

Harrison County Middle Schools

Mapping of the content standards for Science

This mapping has been designed to make the science content standards more manageable and to help alleviate problems associated with transient students between schools. The following content mapping is a suggested order and deals mostly with Standards 1, 2 and 4. All other standards are usually addressed across the curriculum with most CSO's. Each ★ represents one question from the 80% WESTEST consistent items (through 2007).

Standards 1: History and the Nature of Science (SC.S.1)

Standard 2: Science as Inquiry (SC.S.2)

Standard 4: Science Subject Matter/Concepts (SC.S.4)

Motion and Forces/Energy

Structures and Properties of Matter/Energy

Chemical Reaction/Energy

Energy/Light-Sound-Electrical

Structure and Function in Living Systems/Life Cycles of Organisms:

Reproduction and Heredity/Populations and Ecosystems

Structure of the Earth System/Earth History

Earth and the Solar System

The following pages are an outline of the 6th, 7th, and 8th grade science CSO's organized together. This will enable you to see the content standards for all levels at the same time. The page numbers are not exact, and are intended only as a guide. Prentice Hall supplements have been included for each grade. The CSO's are abbreviated to fit. Please refer to your CSO's for complete descriptions.

MOTION AND FORCES/ENERGY

SIXTH GRADE		SEVENTH GRADE		EIGHTH GRADE	
PH	CSOs / Glencoe Page Numbers	PH pgs	CSOs / Glencoe Page Numbers	PH	CSOs / Glencoe Page Numbers
	SC.6.4.24 explain motion in terms of frames of reference and analyze graphs depicting motion and predicted future motion. 130-135	M 14-17 26-27	SC.7.4.25 analyze motion graphically and use vectors to represent direction of motion. None		SC.8.4.22 graph and interpret the relationships (e.g., distance versus time, speed versus time, acceleration versus time). 526-532
	SC.6.4.22 interpret the relationship of mass to gravitational force (e.g., larger the mass the larger the gravitational force, the closer the objects the stronger the force). None	J 16-17 M 48-50	★SC.7.4.24 explain the effect of gravity on falling objects (e.g., $g = 9.8\text{m/s}^2$, object dropped on earth and on moon). 696,700,704-705		★★SC.8.4.23 describe Newton's Laws of Motion; identify examples; illustrate qualitatively and quantitatively drawing vector quantities. 552-568
	★SC.6.4.23 examine simple machines and the forces involved; apply the effects of balanced and unbalanced forces on motion of objects. 137-138, 144-151	M 114-137	SC.7.4.23 perform experiments with simple machines to demonstrate the relationship between forces and distance; use vectors to represent motion. 690-693		★SC.8.4.20 apply the conservation of energy theory to energy transformations (e.g., electrical/heat, heat/mechanical). 619
		M 158-165	SC.7.4.22 explain conservation of matter and energy qualitatively and recognize that energy can be changed from one form to another. 222-227		SC.8.4.21 quantitatively represent work, power, pressure (e.g., $W=fd$, $P=W/t$, pressure =force/area). 579-589, 598-605, 652-653
					★SC.8.4.24 illustrate quantitatively mechanical advantage of simple machines. 591-605

Structures and properties of Matter/Energy

Chemical reactions/ Energy

SIXTH GRADE		SEVENTH GRADE		EIGHTH GRADE	
PH	CSOs / Glencoe Pages	PH pg	CSOs / Glencoe Pages	PH	CSOs / Glencoe Pages
L	★SC.6.4.10 classify and investigate properties and processes (changes) as either physical or chemical. 70-71, 77-89		SC.7.4.13 differentiate among elements, compounds, homogeneous and heterogeneous mixtures 620-625		SC.8.4.12 trace the development of the model of the atom (e.g., Crookes, Thompson, Becquerel, Rutherford, Bohr). 405-413
	SC.6.4.11 the composition of matter concluding that matter is composed of tiny particles and that the particles are the same for the same type of matter. 74, 99, 101,106		★SC.7.4.14 evaluate types of solutions (e.g., solutes and solvents relative concentrations, conductivity, pH). 249, 622-642		SC.8.4.13 determine the number of protons, neutrons and electrons and use information to draw a Bohr model of the atom. 410-413, 436-437
L	SC.6.4.14 identify the symbols of elements. 112, 114		SC.7.4.17 describe the behavior of individual particles and verify the conservation of matter 652-661		SC.8.4.11 use the periodic table to locate and classify elements as metallic, non-metallic or metalloid. 438-450, 453-457
L	SC.6.4.15 use the periodic table to identify elements as solids, liquids and gases, metals or nonmetals. 110-112		SC.7.4.18 trace the energy flow during phase changes 716-727		SC.8.4.14 assign an element to its chemical family on the periodic table and note similarities in outer energy level electrons within each family. 441, 468-469
L	★SC.6.4.16 describe properties of matter (e.g., inertia, specific heat, malleability, melting point, density). 74-76, 87, 110, 139	M 158-165	SC.7.4.22 conservation of matter and energy qualitatively and that energy can be changed from one form to another. 222-227		SC.8.4.15 evaluate gaseous systems noting the variation in diffusion rates and examine the expansion of gases at elevated temperatures. None
L 10 84-97	SC.6.4.12 investigate the formation and separation of simple mixtures. 88, 116-119		SC.7.4.15 study chemical reactions involving acids and bases by monitoring color changes of indicator(s) and identifying the salt formed in the neutralization reaction. 634-643		SC.8.4.16 conduct and classify chemical reactions by reaction type (synthesis, decomposition, single replacement or double replacement); energy type (endothermic and exothermic); and write word equations for the chemical reactions. 498-501, 510-511
L 83 98-111	SC.6.4.13 use indicators to identify substances as acidic, basic or neutral. None		SC.7.4.16 write word equations to describe chemical reactions. 634, 641		SC.8.4.17 identify chemical reaction factors that might affect the reaction rates including catalysts, temperature changes, light energies and particle size. 449, 504-508

