp. 58–59)

Chapter 8: Connecting Our Money to Our Values (pp. 66–67)

Chapter 9: Create Community (pp. 74–75)

The way to make positive changes in your life is to start small. Follow the steps below to set goals and plan for change.

1. Choose three ideas from the “What Can We Do About It” pages listed above.
2. Use the data you collected about your trash, water, electricity, and cellphone usage to see where you most need to improve.
3. Using the template on page 19, write SMART goals to try out the three ideas you chose and create positive habits in your life.

Specific: Be as specific as you can about what you will do and how you will do it.

Measurable: Think about how you will know that you’ve achieved your goal. What data will you collect?

Achievable: Make sure you are able to complete your goal. Set small goals that you know you can achieve, and then add more goals once your previous goals have become habits.

Relevant: Make your goal related to sustainability and what you have learned from reading *Be the Change*.

Time-bound: Choose a date when you will complete the goal.

My SMART Goal

Answer the questions below to create your goals.

(Hint: Print three copies of this page to set three goals!)

1. When would you like to complete your goal? (e.g., *By July 1*)
2. What will you do? Remember to be specific! (e.g., I will plant seeds for two kinds of vegetables in the garden in our yard.)
3. How will you do it? (e.g., I will choose vegetables I like to eat that grow well in my area. I will ask my parents to help me buy and plant the seeds in June)
4. How will you know you have achieved your goal? What data will you collect? (e.g., I will make sure I water my vegetables daily by adding a checkmark to each day on our fridge calendar when I have watered my vegetables. I will ask my parents to help me remember to water my vegetables.)
5. Put together your answers from the questions above to create your goal (e.g., By July 1, I will plant seeds for two kinds of vegetables in the garden in our yard. I will choose vegetables I like to eat that grow well in my area. I will ask my parents to help me buy and plant the seeds in spring. I will make sure I water my vegetables daily by adding a checkmark to each day on our fridge calendar when I have watered my vegetables. I will ask my parents to help me remember to water my vegetables.)

Learn More

1. Learn about what processing does to the nutritional value of food. On page 30 under the heading “Addicted to Convenience,” there is a list of different ways that foods are processed. Choose one or two of the processes to research and find out how that process might affect the nutritional value of the food. The processes are also listed below:

milled
pressed
cooked
canned
filtered
extracted
irradiated

fermented
dried
rehydrated
baked
homogenized
bleached

2. Find out about the waste programs in your area like composting, recycling, and donating. Are you using all the services available to you? Look up ways that you could reduce your trash by using these services more. On page 14, the authors describe the different types of waste. Reducing waste is more important than recycling, but recycling is still better than throwing things in the landfill.
3. Research landfills and the chemical reactions that happen there (or that don’t happen!) to break down the garbage. Get started by re-reading the description under “Organized Littering” on page 15.





4. Find out more about composting toilets like the one Rob describes in the caption on page 41.
5. Choose a type of energy from the list on pages 46 to 47 and research to find out more. Use the answers below to reflect on what you find out.
 - Do you think this is a clean or dirty type of energy? Why?
 - Is there research into ways to make this type of energy more sustainable?
 - Is this type of energy being used in your area?
6. Find out what your water footprint is using the Water Calculator:
<https://www.watercalculator.org/>
7. Research human rights and how they might relate to clean drinking water.
 - Read about human rights:
<https://www.un.org/en/global-issues/human-rights>
 - Read the simplified version of the UN Declaration of Human Rights: <https://www.youthforhumanrights.org/what-are-human-rights/universal-declaration-of-human-rights/articles-1-15.html>
 - Read the full version of the UN Declaration of Human Rights: <https://www.un.org/en/about-us/universal-declaration-of-human-rights>
 - Read the caption on page 39: Do you think having access to clean water is a basic human right?
 - Read the green sidebar on page 43: Do you agree with Autumn Peltier that water should have the same rights and protections as human beings?

