

## STANDARD 1: SCIENCE AS INQUIRY

**Students understand and use the processes of scientific investigation and scientific ways of knowing. They are able to design, conduct, describe and evaluate these investigations. They are able to understand and apply concepts that unify scientific disciplines.**

STATE STANDARD	TANQUE VERDE EXTENSION	Text	CORRELATION	DAP	INSTRUCTIONAL LEVEL
<b>READINESS (Kindergarten)</b>					
Students know and are able to do the following:					
<b>1SC-R1</b> Identify and use safe procedures in all science activities					Mastery -- Kinder
PO1. Employ safe procedures (e.g. use and care of simple technology, tools/equipment, materials, and organisms) and behavior in all science inquiry					
<b>1SC-R2</b> Ask questions about the natural world (e.g., How do trees grow? Why is the sky blue? Where does rain come from?)					Mastery -- Kinder
PO1. Formulate questions about objects, organisms, events and relationships in the natural world.					
<b>1SC-R3</b> Categorize objects, organisms and events in different ways					Mastery -- Kinder
PO1. Organize (e.g., sort, classify, sequence) objects, organisms and events by different characteristics.					
<b>1SC-R4</b> State simple hypotheses about cause-and-effect relationships in the environment					Mastery -- Kinder
PO1. Formulate a question that relates to the environment.					
PO2. Predict the results of an observable cause-and-effect relationship.					
<b>1SC-R5</b> Perform simple measurements and comparisons					Mastery -- Kinder
PO1. Collect data using appropriate devices to make simple measurements (e.g., length, height, weight, volume)					
PO2. Compare objects according to their measurements					
<b>1SC-R6</b> Communicate observations and comparisons through various means such as pictographs, pictures, models and words					Mastery -- Kinder
PO1. Employ various means to express observations					
PO2. Employ various means to relate comparisons					

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<b>READINESS (Kindergarten) (cont.)</b>					
<b>1SC-R7</b> Observe and describe changes in a simple system (e.g., a plant terrarium) PO1. Recognize the changes observed in a simple system (e.g., ant farm, plant terrarium, aquarium)					Mastery -- Kinder
<b>FOUNDATIONS (Grades 1-3)</b>					
Students know and are able to do all of the above and the following:					
<b>1SC-F1</b> Plan, design, conduct and report on the conclusions of basic experiments (with appropriate guidance) PO1. Plan an experiment PO2. Design an experiment PO3. Predict the results of an experiment PO4. Conduct an experiment PO5. Report, through various means, the conclusions of an experiment		Grade 1 -- Unit 5, p.11 T33 Grade 2 -- Unit 8 Energy		<b>Lab 1: Circuits</b>	Mastery -- Grade 2
<b>1SC-F2</b> Construct models (e.g., a volcano, a paper airplane, a solar system) that illustrate simple concepts and compare those models to what they represent (with appropriate guidance) PO1. Construct physical models (e.g. a volcano, a paper airplane, a solar system) illustrating scientific concepts PO2. Compare a physical model to the scientific concept it represents		Grade 3 -- Unit 14, pgs. 26-27 Grade 3 -- Unit 13, pgs. 14-15 Grade 3 -- Unit 12, pg. 28		<b>Lab 1: Circuits</b>	Mastery -- Grade 2
<b>1SC-F3</b> Identify and record changes and patterns of changes in a familiar system PO1. Describe changes and patterns of changes in a familiar system PO2. Record changes and patterns of design in a familiar system.		Grade 1 -- Unit 6, T69 Grade 2 -- Weather 9 Grade 2 -- Then & Now 7 Grade 3 -- Unit 11, pg. 9 Grade 3 -- Unit 12, pg. 50 Grade 3 -- Unit 14, pgs. 14-16, 50-51	<b>Butterfly Life Cycle</b>		Mastery -- Grade 1
<b>1SC-F4</b> Describe relationships among parts of a familiar system (e.g., a bicycle, a park, a clock) PO1. Identify parts of a familiar system PO2. Explain the relationships among parts of a system.		Grade 1 -- Unit 6, T29 Grade 2 -- Food Chain 7, Water Cycle 9 Grade 3 -- Unit 11, pgs. 28-29 Grade 3 -- Unit 14, pgs. 30-31, 52-55	<b>Plants Parts page</b>		Mastery -- Grade 1

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<b>ESSENTIALS (Grades 4-8)</b>					
Students know and are able to do all of the above and the following:					
<b>1SC-E1</b> Identify a question, formulate a hypothesis, control and manipulate variables, devise experiments, predict outcomes, compare and analyze results, and defend conclusions <i>(Grades 4-5)</i> PO1. Distinguish between a question and a hypothesis PO2. Describe variables and their functions in an investigation PO3. Predict an outcome based on experimental data PO4. Draw a conclusion based on a set of experimental data. <i>(Grades 6-8)</i> PO1. Design an experiment using a scientific method PO2. Conduct an experiment using a scientific method PO3. Analyze the results of an experiment PO4. Defend conclusions drawn from analysis.			Grade 5 -- Electricity <b>Electricity</b>	<b>Current</b>  <b>Lab D36-37</b>	Mastery -- Grade 5
	Science Fair -- design your own experiments	Grade 6 -- Handbook, pgs. 2-7 Grade 7 -- Chapter 1 Grade 8 -- Chapter 1	<b>Chpt. A - G</b>	Mastery -- Grade 6	
<b>1SC-E2</b> Create a model (e.g., a computer simulation, a stream table) to predict change <i>(Grades 4-5)</i> PO1. Design a model to illustrate a complex concept <i>(Grades 6-8)</i> PO1. Construct a model that demonstrates change within a system PO2. Describe variables that cause change PO3. Explain cause and effect of variables within a system.			Grade 4 -- Erosion  Grade 6 -- Unit E PE 25-26 Grade 7 -- Chapter 1 Grade 8 -- Chapter 1	<b>Chpt. 4 Test</b>	Mastery -- Grade 4  Mastery -- Grade 6
	Science Fair -- design your own <ul style="list-style-type: none"> <li>• element model</li> <li>• bonding model</li> <li>• model of a cell</li> <li>• atom model (pg. 275)</li> </ul>				
<b>1SC-E3</b> Organize and present data gathered from their own experiences, using appropriate mathematical analyses and graphical representations <i>(Grades 4-5)</i> PO1. Organize data into an appropriate format			Grade 4 -- Weather		Mastery Grade 4