Energy/ light – sound – electricity

SIXTH GRADE		SEVENTH GRADE		EIGHTH GRADE	
PH	CSOs / Glencoe Pages	PH pgs	CSOs / Glencoe Pages	PH pgs	CSOs / Glencoe Pages
	SC.6.4.17 investigate the properties of electromagnetic spectrum; relate wave lengths and/or frequency to position on electromagnetic spectrum 230-235, 408-409	O 11-25, 36-47, 74-81, 113-124	SC.7.4.19 define characteristics of light and sound waves and describe how sound is perceived by the ear and light is perceived by the eye. 453-454	H 85-86 106-107	★SC.8.4.18 identify types of energy and their sources (e.g., petroleum refinement, windmills, geothermal). None
	★★SC.6.4.18 identify factors affecting reflection and refraction (e.g., nature of surfaces, color, density of medium). 237-239	J 118-125 O 129-137	★SC.7.4.20 investigate application of lenses to science (e.g., microscopes, telescopes, magnifying glass, periscopes). 221-237		
	SC.6.4.19 explain absorption and reflection of light by different objects of various colors and textures (e.g., transparent, translucent, opaque, different colors). None		★SC.7.4.21 identify characteristics of AC and DC circuits/currents None		
	SC.6.4.21 diagram simple parallel and series circuits (e.g., bulbs, battery, wires, switch). 202-215				

Structure & Function in Living Systems

Life cycles: Reproduction /Heredity/Populations & Ecosystems

SIXTH GRADE		SEVENTH GRADE		EIGHTH GRADE	
PH pgs	CSOs / Glencoe Pages	PH pgs	CSOs / Glencoe Pages	PH pgs	CSOs / Glencoe Pages
	SC.6.4.6 construct models of plant and animal cells which show the basic parts 478-480		SC.7.4.4 compare the level of organization of cells, tissues and organs in living things. 221-229	C 16-24	SC.8.4.2 identify and explain the structures and functions of cell organelles. 68
	★★SC.6.4.3 classify living organisms according to their structure and functions. 498-518, 530-548	A 16-25	SC.7.4.5 simple keys to differentiate among living things with similar characteristics. 214-220, 796-799	C 44-54	★★SC.8.4.5 demonstrate how living cells obtain the essentials of life through chemical reactions of transpiration, respiration and photosynthesis. 130-160
	SC.6.4.4 similarities of internal features of organisms which can be used to infer relatedness. 483-485, 506-507, 531-548	A 60-65, 93	SC.7.4.2 identify and describe disease causing organisms (such as bacteria, viruses, protozoa, fungi) and the diseases they cause. 232-235, 377-389	C 76-103	★★SC.8.4.7 principles of genetics to include Mendel's laws, DNA, monohybrid crosses, production of sperm and egg, production of body cells, genes, chromosomes, inherited traits 38-39, 44-48, 52,67
	SC.6.4.7 compare growth patterns in different plants None	A 122-164	SC.7.4.10 growth, development and reproduction of flowering and non-flowering plants. 506-518		SC.8.4.8 examine how patterns of human development are similar to other vertebrates. None
E 52-53	★★SC.6.4.2 various cycles that provide energy through decomposition, photosynth., respiration, transpiration in the food web; nitrogen cycle. Throughout		★★SC.7.4.3 explain how the skeletal, muscular and integumentary systems work together in the human body. 434-447		★★SC.8.4.6 analyze how behaviors of organisms lead to species continuity (e.g., reproductive/mating behaviors, seed dispersal). None
E 16-21	SC.6.4.5 abiotic and biotic factors affect the interdependence among organisms. 620-626, 636-637	E Ch 1	SC.7.4.8 changes in environment have led to reproductive adaptations-natural selection 336-341		SC.8.4.3 explain how the circulatory, respiratory and reproductive systems work together in the human body. 71-83
E 18-20	★★SC.6.4.8 populations of organisms, limiting environmental factors 625-630	A 106-155 E 24-31	★★SC.7.4.7 adaptations, life cycles of plants, animals help to survive in different niches and environments 152-155, 338-341, 500-503	C 156-157	★★SC.8.4.4 variations in cells, tissues and organs of the circulatory, respiratory and reproductive systems of different organisms. 69-77
E 82-105 116-151 179-185	★★SC.6.4.9 ecological consequences of human interactions with the environment 647-667	E 31-38	★★SC.7.4.9 organism's behavior response is a combination of heredity and environment. 152-155, 316		SC.8.4.9 group unknown organisms based on observable characteristics (e.g., use dichotomous keys). None
		E 18-20	★★SC.7.4.11 interdependent populations if one of the limiting factors is changed. 541-551		★★SC.8.4.10 matter and energy flow; food web from sunlight to producers to consumers, design an environment 107, 137-139
		E 100-177	★★★★SC.7.4.12 introduction of chemicals into the ecosystem 568-576		
		E 48-53	★★SC.7.4.6 use pictures to show cyclical processes in nature (e.g., water cycle, nitrogen cycle, and carbon cycle). 59-61, 83-84, 111-113, 548-549		

