Background

Science is a subject that contains lots of information – some very interesting and some less so. In the world of high school science, much of the information presented to you comes in the form of science textbooks. These books contain a collection of important background information in specific scientific fields. Unfortunately, most textbooks are not written in a style that we would consider ‘literature.’ (As evidence of this, how many people take their science textbook to the beach for some fun reading.) Fortunately, there are a number of excellent writers who do tackle scientific topics, in the process producing books that are both informative and well written. In this assignment, you will be asked to select, read and evaluate an example of scientific literature.

Assignment

1. Select a book on a science topic. Use may choose a book from the list provided or select one on your own. I will need to approve books not on the potential selection list. You will need to present your selection, along with a brief justification, in a week. You should look for books that have a literary quality to them, not a textbook-style presentation.

2. Read your book between now and the start of final exams. You will have one night a week where the reading will be assigned as homework. Of course, you may also read on your own time.

3. Maintain a Reading Log with brief entries for each time you actually read the book. These entries should be very brief summaries that identify important themes, interesting points for your presentation and questions for later clarification. The actual format is up to you. Reading logs will be collected twice during this project.

4. Prepare and lead a seminar discussion on your book. The seminar discussion will last about 15 minutes and will include a group of four or five classmates. You will present a brief summary of the book and some background science you consider to be important. You will then pose two or three questions for the group to discuss and lead that discussion. You will receive additional details about this presentation in mid May.

Timeline

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Potential Book Selections

Also see the following web pages from the RHS Library:
New Non-fiction books (includes non-science books):

Integrated Science 3-4 Honors books (not all from below are pictured):
https://www.goodreads.com/review/list/26231572-bessie-chin?shelf=samet-honors-4-i-sci&view=covers

**Evolutionary Biology**
The Origin of Species, Charles Darwin
The Voyage of the Beagle, Charles Darwin
The Time Before History, Colin Tudge
Wonderful Life, Stephen Jay Gould
The Mis-Measure of Man, Stephen Jay Gould,
Full House, Stephen Jay Gould,
Time’s Arrow, Time’s Cycle, Stephen Jay Gould
Life: A Natural History of the First Four Billion Year, Richard Fortay
The Blind Watchmaker, Richard Dawkins
The Selfish Gene, Richard Dawkins,
The God Delusion, Richard Dawkins
Climbing Mt. Improbable, Richard Dawkins
The Beak of the Finch, Jonathan Weiner
Origins, Richard Leakey
People of the Lake, Richard Leakey
Trilobite!: Eyewitness to Evolution, Richard Fortey
When Life Nearly Died: The Greatest Mass Extinction of All Time, Michael Benton
How to Build a Dinosaur: The New Science of Reverse Evolution, Jack Horner and James Gorman
Your Inner Fish, Neil Shubin
How the Dog became the Dog, Mark Derr
The Violinist's Thumb And Other Lost Tales of Love, War, and Genius, as Written by Our Genetic Code,
Sam Kean
Summer for the Gods, Alfred Larson
Written in Stone: Evolution, the Fossil Record, and Our Place in Nature, Brian Switek
The Dragons of Eden, Carl Sagan
Symbiotic Planet: A New Look at Evolution, Lynn Margulis
An Edible History of Humanity, Tom Standage
Darwin: Portrait of a Genius, Paul Johnson
At the Water’s Edge, Carl Zimmer
Flying Dinosaurs: How Fearsome Reptiles Became Birds, John Pickrell
The Book that Changed America: How Darwin’s Theory Ignited a Nation, Randall Fuller
Sapiens: A Brief History of Humankind, Yuval Noah Harari

**Genetics**
The Double Helix, Watson and Crick
Re-Making Eden: Cloning and Beyond, Lee Silver
8th Day of Creation, H. Judson
Genome: Autobiography of a Species, Matt Ridley
The Human Blueprint, R. Shapiro
Frankenstein's Cat: Cuddling Up to Biotech's Brave New Beasts, Emily Anthes
**Medicine and Physiology**
Flu, Gina Koleta
The Coming Plague, Laurie Garrett
A Change of Heart: Framingham Heart Study, Levy and Brink
The Lobotomist, Jack El-Hai
The Man who Mistook his Wife for a Hat, Oliver Sacks
Hallucinations, Oliver Sacks
Musicophilia, Oliver Sacks
The Mind’s Eye, Oliver Sacks
The Lives to Come, Philip Kitcher
Body of Work: Meditations on Mortality from the Human Anatomy Lab, Christine Montross
The Discovery of Insulin, Michael Bliss
Destiny of the Republic – A Tale of Madness, Medicine and the Murder of a President, Candace Millard
Incognito: The Secret Lives of the Brain, David Eagleman
The Tale of the Dueling Neurosurgeons, Sam Kean
Stiff: The Curious Lives of Human Cadavers, Mary Roach
Gulp: Adventures on the Alimentary Canal, Mary Roach
Bonk: The Curious Coupling of Science and Sex, Mary Roach
Cancer – The Emperor of Maladies, Siddhartha Mukharjee
The Gene – An Intimate History, Siddhartha Mukharjee
Pavlov’s Dog: Groundbreaking Experiments in Psychology, Adam Hart-Davis

