HISTORY AND NATURE OF SCIENCE – The student will develop understanding of science as a human endeavor ~~and examine the characteristics and history of scientific knowledge.~~the nature of scientific knowledge. and historical perspectives.

Benchmark 3: The student will understand science from historical perspectives.

Grades 8-12 Indicators	Additional Specificity
The student…	
1. demonstrates an understanding of the history of science.	1. a. Modern science has been a successful enterprise that contributes to dramatic improvements in the human condition. ~~Science has led to significant improvements in physical health and economic growth; however, modern science can sometimes be abused by scientists and policymakers, leading to significant negative consequences for society and violations of human dignity (e.g., the eugenics movement in America and Germany; the Tuskegee syphilis experiments; and scientific justifications of eugenics and racism).~~ b. Science progresses by incremental advances of scientists or teams of scientists. ~~In addition, it progresses by critical analysis of: 1) properly collected data; and 2) existing theories and hypotheses, which can lead to major new scientific advances (e.g., relativity, plate tectonics, quantum theory, biological evolution).~~ c. Some advances that are fundamental and long-lasting include: Copernican revolution, Newtonian physics, relativity, geological time scale, plate tectonics, atomic theory, nuclear physics, biological evolution, germ theory, industrial revolution, molecular biology, quantum theory, and medical and health technology.
2. demonstrates a knowledge that scientific method historically proceeded from an inductive approach rather than a deductive approach.	2. a. With the deductive method, scientists start with axioms - simple true statements about the way the world works. Galileo and his contemporaries realized that, for science, the problem was that it was enormously difficult to begin with "simple true statements about the way the world works". In fact, they realized that the simple true statement should be the goal of science, not the starting

	place. Since the 1600s to the mid 1900s, the inductive method has been incredibly successful in investigating nature.