Lesson	Title	Primary Topics
Lesson 1	Your Science Training Begins	• The history of science • Fact, hypothesis, theory, law, and pseudoscience • "A Lab is Just Another Place to Play," by Kary Mullis, from *Dancing Naked in the Mind Field* • "Prologue: Next on Oprah" and "Chapter 4: Deviations: The Normal, the Paranormal, and Edgar Cayce," by Michael Shermer, from *Why People Believe Weird Things: Pseudoscience, Superstition, and Other Confusions of Our Time* • "Chapter 1: The Most Precious Thing," by Carl Sagan, from *The Demon-Haunted World: Science as a Candle in the Dark*
Lesson 2	How to Do Science	• The key elements of an experiment • Terms such as *hypothesis*, *inductive* and *deductive reasoning*, *independent* and *dependent variables*, *double blind*, *placebo*, and *serendipity* • Definitions of the *scientific method(s)* and *scientific process* • A template for experimental design • The history of John Snow's scientific inquiry • "Women should Sing to their Tomatoes. Guys Should Shut Up," by Josh Peterson (*Tree Hugger*) • "Sherlock Holmes's Methods of Deductive Reasoning Applied to Medical Diagnostics," by Larry Miller (*Western Journal of Medicine*) • "Epilogue: How Accidents Become Discoveries," by Royston M. Roberts, from *Serendipity: Accidental Discoveries in Science* • "Chapter 3: First Things First," by Anthony Rizzi, from *The Science Before Science: A Guide to Thinking in the 21st Century* • "Sunday, September 3: The Investigator," by Steven Johnson, from *The Ghost Map: The Story of London's Most Terrifying Epidemic—and How it Changed Science, Cities, and the Modern World*

Lesson	Title	Primary Topics
Lesson 3	Data and Measurement	• Quantitative and qualitative data • Precision and accuracy • Components of a good graph • Terms associated with statistics, including mean, median, mode, variance, standard deviation, and standard error • Basic statistical analysis of data sets • "Accuracy in Clinical Chemistry: Does Anybody Care?" by Norbert W. Tietz (*Clinical Chemistry*) • "How to Choose which Type of Graph to Use?" (*Graphing Tutorial*) • "Definitions" (*Graphing Tutorial*)
Lesson 4	License to Science	• Important elements of experimental design • Terminology associated with seed germination and plant growth • Connections between the sciences and the arts • "African Green Revolution Needn't Be a Mirage," by Gebisa Ejeta (*Science*)
Lesson 5	Medical Training	• The origins of human anatomy study • Basic anatomy, physiology, and pathology for major body systems • Terminology associated with the medical field • The contributions of Chinese medicine • "The Art of Medicine and Whether Computers Can Replace Doctors" by Eric Van De Graff (*KevinMD.com*) • "Leonardo da Vinci First Anatomist," by Chris Nickson (*LifeInTheFastLane.com*) • "History of Medicine in China: When Medicine Took an Alternative Path," by Francis F. Hong (*McGill Journal of Medicine*)

Lesson	Title	Primary Topics
Lesson 6	What is Disease?	• Basic characteristics of pathogens • Terminology associated with disease, including etiology, incubation time, and pathogenesis • Routes by which pathogens may enter the human body • "Sunday, September 3: The Investigator," by Steven Johnson, from *The Ghost Map: The Story of London's Most Terrifying Epidemic—and How it Changed Science, Cities, and the Modern World* • "Saturday, September 2: Eyes Sunk, Lips Dark Blue," by Steven Johnson, from *The Ghost Map: The Story of London's Most Terrifying Epidemic—and How it Changed Science, Cities, and the Modern World*
Lesson 7	Becoming a Disease Detective	• Objectives and research areas of epidemiology • Major milestones in the development of epidemiology • Basic terminology associated with epidemiology • The role that microbiologists have in epidemiology and public health • "Wednesday, September 6: Building the Case," by Steven Johnson, from *The Ghost Map: The Story of London's Most Terrifying Epidemic—and How it Changed Science, Cities, and the Modern World* • "Chapter 4: Germs, Science, and the Stranger," by Philip Alcabes, from *Dread: How Fear and Fantasy have Fueled Epidemics from the Black Plague to Avian Flu*
Lesson 8	Medical Mystery	• Students will solve a disease outbreak by harnessing all previously-mastered content and skills.