Student Learning Report: Grade 8 Science

Name _____

Process
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Process

Properties of Atoms

Process: Tools to Know		Notes	Check Up		
Planning/ Performing Investigations	☐ I can plan, design, and implement an investigation. 8.2(A), 8.2(B)				
Using Scientific Tools	☐ I can collect, record, and analyze information using scientific tools. 8.4(A)				

Content		Notes	Check Up		
Structure of Atoms	☐ I can describe the structure of atoms. 8.5(A) ☐ masses ☐ electrical charges ☐ location of protons and neutrons in the nucleus ☐ location of electrons in the electron cloud				
	☐ I can identify that protons determine an element's identity. 8.5(B)				
	☐ I can identify that valence electrons determine an element's chemical properties, including reactivity. 8.5(B)				
Periodic Table	☐ I can interpret the arrangement of the Periodic Table, including groups and periods, to explain how properties are used to classify elements. 8.5(C)				
	☐ I can compare metals, nonmetals, and metalloids using physical properties. 6.6(A) ☐ luster ☐ conductivity ☐ malleability				

Process: Ways to Show		Notes	Check Up		
Interpreting Information	☐ I can analyze and formulate explanations, communicate conclusions, and predict trends. 8.2(E)				
Constructing Models	☐ I can use models to represent the natural world. 8.3(B)				

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Chemical Formulas, Equations, and Reactions

Process: Tools to Know		Notes	Check Up		
Planning/ Performing Investigations	☐ I can plan, design, and implement an investigation. 8.2(A), 8.2(B)				
Using Scientific Tools	☐ I can collect, record, and analyze information using scientific tools. 8.4(A)				

Content		Notes	Check Up		
Chemical Formulas	☐ I can recognize how chemical formulas are used to identify substances. 8.5(D)				
	☐ I can determine the number of atoms of each element in chemical formulas containing subscripts. 8.5(D)				
Chemical Reactions	☐ I can investigate how evidence of chemical reactions indicates that new substances with different properties are formed. 8.5(E)				
	☐ I can investigate how chemical reactions relate to the law of conservation of mass. 8.5(E)				
	☐ I can distinguish between physical and chemical changes in matter. 7.6(A)				
Density	☐ I can calculate density to identify an unknown substance. 6.6(B)				
	☐ I can identify an unknown substance using its density. 6.6(B)				

Process: Ways to Show		Notes	Check Up		
Interpreting Information	☐ I can analyze and formulate explanations, communicate conclusions, and predict trends. 8.2(E)				
Constructing Models	☐ I can use models to represent the natural world. 8.3(B)				

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Force, Motion, and Energy

Process: Tools to Know		Notes	Check Up		
Planning/ Performing Investigations	☐ I can plan, design, and implement an investigation. 8.2(A), 8.2(B)				
Using Scientific Tools	☐ I can collect, record, and analyze information using scientific tools. 8.4(A)				

Content		Notes	Check Up		
Force	☐ I can demonstrate and calculate how unbalanced forces change the speed or direction of an object's motion. 8.6(A)				
Motion	☐ I can investigate applications of Newton's three laws of motion in: 8.6(C) ☐ vehicle restraints ☐ sports activities ☐ amusement park rides ☐ Earth's tectonic activities ☐ rocket launches				
	☐ I can differentiate between speed, velocity, and acceleration. 8.6(B)				
	☐ I can calculate average speed using distance and time measurements. 6.8(C)				
	☐ I can measure and graph changes in motion. 6.8(D)				
Energy	☐ I can compare and contrast potential and kinetic energy. 6.8(A)				
	☐ I can demonstrate energy transformations. 6.9(C)				

Process: Ways to Show		Notes	Check Up		
Interpreting Information	☐ I can construct tables and graphs to organize data and identify patterns. 8.2(D)				
	☐ I can analyze and formulate explanations, communicate conclusions, and predict trends. 8.2(E)				
Constructing Models	☐ I can use models to represent the natural world. 8.3(B)				

