

Textbook Alignment to the Utah Chemistry Core Curriculum Rubric

Title _____ ISBN# _____			
Publisher: _____			
Name of Person(s) conducting alignment and evaluation: _____			
Overall percentage of coverage of the Utah State Core Curriculum: _____%			
Standard I: Students will understand that all matter in the universe has a common origin and is made of atoms, which have structure and can be systematically arranged on the periodic table.			
Percentage of coverage for Standard I: %			
Objectives	Indicators	If covered, appropriate page #'s	Comments on coverage
Objective 1.1: Recognize the origin and distribution of elements in the universe.	a. Identify evidence supporting the assumption that matter in the universe has a common origin.		
	b. Recognize that all matter in the universe and on earth is composed of the same elements.		
	c. Identify the distribution of elements in the universe.		
	d. Compare the occurrence of heavier elements on earth and the universe.		

Objective 1.2: Relate the structure, behavior, and scale of an atom to the particles that compose it.	a. Summarize the major experimental evidence that led to the development of various atomic models, both historical and current.		
	b. Evaluate the limitations of using models to describe atoms.		
	c. Discriminate between the relative size, charge, and position of protons, neutrons, and electrons in the atom.		
	d. Generalize the relationship of proton number to the element's identity.		
	e. Relate the mass and number of atoms to the gram-sized quantities of matter in a mole.		
Objective 1.3: Correlate atomic structure and the physical and chemical properties of an element to the position of the element on the periodic table.	a. Use the periodic table to correlate the number of protons, neutrons, and electrons in an atom.		
	b. Compare the number of protons and neutrons in isotopes of the same element.		
	c. Identify similarities in chemical behavior of elements within a group.		
	d. Generalize trends in reactivity of elements within a group to trends in		

	other groups.		
	e. Compare the properties of elements (e.g., metal, nonmetallic, metalloid) based on their position in the periodic table.		
<p>Standard II: Students will understand the relationship between energy changes in the atom specific to the movement of electrons between energy levels in an atom resulting in the emission or absorption of quantum energy. They will also understand that the emission of high-energy particles results from nuclear changes and that matter can be converted to energy during nuclear reactions.</p> <p>Percentage of coverage for Standard II: %</p>			
Objectives	Indicators	If covered, appropriate page #'s	Comments on coverage
Objective 2.1: Evaluate quantum energy changes in the atom in terms of the energy contained in light emissions.	a. Identify the relationship between wavelength and light energy.		
	b. Examine evidence from the lab indicating that energy is absorbed or released in discrete units when electrons move from one energy level to another.		
	c. Correlate the energy in a photon to the color of light emitted.		
	d. After observing spectral emissions in the lab (e.g., flame test, spectrum tubes), identify unknown elements by comparison to known emission spectra.		
Objective 2.2: Evaluate how changes in the	a. Recognize that radioactive particles and		

nucleus of an atom result in emission of radioactivity.	wavelike radiations are products of the decay of an unstable nucleus.		
	a. Recognize that radioactive particles and wavelike radiations are products of the decay of an unstable nucleus.		
	b. Interpret graphical data relating half-life and age of a radioactive substance.		
	c. Compare the mass, energy, and penetrating power of alpha, beta, and gamma radiation.		
	d. Compare the strong nuclear force to the amount of energy released in a nuclear reaction and contrast it to the amount of energy released in a chemical reaction.		
	e. After researching, evaluate and report the effects of nuclear radiation on humans or other organisms.		
Standard III: Students will understand chemical bonding and the relationship of the type of bonding to the chemical and physical properties of substances.			
Percentage of coverage for Standard III: %			
Objectives	Indicators	If covered, appropriate page #'s	Comments on coverage
Objective 3.1: Analyze	a. Determine the number of		

