Kansas Science Assessment Prep

State	Local	Indicator	
S.HS.1.1.2	S.PS.1.1.1	The student actively engages in investigations, including	
		developing questions, gathering and analyzing data, and	
		designing and conductin	g research
		Hypothesis	Independent variables
		Dependent variables	Constant Variables
		Data	Observable
		Measurable	Replicable
		Analyzing	Evaluating

State	Local	Indicator	
S.HS.1.1.3	S.PS.1.1.2	The student actively engages in using technological	
		and mathematics in their Statistical data analysis Accuracy Data	own scientific investigations. Graphing data analysis Precision

Local	Indicator		
S.PS.1.1.4		ls technology is the application of functional purposes.	
	Technology	Engineering	
		S.PS.1.1.4 The student underst scientific knowledge	

State	Local	Indicator	
S.HS.2B.1.1	S.PS.6.6.1		stands Newton's Laws and the position, velocity, and acceleration can
		be used to describe	e the position and motion of particles.
		velocity	acceleration
		vectors	speed
		force	energy
		distance	conserved
		inertia	net force

State	Local	Indicator	
S.HS.2B.2.2	S.PS.6.6.2	The student understands the first law of thermodynamics states the total internal energy of a substance (the sum of all the kinetic and potential energies of its constituent molecules) will change only if heat is exchanged with the environment or work is done on or by the substance. In any physical interaction, the total energy in the universe is conserved.	
		Kinetic energy Mass Heat Convection Work	Gravitational Potential energy Electric Potential energy Temperature Conduction Power

State	Local	Indicator	
S.HS.2B.3.2	S.PS.8.8.2	The students understands waves have energy and can transfer energy when they interact with matter.	
		Crest	Trough
		Wavelength	Frequency
		Amplitude	Refraction
		Diffraction	Interference
		Transverse Wave	Compressional Wave

State	Local	Indicator	
S.HS.2B.3.5	S.PS.8.8.5		ds electromagnetic waves result e is accelerated or decelerated.
		Photon	Cathode-ray tube
		X ray	Gamma ray
		Ultraviolet waves	Visible light
		Infrared wave	Microwave
		Radiant energy	Radio wave

State	Local	Indicator	
S.HS.4.1.2	S.8.9.1 &	The student understands the theory of Plate Tectonics explains that internal energy drives the earth's ever	
	S.8.9.3		
		changing structure.	
		Oceanic plates	Mantle
		Radioactive decay	Convection circulation
		Atom	Element
		Nutrient cycle	Biological
		Geological	

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State	Local	Indicator	
S.HS.4.3.2	S.8.7.3		ds the relationship between the xplains the seasons, tides and
		Angel of incidence	Gravity

State	Local	Indicator	
S.HS.4.4.1	S.8.5.1	The student understands stellar evolution.	
		Condensation	Life cyle
		Star	Nebula
		Nuclear fusion	H-R diagram
		Red shift	Doppler effect
		Galaxies	Universe

State	Local	Indicator	
S.HS.2A.1.1	S.PS.2.2.1	The student understands atoms, the fundamental organizational unit of matter, are composed of subatomic particles. Chemists are primarily interested in the protons, electrons, and neutrons found in the atom.	
		Atom Neutron Mass number	Proton Electron Atomic number

State	Local	Indicator	
S.HS.2A.2.1	S.PS.2.2.1	The student understands chemists use kinetic and potential energy to explain the physical and chemical properties of matter on earth that may exist in any of these three states: solids, liquids, and gases.	
		Kenetic energy solid gas Chemical change	Potential energy liquid Physical change Kenetic-Molecular Theory

State	Local	Indicator	
S.HS.2A.2.2	S.PS.3.3.2	The student understands the periodic table lists elements according to increasing atomic number. This table organizes physical and chemical trends by groups, periods, and sub-categories.	
		Group	Period
		Element	Atomic number
		Atomic mass	Lanthaniodes
		Actinides	Periodic Law
		Halogens	Metals

State	Local	Indicator	
S.HS.2A.2.3	S.PS.3.3.3	The student understands chemical bonds result when	
		valence electrons are transferred or shared between	
		atoms. Breaking a chemical bond requires energy.	
		Formation of a chemical bond releases energy. Ionic	
		compounds result from atoms transferring electrons.	
		Molecular compounds result from atoms sharing	
		electrons.	
		For example, carbon atoms can bond to each other in chains, rings, and branching networks. Branched network and metallic solids also result from bonding.	
		Valence electrons	Ionic Bond
		Covalent Bond	Polar
		Nonpolar	Octet Rule
		Single Bonds	Multiple Bonds
		Lewis Dot Structures	Reactivity

State	Local	Indicator	
S.HS.2A.3.1	S.PS.4.4.1	The student understands a chemical reaction occurs	
		when one or more substances (reactants) react to form a	
		different chemical substance(s) (products). There are	
		different types of chemical reactions all of which	
		demonstrate the Law of Conservation of Matter and	
		Energy.	
		Reactants	Products
		Yields	Chemical Equation
		Precipitate	Coefficient
		Types of Reactions	Law of Conservation of Mass
		Activity Series	Diatomics