MA Curriculum Frameworks for Chemistry

Except where denoted with (MA), these standards are the same as the Next Generation Science (NGSS) Standards

Standard	Topics	Chapter(s)
HS-PS1-1	Periodic table & periodic trends: ionization energy, atomic & ionic radius	9
HS-PS1-2	Types of chemical reactions. Predicting products. Intermolecular Forces (IMF) *vs.* physical state at room temperature	12, 14, 15
HS-PS1-3	IMF *vs.* bulk properties (melting point/boiling point, density, vapor pressure, *etc.*)	11, 12
HS-PS1-4	Energy of reaction, heat of formation	18
HS-PS1-5	Reaction kinetics as related to Kinetic Molecular Theory (KMT) & collision theory	19
HS-PS1-6	Equilibrium, Le Châtelier's principle, as related to KMT	19
HS-PS1-7	Conservation of mass & atoms, balancing equations, law of constant composition, moles, stoichiometry, percent yield	4, 13, 15, 17
HS-PS1-9(MA)	pH as measure of acid/base strength, Arrhenius & Brønsted-Lowry theories as related to bases & monoprotic acids	20
HS-PS1-10(MA)	Oxidation/reduction (REDOX) reactions, oxidation numbers, predicting products of REDOX reactions, conceptual electrochemistry	16
HS-PS1-11(MA)	Mixture separation based on chemical & physical properties (*e.g.,* chromatography, distillation, centrifuging, precipitation reactions)	2, 4, 14
HS-PS2-6	Molecular structures of ionic compounds, acids, bases, metals & polymers	10, 11
HS-PS2-7(MA)	Solvent polarity & why ions dissolve in polar solvents	11, 12, 14
HS-PS2-8(MA)	KMT & gases (electrostatic forces, interactions between molecules in solids, liquids & gases), combined gas law	5
HS-PS3-4b	Conservation of energy with respect to enthalpy, entropy, and free energy (conceptual)	18

MA Science Practices

Practice	Description
SP1	Asking questions.
SP2	Developing & using models.
SP3	Planning & carrying out investigations.
SP4	Analyzing & interpreting data.
SP5	Using mathematics & computational thinking.
SP6	Constructing explanations.
SP7	Engaging in argument from evidence.
SP8	Obtaining, evaluating and communicating information.