8. Learn more about the young people and organizations who are making a difference. The green sidebars in the book describe young people and organizations that are making positive changes in the world. Choose one of these people or organizations to find out more about how they got started and the difference they're making for the environment. Their names and one or two websites about them are listed below to get you started. Some of these websites, and a few more, are also listed on the Resources page (p. 80) in the book.

- **Minimalist Teen** (p. 11): Isabella Syren (<https://zerowastefamily.com/>)
- **Abhi the Eco Superhero** (p. 19): Abhishek Shastri (<https://www.5gyres.org/> and <https://vimeo.com/171141024>)
- **Teen Leader** (p. 27): Gabrielle Posard (<https://donatedontdump.com/>)
- **Seed Librarian** (p. 35): Alicia Serratos (<https://3sistersseedbox.wordpress.com/about/> and <https://www.robgreenfield.org/aliciaserratos/>)
- **Speaking up for Water** (p. 43): Autumn Peltier (<https://www.thecanadianencyclopedia.ca/en/article/autumn-peltier>)
- **Poo Power** (p. 51): Toronto Zoo (<https://www.torontozoo.com/tz/biogas> and <https://zooshare.ca/>)
- **Let's Bike!** (p. 59): Bikes Not Bombs (<https://bikesnotbombs.org/>)
- **Kids Helping Kids** (p. 67): Vishal and Ishan Vijay (<https://everychildnow.mystrikingly.com/>)
- **Teen Green Team** (p. 75): BK ROT (<https://www.bkrot.org/>)

Spread the Word

Teach others what you have learned from reading this book!

1. Choose one of the topics from the book that interests you the most (for example, food waste, electricity usage, or transportation).
2. Using the information in the book, create a poster, slide presentation, or video to share what you learned with others.
3. Improve your presentation by doing additional research on the topic. (Hint: Start with the Resources listed on page 80 of the book.)
4. Share your presentation with your family, friends, and the world to spread the word and make a difference!

SOURCES

1. Stuff

online shopping leads to buying more stuff: Alana Semuels, “We Are All Accumulating Mountains of Things,” *The Atlantic*, August 21, 2018, <https://www.theatlantic.com/technology/archive/2018/08/online-shopping-and-accumulation-of-junk/567985>.

American children are given 70 toys per year: Juliet B. Schor, *Born to Buy: The Commercialized Child and the New Consumer Culture* (New York: Scribner, 2004), 19. This figure is the author’s own calculation: in 2000, 3.6 billion new toys were purchased in the United States and there were 52 million children in the 12-and-under age group.

children in the United Kingdom play with a dozen favorite toys: Based on a poll conducted by Dream Town in 2010, cited in Nicky Findley, “Too Many Toys? Do Your Kids Play With the Ones They Have?” *Bournemouth Daily Echo*, October 20, 2010, <https://www.bournemouthecho.co.uk/news/8464363.too-many-toys-do-your-kids-play-with-the-ones-they-have>.

size of typical American home: Trulia, “8 Reasons To Buy A 1000-Square-Foot House,” *Forbes*, June 15, 2016, <https://www.forbes.com/sites/trulia/2016/06/15/8-reasons-to-buy-a-1000-square-foot-house/#5ef0365b59f8>. Original source is United States Census Bureau data.

size of typical American home in the 1950s: Emma Johnson, “The Real Cost of Your Shopping Habits,” *Forbes*, January 15, 2015, <https://www.forbes.com/sites/emma-johnson/2015/01/15/the-real-cost-of-your-shopping-habits/#23d22b851452>.

growth of self-storage industry: According to the World Bank, the population of the United States has grown by 0.7 percent to 0.5 percent since 2015. According to IBISWorld, the storage industry has grown by 1.5 percent each year over the same period. “Storage & Warehouse Leasing Industry in the US—Market Research Report,” IBISWorld, March 2020,, <https://www.ibisworld.com/united-states/market-research-reports/storage-warehouse-leasing-industry>; and “Population Growth (annual %),” World Bank Data, <https://data.worldbank.org/indicator/SP.POP.GROW> (United States).

extra possessions not making us happier: Annie Leonard, *The Story of Stuff* (New York: Free Press, 2010), 149, citing Bill McKibben, *Deep Economy* (New York: Henry Holt & Company, 2007), 35–36.

resources used by the average American: “Use It and Lose It: The Outsize Effect of U.S. Consumption on the Environment,” *Scientific American*, September 14, 2012, <https://www.scientificamerican.com/article/american-consumption-habits/>.