**Environmental Science/Ecology**
Guns, Germs, and Steel, Jared Diamond
Collapse, Jared Diamond
The World Until Yesterday: What Can We Learn from Traditional Societies? Jared Diamond
The Population Explosion, Paul Ehrlich
The Diversity of Life, Edward O. Wilson,
Biophilia, Edward O. Wilson,
The Song of the Dodo, David Quammen
Log from the Sea of Cortez, Steinbeck and Ricketts
Silent Spring, Rachel Carson
Gorilla in the Mist, Diane Fossey
Blue Meridian, Peter Mathiessen
Sand Rivers, Peter Mathiessen
The Nine-Mile Wolves, Rick Bass
How Many People Can the Earth Support? Joel Cohen
Journey from Eden, Brian Fagan
Platypus: An Extraordinary Story, Ann Moyal
Year of the Gorilla, G. Schaller
In the Shadow of Man, Jane Goodall
Innocent Killers, Van Lawick and Goodall
What is Life? Erwin Schrodinger
The Ape that Spoke, John McCrone
Gaia, James Lovelock
King Solomon’s Ring, Konrad Lorenz
Animal Wise: Thoughts and emotions of our fellow creatures Virginia Morell
Cod: Biography of a Fish, Mark Kurlansky
Herring: A History of the Silver Darlings, Mike Smylie
Toms River: A Story of Science and Salvation, Dan Fagin
The Sixth Extinction, Elizabeth Kolbert
Down by the Bay: San Francisco’s History Between the Tides, Matthew Booker
Seeds on Ice: Svalbard and the Global Seed Vault, Cary Fowler
The Reason for Flowers: Their History, Culture, Biology, How They Change our Lives, Stephen Buchman

Earth Science
Longitude, Dava Sobel
Planets, Dava Sobel
Measure of the Earth: The Enlightenment Expedition That Reshaped Our World, Larrie Ferriero
The Year without Summer: 1816 and the Volcano that Darkened the World and Changed History, William Klingaman
Heat: Adventures in the World’s Fiery Places Bill Streever
Cold: Adventures in the World’s Frozen Places, Bill Streever
Atlantic, Simon Winchester
The Map that Changed the World, Simon Winchester
Krakatoa, Simon Winchester
A Crack in the Edge of the World, Simon Winchester
Rising Tide – The Mississippi River Flood of 1927, John M. Barry
Privileged Hands, Garret Vermeij
Basin and Range, John McPhee
In Suspect Terrain, John McPhee
Rising from the Plains, John McPhee
Assembling California, John McPhee
The Control of Nature, John McPhee
Children of the Ice Age, S. Stanley
The Measure of Manhattan: The Tumultuous Career and Surprising Legacy of John Randel, Jr., Cartographer, Surveyor, Inventor, Marguerite Holloway
The Dinosaur Heresies, Robert Bakker
Tying Down the Wind: Adventures in the Worst Weather on Earth, Eric Pinder
The Long Summer: How Climate Changed Civilization, Brain Fagan
Beyond the Blue Horizon: How the Earliest Mariners Unlocked the Secrets of the Oceans, Brian Fagan
Elixir: A History of Water and Humans, Brian Fagan
The Great Warming: Climate Change and the Rise and Fall of Civilizations, Brian Fagan

Chemistry
Napoleon’s Buttons: How 17 Molecules Changed History, Penny le Couteur
Salt: A World History, Mark Kurlansky
The Disappearing Spoon: And Other True Tales of Madness, Love, and the History of the World from the Periodic Table of the Elements, Sam Kean
A Well-Ordered Thing: Mendelev and the Shadow of the Periodic Table, M. Gordin
The Alchemy of Air: A Jewish Genius, a Doomed Tycoon and the Scientific Discovery That Fed the World but Fueled the Rise of Hitler, Thomas Hager
Uranium: War, Energy and the Rock that Shaped the World, Thomas Zoellner

Physics/Astronomy
The Curve of Binding Energy, John McPhee
Radioactivity: History of a Mysterious Science, Marjorie Malley
The Cosmic Connection, Carl Sagen
Billions and Billions, Carl Sagen
American Prometheus: Robert Oppenheimer, Bird and Sherwin
Lost Moon: The Perilous Journey of Apollo 13, Lovell and Kluger
Off the Planet, J. Linenger
Radioactive: Marie and Pierre Curie - A Tale of Love and Fallout, Lauren Redniss
Wizard: The Life and Times of Nikola Tesla, Marc J. Seifer
Empires of Light: Edison, Telsa, Westinghouse and the race to electrify the world, Jill Jonnes
A Brief History of Time, Stephen Hawking
The Grand Design, Stephen Hawking
A Life of Discovery: James Faraday, J. Hamilton
Obsessive Genius: Marie Curie, B. Goldsmith
Six Easy Pieces, R. Feynman
Ordinary Geniuses: Max Delbruck, George Gamow, and the Origins of Genomics and Big Bang Cosmology, Gino Segre
The Prism and the Pendulum: The 10 Most Beautiful Experiments, R. Crease
Higgs: The Invention and Discovery of the "God Particle", Jim Baggott
The Particle at the End of the Universe: How the Hunt for the Higgs Boson Leads Us to the Edge of a New World, Sean Carroll
The Truth About Chernobyl, Griorgri Menvedev
The World as I see It, Albert Einstein
The Pope of Physics: Enrico Fermi and the Birth of the Atomic Age, Gino Segre and Bettina Hoerlin
A Space Traveler’s Guide to the Solar System, Mark Thompson

General Science
The Demon-Haunted World, Carl Sagan
Signal and the Noise, Nate Silver
Outliers: The Story of Success, Malcolm Gladwell
David and Goliath: Underdogs, Misfits and the Art of Battling Giants, Malcolm Gladwell
How We Decide, Jonah Lehrer