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<b>ESSENTIALS (Grades 4-8) (cont.)</b>					
PO2. Construct a representation of data (e.g., bar graphs, line graphs, frequency tables and Venn diagrams) <i>(Grades 6-8)</i>	<ul style="list-style-type: none"> <li>• GLOBE program</li> <li>• Science Fair</li> <li>• Design Your Own Experiment</li> </ul>	Grade 6 -- Unit C Grade 8 -- Chapter 2 Experiments: motion of bodies, solubility temperature, plant growth (chpt. 11)		<b>Science Fair?</b>	Mastery -- Grade 6
PO1. Construct a representation of data (e.g., histograms, stem-and-leaf plots, scatter plots, circle graphs and flow charts) PO2. Interpret patterns in collected data.					
<b>1SC-E4</b> Identify and refine questions from previous investigations <i>(Grades 4-5)</i>	<ul style="list-style-type: none"> <li>• GLOBE program</li> <li>• Science Fair</li> <li>• Design Your Own Experiment</li> </ul>	Grade 5 -- Electricity		<b>How Do Electric Circuits Differ? Lab D44-45</b>	Mastery -- Grade 5
PO1. Identify questions from previous investigations PO2. Refine questions from previous investigations, linking present and prior knowledge <i>(Grades 6-8)</i>					
PO1. Analyze the results of previous investigations PO2. Refine hypothesis from previous investigations		Grade 8 -- Act. 5.1, 9.2		<b>Design Your Own Experiment</b>	Mastery -- Grade 8
<b>1SC-E5</b> Analyze the processes, parts and subsystems of a bicycle, a clock or other mechanical or electrical device <i>(Grades 4-5)</i>		Grade 4 -- Simple Machines			Mastery -- Grade 4
PO1. Identify the parts of a subsystem within a system PO2. Describe the functions of the parts of a subsystem PO3. State cause-and-effect relationships among components in mechanical or electrical devices <i>(Grades 6-8)</i>					
PO1. Explain the interaction among parts within mechanical/electrical devices PO2. Analyze the processes that operate within a mechanical/electrical device	<ul style="list-style-type: none"> <li>• Machine Dissection</li> </ul>	Grade 8 -- Chpts. 7,21,23		<b>Tests Ch. 7, 21, 23</b>	Mastery -- Grade 8
<b>1SC-E6</b> Analyze scientific reports from magazines, television or other media <i>(Grades 4-5)</i>	<ul style="list-style-type: none"> <li>• Use of newspapers, TV, Internet, <u>National Geographic</u> for classroom activities on environmental concerns</li> </ul>	Grade 5 -- Environment			Mastery -- Grade 5
PO1. Analyze the validity of scientific information from a variety of sources PO2. Support or refute a conclusion from a scientific report					

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<b>ESSENTIALS (Grades 4-8) (cont.)</b>					
<i>(Grades 6-8)</i>					
PO1. Evaluate information for accuracy, logic, bias and impact	<ul style="list-style-type: none"> <li>• Literature search for Science Fair</li> <li>• Internet or article -- review and critique</li> </ul>	Grade 7 -- <u>Science &amp; Society</u> Sect. Grade 8 -- <u>Science &amp; Society</u> Sect.		<b>Section Wrap-Up</b>	Mastery -- Grade 8
<b>PROFICIENCY (Grades 9-12)</b>					
Students know and are able to do all of the above and the following:					
<b>1SC-P1</b> Propose solutions to practical and theoretical problems by synthesizing and evaluating information gained from scientific information PO1. Evaluate scientific information for relevance to a given problem PO2. Propose a solution to a problem, based on information gained from scientific informations			<b>Problem Solving -- Chpts. 3, 19; Critical Thinking -- Chpts. 4, 6, 16, 24; Enrichment -- Chpts. 4, 9, 12, 20, 22,24; Science &amp; Society -- Chpts. 6, 11, 19, 22; Exploration Computer Lab -- Chpts. 12, 15, 19</b>		Mastery -- Grade 9
<b>1SC-P2</b> Compare observations of the real world to observations of a constructed model (e.g., an aquarium, a terrarium, a volcano) PO1. Assess the capability of a model to represent a "real world" scenario			<b>DAP Assessment:: Chpt. 3 Crystals; Chpt. 5 Mapping Our Planet; Chpt. 6 Critical Thinking; Chpt. 7 Computer Lab; Chpt. 9 Exam; Enrichment Chpts. 10 &amp; 11; Critical Thinking Chpt. 11</b>		Mastery -- Grade 9
<b>1SC-P3</b> Analyze and evaluate reports of scientific studies PO1. Analyze reports of scientific studies for elements of experimental design PO2. Compare conclusions to original hypotheses PO3. Evaluate validity of conclusions			<b>DAP Assessment:: Chpt. 1 Wrap-up; Chpt. 11 Science &amp; Society; Critical Thinking -- Chpts. 12, 16; Enrichment -- Chpts. 12, 20</b>		Mastery -- Grade 9
<b>1SC-P4</b> Create and defend a written plan of action for a scientific investigation PO1. Design an appropriate protocol for the investigation of a scientific problem PO2. Justify the protocol in terms of the elements of experimental design			DAP Assessment:: Chpt. 1 problem solving, pg. 16; Skills Handbook worksheet; Exploration Computer lab -- Chpts. 5, 8; Labs -- Chpts. 6, 9; Chpt. 10 Locating Volcanoes;		Mastery -- Grade 9
<b>1SC-P5</b> Apply the concepts of equilibrium, form and function to a variety of phenomena PO1. Predict the effects of various factors on the equilibrium of a system			Chpt. 3 -- notes, exam; Study Guides -- Chpts. 4, 5, 6, 7; Enrichment -- Chpts. 4, 6, 7, 10, 12, 22, 24; Labs -- Chpts. 4, 7, 12; Science & Society Chpt. 22; Exams -- Chpts. 3,4,6,7,10,11,12		Mastery -- Grade 9

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<p><b>PROFICIENCY (Grades 9-12) (cont.)</b>                      PO2. Explain how the relationships between form and function are evident in natural and designed systems.</p>					
<p><b>1SC-P6</b> Identify and refine a researchable question, conduct the experiment, collect and analyze data, share and discuss findings                      PO1. Construct a researchable question                      PO2. Employ a research design that incorporates a scientific method to carry out an experiment                      PO3. Analyze experimental data                      PO4. Communicate experimental findings to others</p>				<p><b>DAP Assessment:: Labs -- Chpts. 3, 6,7,8,9,12</b></p>	<p>Mastery -- Grade 9</p>

## STANDARD 2: HISTORY AND NATURE OF SCIENCE

Students understand the nature of scientific ways of thinking. Students understand that scientific investigation grows from the contributions of many people.

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<b>READINESS (Kindergarten)</b>					
Students know and are able to do the following:					
<b>2SC-R1</b> Understand that all people can and do participate in science PO1. Give examples of how diverse people participate in science (e.g., children, weathermen, cooks, healthcare worker, gardeners)					Mastery -- Kinder
<b>FOUNDATIONS (Grades 1-3)</b>					
Students know and are able to do all of the above and the following:					
<b>2SC-F1</b> Recognize that scientific contributions have been made by all kinds of people everywhere in the world PO1. Describe how people and cultures, past and present, have made important contributions to scientific knowledge		Grade 2 -- Energy 8 Grade 3 -- Unit 11, pgs. 18-19 Grade 3 -- Unit 12, pg. 89 Grade 3 -- Unit 13, pgs. 33,58 Grade 3 -- Unit 14, pg. 35	<b>Unit 11 Test #1</b>		Mastery -- Grade 3
<b>2SC-F2</b> Understand that scientific inquiry has produced much knowledge about the world, that much is still unknown, and that some things will always be unknown PO1. Describe the results of scientific inquiry in the world (e.g., a timeline of inventions, progression from simple to mechanized tools, understanding weather patterns) PO2. Explain how inquiry develops into further exploration of the unknown		Grade 2 -- Energy 8 Grade 2 -- Weather 9 Grade 3 -- Unit 11, pgs. 18-19 Grade 3 -- Unit 12, pgs. 18-25 Grade 3 -- Unit 13, pg. 45 Grade 3 -- Unit 14, pg. 56-58	<b>Unit 11 Test #1</b>		Mastery -- Grade 3
<b>2SC-F3</b> Understand that science involves asking and answering questions and comparing the results to what is already known PO1. Explain how asking and answering questions are part of the process of a scientific investigation PO2. Compare the results of a scientific investigation to prior knowledge		Grade 1 -- Unit 5, p.11, T33 Grade 2 -- Energy 8 Grade 2 -- Weather 9 Grade 2 -- Life Then & Now 7 Grade 3 -- Unit 11, pgs. 14-15 Grade 3 -- Unit 12, pgs. 28-29, 8 Grade 3 -- Unit 14, pg. 18	<b>Lab 1 -- Circuits</b>		Mastery -- Grade 2