Note to readers: The statistics and sources in this book are drawn from the latest information available at the time of writing. In cases where numbers may vary, averages have been used. Some figures have been rounded up or down for the sake of simplicity. Unless otherwise noted, online sources were last consulted in June 2020.

global footprints of different countries: “Infographics,” Earth Overshoot Day, <https://www.overshootday.org/newsroom/infographics/>. Canadian figure from “Earth’s Resources Depleted for 2016,” World Wildlife Fund Canada, last modified August 4, 2016, <https://www.wwf.ca/?21901/Earths-resources-depleted-for-2016>.

extreme collectors: Ferris Jabr, “Step Inside the Real World of Compulsive Hoarders,” *Scientific American*, February 23, 2013, <https://www.scientificamerican.com/article/real-world-hoarding/>.

Little Free Library movement: Jenna Ross, “Todd Bol, creator of the Little Free Library movement, dies at 62,” *Star Tribune*, October 18, 2018, <https://www.startribune.com/todd-bol-little-free-library-founder-dies-leaving-a-legacy-of-helping-cities-one-book-at-a-time/497938831/>.

Isabella Syren: email to author, May 6, 2020.

2. Waste

global production of solid waste, and how much waste different countries produce: Silpa Kaza, Lisa C. Yao, Perinaz Bhada-Tata, and Frank Van Woerden, *What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050* (Washington, DC: World Bank, 2018), 17, <https://openknowledge.worldbank.org/handle/10986/30317>.

waste composition in North America: Kaza et al., *What a Waste 2.0*, 67.

household waste 100 years ago: Leonard, *The Story of Stuff*, 192.

household, construction, and industrial waste: Leonard, *The Story of Stuff*, 186, citing Joel Makower, “Industrial Strength Solution,” *Mother Jones*, May/June 2009.

biodegradables in landfills: “Biodegradation Won’t Solve the Landfill Crunch,” Environment and Plastics Industry Council, n.d., <https://www.bpiworld.org/resources/Documents/EPIC%20Position%20on%20Biodegradability%20and%20Landfills.pdf>.

ocean plastics to outweigh fish by 2050: “The New Plastics Economy: Rethinking the Future of Plastics & Catalysing Action,” Ellen MacArthur Foundation, 2017, 12, <https://www.ellenmacarthurfoundation.org/publications/the-new-plastics-economy-rethinking-the-future-of-plastics-catalysing-action>.

plastics made of mixed materials not recyclable: “Why Your Recycling May Not Actually Get Recycled,” CBC Radio (podcast), last updated May 2, 2019, <https://www.cbc.ca/radio/thesundayedition/the-sunday-edition-for-april-21-2019-1.5099057/why-your-recycling-may-not-actually-get-recycled-1.5099103>.

25 percent more waste during holidays: “Christmas Plan Not to Waste,” *Zero Waste Canada* (blog), December 18, 2016, <https://zerowastecanada.ca/christmas-plan-not-to-waste>.

repair cafés: “About Repair Café,” Repair Café, n.d., <https://repaircafe.org/en/about>.

Note to readers: The statistics and sources in this book are drawn from the latest information available at the time of writing. In cases where numbers may vary, averages have been used. Some figures have been rounded up or down for the sake of simplicity. Unless otherwise noted, online sources were last consulted in June 2020.