the relationship between the valence (outermost) electrons of an atom and the type of bond formed between atoms.	valence electrons in atoms using the periodic table.		
	b. Predict the charge an atom will acquire when it forms an ion by gaining or losing electrons.		
	c. Predict bond types based on the behavior of valence (outermost) electrons.		
	d. Compare covalent, ionic, metallic bonds with respect to electron behavior and relative bond strengths.		
Objective 3.3: Relate the properties of simple compounds to the type of bonding, shape of molecules, and intermolecular forces.	a. Generalize, from investigations, the physical properties (e.g., malleability, conductivity, solubility) of substances with different bond types.		
	b. Given a model, describe the shape and resulting polarity of water, ammonia, and methane molecules.		
	c. Identify how intermolecular forces of hydrogen bonds in water affect a variety of physical, chemical, and biological phenomena (e.g., surface tension, capillary action, boiling point).		
Standard IV: Students will understand that in chemical reactions matter and energy change forms, but the amounts of matter and energy do not change.			
Percentage of coverage for Standard IV: %			

Objectives	Indicators	If covered, appropriate page #'s	Comments on coverage
Objective 4.1: Identify evidence of chemical reactions and demonstrate how chemical equations are used to describe them.	a. Generalize evidences of chemical reactions.		
	b. Compare the properties of reactants to the properties of products in a chemical reaction.		
	c. Use a chemical equation to describe a simple chemical reaction.		
	d. Recognize that the number of atoms in a chemical reaction does not change.		
	e. Determine the molar proportions of the reactants and products in a balanced chemical reaction.		
	f. Investigate everyday chemical reactions that occur in a student's home (e.g., baking, rusting, bleaching, cleaning).		
Objective 4.2: Analyze evidence for the laws of conservation of mass and conservation of energy in chemical reactions.	a. Using data from quantitative analysis, identify evidence that supports the conservation of mass in a chemical reaction.		
	b. Use molecular relationships in a balanced chemical reaction to predict the mass of product produced in a simple		

	chemical reaction that goes to completion.		
	c. Report evidence of energy transformations in a chemical reaction.		
	d. After observing or measuring, classify evidence of temperature change in chemical reaction as endothermic or exothermic.		
	e. Using either a constructed or a diagrammed electrochemical cell, describe how electrical energy can be produced in a chemical reaction (e.g., half reaction, electron transfer).		
	f. Using collected data, report the loss or gain of heat energy in a chemical reaction.		
Standard V: Students will understand that many factors influence chemical reactions and some reactions can achieve a state of dynamic equilibrium.			
Percentage of coverage for Standard V: %			
Objectives	Indicators	If covered, appropriate page #'s	Comments on coverage
Objective 5.1: Evaluate factors specific to collisions (e.g., temperature, particle size, concentration, and catalysts) that affect the	a. Design and conduct and investigation of the factors affecting reaction rate and use the findings to generalize the results to other reactions.		

rate of chemical reaction.	b. Use information from graphs to draw warranted conclusions about reaction rates.		
	c. Correlate frequency and energy of collisions to reaction rate.		
	d. Identify that catalysts are effective in increasing reaction rates.		
Objective 5.2: Recognize that certain reactions do not convert all reactants to products, but achieve a state of dynamic equilibrium that can be changed.	a. Explain the concept of dynamic equilibrium.		
	b. Given an equation, identify the effect of adding either product or reactant to a shift in equilibrium.		
	c. Indicate the effect of a temperature change on the equilibrium, using an equation showing a heat term.		
Standard VI: Students will understand the properties that describe solutions in terms of concentration, solutes, solvents, and the behavior of acids and bases.			
Percentage of coverage for Standard VI: %			
Objectives	Indicators	If covered, appropriate page #'s	Comments on coverage
Objective 6.1: Describe factors affecting the process of dissolving and evaluate the effects that changes in concentration have on solutions.	a. Use the terms solute and solvent in describing a solution.		
	b. Sketch a solution at the particle level.		
	c. Describe the relative amount of solute particles in		