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<b>ESSENTIALS (Grades 4-8)</b>					
Students know and are able to do all of the above and the following:					
<b>2SC-E1</b> Identify major milestones in science that have revolutionized the thinking of the time <i>(Grades 4-5)</i> PO1. Describes scientists' significant contributions that have revolutionized the thinking of their time <i>(Grades 6-8)</i> PO1. Describe the effects of major scientific events on history PO2. Describe a recent scientific event that has impacted the quality of life	• Famous Scientist	Grade 5 -- Animals		<b>Investigative Review Ch. 1 pg.</b>	Mastery -- Grade 5
		Grade 6 -- Unit G Grade 6 -- Unit A Grade 7 -- Sci. Journal pg. 143, pgs. 10-12, 43-44, 125-130 Grade 8 --Chpt. 10, pg. 284-295 "Using Technology" sect.	<b>Famous Scientist Report Invest. 2, Chpt 3, Unit A</b>		Mastery -- Grade 6
<b>2SC-E2</b> Describe how science and technology are interrelated <i>(Grades 4-5)</i> PO1. Describe how science has helped technology change over time PO2. Describe how technology has helped science change over time <i>(Grades 6-8)</i> PO1. Identify a technological discovery that influences science PO2. Identify a scientific discovery that influences technology PO3. Determine scientific processes involved in a technological advancement		Grade 5 -- Space Grade 5 -- Light & Sound		<b>Solar System &amp; Beyond, pg. B23 Questions</b>	Mastery -- Grade 5
		Grade 6 -- Unit G Grade 6 -- Unit A Grade 7 -- Sci. Journal pg. 143, pgs. 10-12, 43-44, 125-130 Grade 8 --Chpt. 10, pg. 284-295 "Science & History" sect.	<b>Famous Scientist Report Invest. 2, Chpt 13, Unit A</b>		Mastery -- Grade 6
<b>2SC-E3</b> Provide different explanations for a phenomenon; defend and refute the explanations <i>(Grades 4-5)</i> PO1. Define the term scientific phenomenon PO2. Propose several possible explanations for a scientific phenomenon PO3. Defend an explanation for a scientific phenomenon PO4. Refute an explanation for a scientific phenomenon <i>(Grades 6-8)</i> PO1. Analyze different theories to explain a phenomenon		Grade 4 -- Weather			Mastery -- Grade 4
		Grade 6 -- Unit C Grade 7 -- Chpt. 1, 6		<b>Chpt 1 Test</b>	Mastery -- Grade 6

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<b>ESSENTIALS (Grades 4-8) (cont.)</b>				
PO2. Explain a phenomenon PO3. Defend or refute the explanation of a phenomenon		Grade 8 -- Chpt 10 (Atom) Grade 8 -- Ch. 8 (Gas); Grade 8 -- Ch 18 (Light, Waves)		
<b>2SC-E4</b> Identify characteristics of scientific ways of thinking <i>(Grades 4-5)</i> PO1. Describe a variety of ways scientists generate ideas <i>(Grades 6-8)</i> PO1. Describe the scientific processes of observing, communicating, comparing, organizing, relating, inferring and applying	• Science Fair	Grade 4 -- Earth  Grade 6 -- Unit C Grade 7 -- Chpt. 1 Grade 8 -- Chpt. 1	Science Fair Chpt 1 Test <b>Chpt 1 Test</b>	Mastery -- Grade 4  Mastery -- Grade 8
<b>2SC-E5</b> Explain how scientific theory, hypothesis generation and experimentation are interrelated <i>(Grades 4-5)</i> PO1. Explain why a hypothesis is necessary for scientific inquiry PO2. Describe why experimentation is necessary to support or refute a hypothesis PO3. Describe how a scientific theory is developed and modified <i>(Grades 6-8)</i> PO1. Explain how scientific theories are used in the creation of a hypothesis PO2. Describe the relationship between theory and hypothesis PO3. Describe how experimental procedures can be formulated to test a hypothesis PO4. Explain how experimental results may effect a hypothesis and a theory	• Science Fair • Discussion of other theories, i.e., Atomic Model	Grade 5 -- Electricity  Grade 5 -- Electricity  Grade 6 -- Unit B 8,9 Grade 7 -- Chpt. 1 Grade 8 -- Chpt. 1	<b>Current Electricity D36-37 Series &amp; Parallel Circuits D44-45</b>  Famous Scientist Chpt 1 Test; essays <b>Chpt 1 Test</b>	Mastery -- Grade 5  Mastery -- Grade 8
<b>PROFICIENCY (Grades 9-12)</b>				
Students know and are able to do all of the above and the following:				
<b>2SC-P1</b> Identify and describe key factors (e.g., technology, competitiveness, world events, personalities, societal views) that affect the development and acceptance of scientific thought			<b>Science &amp; Society -- Chpts. 5, 11; Critical Thinking -- Chpts. 12, 16; Final Exam</b>	Mastery -- Grade 9

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<b>PROFICIENCY (Grades 9-12) (cont.)</b>					
PO1. Define key factors that affect the development of scientific thought					
PO2. Describe how different key factors affect the development and acceptance of scientific thought					
<b>2SC-P2</b>	Explain how scientific innovations can challenge accepted ideas				
	PO1. Describe how a historically accepted idea was challenged by a scientific innovation				
			Chpt. 11 Notes		
<b>2SC-P3</b>	Explain the impact on society of major scientific developments (e.g., germ theory, molecular biology, relativity)				
	PO1. Describe the benefits, limitations, and consequences of major scientific developments				
	PO2. Explain how major scientific developments have affected, or could affect, society				
			Ch. 3 (Uses of Minerals); Chpt. 11 (Enrichment / Seafloor Spreading); Chpt. 15 (Science & Society); Chpt. 16 (Critical Thinking); Chpt. 19 (Science & Society; Critical Thinking); Chpt. 20 (Enrichment: Water Pollution); Chpt 19/20 (Notes)		Mastery -- Grade 9
<b>2SC-P4</b>	Trace the development and consequences of an invention, theory or discovery to demonstrate the dynamic nature of science				
	PO1. Trace the development of an invention, theory or discovery from its inception to modern day				
	PO2. Explain the progression of changes in the theory, invention or discovery				
	PO3. Describe the impact of the invention, theory or discovery on further scientific thought				
			Notes -- Chpt. 5, 11; Exam Chat. 11; Science & Society -- Chpts.11,22; Critical Thinking Chpt. 12		Mastery -- Grade 9
<b>2SC-P5</b>	Explain how theory, law and fact are developed in science to answer a specific question				
	PO1. Define a law, theory and fact				
	PO2. Describe the relationships among theories, laws and facts				
	PO3. Explain how theories, laws and facts are used to answer specific questions.				
			Critical Thinking Chpt. 16		
<b>2SC-P6</b>	Analyze evidence that supports past and current theories about a specific topic.				
	PO1. Distinguish between evidence which supports a scientific theory (e.g. model of the atom, plate tectonics, natural selection) and evidence which does not support the theory.				
			Chpt. 11 -- Notes, Exploration Lab, Exam; Chpt. 24 -- Critical Thinking, Enrichment/Exploration of the Moon		Mastery -- Grade 9

## STANDARD 3: PERSONAL AND SOCIAL PERSPECTIVES IN SCIENCE AND TECHNOLOGY

Students understand the impact of science on human activity and the environment and are proficient in the uses of technology as they relate to science.

