

3501.0940 GRADE 8 STANDARDS.**Subpart 1. The nature of science and engineering.**

A. The practice of science. The student will understand that science is a way of knowing about the natural world and is characterized by empirical criteria, logical argument, and skeptical review.

B. The practice of science. The student will understand that scientific inquiry uses multiple interrelated processes to investigate questions and propose explanations about the natural world.

C. Interactions among science, technology, engineering, mathematics, and society. The student will understand that 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.

D. Interactions among science, technology, engineering, mathematics, and society. The student will understand that science and engineering operate in the context of society and both influence and are influenced by this context.

E. Interactions among science, technology, engineering, mathematics, and society. The student will understand that current and emerging technologies have enabled humans to develop and use models to understand and communicate how natural and designed systems work and interact.

Subp. 2. Physical science.

A. Matter. The student will understand that pure substances can be identified by properties which are independent of the sample of the substance and the properties can be explained by a model of matter that is composed of small particles.

B. Matter. The student will understand that substances can undergo physical changes and chemical changes which may change the properties of the substance but do not change the total mass in a closed system.

C. Energy. The student will understand that waves involve the transfer of energy without the transfer of matter.

Subp. 3. Earth and space science.

A. Earth structure and processes. The student will understand that the movement of tectonic plates results from interactions among the lithosphere, mantle, and core.

B. Earth structure and processes. The student will understand that landforms are the result of the combination of constructive and destructive processes.

C. Earth structure and processes. The student will understand that rocks and rock formations indicate evidence of the materials and conditions that produced them.

D. Interdependence within the Earth system. The student will understand that the sun is the principal external energy source for the Earth.

E. Interdependence within the Earth system. The student will understand that patterns of atmospheric movement influence global climate and local weather.

F. Interdependence within the Earth system. The student will understand that water, which covers the majority of the Earth's surface, circulates through the crust, oceans, and atmosphere in what is known as the water cycle.

G. The universe. The student will understand that the Earth is the third planet from the sun in a system that includes the moon, the sun, seven other planets and their moons, and smaller objects.

H. Human interactions with Earth systems. The student will understand that in order to maintain and improve their existence, humans interact with and influence Earth systems.

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