3. Food Waste

cost of national food waste: figure for United States from Somini Sengupta, “How Much Food Do We Waste? Probably More Than You Think,” *New York Times*, December 12, 2017, <https://www.nytimes.com/2017/12/12/climate/food-waste-emissions.html>; figure for Canada from L. Nikkel, M. Maguire, M. Gooch, M., D. Bucknell, D. LaPlain, B. Dent, P. Whitehead, and A. Felfel, *The Avoidable Crisis of Food Waste: Technical Report* (Toronto: Second Harvest and Value Chain Management International, 2019), 5, accessed from www.SecondHarvest.ca/Research; figure for the United Kingdom from “Estimates of Food Surplus and Waste Arisings in the UK,” Waste and Resources Action Programme (WRAP), January 19, 2017, http://www.wrap.org.uk/sites/files/wrap/Estimates_%20in_the_UK_Jan17.pdf; figure from Australia from “Food Waste Facts,” OzHarvest, n.d., <https://www.ozharvest.org/what-we-do/environment-facts/>. All currencies converted to US dollars as per exchange rates at the time of writing.

UN estimate of cost to end world hunger: Joseph D’Urso, “How Much Would It Cost to End Hunger,” World Economic Forum, July 16, 2015, <https://www.weforum.org/agenda/2015/07/how-much-would-it-cost-to-end-hunger>. The total cost of food waste for the United States, Canada, Australia, and the United Kingdom is US\$234 billion. The UN’s estimate for the cost of ending hunger is US\$267 billion.

more food is lost or wasted before it reaches consumer: Jenny Gustausson, Christel Cederberg, Ulf Sonesson, Robert van Otterdijk, and Alexandre Meybeck, *Global Food Losses and Food Waste—Extent, Causes and Prevention* (Rome: FAO, 2011), 5, <http://www.fao.org/3/mb060e/mb060e.pdf>. The estimate for the total per capita food loss in Europe and North America is 617–661 pounds/year (280–300 kg/year). The estimate for consumer per capita food waste in Europe and North America is 209–254 pounds/year (95–115 kg/year). The difference is 408 pounds (185 kg).

globally, 820 million people are food insecure: FAO, IFAD, UNICEF, WFP and WHO, “The State of Food Security and Nutrition in the World 2019” (Rome: FAO, 2019), 6, <http://www.fao.org/state-of-food-security-nutrition/en>.

number of Americans and Canadians who are food insecure: Canadian statistic from Nikkel, *The Avoidable Crisis of Food Waste*, 3; American statistic from “Understand Food Insecurity,” Hunger + Health, n.d., <https://hungerandhealth.feedingamerica.org/understand-food-insecurity>.

food waste and deforestation, depletion of fish, and biodiversity loss: “Food Wastage Footprints,” FAO Factsheet, 2013, n.d., http://www.fao.org/fileadmin/templates/nr/sustainability_pathways/docs/Factsheet_FOOD-WASTAGE.pdf.

Note to readers: The statistics and sources in this book are drawn from the latest information available at the time of writing. In cases where numbers may vary, averages have been used. Some figures have been rounded up or down for the sake of simplicity. Unless otherwise noted, online sources were last consulted in June 2020.

4. The Food System

farm and rangeland, worldwide: Navin Ramankutty, Amato T. Evan, Chad Monfreda, and Jonathan A. Foley, "Farming the Planet: 1. Geographic Distribution of Global Agricultural Lands in the Year 2000," *Global Biogeochemical Cycles* 22, no. 1 (March 2008), and James Owen "Farming Claims Almost Half Earth's Land, New Maps Show," *National Geographic*, December 9, 2005, <https://www.nationalgeographic.com/news/2005/12/agriculture-food-crops-land>.

toll of pesticides on health of farmworkers: Christos A. Damalas and Spyridon D. Koutroubas, "Farmers' Exposure to Pesticides: Toxicity Types and Ways of Prevention," *Toxics* 4, no. 1 (January 8, 2016): 1, <https://doi:10.3390/toxics4010001>.

loss of topsoil: Chris Arsenault, "Only 60 Years of Farming Left If Soil Degradation Continues," *Scientific American*, December 5, 2014, <https://www.scientificamerican.com/article/only-60-years-of-farming-left-if-soil-degradation-continues>.