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<b>READINESS (Kindergarten)</b>					
Students know and are able to do the following:					
<b>3SC-R1</b> Distinguish between natural and man-made objects PO1. Identify natural objects PO2. Identify man-made objects PO3. Describe differences between natural and man-made objects					Mastery -- Kinder
<b>3SC-R2</b> Use simple technology (e.g., scales, balances, magnifiers, computers) PO1. Demonstrate the proper use of simple technology in appropriate applications					Mastery -- Kinder
<b>FOUNDATIONS (Grades 1-3)</b>					
Students know and are able to do all of the above and the following:					
<b>3SC-F1</b> Identify occupations that require the application of science and technology PO1. Describe occupations that require the application of science and technology			Grade 2 -- Weather 9 Grade 2 -- Energy 7 Grade 3 -- Unit 11, pgs. 13, 68-69 <b>Unit 11 Test #1</b> Grade 3 -- Unit 12, pg. 18-25 Grade 3 -- Unit 13, pg. 21 Grade 3 -- Unit 14, pg. 9,21, 62-63		Mastery -- Grade 3
<b>3SC-F2</b> Use scientific findings to propose and evaluate solutions to problems (e.g., water pollution, malnutrition, fire hazards) PO1. State a problem PO2. Develop a plan to solve a problem PO3. Evaluate proposed solutions to a problem PO4. Modify solutions to a problem, if necessary			Grade 2 -- Ocean 9 Grade 3 -- Unit 11, pg. 69 <b>Earth's Cycles TE48D</b> Grade 3 -- Unit 12, pgs. 22,25 Grade 3 -- Unit 13, All Grade 3 -- Unit 14, pg. 57		Mastery -- Grade 3
<b>3SC-F3</b> Describe and explain the interrelationship of populations, resources and environments PO1. Describe populations, resources, and environments PO2. Explain interactions and possible interdependence among specific populations, resources and environments (e.g., habitat, ecosystem, food chain)			Grade 2 -- Life Then & Now 7 Grade 3 -- Unit 14, All <b>Staying In Balance TE36D</b>		Mastery -- Grade 3



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<b>ESSENTIALS (Grades 4-8) (cont.)</b>					
<b>3SC-E3</b> Identify a specific need and propose a solution or product that addresses this need, taking into consideration various factors <i>(Grades 4-5)</i> PO1. Identify a human or environmental need PO2. Describe the various factors of the need PO3. Propose a solution or product that addresses the need <i>(Grades 6-8)</i> PO1. Develop a solution to a problem that considers multiple factors PO2. Design a solution or product that addresses a need and considers various factors of an environmental or human problem. PO3. Examine the multiple factors that influence a need and its solution or product			Grade 5 -- Population & Ecosystems		Mastery -- Grade 5
			<b>Lab: Earth's Land Resources A62-53</b>		
	<ul style="list-style-type: none"> <li>• Grade 7 -- Endangered Species Report</li> <li>• Grade 8 -- Essay: Alternative Energy Options pg. 718</li> </ul>		Grade 7 -- Plant Lab Grade 8 -- Chpt. 9, pgs. 252-3 Chpt 15 Chpt 25 Energy	<b>Journal Entries</b> Environmental ACTION "Making Conservation Recommendations"	Mastery -- Grade 8
<b>3SC-E4</b> Implement a proposed solution or design and evaluate its merit <i>(Grades 4-5)</i> PO1. Evaluate the possible strengths and weaknesses of a given solution to a problem. <i>(Grades 6-8)</i> PO1. Apply a proposed solution to a problem PO2. Evaluate the merit of a proposed solution			Grade 5 -- Population & Ecosystems		Mastery -- Grade 5
			Lab: Earth's Land Resources A62-53		
			Grade 7 -- Plant Lab Grade 8 -- Chpt. 9, pgs. 252-3 Chpt 15 Chpt 25 Energy	<b>Tests -- Ch 9,25</b>	Mastery -- Grade 8
<b>PROFICIENCY (Grades 9-12)</b>					
Students know and are able to do all of the above and the following:					Mastery -- Grade 9
<b>3SC-P1</b> Apply scientific thought processes and procedures to personal and social issues PO1. Apply scientific thought processes of skepticism, empiricism, and logic to seek a solution to personal and social issues PO2. Apply a scientific method to the solution of personal and social issues			DAP Assessment: Intro-- Mother Earth Letter; Chpt 3-- Problem Solving, Science & Society; Chpt 4 -- Science & Society, Enrichment/ Burning Waste Coal; Chpt. 5 -- Science & Society; Chpt. 6 -- Science & Society, Critical Thinking; Chpt. 7 -- Science & Society, Critical Thinking; Chpt. 8 -- Critical Thinking, Enrich- ment/Water Wars; Chpt. 9 -- Science & Society; Chpt 11 -- Enrichment/Seafloor spreading; Chpt. 12 -- Science & Society; Chpt 19 -- Science & Society, Problem Solving, Computer Lab Activity; Chpt. 20 -- Enrichment/Acid Rain, Enrichment/Water Pollution, Water Pollution		

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Students understand the impact of science on human activity and the environment and are proficient in the uses of technology as they relate to science.

STATE STANDARD	TANQUE VERDE EXTENSION	CORRELATION Text	DAP	INSTRUCTIONAL LEVEL
<b>PROFICIENCY (Grades 9-12) (cont.)</b>				
<b>3SC-P2</b> Propose and test, using computer software or common materials, a solution to an existing problem; or design a product to meet a need, using a model or simulation PO1. Describe a problem or need PO2. Propose a solution or product PO3. Design a model or simulation to meet a need PO4. Use a model or simulation to meet a need.			<b>DAP Assessment: Chpt. 12 -- Computer exploration, Water Pollution and Treatment</b>	Mastery -- Grade 9
<b>3SC-P3</b> Compare and contrast the goals of science and technology PO1. Define the goals of science and the goals of technology PO2. Compare the goals of science and the goals of technology			<b>DAP Assessment: Chpt. 1 -- Section Wrap-up, pg. 9; Chpt. 5 -- Reinforcement/Mapping Our Planet, Notes; Chpt. 9 -- Critical Thinking; Computer Laboratory; Chpt. 15 --Science &amp; Society, Study Guide/Changing the Weather; Chpt 19 -- Science &amp; Society, Problem Solving, Computer Lab, Notes; Chpt. 20 -- Enrichment/ Acid Rain, Notes</b>	Mastery -- Grade 9
<b>3SC-P4</b> Identify and describe the basic processes of the natural ecosystems and how these processes affect, and are affected by, humans PO1. Describe the basic processes of the natural ecosystems (e.g., water cycle, nutrient cycles) PO2. Explain how these processes affect, and are affected by, humans			<b>DAP Assessment: Science &amp; Society -- Chpts. 4, 6, 9, 12, 15; Enrichment -- Chpts 4 (Burning Waste Coal), 6 (Land Use &amp; Soil Loss), 7 (Developing Land), 9 (Destruction by Earthquakes), 19 (Population Impact); Study Guides -- Chpts. 4 (Rock Cycle), 15 (Changing the Weather), 19 (Population Impact, Water Pollution), 20 (Air Pollution); Notes -- Chpts., 6, 19, 20; Exams -- Chpts. --6, 7, 10, 19, 20; Critical Thinking -- Chpts. 7, 8</b>	Mastery -- Grade 9
<b>3SC-P5</b> Describe and explain factors that affect population size and growth (e.g., birth and death rates, quality of environment, disease, education) PO1. Describe the biotic and abiotic factors that affect populations PO2. Predict the effect of a change in a specific factor on a population's size and growth			<b>DAP Assessment: Chpt. 7 -- Science &amp; Society, Critical Thinking; Chpt. 19 -- Study Guide/ Population Impact, Enrichment/Population Impact; Chpt 19/20 -- Notes, Exam</b>	Mastery -- Grade 9

## STANDARD 4: LIFE SCIENCE

Students understand the characteristics of living things, the diversity of life and how organisms change over time in terms of biological adaptation and genetics. Students understand the interrelationships of matter and energy in living organisms and the interactions of living organisms with their environment.