Process
Content
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Sun, Earth, and Moon

Process: Tools to Know		Notes	Check Up		
Planning/ Performing Investigations	☐ I can plan, design, and implement an investigation. 8.2(A), 8.2(B)				
Using Scientific Tools	☐ I can collect, record, and analyze information using scientific tools. 8.4(A)				

Content		Notes	Check Up		
Earth's Movement	☐ I can model and illustrate how the tilted Earth rotates on its axis, causing day and night. 8.7(A)				
	☐ I can model and illustrate how the tilted Earth revolves around the Sun, causing changes in seasons. 8.7(A)				
Lunar Cycle	☐ I can demonstrate and predict the sequence of events in the lunar cycle. 8.7(B)				
Tides	☐ I can relate the positions of the Moon and Sun to their effect on ocean tides. 8.7(C)				

Process: Ways to Show		Notes	Check Up		
Interpreting Information	☐ I can analyze and formulate explanations, communicate conclusions, and predict trends. 8.2(E)				
Constructing Models	☐ I can use models to represent the natural world. 8.3(B)				

Characteristics of the Universe

Process: Tools to Know		Notes	Check Up		
Planning/ Performing Investigations	☐ I can plan, design, and implement an investigation. 8.2(A), 8.2(B)				
Using Scientific Tools	☐ I can collect, record, and analyze information using scientific tools. 8.4(A)				

Content		Notes	Check Up		
Characteristics of the Universe	☐ I can describe components of the universe. 8.8(A) ☐ stars ☐ nebulae ☐ galaxies				
	☐ I can use models such as the Hertzsprung-Russell diagram to classify components of the universe. 8.8(A)				
	☐ I recognize that the Sun is a medium-sized star located in a spiral arm of the Milky Way galaxy. 8.8(B)				
	☐ I recognize that the Sun is many thousands of times closer to Earth than any other star. 8.8(B)				
	☐ I can identify how different wavelengths of the electromagnetic spectrum, such as visible light and radio waves, are used to gain information about components in the universe. 8.8(C)				
	☐ I understand that gravity is the force that governs the motion of our solar system. 6.11(B)				
Theories of Origins of the Universe	☐ I know that scientific data are used as evidence to develop scientific theories to describe the origin of the universe. 8.8(D)				

Process: Ways to Show		Notes	Check Up		
Interpreting Information	☐ I can analyze and formulate explanations, communicate conclusions, and predict trends. 8.2(E)				
Critiquing Scientific Models	☐ I can analyze, evaluate, and critique scientific explanations. 8.3(A)				
Constructing Models	☐ I can use models to represent the natural world. 8.3(B)				

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Impact of Natural Events

Process: Tools to Know		Notes	Check Up		
Planning/ Performing Investigations	☐ I can plan, design, and implement an investigation. 8.2(A), 8.2(B)				
Using Scientific Tools	☐ I can collect, record, and analyze information using scientific tools. 8.4(A)				

Content		Notes	Check Up		
Plate Tectonics	☐ I can relate plate tectonics to the formation of crustal features. 8.9(B)				
	☐ I can describe the historical development of evidence that supports plate tectonic theory. 8.9(A)				
Topographic Maps	☐ I can interpret topographic maps and satellite views to identify land and erosional features. 8.9(C)				
	☐ I can predict how land and its features may be reshaped by weathering. 8.9(C)				
	☐ I can model the effects of human activity on groundwater and surface water in a watershed. 7.8(C)				

Process: Ways to Show		Notes	Check Up		
Interpreting Information	☐ I can analyze and formulate explanations, communicate conclusions, and predict trends. 8.2(E)				
Critiquing Scientific Models	☐ I can analyze, evaluate, and critique scientific explanations. 8.3(A)				
Constructing Models	☐ I can use models to represent the natural world. 8.3(B)				

Process
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Climatic Interactions