	concentrated and dilute solutions and express concentration in terms of molarity and molality.		
	d. Design and conduct an experiment to determine the factors (e.g., agitation, particle size, temperature) affecting the relative rate of dissolution.		
	e. Relate the concept of parts per million (PPM) to relevant environmental issues found through research.		
Objective 6.2: Summarize the quantitative and qualitative effects of colligative properties on a solution when a solute is added.	a. Identify the colligative properties of a solution.		
	b. Measure change in boiling and/or freezing point of a solvent when a solute is added.		
	c. Describe how colligative properties affect the behavior of solutions in everyday applications (e.g., road salt, cold packs, antifreeze).		
Objective 6.3: Differentiate between acids and bases in terms of hydrogen ion concentration.	a. Relate hydrogen ion concentration to pH values and to the terms acidic, basic, or neutral.		
	b. Using an indicator, measure the pH of common household solutions and standard laboratory		

	solutions, and identify them as acids or bases.		
	c. Determine the concentration of an acid or a base using a simple acid-base titration.		
	d. Research and report on the uses of acids and bases in industry, agriculture, medicine, mining, manufacturing, or construction.		
	e. Evaluate mechanisms by which pollutants modify the pH of various environments (e.g., aquatic, atmospheric, soil).		

General Rubric

Review Category	High Quality - 3	2	1	0	NA	Comments
Curriculum Content Coverage						
Content matches the standards and objectives of the Utah Core Curriculum.	80% of the Utah Core and objectives are covered. Objectives are clearly stated with measurable outcomes.	70% of the Utah Core and objectives are covered. Objectives are clearly stated with measurable outcomes.	50% of the Utah Core and objectives are covered.	Less than 50% of the Utah Core and objectives are covered		
Content is delivered in an appropriate sequence.	80% of the program content is covered in an appropriate sequence matching the Utah Core.	70% of the program content is covered in an appropriate sequence matching the Utah Core.	50% of the program content is covered in an appropriate sequence matching the Utah Core.	Less than 50% of the program content is covered in an appropriate sequence matching the Utah Core.		

Content is covered with appropriate depth.	The program provides 80% or more of the necessary depth needed for appropriate instruction.	The program provides 70% or less of the necessary depth needed for appropriate instruction.	The program provides 50% or less of the necessary depth needed for appropriate instruction.	The program lacks the necessary depth needed for appropriate instruction.		
Content endorses sound research-based practices.	The program utilizes 80% or more of current research-based practices.	The program utilizes 70% or less of current research-based practices.	The program utilizes 50% or less of current research-based practices.	The program does not utilize current research-based practices.		
Content is presented accurately and in an age-appropriate manner.	Materials reflect current content knowledge without content bias. Materials utilize cross-curricular references and experiences. Materials are age appropriate.	Materials have some content inaccuracies, but do not show content bias. Materials utilize some cross-curricular references. Materials are 70% age appropriate	Materials show many content inaccuracies and some content bias. Materials have very limited cross curricular references. Materials are approximately 50% age appropriate.	Materials have major content inaccuracies. Materials have no cross curricular references. Materials are not age appropriate.		
Content is engaging to the student.	80% or more of the materials and activities are interesting and engaging to the student promoting purposeful learning.	Less than 80% of the materials and activities are interesting and engaging to the student promoting purposeful learning.	50% or less of the materials and activities are interesting and engaging to the student promoting purposeful learning.	Very little, if any, of the materials and activities are interesting and engaging to the student promoting purposeful learning.		
Content is differentiated to meet different abilities and needs.	There are appropriate accommodations for various developmental levels	70% of the program provides appropriate accommodations for various developmental levels	50% of the program provides appropriate accommodations for various developmental levels acknowledging	There are few or no appropriate accommodations for various developmental levels with little		

