



## Infrastructure and Utilities Resource List for Grades 5 through 8

The Resources in this document can be used with the Infrastructure Curriculum Packet for grades 5 through 8.

### Books

#### Non-fiction and Biography

- The Big Dig : Reshaping an American City, 2001 by Peter Vaderwarker (Author).  
Behind the scenes of the Central Artery/Third Harbor Tunnel Project to discover how traffic in Boston got to be so bad in the first place, and how poor planning led to an elevated highway that divided the city and made traffic worse.
- Bridges: Amazing Structures to Design, Build & Test, 1999 by Carol A. Johmann (Author), Elizabeth Rieth (Author), Michael P. Kline (Illustrator).  
Describes different kinds of bridges, their history, design, construction, and effects on populations, environmental dilemmas, safety, and more.
- Cities: Discover How They Work with 25 Projects (Build It Yourself) , 2014 by Kathleen M. Reilly (Author), Tom Casteel (Illustrator).  
To a child, a city is a chaotic, vibrant community whose workings can seem quite mysterious. How did people create subways? How does the water get to the very top of a skyscraper? Is there any organization to a bustling metropolis
- The Electric War: Edison, Tesla, Westinghouse, and the Race to Light the World, 2019 by Mike Winchell (Author).  
In the mid-to-late-nineteenth century, a burgeoning science called electricity promised to shine new light on a rousing nation. Inventive and ambitious minds were hard at work. Soon that spark was fanned, and a fiery war was under way to be the first to light, and run, the world with electricity.
- Engineering the City: How Infrastructure Works, Projects and Principles for Beginners, 2000 by Matthys Levy (Author), Richard Panchyk (Author).  
How does a city obtain water, gas, and electricity? Where do these services come from? How are they transported? The answer is infrastructure, or the inner, and sometimes invisible, workings of the city. Roads, railroads, bridges, telephone wires, and power lines are visible elements of the infrastructure; sewers, plumbing pipes, wires, tunnels, cables, and sometimes rails are usually buried underground or hidden behind walls.
- Going Underground: City Infrastructure, 2007 by Buffy Silverman (Author).  
Have you ever imagined what happens beneath city streets? Read this book to discover the hidden world under your feet!
- How Do Sewers Work? (Stem Waterworks), 2016 by Greg Roza (Author).  
Sewers might be a gross subject to study, but they also offer the perfect chance to comprehend important STEM skills and topics. Learn about sewers throughout the centuries, from the systems of the ancient Roman Empire to those in our very own neighborhoods. This book

addresses important scientists, engineers, and inventors who have made the unsavory job of removing waste from our lives a reality.

- Infrastructure of America's Airports (America's Infrastructure), 2018 by Joanne Mattern (Author).  
Imagine a world without airports! Air travel has changed the way we live and work, but no one would be able to travel without airports. Over the past 100 years, air travel has gone from an unusual adventure to an everyday event. Discover the stories behind eight major U.S. airports, including how they were built.
- Infrastructure of America's Inland Waterways (America's Infrastructure), 2018 by Bonnie Hinman (Author).  
Rivers were the only highways Native Americans used or needed. Even America's first settlers found it much easier to travel on the waterways than to build roads through the forests. Today our inland waterways carry millions of tons of cargo each year. But our waterways have not received the attention needed to continue their important role in the commerce of our country.
- Infrastructure of America's Railway Systems (America's Infrastructure), 2018 by Marcia Lusted (Author).  
This book explores eight railroads and subways that are lifelines for transportation in the U.S.. These pieces of infrastructure are very important to the entire country, but need emergency repairs and expansion right now.
- Infrastructure of America's Tunnels (America's Infrastructure), 2018 by Marcia Lusted (Author).  
Infrastructure is something that we use every day, like roads, bridges, and tunnels, but probably never think too much about. Tunnels especially are vital to transportation, and extremely dangerous when they collapse. This book explores eight tunnels of different types that are lifelines for transportation in the US.
- The Invention of the Telegraph and Telephone in American History, 2004 by Anita Louise McCormick (Author).  
Examines the work of Alexander Graham Bell in inventing the telephone, and of Samuel Morse in inventing the telegraph, offering a look at the development of the earliest forms of telecommunication.
- Railroad Fever: Building the Transcontinental Railroad 1830-1870 (Crossroads America), 2004 by Monica Halpern (Author).  
In the 1840s, the desire for new land and the promise of riches drew thousands of Americans westward. But the journey by wagon and on foot was slow and dangerous, and people yearned for a new way to travel. The dream of creating a railroad that spanned the entire country seemed at best fleeting, but the passion of a few ignited a nation.
- Remaking the John: The Invention and Reinvention of the Toilet, 2014 by Francesca Davis Dipiazza (Author).  
Did you know that about 40 percent of the world's population lives without toilets? That's more than two billion people, most of whom live in rural areas or crowded urban slums. And according to the World Health Organization, diseases spread by the lack of basic sanitation kill more people every year than all forms of violence, including war.
- The Science of Lighting a City: Electricity in Action (Action Science), 2010 by Jim Whiting (Author).  
Click! The lights come on, and it seems like the most natural thing in the world. But without science, you'd be left in the dark. Come take a closer look at the science that makes lighting a city possible.