STATE STANDARD	TANQUE VERDE EXTENSION	Text	CORRELATION	DAP	INSTRUCTIONAL LEVEL
<b>READINESS (Kindergarten)</b>					
Students know and are able to do the following:					
<b>4SC-R1</b> Distinguish living from non-living things PO1. Identify living things PO2. Identify non-living things PO3. Describe differences between living and non-living things					Mastery -- Kinder
<b>4SC-R2</b> Describe the basic needs of living organisms PO1. Describe the basic needs of living organisms for survival					Mastery -- Kinder
<b>4SC-R3</b> Recognize and distinguish similarities and differences in diverse species PO1. Identify similarities among diverse species (e.g., fish, birds, insects, reptiles, mammals) PO2. Identify differences among diverse species PO3. Compare the similarities and differences among diverse species					Mastery -- Kinder
<b>FOUNDATIONS (Grades 1-3)</b>					
Students know and are able to do all of the above and the following:					
<b>4SC-F1</b> Describe and explain cause-and-effect relationships in living systems PO1. Identify cause-and-effect relationships in living systems PO2. Explain cause-and-effect relationships in living systems			Grade 1 -- Unit 6 Plant Parts Grade 2 -- Life Then & Now Grade 3 -- Unit 11, pg. 70 Grade 3 -- Unit 14, All	<b>Plant Parts</b>	Mastery -- Grade 1
<b>4SC-F2</b> Trace the life cycles of various organisms PO1. Identify the stages in a life cycle PO2. Record life cycles in sequence			Grade 1 -- Unit 6 Plant Parts, T75 Grade 2 -- Life Then & Now Grade 3 -- Unit 14, All	<b>Butterfly Life Cycle</b>	Mastery -- Grade 1
<b>4SC-F3</b> Identify the basic structures and functions of plants and animals PO1. Identify basic animal structures PO2. Describe the functions of basic animal structures			Grade 1 -- Unit 6 Plant Parts Grade 2 -- Life Then & Now Grade 3 -- Unit 14, All	<b>Classification Graph</b>	Mastery -- Grade 2

## STANDARD 4: LIFE SCIENCE

**Students understand the characteristics of living things, the diversity of life and how organisms change over time in terms of biological adaptation and genetics. Students understand the interrelationships of matter and energy in living organisms and the interactions of living organisms with their environment.**

STATE STANDARD	TANQUE VERDE EXTENSION	CORRELATION Text	DAP	INSTRUCTIONAL LEVEL
<b>FOUNDATIONS (Grades 1-3) (cont.)</b>				
<b>4SC-F3 (cont.)</b>				
PO3. Identify basic plant structures		Grade 1 -- Unit 6 Plant Parts	<b>Plant Parts</b>	Mastery -- Grade 1
PO4. Describe the functions of basic plant structures		Grade 2 -- Life Then & Now Grade 3 -- Unit 14, All		
<b>4SC-F4</b> Identify characteristics of plants and animals (including extinct organisms) that allow them to live in specific environments				
PO1. Identify characteristics of plant adaptations		Grade 2 -- Life Then & Now	<b>Classification Graph</b>	Mastery -- Grade 2
PO2. Identify characteristics of animal adaptations		Grade 3 -- Unit 11, pgs. 54-55		
PO3. Describe how adaptations promote survival in a given environment				Health -- Grade ??
<b>4SC-F5</b> Recognize that component parts make up the human body systems (e.g., digestive, muscular, skeletal)				
PO1. Identify major organs within systems (e.g., lungs, heart, skin)				
<b>4SC-F6</b> Recognize that offspring within families have both similarities and differences				
PO1. Identify similarities that offspring can have within a family				Health -- Grade ??
PO2. Identify differences that offspring can have within a family				
<b>4SC-F7</b> Explain the interaction of living and non-living components within ecosystems				
PO1. Identify living components in an ecosystem		Grade 2 -- Life Then & Now	<b>Living Together T12D</b>	Mastery -- Grade 3
PO2. Identify non-living components within ecosystems		Grade 3 -- Unit 14, All		
PO3. Describe the interaction among living and non-living components in an ecosystem				
<b>ESSENTIALS (Grades 4-8)</b>				
Students know and are able to do all of the above and the following:				
<b>4SC-E1</b> Construct classification systems based on the structure of organisms				
		Grade 5 -- Animals	<b>Chpt 1 &amp; 2 Tests pgs. 66-67, 71-72</b>	Mastery -- Grade 5

## STANDARD 4: LIFE SCIENCE

Students understand the characteristics of living things, the diversity of life and how organisms change over time in terms of biological adaptation and genetics. Students understand the interrelationships of matter and energy in living organisms and the interactions of living organisms with their environment.

STATE STANDARD	TANQUE VERDE EXTENSION	Text	CORRELATION	DAP	INSTRUCTIONAL LEVEL
<b>ESSENTIALS (Grades 4-8) (cont.)</b>					
<b>4SC-E1 (cont)</b>					
<i>(Grades 4-5)</i>					
PO1. Construct a simple classification system based on physical characteristics		Grade 5 -- Animals		<b>Chpt.1 Test pg 66-67</b>	Mastery -- Grade 5
PO2. Arrange several organisms into a classification system				<b>Chpt. 2 Test pg 71-72</b>	
<i>(Grades 6-8)</i>					
PO1. Describe how organisms are classified		Grade 7 -- Chapter 7		<b>Classification Activity</b>	Mastery -- Grade 7
PO2. Construct classification systems for grouping organisms		Grade 7 -- pgs. 171-175		<b>Chpt. 7 Test</b>	
PO3. Identify organisms based on existing classification systems		pgs. 187-197, 199-204, 264-265, 286-288, 345-347			
<b>4SC-E2</b> Compare and contrast the basic structures, components and functions of various cells					
<i>(Grades 4-5)</i>					
PO1. Identify the basic components of various cells		Grade 4 -- Plants			Mastery -- Grade 4
PO2. Identify the basic structures of various cells					
PO3. Identify the basic functions of various cells					
PO4. Differentiate between the basic functions of various cells.					
<i>(Grades 6-8)</i>					
PO1. Analyze the basic structures, components and functions of various cells		Grade 6 -- Unit A			Mastery -- Grade 7
PO2. Differentiate between types of various cells		Grade 7 -- Chapter 3		<b>Chpt. 3 Test</b>	
<b>4SC-E3</b> Explain the various levels of organization in relationship to structure and function within an organism, including cells, tissues and organs					
<i>(Grades 4-5)</i>					
PO1. Identify the main structure of cells within an organism		Grade 4 -- Health			Mastery -- Grade 4
PO2. Identify the main structure of tissues within an organism					
PO3. Identify the main structure of organs within an organism					
PO4. Classify cells, tissues, and organs into levels of complexity by structure					

## STANDARD 4: LIFE SCIENCE

Students understand the characteristics of living things, the diversity of life and how organisms change over time in terms of biological adaptation and genetics. Students understand the interrelationships of matter and energy in living organisms and the interactions of living organisms with their environment.