greenhouse gases from food production: P.J. Gerber, et al., *Tackling Climate Change Through Livestock* (Rome: FOA, 2013), 15, fao.org/news/story/en/item/197623/icode.

health problems from ultra-processed diet: "Simpler Is Better When It Comes to Healthy Eating," Heart and Stroke Foundation of Canada, June 27, 2019, n.d., <https://www.heartandstroke.ca/what-we-do/media-centre/news-releases/simpler-is-better-when-it-comes-to-healthy-eating>.

plastic collected during beach cleanup: Laura Parker, "Plastic Food Packaging Was Most Common Beach Trash in 2018," *National Geographic*, September 3, 2019, n.d., <https://www.nationalgeographic.com/environment/2019/09/plastic-food-packaging-top-trash-global-beach-cleanup-2018>.

how long plastic takes to biodegrade: "How Long Does It Take for a Plastic Bag to Break Down?" Toronto Environmental Alliance, n.d., https://www.torontoenvironment.org/how_long_does_it_take_for_a_plastic_bag_to_break_down.

Birke Baehr, teen farmer: Birke Baehr, "What's Wrong With Our Food System," filmed August 2010 at TEDxNextGenerationAsheville, video, 5:07, https://www.ted.com/talks/birke_baehr_what_s_wrong_with_our_food_system?language=en#t-285248, and Patrick James, "How One Teen Is Fighting to Change Our Food System," *Fast Company*, June 20, 2013, <https://www.fastcompany.com/2682360/how-one-teen-is-fighting-to-change-our-food-system>.

Note to readers: The statistics and sources in this book are drawn from the latest information available at the time of writing. In cases where numbers may vary, averages have been used. Some figures have been rounded up or down for the sake of simplicity. Unless otherwise noted, online sources were last consulted in June 2020.

5. Water

average per capita daily water use in Africa and Asia: “Water and People: Whose Right Is It?” FAO, n.d., <http://www.fao.org/3/y4555e/y4555e00.htm>.

average per capita daily water use in European Union: “Water Use in Europe—Quantity and Quality Face Big Challenges,” European Environment Agency, last modified December 10, 2019, <https://www.eea.europa.eu/signals/signals-2018-content-list/articles/water-use-in-europe-2014#:~:text=On%20average%2C%20144%20litres%20of,supplied%20to%20households%20in%20Europe>.

average per capita daily water use in Canada: “Survey of Drinking Water Plants, 2017,” The Daily, Statistics Canada, last modified June 11, 2019, <https://www150.statcan.gc.ca/n1/daily-quotidien/190611/dq190611b-eng.htm>.

average per capita daily water use in the United States: “Water Q&A: How Much Water Do I Use at Home Each Day?” Water Science School, U.S. Geological Survey, n.d., <https://water.usgs.gov/edu/qa-home-percapita.html>.

outdoor water use: “Outdoor Water Use at Home,” Water Footprint Calculator, GRACE Communications Foundation, last modified February 7, 2017, <https://www.watercalculator.org/water-use/outdoor-water-use-at-home>.

water footprints of foods and products: Stephen Leahy, *Your Water Footprint: The Shocking Facts about How Much Water We Use to Make Everyday Products* (Toronto: Firefly Books, 2014). Figure for tomato from Water Footprint Network, Product Gallery, n.d., <https://waterfootprint.org/en/resources/interactive-tools/product-gallery>. Figure for gasoline from Jon Clift and Amanda Cuthbert, *Water: Use Less, Save More* (Devon, UK: Green Books, 2006), 56.

Autumn Peltier: Melissa Kent, “Canadian Teen Tells UN ‘Warrior Up’ to Protect Water,” CBC News, last modified March 22, 2018, <https://www.cbc.ca/news/canada/autumn-peltier-un-water-activist-united-nations-1.4584871>.