- Sewer Inspector (Dirty and Dangerous Jobs), 2010 by Geoffrey M Horn (Author), Susan Nations (Consultant Editor).  
Discusses the responsibilities of sewer inspection, describes the purpose of sewers, and explores the odd things found in the tunnels.
- Sewers and the Rats That Love Them: The Disgusting Story Behind Where It All Goes (Sanitation Investigation), 2008 by Kelly Barnhill (Author).  
Are you ready to go behind the scenes of our amazing sanitation system? From the history of toilets to the mystery of tap water, each book reveals what goes on after the flush and after the trash has been taken out. You'll never look at garbage, toilets, and waste the same way again!
- Tunnels (Engineering Wonders) , 2015 by Joanne Mattern (Author).  
This book explores the use of super structures around the world and how they have shaped future technological advancements.
- Underground, 1983 by David Macaulay. (Author).  
David Macaulay takes us on a visual journey through a city's various support systems by exposing a typical section of the underground network and explaining how it works. We see a network of walls, columns, cables, pipes and tunnels required to satisfy the basic needs of a city's inhabitants.
- The Works! Anatomy of a City, 2007 by Kate Ascher. (Author).  
Have you ever wondered how the water in your faucet gets there? Where your garbage goes? What the pipes under city streets do? How bananas from Ecuador get to your local market? Why radiators in apartment buildings clang? Using New York City as its point of reference, The Works takes readers down manholes and behind the scenes to explain exactly how an urban infrastructure operates.

## Fiction

- The Giver, 1994 by Lois Lowry (Author).  
The story centers on twelve-year-old Jonas, who lives in a seemingly ideal, if colorless, world of conformity and contentment. Not until he is given his life assignment as the Receiver of Memory does he begin to understand the dark, complex secrets behind his fragile community.
- The Lightning Thief (Percy Jackson and the Olympians, Book 1), 2005 by Rick Riordan (Author).  
Percy Jackson is a good kid, but he can't seem to focus on his schoolwork or control his temper. And lately, being away at boarding school is only getting worse-Percy could have sworn his pre-algebra teacher turned into a monster and tried to kill him. When Percy's mom finds out, she knows it's time that he knew the truth about where he came from. She sends him to Camp Half Blood, a summer camp for demigods (on Long Island), where he learns that the father he never knew is Poseidon, God of the Sea.
- Lost in the Tunnel of Time (Clubhouse Mysteries), 2011 by Sharon M. Draper (Author), Jesse Joshua Watson (Illustrator).  
In this book the boys discover their hometown was a stop on the Underground Railroad and are excited to explore the part of the tunnel that is right under their school. When a trapdoor slams behind them, locking them in the tunnel, there's only one thing they can do, plunge deeper and deeper into the darkness.
- Wolves and Daggers (Steampunk Red Riding Hood) (Volume 1), 2018 by Melanie Karsak (Author).

When London's brightest tinkers and alchemists come up missing, Red Cape Society Agent Clemeny Louvel is on the case. To help get the solved, Queen Victoria assigns her a temporary partner, a werewolf with a knightly history. Can she trust him to help her chase down the monsters they're hunting?

### **Magazines, Journals, Miscellaneous**

- Ask Magazine: Explores the world with inventors, artists, thinkers, and scientists of the past and present.  
<https://shop.cricketmedia.com/magazines-6-9-years/ASK-Magazine-for-Kids.html>

### **Online Links**

- Bash the Trash: Building, Performing & Educating With Musical Instruments Made From Trash Since 1991  
<https://www.bashthetrash.com/kidscorner>
- Design Squad Global: Fun engineering problems encourage classroom competition, innovation  
<https://pbskids.org/designsquad>
- Energies: Environmentally-minded city sim models sustainable building.  
<https://www.energycities.eu/>
- The Museum of the City of New York: The Greatest Grid Exhibition  
<http://thegreatestgrid.mcny.org/>
- Smithsonian: National Postal Museum activities  
<https://postalmuseum.si.edu/activities/>

### **Background information for the Educator**

- Stanford University: Lesson plans for teaching about infrastructure.  
<https://gpc.stanford.edu/infrastructure-lesson-2>