	acknowledging prerequisite skills and knowledge.	acknowledging prerequisite skills and knowledge.	prerequisite skills and knowledge.	acknowledgment of needed prerequisite skills and knowledge.		
Review Category Physical Qualities	High Quality - 3	2	1	0	NA	Comments
Student materials provide appropriate print, illustrations and text features.	Student materials provide appropriate use of font, illustrations and text features, (e.g., illustrations, graphs, tables).	70% of the student material provides appropriate use of font, illustrations and text features, (e.g., illustrations, graphs, tables).	50% of the student material provides appropriate use of font, illustrations and text features, (e.g., illustrations, graphs, tables).	The student materials lack appropriate use of font, illustrations, and text features, (e.g., illustrations, graphs, tables).		
Student materials provide table of contents, glossary, index, and etc.	Student materials provide necessary table of contents, indices, glossaries, and other references to assist and guide students, parents, and teachers.	Student materials provide some table of contents, indices, glossaries, and other references to assist and guide students, parents, and teachers.	Student materials provide a limited amount of table of contents, indices, glossaries, and other references to assist and guide students, parents, and teachers.	Student materials provide very little, if any, table of contents, indices, glossaries, and other references to assist and guide students, parents, and teachers.		
Student materials are durable.	Student materials are securely bound and reinforced.	Student materials are adequately hardbound.	Student materials have secure bindings.	Student materials have inferior bindings.		
Teacher materials are easy to use.	Teacher materials are well organized with easy to read font and good correlation with student materials.	Teacher materials are organized with easy to read font, and follow correlation with student materials.	Teacher materials are somewhat organized with hard to read font and layout. Materials provide difficult to follow correlation with student materials.	Materials are disorganized with hard to read font for teachers. Layout provides little or no correlation to student materials.		
Teacher material is durable.	Teacher materials are securely bound	Teacher materials are adequately	Teacher materials have secure bindings	Teacher materials have inferior		

	and reinforced while staying open and flat for teaching.	hardbound while staying open and flat for teaching	but do not open and lay flat to facilitate teaching.	bindings but do lay flat to facilitate teaching.		
Review Category Technology Qualities	High Quality - 3	2	1	0	NA	Comments
Technology provided is user friendly.	Program provides menus that are easy to read and follow. Program is user-friendly to install and requires a minimal level of computer expertise. Manuals and directions are understandable.	Program provides menus that are generally easy to read and follow. Installation requires little computer expertise. Manuals and directions are simple to understand.	Program menus are easy to read. Manuals might have to be read in detail to understand operation of technology, (e.g., laser remote, software). Installation might require some knowledge or expertise. Manuals are included.	Menus are not descriptive and hard to follow. Installation requires expertise. No manuals or written instructional materials are provided.		
Technology provided enhances the learning experience.	Technology provided is appropriate giving additional support for student learning.	Technology provided is appropriate giving some additional support for student learning.	Limited technology is provided giving little support for student learning.	No technology is provided.		
Technology has quality audio/visual attributes.	Program provides high quality audio and visual effects.	Program provides good audio and visual effects.	Program audio and visual effects are of poor quality.	No technology is available.		
Review Category Ancillary Materials	High Quality - 3	2	1	0	NA	Comments
Student ancillary materials provide appropriate supplemental instruction.	Program provides high quality student ancillary materials that enhance and supplement the	Program provides adequate student ancillary materials to enhance and supplement the	Program provides some student ancillary materials that are of limited value to supplement	The program provides no student ancillary materials or student ancillary materials are of		

	delivery of instruction.	delivery of instruction.	and enhance the delivery of instruction.	such poor quality and have little correlation to learning objectives that they are of no value.		
Student ancillary materials are easy to access and utilize.	Student ancillary materials are easy to access, are durable and easy to utilize.	Student ancillary materials are easy to access, are somewhat durable requiring some modification to utilize.	Student ancillary materials are difficult to access and require modification to utilize.	Student ancillary materials are of such poor quality or difficult to prepare or access that they are of little or no value.		
Parent ancillary materials are appropriate and support desired student learning	Parent ancillary materials are appropriate providing good support for desired student learning through home activities, homework, and practice opportunities.	Parent ancillary materials are appropriate providing adequate support for desired student learning through a variety of opportunities and activities.	Parent ancillary materials are not always appropriate nor do they provide adequate support through a variety of opportunities for student learning.	There are no parent ancillary materials available.		
Review Category Assessment Materials	High Quality - 3	2	1	0	NA	Comments
A variety of assessment options are provided.	Program provides multiple assessment measures to monitor individual student progress at regular intervals.	Program provides some assessment measures to monitor individual student progress at regular intervals.	Program provides limited assessment measures to monitor individual student progress at regular intervals.	Program provides no assessment measures or measures are of such poor quality or correlation to student learning to be of any value.		