6. Energy

how oil is pumped: Kailyn Stenhouse, Jordan Hanania, and Jason Doneu, “Pump Jack,” Energy Education, 2015, n.d., https://energyeducation.ca/encyclopedia/Pump_jack.

water injection to pump oil: “How Does Water Injection Work?” Rigzone, n.d., https://www.rigzone.com/training/insight.asp?insight_id=341.

impact of hydraulic fracturing on water sources: US Environmental Protection Agency (EPA), *Hydraulic Fracturing for Oil and Gas: Impacts from the Hydraulic Fracturing Water Cycle on Drinking Water Resources in the United States: Executive Summary* (Washington, DC: Office of Research and Development, 2016), 4, https://www.epa.gov/sites/production/files/2016-12/documents/hfdwa_executive_summary.pdf.

Note to readers: The statistics and sources in this book are drawn from the latest information available at the time of writing. In cases where numbers may vary, averages have been used. Some figures have been rounded up or down for the sake of simplicity. Unless otherwise noted, online sources were last consulted in June 2020.

annual volume of oil spills: “Accidental Discharges of Oil,” Global Marine Oil Pollution Information Gateway,” n.d., <http://oils.gpa.unep.org/facts/oilspills.htm>.

how coal is mined: “How Coal Works,” Union of Concerned Scientists, last modified December 18, 2017, <https://www.ucsusa.org/resources/how-coal-works>.

radioactive waste from nuclear reactors: “Backgrounder on Radioactive Waste,” United States Nuclear Regulatory Commission, last modified July 23, 2019, [https://www.nrc.gov/reading-rm/doc-collections/fact-sheets/radwaste.html#:~:text=Radioactive%20\(or%20nuclear\)%20waste%20is,level%20or%20low%2Dlevel%20waste](https://www.nrc.gov/reading-rm/doc-collections/fact-sheets/radwaste.html#:~:text=Radioactive%20(or%20nuclear)%20waste%20is,level%20or%20low%2Dlevel%20waste).

environmental impact of hydroelectric dams: “Environmental Impacts of Hydroelectric Power,” Union of Concerned Scientists, n.d., <https://www.ucsusa.org/resources/environmental-impacts-hydroelectric-power>.

first generation biofuels: S.N. Naik, et al., “Production of First and Second Generation Biofuels: A Comprehensive Review,” *Renewable and Sustainable Energy Reviews* 14, no. 2 (February 2010): 578–97, <https://doi.org/10.1016/j.rser.2009.10.003>.

subsidies to the fossil fuel industry: Peter Hawken, ed., *Drawdown: The Most Comprehensive Plan Ever Proposed to Reverse Global Warming* (New York: Penguin, 2017), 3.

energy used to run water faucet for five minutes: “WaterSense: Statistics and Facts,” EPA, last modified November 7, 2018, <https://www.epa.gov/watersense/statistics-and-facts>.

Toronto Zoo biogas project: “ZooShare Biogas Co-Operative: Our Project,” n.d., <https://www.zooshare.ca/about-zooshare>.

7. Transportation

percentage of our GHG emissions due to transportation: Nicholas P. Lutsey and Dan Sperling, “Transportation and Greenhouse Gas Mitigation,” UC Davis: Institute of Transportation Studies, 2008, <https://escholarship.org/uc/item/6fz1z05g>.

water footprint of cars: Leahy, *Your Water Footprint* (Toronto: Firefly Books, 2014), 98.

carbon footprint of cars: Rachael Nealer, David Reichmuth, and Don Anair, “Cleaner Cars from Cradle to Grave,” Union of Concerned Scientists, 2015, 3, <https://www.ucsusa.org/sites/default/files/attach/2015/11/Cleaner-Cars-from-Cradle-to-Grave-exec-summary.pdf>.

annual cost of owning a car: “AAA Reveals True Cost of Vehicle Ownership,” AAA NewsRoom, last modified August 23, 2017, <https://newsroom.aaa.com/tag/cost-to-own-a-vehicle/>.

how pollution from traffic affects children: Janice J. Jim, Suetlana Smorodinsky, Michael Lipsett, Brett C. Singer, Alfred T. Hodgson, and Bart Ostro, “Traffic-related Air Pollution near Busy Roads: The East Bay Children’s Respiratory Health Study,” *American Journal of Respiratory and Critical Care Medicine* 170, no. 5 (2004), <https://doi.org/10.1164/rccm.200403-281OC>.

