

Vertical Alignment Document

Science - Properties, Patterns and Models

Sixth, Seventh, Eighth



**SCIENCE VERTICAL ALIGNMENT DOCUMENT - SIXTH, SEVENTH, EIGHTH
PROPERTIES, PATTERNS AND MODELS**

SIXTH GRADE		SEVENTH GRADE		EIGHTH GRADE	
				8.8	<i>The student knows that matter is composed of atoms.</i>
				8.8A	Describe the structure and parts of an atom. Describe ATOMIC STRUCTURE AND PARTS Including, but not limited to: <ul style="list-style-type: none"> • size comparison and location of sub-atomic parts <ul style="list-style-type: none"> • nucleus <ul style="list-style-type: none"> • protons • neutrons • outer shell/electron shell <ul style="list-style-type: none"> • electrons • valence electrons
				8.8B	Identify the properties of an atom including mass and electrical charge. Identify PROPERTIES OF AN ATOM Including, but not limited to: <ul style="list-style-type: none"> • mass number • electrical charge <ul style="list-style-type: none"> • introduce ions • atomic number and atomic mass relationship to subatomic particles <ul style="list-style-type: none"> • introduce isotopes • atomic number (protons) • atomic mass (protons plus neutrons) • stable atom = neutral atom

TEXT— **TEKS: Bolded Black and Italics Knowledge Statement (TEA); Bolded Black – Student Expectations (TEA); Blue – Supporting Information Clarifications from CSCOPE**
CELL SHADING — **BEIGE: Student Expectations that are tested at current and/or other grade levels**

**SCIENCE VERTICAL ALIGNMENT DOCUMENT - SIXTH, SEVENTH, EIGHTH
PROPERTIES, PATTERNS AND MODELS**

SIXTH GRADE		SEVENTH GRADE		EIGHTH GRADE	
6.7	<i>The student knows that substances have physical and chemical properties.</i>	7.7	<i>The student knows that substances have physical and chemical properties.</i>	8.9	<i>The student knows that substances have chemical and physical properties.</i>
6.7A	<p>Demonstrate that new substances can be made when two or more substances are chemically combined and compare the properties of the new substances to the original substances.</p> <p>Demonstrate</p> <p>HOW NEW SUBSTANCES WITH DIFFERENT PROPERTIES EMERGE FROM CHEMICAL REACTIONS</p> <p>Including, but not limited to:</p> <ul style="list-style-type: none"> evidence of a chemical reaction <ul style="list-style-type: none"> color change release of gas release of light/heat temperature change compare differences between products and reactants 	7.7A	<p>Identify and demonstrate everyday examples of chemical phenomena such as rusting and tarnishing of metals and burning of wood.</p> <p>Identify, Demonstrate</p> <p>EXAMPLES OF CHEMICAL PHENOMENA</p> <p>Including, but not limited to:</p> <ul style="list-style-type: none"> rusting and tarnishing of metals (oxidation) burning of wood corrosion 	8.9A	<p>Demonstrate that substances may react chemically to form new substances.</p> <p>Demonstrate</p> <p>SUBSTANCES MAY REACT CHEMICALLY TO FORM NEW SUBSTANCES</p> <p>Including, but not limited to:</p> <ul style="list-style-type: none"> recognize that formulas and equations express what happens in a chemical reaction <ul style="list-style-type: none"> rearrangement of atoms <ul style="list-style-type: none"> breaking and reforming of bonds observe and recognize signs of chemical change: <ul style="list-style-type: none"> color change energy change odor change new substance produced precipitate formation release of a gas <ul style="list-style-type: none"> odor bubbling

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SIXTH GRADE		SEVENTH GRADE		EIGHTH GRADE	
6.7B	<p>Classify substances by their physical and chemical properties.</p> <p>Classify</p> <p>PHYSICAL AND CHEMICAL PROPERTIES</p> <p>Including, but not limited to:</p> <ul style="list-style-type: none"> physical properties <ul style="list-style-type: none"> color shape texture density <ul style="list-style-type: none"> density=mass/volume chemical properties <ul style="list-style-type: none"> reactivity flammability (burns) oxidation <ul style="list-style-type: none"> rust tarnish 	7.7B	<p>Describe physical properties of elements and identify how they are used to position an element on the periodic table.</p> <p>Describe, Identify</p> <p>PHYSICAL PROPERTIES AND ELEMENT POSITION ON THE PERIODIC TABLE</p> <p>Including, but not limited to:</p> <ul style="list-style-type: none"> placement on the periodic table <ul style="list-style-type: none"> atomic number periods groups/families physical properties of elements <ul style="list-style-type: none"> density metals <ul style="list-style-type: none"> luster conductivity ductile malleable magnetic nonmetals <ul style="list-style-type: none"> dull mostly gases brittle metalloids <ul style="list-style-type: none"> semiconductor 	8.9B	<p>Interpret information on the periodic table to understand that physical properties are used to group elements.</p> <p>Interpret</p> <p>RELATIONSHIP OF LOCATION ON THE PERIODIC TABLE TO PHYSICAL PROPERTIES</p> <p>Including, but not limited to:</p> <ul style="list-style-type: none"> the horizontal rows on the periodic table as periods the vertical columns on the periodic table as groups or families with similar properties <ul style="list-style-type: none"> reactivity explain why elements are classified in the periodic table as: <ul style="list-style-type: none"> metals nonmetals metalloids

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		7.7C	<p>Recognize that compounds are composed of elements.</p> <p>Recognize</p> <p>COMPOUND COMPOSITION</p> <p>Including, but not limited to:</p> <ul style="list-style-type: none"> • elements • compounds • mixtures <ul style="list-style-type: none"> • homogeneous • heterogeneous • recognize compounds in everyday life <ul style="list-style-type: none"> • H₂O • CO₂ • C₆H₁₂O₆ - Glucose 	8.9C	<p>Recognize the importance of formulas and equations to express what happens in a chemical reaction.</p> <p>Recognize</p> <p>IMPORTANCE OF FORMULAS AND EQUATIONS IN REPRESENTING CHEMICAL REACTIONS</p> <p>Including, but not limited to:</p> <ul style="list-style-type: none"> • use formulas to represent a chemical reaction <ul style="list-style-type: none"> • subscript • coefficient • yields • product • reactant • law of conservation of mass • recognize balanced chemical equations <p>Note:</p> <ul style="list-style-type: none"> • Students understand that chemical reactions represent the rearrangement of elements. Students are NOT required to balance equations.

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