Assessment tools are appropriate to inform instruction and are aligned with the program, the Utah Core curriculum, and U-PASS.	Assessment tools are appropriate to inform the major areas of instruction and are aligned with the program and the Utah Core curriculum and U-PASS.	Assessment tools are appropriate to inform some areas of the instructional program and are adequately aligned with the program and the Utah Core curriculum and U-PASS.	Assessment tools are appropriate to inform limited areas of the instructional program and are poorly aligned with the program and the Utah Core curriculum and U-PASS.	Assessment tools are not appropriate to inform areas of the instructional program and are not aligned with the program and the Utah Core curriculum and U-PASS.		
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Assessment tools are easily accessible and utilized.	Assessment tools are easily accessible with a limited amount of training or expertise.	Assessment tools are accessible with some amount of training or expertise needed.	Assessment tools are difficult to access and require extensive training.	Assessment tools are not accessible.		
Category Universal Access	High Quality - 3	2	1	0	NA	Comments
Program content accurately reflects diverse populations.	Program provides ways to adapt curriculum for all students, (e.g., special learning needs, learning disabilities, ELL, and advanced learners).	Program provides some ways to adapt curriculum to meet special learning needs of students.	Program provides limited strategies to assist special learning needs of students.	Program provides no strategies to assist special learning needs of students.		
Program contents provides for the development of healthy attitudes and values.	Program accurately portrays and promotes understanding of cultural, racial, religious and diversity in society.	Program accurately portrays and promotes some understanding of cultural, racial, religious and diversity in society.	Program accurately portrays and promotes a limited understanding of cultural, racial, religious and diversity in society.	Program does not accurately portray or promote an understanding of cultural, racial, religious and diversity in society.		

I have reviewed the above program and recommend the following use: (Choose one category only.)

- (1) Instructional materials are in alignment with content philosophy and instructional strategies of the Utah Core. Materials provide comprehensive coverage of course content and support U-PASS. Materials may be used for **primary course instruction**.
 - (2) Instructional materials provide limited alignment with the Utah Core or U-PASS or have a narrow or restricted scope and sequence. Use of these materials must be supplemented with necessary missing program elements for effective instruction. Materials may be used on a **limited basis with accompanying plan** for use with additional appropriate materials to assure coverage of core requirements.
 - Materials could be used to support primary course instruction - **Tier I** of the **Utah Model for Instruction and Intervention**.
 - Materials could be used to support intervention instruction - **Tier II** of the **Utah Model for Instruction and Intervention**.
 - Materials could be used to support intervention instruction - **Tier III** of the **Utah Model for instruction and Intervention**.
 - (3) Materials are not for student instructional use, but may only be used only as **teacher resource material**.
 - (4) Materials are aligned to the core, developmentally appropriate, may contain valuable content information, but are not intended to be used as the source for primary instruction, but **only as student resource material**.
- Materials have been reviewed, but **not adopted** because of lack of alignment, inaccurate content, misleading connotations, undesirable presentation, or are in conflict with existing law and rules, or otherwise unsuitable for use by students. **School districts are strongly cautioned against using these materials.** Materials were included in the publisher bid, but **not sampled** to the USOE or Textbook commission.
- Materials were not reviewed**, but may be purchased in accordance with the law and Rule **277-469-6**: Advanced placement materials, International materials, concurrent enrollment materials, library or trade books, reference materials, teacher professional materials which are not components of an integrated instructional program. Galley proofs or unfinished copies are not reviewed.

Evaluator Signature: _____

Date: _____