Note to readers: The statistics and sources in this book are drawn from the latest information available at the time of writing. In cases where numbers may vary, averages have been used. Some figures have been rounded up or down for the sake of simplicity. Unless otherwise noted, online sources were last consulted in June 2020.

environmental impact of roads: Jacob Hill, “The Environmental Impact of Road,” n.d., <https://www.environmentalscience.org/roads>.

environmental impact of air travel: Sid Perkins, “The Best Way to Reduce Your Carbon Footprint Is One the Government Isn’t Telling You About,” *Science*, last modified July 11, 2017, <https://www.sciencemag.org/news/2017/07/best-way-reduce-your-carbon-footprint-one-government-isn-t-telling-you-about>.

energy used by different forms of transportation: Cameron Gordon, “Which Transport Is the Fairest of Them All?” *The Conversation*, last modified April 22, 2014, <https://theconversation.com/which-transport-is-the-fairest-of-them-all-24806>.

oil-rich countries and international conflict: Jeff D. Colgan, *Petro-Aggression: When Oil Causes War* (Cambridge, MA: Cambridge University Press, 2013), 59.

benefits of walking to school: Valerie Iancovich, “Why Walking to School Is Better Than Driving for Your Kids,” *U of T News*, September 11, 2015, <https://www.utoronto.ca/news/why-walking-school-better-driving-your-kids>.

8. Money

fossil fuel emissions according to wealth: Timothy Gore, “Extreme Carbon Inequality,” Oxfam International (media briefing), December 2, 2015, <https://www.oxfam.org/en/research/extreme-carbon-inequality>.

social class and recognizing emotions: Michael W. Kraus, Stéphane Côté, and Dacher Keltner, “Social Class, Contextualism, and Empathic Accuracy,” *Psychological Science* 21, no. 11 (November 2010): 1716–23, <https://doi.org/10.1177/0956797610387613>.

social class and paying attention to others: Michael W. Kraus and Dacher Keltner, “Signs of Socioeconomic Status: A thin-slicing Approach,” *Psychological Science* 20, no. 1 (2009): 99–106, <https://doi.org/10.1111/j.1467-9280.2008.02251.x>.

wealth and loss of compassion: Daisy Grewal, “How Wealth Reduces Compassion,” *Scientific American*, April 10, 2012, <https://www.scientificamerican.com/article/how-wealth-reduces-compassion>.

coltan and conflict in the Democratic Republic of Congo: “The Politics of Coltan: An Interview with Michael Nest,” Oxford Research Group, November 28, 2016, <https://www.oxfordresearchgroup.org.uk/blog/the-politics-of-coltan-an-interview-with-michael-nest>.

the terms we use to talk about wealth and poverty: Marc Silver, “If You Shouldn’t Call It The Third World, What Should You Call It?,” *Goats and Soda* (blog), January 5, 2015, <https://www.npr.org/sections/goatsandsoda/2015/01/04/372684438/if-you-shouldnt-call-it-the-third-world-what-should-you-call-it>; and Gawain Kripke, “‘Poor’ Versus ‘Low-Income’: What Term Should We Use?” *Politics of Poverty*, January 15, 2015, <https://politicsofpoverty.oxfamamerica.org/poor-versus-low-income-what-term-should-we-use>.

Note to readers: The statistics and sources in this book are drawn from the latest information available at the time of writing. In cases where numbers may vary, averages have been used. Some figures have been rounded up or down for the sake of simplicity. Unless otherwise noted, online sources were last consulted in June 2020.

number of billionaires in Mumbai: Kounteya Sinha, “Mumbai Sixth Among Top 10 Global Cities on Billionaire Count,” Times of India, May 10, 2013, <https://timesofindia.indiatimes.com/city/mumbai/Mumbai-sixth-among-top-10-global-cities-on-billionaire-count/articleshow/19978005.cms?referral=PM>.