STATE STANDARD	TANQUE VERDE EXTENSION	Text	CORRELATION	DAP	INSTRUCTIONAL LEVEL
<b>ESSENTIALS (Grades 4-8) (cont.)</b>					
<b>4SC-E3 (cont.)</b>					
<i>(Grades 6-8)</i>					
PO1. Distinguish between cells, tissues and organs			Grade 7 -- Chapter 2	<b>Chpt. 2 Test</b>	Mastery -- Grade 7
PO2. Identify the main structure and function of cells within an organism			Grade 7 -- Chapter 11,13	<b>Chpt. 11,13 Test</b>	
PO3. Identify the main structure and function of tissue within an organism					
PO4. Identify the main structure and function of organ systems within an organism					
<b>4SC-E4</b> Identify the systems involved in such vital functions as digestion, respiration, reproduction, circulation, excretion, movement, control and coordination.					
<i>(Grades 4-5)</i>					
PO1. Identify the major components of vital body systems			Grade 5 -- Health & Body Systems	<b>Health Test Chapter 2</b>	Mastery -- Grade 5
PO2. Describe how various systems work together to perform a vital function					
<i>(Grades 6-8)</i>					
PO1. Identify the functions of systems, such as digestion, respiration, reproduction, circulation, excretion, movement, control and coordination.	• Grade 7 -- Human Body Assignment		Grade 6 -- <u>Being Healthy</u> , Ch. 2 Unit G		Mastery -- Grade 7
PO2. Describe parts within a system, such as digestion, respiration, reproduction, circulation, excretion, movement, control and coordination.			Grade 7 -- Chps. 21-27	<b>Human Body Assgnt.</b>	
<b>4SC-E5</b> Describe changes or constancy in groups of organisms over geologic time					
<i>(Grades 4-5)</i>					
PO1. Describe how organisms have changed over time			??		Mastery -- Grade ??
PO2. Cite examples of organisms which have remained constant					
<i>(Grades 6-8)</i>					
PO1. Describe organism adaptations or constancy over geologic time			Grade 6 -- D68-69, 78		Mastery -- Grade 7
PO2. Identify environmental factors that determine adaptations or constancy of an organism over geologic time			Grade 7 -- pgs. 152-177, 230 pgs. 261, 289,402,434,445	<b>Worksheets</b>	

## STANDARD 4: LIFE SCIENCE

Students understand the characteristics of living things, the diversity of life and how organisms change over time in terms of biological adaptation and genetics. Students understand the interrelationships of matter and energy in living organisms and the interactions of living organisms with their environment.

STATE STANDARD	TANQUE VERDE EXTENSION	Text	CORRELATION	DAP	INSTRUCTIONAL LEVEL
<b>ESSENTIALS (Grades 4-8) (cont.)</b>					
<b>4SC-E6</b> Describe the role of genes in heredity <i>(Grades 4-5)</i> PO1. Define the term heredity and genes PO2. Distinguish between physical characteristics which are and are not inherited <i>(Grades 6-8)</i> PO1. Explain the basic principles of heredity and genetics PO2. Distinguish between dominant and recessive genes PO3. Describe the information that is carried in a gene		Grade 4 --			Mastery -- Grade ??
			Grade 7 -- pgs. 107-111, 124-125 <b>Sheet</b>	<b>Activity</b>	Mastery -- Grade 7
<b>4SC-E7</b> Explain and model the interaction and interdependence of living and non-living components within ecosystems, including the adaptation of plants and animals to their environment <i>(Grades 4-5)</i> PO1. Describe the components of an ecosystem PO2. Communicate (silent, oral, written, pictorial) how living and non-living components interact within an ecosystem PO3. Communicate (silent, oral, written, pictorial) how living and non-living components are interdependent within an ecosystem PO4. Explain how plant species adapt to their environment PO5. Explain how animals adapt to their environment <i>(Grades 6-8)</i> PO1. Create a model of the interaction of living/non-living components within an ecosystem PO2. Identify the adaptations of plants and animals in an ecosystem PO3. Explain the role of living/non-living components in an ecosystem		Grade 5 -- Populations & Ecosystems		<b>Chpt. 1 Test (p. 93-4)</b> <b>Chpt. 2 Test (p. 97-8)</b>	Mastery -- Grade 5
		Grade 7 -- Chpt. 19 pgs. 7, 262-263 pgs. 372, 285, 401-404, 409-412, pgs. 427-431		<b>Chpt. 19 Test</b>	Mastery -- Grade 7

## STANDARD 4: LIFE SCIENCE

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### STATE STANDARD

### TANQUE VERDE EXTENSION

### CORRELATION Text

### DAP

### INSTRUCTIONAL LEVEL

#### PROFICIENCY (Grades 9-12)

Students know and are able to do all of the above and the following:

**4SC-P1** Use and construct a variety of classification systems

PO1. Employ classification systems, including the five-kingdom classification to identify organisms

PO2. Create classification systems that facilitate identification of organisms

PO3. Use a biological classification scheme to infer and discuss the degree of divergence of various species from prior organisms

**4SC-P2** Describe the molecular basis of heredity (e.g., DNA, genes, chromosomes and mutations)

PO1. Explain the relationships of DNA, genes, and chromosomes

PO2. Describe the structure and function of DNA and its role in heredity and protein synthesis

PO3. Describe how the various types of mutations act as a source of genetic diversity

PO4. Describe how genetic information is transmitted from parents to offspring

**4SC-P3** Describe the basic cellular processes of photosynthesis, respiration, protein synthesis and cell division

PO1. Differentiate between the processes of photosynthesis and respiration in terms of energy flow, reactants and products

PO2. Compare the purpose and process of mitosis with the purpose and process of meiosis

**4SC-P4** Describe and explain the cycling of matter and the flow of energy through the ecosystem's living and non-living components

PO1. Explain the relationships among abiotic and biotic components of an ecosystem in terms of energy flow and the cycling of matter

## STANDARD 4: LIFE SCIENCE

Students understand the characteristics of living things, the diversity of life and how organisms change over time in terms of biological adaptation and genetics. Students understand the interrelationships of matter and energy in living organisms and the interactions of living organisms with their environment.

STATE STANDARD	TANQUE VERDE EXTENSION	Text	CORRELATION	DAP	INSTRUCTIONAL LEVEL
<b>PROFICIENCY (Grades 9-12) (cont.)</b>					
<b>4SC-P5</b> Describe and explain how energy is used in the maintenance, repair, growth and development of cells. PO1. Describe the energy demands required by physiological mechanisms needed to regulate homeostasis PO2. Describe the energy demands required by cells for growth, development, and repair					
<b>4SC-P6</b> Describe and explain how the environment can affect the number of species and the diversity of species in an environment PO1. Explain how the adaptations of various species are related to their success in an ecosystem PO2. Explain why genetic variation within a population can impact the success of a species subjected to new environmental conditions PO3. Predict how change in an environmental factor can affect the number of organisms in a population PO4. Predict how a change in an environmental factor can affect the biodiversity in an ecosystem					
<b>4SC-P7</b> Describe the role of the systems (e.g., nervous, digestive, respiratory) that regulate the behaviors of multi-celled organisms PO1. Describe the physiological relationship of the systems and their function in homeostasis PO2. Describe an organism's behavioral responses to internal and external stimuli PO3. Compare the selective advantage of several behavioral responses					

## STANDARD 5 : PHYSICAL SCIENCE

Students understand the nature of matter and energy including their forms, the changes they undergo and their interactions.

