

# PERFORMANCE DESCRIPTORS FOR MASTERY

## 9TH GRADE SCIENCE

### Nature of Science:

SC.PD.9.1

#### Mastery

Students analyze the importance of scientific innovation and relate these innovations to the utilization of scientific methodology, variability in experimental results to advances in societal, cultural and economic issues; design, conduct, communicate, evaluate and revise experiments utilizing safe procedures and appropriate technology; draw conclusions from multiple data sources and interpretation of models.

### Students will:

- Demonstrate an understanding of history and nature of science as a human endeavor encompassing the contributions of diverse cultures and scientists.
- Demonstrate the ability to use the inquiry process to solve problems.

### Application of Science:

SC.PD.9.3

#### Mastery

Students test, record and analyze data to explore systems, models, and changes; analyze a technological innovation and identify the science that makes it possible; assess positive outcomes and unintended consequences of a scientific discovery; explain the impacts of a public policy decision regarding health, population resources or environmental issues.

### Students will:

- Demonstrate the ability to use inquiry process to explore systems, models, and changes.
- Demonstrate an understanding of the interdependence between science and technology.
- Demonstrate an understanding of the utilization of technology to gather data and communicate designs, results and conclusions.
- Demonstrate an understanding of personal and societal benefits of science, and an understanding of public policy decisions as related to health, population, resource and environmental issues.

### Content of Science:

SC.PD.9.2

#### Mastery

Students perform and interpret monohybrid crosses; design environments to model interdependent populations; compare cells, tissues and systems of different organisms; trace matter and energy through cellular processes; relate state of matter to amount of kinetic energy; write formulas, balance coefficients, and classify types of chemical reactions; classify bond types; predict density value when mass and/or volume changes; compare types of nuclear changes; assess a material's ability to absorb or dissipate heat; explore properties of a magnet; construct an electric circuit using Ohm's Law and power equation; recognize inverse square relations; examine variables that affect the motion of pendulums; differentiate transverse and longitudinal waves; predict weather using maps; relate properties to minerals; relate rocks to the environment in which they form; use evidence to interpret Earth's structure; compare and contrast the forces and mechanisms of plate tectonics; use dating techniques.

### Students will:

- Demonstrate knowledge understanding and applications of scientific facts, concepts, principles, theories, and models delineated in the objectives.
- Demonstrate an understanding of the interrelationships among physics, chemistry, biology, earth/ environmental science, and astronomy; and apply knowledge, understanding and skills of science subject matter/concepts to daily life.



## 9TH GRADE SOCIAL STUDIES

### Geography:

Performance Descriptors

#### Mastery

Ninth grade students at mastery level in geography:  
analyze geographic features and interpret information using geographic tools; and  
explain the connection between world resources and economic development.

### Civics:

Performance Descriptors

#### Mastery

Ninth grade students at mastery level in civics:  
describe citizens demonstrating the roles, rights, and responsibilities of all;  
explain various ways of organizing government and the purpose of government; and  
examine and categorize world aid organizations and the importance of global volunteerism.

### Economics:

Performance Descriptors

#### Mastery

Ninth grade students at mastery level in economics:  
define scarcity demonstrating the role of opportunity costs, and discussing resource allocation;  
identify cause/effect relationships in economic change and evaluate the development of economic systems and trade patterns; and  
summarize the effects of the evolution of global economic interdependence prior to 1900.

### Literacy:

Performance Descriptors

#### Mastery

Ninth and tenth grade students at mastery level in literacy:  
cite textual evidence; summarize how key events or ideas develop; analyze events determining whether earlier events caused later ones;  
determine the meaning of domain-specific vocabulary; compare the point of view of two or more authors;  
integrate information, assess whether the reasoning and evidence support the author's claims;  
read and comprehend history/social studies texts in the grades 9-10 text complexity band independently and proficiently;  
compose arguments and informative/explanatory texts; manage the complexity of the topic appropriate to the discipline and context as well as the expertise of the audience;  
use technology to develop, strengthen, publish and present clear and coherent writing focusing on what is most significant, linking to other information and displaying information;  
conduct short and sustained research projects synthesizing multiple useful sources and integrate information selectively; avoid plagiarism; and  
write over extended time frames for research-based projects and shorter time frames for a range of discipline-specific tasks, purposes and audiences.

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### History:

Performance Descriptors

#### Mastery

Ninth grade students performing at mastery level in history:  
explain emergence of civilization, culture and the interaction of man and the environment citing examples;  
analyze the ancient and classical civilizations and the progress of those civilizations;  
examine and differentiate between the major world religions and philosophies;  
explain the societies of the Middle Ages and give examples of their influence on social, political, and economic issues;  
illustrate the changes brought about by the Renaissance, Reformation, Exploration, and the Enlightenment;  
outline and explain the concept of change over time in relation to the revolutions in the sixteenth through nineteenth centuries; and  
analyze the contributions of significant groups, individuals, places, documents, and events from ancient times until 1900.