Structure of Earth System/Earth History

SIXTH GRADE		SEVENTH GRADE		EIGHTH GRADE	
PH	CSOs / Glencoe Pages	PH pgs	CSOs / Glencoe Pages	PH pgs	CSOs / Glencoe Pages
	SC.6.4.25 track major atmospheric events. 348-365	J 26-27	SC.7.4.26 depict and relate causes of tides, surfs and currents. 148-150		★SC.8.4.26 identify the principle forces of plate tectonics and related geological events 180-207
	SC.6.4.20 describe the flow of heat between objects (e.g., hot air rises, absorption and release of heat by metals). 173-177, 184-185		★★SC.7.4.27 relationships among air masses, oceans, weather, convection currents and the sun's energy 149-150, 156-164		SC.8.4.19 interpret and illustrate changes in waves as they pass through various mediums 669-720
	★★SC.6.4.26 describe and demonstrate the forces and results of plate tectonics. 292-308	G 26-31	SC.7.4.28 interpret and create topographical maps. None	H 15-41	★SC.8.4.25 summarize problems related to water on earth as a life sustaining substance 165-172
	★★SC.6.4.27 describe changes in the rock record due to geologic and physical events over time. 265-277	G 117-129	★SC.7.4.29 compare and contrast periods of geologic time using rocks and rock layers. 74-76	H 116-123	★SC.8.4.27 global patterns of atmospheric movement, weather and the impact of oceans on weather and climate. 122, 127
					SC.8.4.28 relate rock formations to the types of fossil fuels. None
					SC.8.4.29 describe the factors involved in mining resources. None
					★SC.8.4.30 construct and interpret rock layer models through stratigraphic interpretation. 250-256

Earth and the Solar System

★SC.6.4.30 compare the Earth's tilt and revolution to the seasonal changes. 440-441	J Ch 1.1	★SC.7.4.30 explain and model using manipulatives how the Earth's tilt and revolution determine the seasonal changes and weather 156-157, 180-183	SC.8.4.32 diagram the motions of the Sun, Moon and Earth and explain the phenomena associated with these motions 306-316, 321, 329-333, 340, 357-358
★★SC.6.4.29 investigate models of Earth-Moon-Sun relationships (e.g., gravity, time, tides). 387, 440-446	J 78-107	SC.7.4.33 compare the characteristics of the members of our solar system. 194-201	★SC.8.4.33 compare and contrast the orbits of planets and comets. 336-341, 351, 357-361
SC.6.4.28 recognize the phases of the Moon. 443, 447	J 78-135	★★SC.7.4.32 describe / compare the physical characteristics of celestial objects. 184-190	SC.8.4.34 compare and contrast the different types of galaxies (e.g., shape, size, components). 386-387
	J 136-140	SC.7.4.31 recognize the changes involved in the life cycle of a star. None	SC.8.4.31 recognize societal concerns with exploration and colonization of space. 322, 344-368