STATE STANDARD	TANQUE VERDE EXTENSION	Text	CORRELATION	DAP	INSTRUCTIONAL LEVEL
<b>READINESS (Kindergarten)</b>					
Students know and are able to do the following:					
<b>5SC-R1</b> Compare objects in terms of common physical properties PO1. Identify physical properties of objects PO2. Compare objects in terms of common physical properties					Mastery -- Kinder
<b>FOUNDATIONS (Grades 1-3)</b>					
Students know and are able to do all of the above and the following:					
<b>5SC-F1</b> Create mixtures (e.g., salt and sand, iron filings and soil) and separate them based on differences in properties PO1. Construct a mixture PO2. Separate the mixture into original substances using characteristic properties		Grade 1 -- Unit 5, Magnets	<b>Iron Filings (Teacher Obs)</b>		Mastery -- Grade 1
<b>5SC-F2</b> Demonstrate that light, heat, motion, magnetism and sound can cause changes PO1. Explain how light can cause change PO2. Explain how heat can cause change PO3. Explain how motion can cause change PO4. Explain how magnetism can cause change PO5. Explain how sound can cause change		Grade 2 -- Energy, Weather  Grade 3 -- Unit 12, pgs. 38-39  Grade 3 -- Unit 13, pgs. 28-29	<b>Lab 2 -- Prisms/Rainbows</b>		Mastery -- Grade 2
<b>5SC-F3</b> Demonstrate and explain that materials exist in different states (solid, liquid and gas) and can change from one to another PO1. Identify the different states of matter PO2. Explain how matter can change and exist in one or more states		Grade 1 -- Unit 5, pg. 22, T53 Grade 2 -- Energy, Weather	<b>Lab 3 -- Water Cycle</b>		Mastery -- Grade 2
<b>5SC-F4</b> Recognize that light travels in a straight line and can be reflected, refracted or absorbed PO1. Explain how light travels in a straight line PO2. Explain how light can be reflected PO3. Explain how light can be refracted PO4. Explain how light can be absorbed		Grade 2 -- Energy	<b>Lab 2 -- Prisms/Rainbows</b>		Mastery -- Grade 2

## STANDARD 5 : PHYSICAL SCIENCE

Students understand the nature of matter and energy including their forms, the changes they undergo and their interactions.

STATE STANDARD	TANQUE VERDE EXTENSION	Text	CORRELATION	DAP	INSTRUCTIONAL LEVEL
<b>ESSENTIALS (Grades 4-8)</b>					
Students know and are able to do all of the above and the following:					
<b>5SC-E1</b> Examine, describe, compare, measure, and classify objects and mixtures of substances based on common physical and chemical properties (e.g., states of matter, mass, volume, electrical charge, density, boiling points, pH, magnetism, solubility) <i>(Grades 4-5)</i>					
PO1. Identify common physical and chemical properties			Grade 4 -- Properties of Matter		Mastery -- Grade 4
PO2. Compare physical and chemical properties of common objects					
PO3. Compare physical and chemical properties of common mixtures					
<i>(Grades 6-8)</i>					
PO1. Analyze objects and mixtures of substances based on physical and chemical properties.	• Grade 8 -- CD-ROM activity		Grade 8-- Chapter 9 Chaps. 12, 14-15, 17, 21-22	<b>Concept Map Ch. 9 Test Lab, p. 251</b>	Mastery -- Grade 8
PO2. Distinguish between common physical and chemical properties					
PO3. Classify objects and mixtures of substances based on physical and chemical properties					
PO4. Measure the physical and chemical properties of objects					
<b>5SC-E2</b> Classify and describe matter in terms of elements, compounds, mixtures, atoms and molecules <i>(Grades 4-5)</i>					
PO1. Define matter, atom, element, molecule, mixture and compound			Grade 4 -- Properties of Matter		Mastery -- Grade 4
PO2. Explain the differences among atoms, elements and molecules, using simple models					
<i>(Grades 6-8)</i>					
PO1. Classify matter in terms of elements, compounds, mixtures, atoms and molecules	• Grade 8 -- Chapters 9,10		Grade 8 -- Chapters 9-10	<b>Chpt. 9 Test Activ. pg. 251 Lab pg. 262</b>	Mastery -- Grade 8
PO2. Describe elements, compounds, mixtures, atoms and molecules as they relate to matter					

## STANDARD 5 : PHYSICAL SCIENCE

Students understand the nature of matter and energy including their forms, the changes they undergo and their interactions.

STATE STANDARD	TANQUE VERDE EXTENSION	Text	CORRELATION	DAP	INSTRUCTIONAL LEVEL
<b>ESSENTIALS (Grades 4-8)</b>					
<b>5SC-E3</b> Show that energy exists in many forms and can be transferred in many ways <i>(Grades 4-5)</i> PO1. Define energy PO2. Identify various types of energy sources PO3. Describe how energy is transferred <i>(Grades 6-8)</i> PO1. Define the law of conservation of energy PO2. Describe how energy is a property of a substance PO3. Explain ways in which energy is transferred		Grade 5 -- Earth's Land Resources		<b>Review pg. 27 Investigation p. 50 Review &amp; Quests.</b>	Mastery -- Grade 5
		Grade 8 -- Chpts. 1,4,5,25		<b>Lab pg. 132-133 Chpt. Tests Sect. Wrap-Up</b>	Mastery -- Grade 8
<b>5SC-E4</b> Identify and predict what will change and what will remain unchanged when matter experiences an external force or energy change (e.g., boiling a liquid; comparing the force, distance and work involved in simple machines) <i>(Grades 4-5)</i> PO1. Define energy change and force PO2. Describe the effects of various forces on an object PO3. Describe how a change in energy will affect matter <i>(Grades 6-8)</i> PO1. Identify properties of matter that will/will not change when matter experiences an external force or energy change PO2. Predict the outcome when matter experiences an external force or energy change		Grade 4 -- Properties of Matter			Mastery -- Grade 4
	• Grade 8 -- Machine Dissection	Grade 8 -- Chpt. 4 (Forces) Grade 8 -- Chpt. 5 (Work/Energy) Grade 8 -- Chpt. 7 (Machines) Grade 8 -- Chpt. 8 (Boiling)		<b>Chpt. Tests Lab Activities Wrap-Ups</b>	Mastery -- Grade 8
<b>5SC-E5</b> Describe, measure and calculate characteristics e.g., speed, distance, mass, force) of moving objects and their interactions (e.g., force, velocity, acceleration, potential energy, and kinetic energy) within a system <i>(Grades 4-5)</i> PO1. Define terms associated with moving objects PO2. Describe interactions of moving objects <i>(Grades 6-8)</i> PO1. Identify Newton's three laws of motion PO2. Apply Newton's three laws of motion		Grade 4 -- Properties of Matter Grade 4 -- Simple Machines			Mastery -- Grade 4
	• Grade 8 -- Water Rockets	Grade 8 -- Chpts. 3,4,5		<b>Chpt. Tests Lab Activities Wrap-Ups</b>	Mastery -- Grade 8

## STANDARD 5 : PHYSICAL SCIENCE

Students understand the nature of matter and energy including their forms, the changes they undergo and their interactions.