Process: Tools to Know		Notes	Check Up		
Planning/ Performing Investigations	☐ I can plan, design, and implement an investigation. 8.2(A), 8.2(B)				
Using Scientific Tools	☐ I can collect, record, and analyze information using scientific tools. 8.4(A)				

Content		Notes	Check Up		
Atmospheric Movement and Weather	☐ I can recognize that the Sun provides the energy that drives convection within the atmosphere and oceans, producing winds. 8.10(A)				
	☐ I can identify how global patterns of atmospheric movement influence local weather using weather maps that show high and low pressures and fronts. 8.10(B)				
Role of Oceans in Weather	☐ I can identify the role of the oceans in the formation of weather systems such as hurricanes. 8.10(C)				

Process: Ways to Show		Notes	Check Up		
Interpreting Information	☐ I can analyze and formulate explanations, communicate conclusions, and predict trends. 8.2(E)				
Constructing Models	☐ I can use models to represent the natural world. 8.3(B)				

Interdependence of Living Systems

Process: Tools to Know		Notes	Check Up		
Planning/ Performing Investigations	☐ I can plan, design, and implement an investigation. 8.2(A), 8.2(B)				
Using Scientific Tools	☐ I can collect, record, and analyze information using scientific tools. 8.4(A)				

Content		Notes	Check Up		
Interdependence	☐ I can describe how organisms and populations in an ecosystem depend on and may compete for biotic factors (food) and abiotic factors (quantity of light, water, range of temperatures, or soil composition). 8.11(A)				
	☐ I can diagram the flow of energy through living systems. 7.5(B) ☐ food chains ☐ food webs ☐ energy pyramids				
	☐ I can describe how biodiversity contributes to the sustainability of an ecosystem. 7.10(B)				
Environmental Changes	☐ I can explain how short- and long-term environmental changes affect organisms and traits in subsequent populations. 8.11(B)				
	☐ I can observe, record, and describe the role of ecological succession such as in a microhabitat of a garden with weeds. 7.10(C)				
Dependence on Ocean Systems	☐ I can recognize human dependence on ocean systems. 8.11(C)				
	☐ I can explain how human activities (runoff, artificial reefs, or use of resources) have modified ocean systems. 8.11(C)				
Genetics and Heredity	☐ I can examine organisms or structures and use dichotomous keys for identification. 7.11(A)				
	☐ I can identify some changes in genetic traits that have occurred over several generations through natural selection, such as the Galapagos Medium Ground Finch. 7.11(C)				
	☐ I can identify some changes in genetic traits that have occurred over several generations through selective breeding, such as domestic animals and hybrid plants. 7.11(C)				
	☐ I can compare the results of uniform or diverse offspring from asexual or sexual reproduction. 7.14(B)				
	☐ I can recognize that inherited traits of individuals are governed in the genetic material found in the genes within chromosomes in the nucleus. 7.14(C)				

(continued)

Interdependence of Living Systems (continued)

Content		Notes	Check Up		
Structure and Function	☐ I can identify the main functions of the systems of the human organism. 7.12(B) ☐ circulatory ☐ respiratory ☐ skeletal ☐ muscular ☐ digestive ☐ excretory ☐ reproductive ☐ integumentary ☐ nervous ☐ endocrine				
	☐ I can differentiate between structure and function in plant and animal cell organelles. 7.12(D) ☐ cell membrane ☐ cell wall ☐ nucleus ☐ cytoplasm ☐ mitochondrion ☐ chloroplast ☐ vacuole				
	☐ I can recognize the components of cell theory. 7.12(F)				
	☐ I can identify the basic characteristics of organisms that further classify them in the currently recognized kingdoms. 6.12(D) ☐ prokaryotic or eukaryotic ☐ unicellular or multicellular ☐ autotrophic or heterotrophic ☐ mode of reproduction				

Process: Ways to Show		Notes	Check Up		
Interpreting Information	☐ I can analyze and formulate explanations, communicate conclusions, and predict trends. 8.2(E)				
Constructing Models	☐ I can use models to represent the natural world. 8.3(B)				