MN Science Standards Covered

High School Biology Fall Semester 2015

**Strand**

1. The Nature of Science and Engineering

**Substrand**

1. The Practice of Science

**Standard**

1. Science is a way of knowing about the natural world and is characterized by empirical criteria, logical argument and skeptical review.
2. Scientific inquiry uses multiple interrelated processes to investigate and explain the natural world.

**Code Benchmark**

9.1.1.1.2 Understand that scientists conduct investigations for a variety of reasons, including: to discover new aspects of the natural world, to explain observed phenomena, to test the conclusions of prior investigations, or to test the predictions of current theories.

9.1.1.1.6 Describe how changes in scientific knowledge generally occur in incremental steps that include and build on earlier knowledge.

9.1.1.2.1 Formulate a testable hypothesis, design and conduct an experiment to test the hypothesis, analyze the data, consider alternative explanations and draw conclusions supported by evidence from the investigation.

**Strand**

1. The Nature of Science and Engineering

**Substrand**

1. Interactions Among Science, Technology, Engineering, Mathematics, and Society

**Standard**

1. Natural and designed systems are made up of components that act within a system and interact with other systems.
2. Men and women throughout the history of all cultures, including Minnesota American Indian tribes and communities, have been involved in engineering design and scientific inquiry.

**Code Benchmark**

9.1.3.1.1 Describe a system, including specifications of boundaries and subsystems, relationships to other systems, and identification of inputs and expected outputs.

9.1.3.2.1 Provide examples of how diverse cultures, including native from all of the Americas, have contributed scientific and mathematical ideas and technological inventions.

**Strand**

4. Life Science

**Substrand**

2. Interdependence Among Living Systems

4. Human Interactions with Living Systems

**Standard**

1. The interrelationship and interdependence of organisms generate dynamic biological communities in ecosystems.

2. Matter cycles and energy flows through different levels of organization of living systems and the physical environment, as chemical elements are combined in different ways.

1. Human activity has consequences on living organisms and ecosystems.

**Code Benchmark**

9.4.2.1.1 Describe factors that affect the carrying capacity of an ecosystem and relate these to population growth**.**

9.4.2.1.2 Explain how ecosystems can change as a result of the introduction of one or more new species.

9.4.2.2.2 Explain how matter and energy is transformed and transferred among organisms in an ecosystem, and how energy is dissipated as heat into the environment.

9.4.4.1.2 Describe the social, economic and ecological risks and benefits of changing a natural ecosystem as a result of human activity.

9.4.4.1.3 Describe contributions from diverse cultures, including Minnesota American Indian tribes and communities, to the understanding of interactions among humans and living systems.