number of millionaires in Mumbai: PTI, “Mumbai Richest Indian City with Total Wealth of \$820 Billion, Delhi Comes Second: Report,” *Indian Express*, last modified February 27, 2017, <https://indianexpress.com/article/india/mumbai-richest-indian-city-with-total-wealth-of-820-billion-delhi-comes-second-report-4544685>.

poverty and wealth in Mumbai: Aria Bendix, “Drone Photos of Mumbai Reveal the Places Where Extreme Poverty Meets Extreme Wealth,” *Business Insider*, October 2, 2018, <https://www.businessinsider.com/aerial-drone-photos-mumbai-extreme-wealth-slums-2018-9>.

gap between wealthy and poor worldwide: Credit Suisse Research Institute, *Why Wealth Matters: Global Wealth Report 2019* (Zurich: Credit Suisse AG, 2019), 2, <https://www.credit-suisse.com/about-us/en/reports-research/global-wealth-report.html>.

9. Connection

study finding that three out of five Americans feel lonely: Lauren Glendenning, “Social Isolation and Loneliness: A Talk About Coronavirus’s Effects on Mental Health,” *Post Independent*, April 23, 2020, <https://www.postindependent.com/news/social-isolation-and-loneliness-a-talk-about-coronaviruss-effects-on-mental-health-sponsored>.

loneliness in Australian youth: Michelle H. Lim, Robert Eres, and Claire Peck, *The Young Australian Loneliness Survey: Understanding Loneliness in Adolescence and Young Adulthood* (unpublished report), (Iverson Health Innovation Research Institute & Centre for Mental Health, Swinburne University of Technology, 2019), 3, <https://www.uichealth.uic.gov.au/loneliness-survey>.

minister of loneliness appointed in the United Kingdom: Jason Daley, “The U.K. Now Has a ‘Minister for Loneliness.’ Here’s Why It Matters,” *Smithsonian Magazine* (SmartNews), January 19, 2018, <https://www.smithsonianmag.com/smart-news/minister-loneliness-appointed-united-kingdom-180967883>.

loneliness leading to depression, anxiety, violence, or suicide: R.F. Baumeister and M. R. Leary, “The Need to Belong: Desire for Interpersonal Attachments as a Fundamental Human Motivation,” *Psychological Bulletin* 117, no. 3 (May 1995): 497–529, <https://pubmed.ncbi.nlm.nih.gov/7777651>.

chronic loneliness makes us vulnerable to disease: S. Leonard Syme and Miranda L. Ritterman, “The Importance of Community Development for Health and Well-Being,” *Community Development Investment Review* 3 (January 2009): 1–13.

Note to readers: The statistics and sources in this book are drawn from the latest information available at the time of writing. In cases where numbers may vary, averages have been used. Some figures have been rounded up or down for the sake of simplicity. Unless otherwise noted, online sources were last consulted in June 2020.

six fundamental human needs: Nicole Gravagna, “Six Fundamental Human Needs We Need to Meet to Live Our Best Lives,” *Forbes*, February 5, 2018, <https://www.forbes.com/sites/quora/2018/02/05/six-fundamental-human-needs-we-need-to-meet-to-live-our-best-lives/#64e3b288344a>.

connection between smartphones and mental health: For the argument against smartphones, see Jean M. Twenge, “Have Smartphones Destroyed a Generation?” *The Atlantic*, September 2017, <https://www.theatlantic.com/magazine/archive/2017/09/has-the-smart-phone-destroyed-a-generation/534198>. For a discussion of the ambiguity in this research, see Sarah Rose Cavanagh, “The Confounding Relationship Between Smartphones and Mental Health,” *Inside Higher Ed*, January 20, 2019, <https://www.insidehighered.com/blogs/just-visiting/guest-post-confounding-relationship-between-smart-phones-and-mental-health>.

Note to readers: The statistics and sources in this book are drawn from the latest information available at the time of writing. In cases where numbers may vary, averages have been used. Some figures have been rounded up or down for the sake of simplicity. Unless otherwise noted, online sources were last consulted in June 2020.

