

# Active Physics Correlation to Colorado Content Standard for Physical Science

<b>Correlation key:</b>	<b>Communication</b>			<b>Home</b>			<b>Medicine</b>			<b>Predictions</b>			<b>Sports</b>			<b>Transportation</b>		
<p>“X” Coverage = Secondary concept of the activity or problem. Students gain a basic understanding or introduction of the concept.</p> <p>“O” In-depth coverage = primary concept that is the focus of the activity or problem. Students gain thorough understanding of the concept.</p>																		
Standard	C1	C2	C3	H1	H2	H3	M1	M2	M3	P1	P2	P3	S1	S2	S3	T1	T2	T3
<b>Scientific Inquiry</b>																		
<b>STANDARD 1: Students understand the processes of scientific investigation and design, conduct, communicate about, and evaluate such investigations.</b>																		
1. asking questions and stating hypotheses, using prior scientific knowledge to help guide their development	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
2. creating and defending a written plan of action for a scientific investigation			O	O								O					O	
3. selecting and using appropriate technologies to gather, process, and analyze data and to report information related to an investigation		O	O	O	O		O	O	O		O		O	O	O	O	O	
4. identifying major sources of error or uncertainty within an investigation (for example, particular measuring devices and experimental procedures)										O								
5. constructing and revising scientific explanations and models, using evidence, logic, and experiments that include identifying and controlling variables			O	O			O	O	O	O			O					
6. communicating and evaluating scientific thinking that leads to particular conclusions		O	O	O			O	O	O	O		O				O	O	
7. recognizing and analyzing alternative explanations and models			O	O			O			O		O						
8. explaining the difference between a scientific theory and a scientific hypothesis																		
<b>STANDARD 2: Physical Science: Students know and understand common properties, forms, and changes in matter and energy. (Focus: Physics and Chemistry.)</b>																		

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	Standard	C1	C2	C3	H1	H2	H3	M1	M2	M3	P1	P2	P3	S1	S2	S3	T1	T2

<b>2.1 Students know that matter has characteristic properties, which are related to its composition and structure.</b>																			
1. examining, describing, measuring, classifying, and predicting common properties of substances (for example, electrical charge, chemical reactivity, acidity, electrical conductivity, radioactivity, relationships in the periodic table)																			
2. describing and explaining properties and composition of samples of matter using models (for example, atomic and molecular structure, the periodic table)																			
3. separating substances based on their chemical and physical properties (for example, color, solubility, chemical reactivity, melting point, boiling point)																			
4. using word and chemical equations to relate observed changes in matter to its composition and structure																			
<b>2.2 Students know that energy appears in different forms, and can move (be transferred) and change (be transformed).</b>																			
1. identifying, measuring, calculating, and analyzing quantitative relationships involved with energy forms (for example, heat transfer in a system involving mass, specific heat, and change in temperature of matter)					O									O	O	O			
2. identifying, measuring, calculating, and analyzing qualitative and quantitative relationships associated with energy transfer or energy transformation (for example, changes in temperature, velocity, potential energy, kinetic energy, conduction, convection, radiation, voltage, current)		X			O	X								O	O	O			

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<b>2.3 Students understand that interactions can produce changes in a system, although the total quantities of matter and energy remain unchanged.</b>																			
1. identifying, describing, and explaining physical and chemical changes involving the conservation of matter and energy (for example, oscillating pendulum/spring, chemical reactions, nuclear reactions)																			
2. observing, measuring, and calculating quantities to demonstrate conservation of matter and energy in chemical changes (for example, acid-base, precipitation, oxidation- reduction reactions), and physical interactions of matter (for example, force, work, power)		X												O	O	O			
3. describing and predicting chemical changes (for example, combustion, simple chemical reactions), and physical interactions of matter (for example, velocity, force, work, power), using word or symbolic equations													O			O			O
4. describing and explaining physical interactions of matter using conceptual models (for example, conservation laws of matter and energy, particle model for gaseous behavior)														O	O	O			