



InterActions in Physical Science Correlation to the Nevada Academic Content Standards for Physical Science, Grade 8

Scientific Inquiry (Nature of Science Unifying Concept A)

Scientific inquiry is the process by which humans systematically examine the natural world. Scientific inquiry is a human endeavor and involves observation, reasoning, insight, energy, skill, and creativity. Scientific inquiry is used to formulate and test explanations of nature through observation, experiments, and theoretical or mathematical models. Scientific explanations and evidence are constantly reviewed and examined by others. Questioning, response to criticism and open communication are integral to the process of science.

Indicator	Location/Page where Standard is found
<u>N.8.A:</u> Students understand that scientific knowledge requires critical consideration of verifiable evidence obtained from inquiry and appropriate investigations.	
N.8.A.1. Students know how to identify and critically evaluate information in data, tables, and graphs.	16-24, 56-64, 137-143, 149-154, 290-294, 298-301, 308-312, 318-324
N.8.A.2. Students know how to critically evaluate information to distinguish between fact and opinion.	16-24, 25-27, 28-34, 83-86, 295-297, 332, 398-402
N.8.A.3. Students know different explanations can be given for the same evidence.	12-15, 25-27, 28-34, 36-40, 48-55, 102-106, 114-118, 137-143, 174-178, 295-297, 332, 444-447, 590-597
N.8.A.4. Students know how to design and conduct a controlled experiment.	12-15, 25-27, 41-47, 56-64, 93-96, 248-254
N.8.A.5. Students know how to use appropriate technology and laboratory procedures safely for observing, measuring, recording, and analyzing data.	79-82, 102-106, 114-118, 168-173, 188-190, 308-312, 376-379, 392-397
N.8.A.6. Students know scientific inquiry includes evaluating results of scientific investigations, experiments, observations, theoretical and mathematical models, and explanations proposed by other scientists.	36-0, 56-64, 71-74, 76-78, 83-86, 97-101, 102-106, 114-118, 168-173, 218-224, 248-254, 336-341, 376-379, 380-386, 411-416

N.8.A.7. Students know there are multiple methods for organizing items and information.	16-24, 56-64, 137-143, 149-154, 290-294, 298-301, 308-312, 318-324
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Science, Technology, and Society (Nature of Science Unifying Concept B)

Technology defines a society or era. It can shape the environment in which people live, and it has increasingly become a larger part of people’s lives. While many of technology’s effects on society are regarded as desirable, other effects are seen as less desirable. These concepts are shared across subject areas such as science, math, technology, social studies and language arts. The development and use of technology affects society and the environment in which we live, and, at the same time, society influences the development of technology and its impact on culture.

Indicator	Location/Page where Standard is found
<u>N.8.B:</u> Students understand the interactions of science and society in an ever-changing world.	
N.8.B.1 Students understand that consequences of technologies can cause resource depletion and environmental degradation, but technology can also increase resource availability, mitigate environmental degradation, and make new resources economical.	16-24, 430-432, 530-536, 588-589, 598-602
N.8.B.2 Students know scientific knowledge is revised through a process of incorporating new evidence gained through on-going investigation and collaborative discussion.	16-24, 79-82, 87-92, 114-118, 156-158, 168-173, 248-254, 290-294, 313-317, 376-379, 444-447, 510-513, 540-542

PHYSICAL SCIENCE

Matter (Physical Science Unifying Concept A)

Matter has various states with unique properties that can be used as a basis for organization. The relationship between the properties of matter and its structure is an essential component of study in the physical sciences. The understanding of matter and its properties leads to practical applications, such as the capability to liberate elements from ore, create new drugs, manipulate the structure of genes and synthesize polymers.

Indicator	Location/Page where Standard is found
<u>P.8.A:</u> Students understand the properties and changes of properties in matter.	
P.8.A.1. Students know particles are arranged differently in solids, liquids, and gases of the same substance.	318-324, 403-410, 411-416, 444-447, 466-474, 492-498, 499-502, 514-518
P.8.A.2. Students know elements can be arranged in the periodic table which shows repeating patterns that group elements with similar properties.	17-422, 423-47, 428-429, 430-432, 437-440, 525-529

P.8.A.3. Students know methods for separating mixtures based on the properties of the components.	403-410, 411-416, 482-491
P.8.A.4. Students know atoms often combine to form molecules, and that compounds form when two or more different kinds of atoms chemically bond.	392-397, 448-460, 519-524
P.8.A.5. Students know mass is conserved in physical and chemical changes.	288-289, 290-294, 295-297, 298-301, 302-304
P.8.A.6. Students know matter is made up of tiny particles called atoms.	448-460, 461-465, 499-502, 503-509, 519-524, 525-529
P.8.A.7. Students know the characteristics of electrons, protons, and neutrons.	448-460, 519-524, 525-529
P.8.A.8. Students know substances containing only one kind of atom are elements which cannot be broken into smaller pieces by normal laboratory processes.	392-397, 448-460, 519-524, 548-554

Forces and Motion (Physical Science Unifying Concept B)

The laws of motion are used to describe the effects of forces on the movement of objects.

Indicator	Location/Page where Standard is found
<u>P.8.B:</u> Students understand that position and motion of an object result from the net effect of the different forces acting on it.	
P.8.B.1. Students know the effects of balanced and unbalanced forces on an object's motion.	48-55, 65-70, 137-143, 144-148, 149-154, 159-161, 162-167, 168-173, 174-178, 186-190, 191-195, 213-217, 228-232, 240-247, 248-254
P.8.B.2. Students know electric currents can produce magnetic forces and magnets can cause electric currents.	41-47, 48-55, 56-64, 65-70, 71-74, 211-212
P.8.B.3. Students know every object exerts gravitational force on every other object, and the magnitude of this force depends on the mass of the objects and their distance from one another.	226-227, 228-229, 230-232, 233-235, 236-239

Energy (Physical Science Unifying Concept C)

The total energy of the universe is constant. All events involve the transfer of energy in one form or another. In all energy transfers, the overall effect is that the energy is spread out uniformly.

Indicator	Location/Page where Standard is found
<u>P.8.C:</u> Students understand transfer of energy.	
P.8.C.1. Students know visible light is a narrow band within the electromagnetic spectrum.	36-37, 65-70, 119-125, 126-132, 144-148, 149-154, 336-341, 342-347, 348-352
P.8.C.2. Students know vibrations (e.g., sounds, earthquakes) move at different speeds in different materials, have different wavelengths, and set up wave-like disturbances that spread away from the source uniformly.	36-37, 65-70, 119-125, 126-132, 144-148, 149-154, 336-341, 342-347, 348-352
P.8.C.3. Students know physical, chemical, and nuclear changes involve a transfer of energy.	36-40, 65-70, 71-74, 114-118, 126-136, 159-167, 210-212, 308-312, 313-317, 325-329, 330-335
P.8.C.4. Students know energy cannot be created or destroyed, in a chemical or physical reaction, but only changed from one form to another.	36-40, 65-70, 71-74, 114-118, 126-136, 159-167, 210-212, 308-312, 313-317, 325-329, 330-335
P.8.C.5. Students know heat energy flows from warmer materials or regions to cooler ones through conduction, convection, and radiation.	306-312, 313-317, 318-324
P.8.C.6. Students know electrical circuits provide a means of transferring electrical energy to produce heat, light, sound, and chemical changes.	71-74, 112-113, 114-118, 133-136