STATE STANDARD	TANQUE VERDE EXTENSION	Text	CORRELATION	DAP	INSTRUCTIONAL LEVEL
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PO3. Analyze moving objects within a system

### PROFICIENCY (Grades 9-12)

Students know and are able to do all of the above and the following:

**5SC-P1** Predict chemical and physical properties of substances (e.g., color, solubility, chemical reactivity, melting point, boiling point)  
PO1. Describe physical and chemical properties that are used to characterize substances  
PO2. Determine physical and chemical properties of a substance through observation, measurement, and experimentation  
PO3. Separate mixtures of substances based on their physical and chemical properties

**5SC-P2** Describe and explain properties and composition of samples of matter, using models (including atomic and molecular structure and the periodic table)  
PO1. Use models of atomic and molecular structure to explain properties of matter  
PO2. Use the periodic table to predict properties of elements and compounds  
PO3. Predict the properties of substances based upon ionic, covalent, or hydrogen bonding

**5SC-P3** Identify, measure, calculate, and analyze qualitative and quantitative relationships associated with energy forms and energy transfer or transformation (e.g., changes in temperature, velocity, potential energy, kinetic energy, conduction, convection, radiation)  
PO1. Identify qualitative and quantitative relationships associated with energy (e.g., heat, mechanical, electrical)  
PO2. Measure quantitative (e.g., heat, mechanical, electrical) relationships associated with energy  
PO3. Calculate quantitative relationships associated with energy (e.g., heat, mechanical, electrical)

## STANDARD 5 : PHYSICAL SCIENCE

Students understand the nature of matter and energy including their forms, the changes they undergo and their interactions.

### STATE STANDARD

### TANQUE VERDE EXTENSION

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### CORRELATION

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**5SC-P4** Observe, measure and calculate quantities to demonstrate conservation of matter and energy in chemical changes (e.g., acid base, precipitation, heat)

PO1. Use the law of conservation of matter to explain the quantitative relationships between reactants and products in chemical reactions

PO2. Quantify the mass relationships between reactants and products in chemical reactions

PO3. Use the law of conservation of energy to explain the energy changes in chemical reactions

PO4. Quantify the energy changes in chemical reactions

**5SC-P5** Describe and predict chemical reactions

(including combustion and simple chemical reactions) and physical interaction of matter (including velocity, force, work and power), using words or symbolic equations

PO1. Express a chemical reaction by using a balanced equation

PO2. Predict the products of a chemical reaction using types of reactions( e.g., synthesis, decomposition, replacement, combustion)

PO3. Describe physical interactions through use of word equations or formulae

PO4. Predict the results of a physical interaction by using an algebraic formula

PO5. Investigate the effect of changing a variable on the outcome of physical interactions

**5SC-P6** Describe and explain physical interactions of matter and energy, using conceptual models (e.g., conservation laws of matter and energy, particle model for gaseous behavior)

PO1. Demonstrate the use of conceptual models in science (formulae, diagrams, graphs)

PO2. Describe physical interactions of matter and energy (e.g., phase change, gas laws, momentum conservation)

PO3. Justify the validity of known conceptual models applied to physical phenomena

## STANDARD 6: EARTH AND SPACE SCIENCE

Students understand the composition, formative processes, and history of the earth, the solar system and the universe.

STATE STANDARD	TANQUE VERDE EXTENSION	Text	CORRELATION  Text	DAP  DAP	INSTRUCTIONAL LEVEL
<b>READINESS (Kindergarten)</b>					
Students know and are able to do the following:					
<b>6SC-R1 Identify basic phenomena and changes in the sky</b> (e.g., sunrise, moon, stars) PO1. Identify basic phenomena in the sky PO2. Describe changes that occur on the sky					Mastery -- Kinder
<b>6SC-R2 Understand that the sun heats and lights the earth</b> PO1. Describe how the sun heats and lights the earth					Mastery -- Kinder
<b>6SC-R3 Identify how the weather affects daily activities</b> PO1. Identify basic weather phenomena (e.g., temperature, humidity, precipitation) PO2. Explain how weather affects daily activities					Mastery -- Kinder
<b>6SC-R4 Identify basic earth materials (rocks, soils, water and gases) and their common uses</b> PO1. Identify basic earth materials (e.g., rocks, soil, water and gases) PO2. Identify the common uses of basic earth materials					Mastery -- Kinder
<b>FOUNDATIONS (Grades 1-3)</b>					
Students know and are able to do all of the above and the following:					
<b>6SC-F1 Describe the basic earth materials (rocks, soils, water and gases) and their physical properties</b> PO1. Investigate physical properties of earth materials PO2. Describe physical properties of earth materials			Grade 1 -- Unit 4, pg. 4 T25 Grade 3 -- Unit 12 pgs. 12-15	<b>How Do Rocks Change 4A TE 26d</b>	Mastery -- Grade 3
<b>6SC-F2 Identify the planets and their relationship to the sun</b> PO1. Identify the planets of the solar system PO2. Describe the relationship of the planets to the sun			Grade 1 -- Unit 4, T83 Grade 3 -- Unit 11 pgs. 80-81	<b>How Do Rocks Change 4A</b>	Mastery -- Grade 3

## STANDARD 6: EARTH AND SPACE SCIENCE

**Students understand the composition, formative processes, and history of the earth, the solar system and the universe.**

STATE STANDARD	TANQUE VERDE EXTENSION	Text	CORRELATION	DAP	INSTRUCTIONAL LEVEL
<b>FOUNDATIONS (Grades 1-3) (cont.)</b>					
<b>6SC-F3</b> Identify the seasons and their characteristics PO1. Identify the seasons PO2. Describe the characteristics of each season	Grade 1 -- Calendar Activities	Grade 1 -- Unit 4 Grade 2 -- Weather Grade 3 -- Unit 11, pg. 70		<b>Frog &amp; Toad Cnt.</b>	Mastery -- Grade 1
<b>6SC-F4</b> Identify and describe the patterns of movement of objects in the sky PO1. Identify objects that move in the sky PO2. Describe patterns of change visible in the sky over time (e.g., seasonal position of the sun, constellations, the moon) PO3. Describe the patterns of movement of objects in the sky		Grade 1 -- Unit 4 Grade 3 -- Unit 11, All		<b>Unit 11 Post-Test TE 12D</b>	Mastery -- Grade 3
<b>6SC-F5</b> Identify major features of natural processes and forces that shape the earth's surface, including weathering and volcanic activity PO1. Identify natural forces that shape the earth's surface (e.g., water, ice, wind) PO2. Identify natural processes that gradually shape the earth's surface		Grade 1 -- Unit 4, T42, T43 Grade 2 -- Oceans, Weather Grade 3 -- Unit 12, Lessons 2,3		<b>How Do Rocks Change (4A) TE pg. 26</b>	Mastery -- Grade 3
<b>6SC-F6</b> Describe natural events and how humans are affected by them PO1. Identify natural events that affect humans PO2. Explain how natural events impact human life		Grade 2 -- Then & Now		<b>Weather Diary</b>	Mastery -- Grade 2
<b>6SC-F7</b> Measure and record changes in weather conditions PO1. Measure weather conditions (e.g., temperature, windspeed, rainfall) PO2. Record weather conditions PO3. Interpret changes in weather conditions		Grade 2 -- Weather Grade 3 -- Unit 11, Lesson 6		<b>Weather Diary</b>	Mastery -- Grade 2

## STANDARD 6: EARTH AND SPACE SCIENCE

Students understand the composition, formative processes, and history of the earth, the solar system and the universe.

STATE STANDARD	TANQUE VERDE EXTENSION	Text	CORRELATION	DAP	INSTRUCTIONAL LEVEL
<b>ESSENTIALS (Grades 4-8)</b>					
Students know and are able to do all of the above and the following:					
<b>6SC-E1</b> Describe and model the motion of earth in relation to the sun, including the concepts of day, night, season and year <i>(Grades 4-5)</i>					
PO1. Define terms revolution and rotation		Grade 5 -- Solar System		<b>Chpt 1 Test pgs. 48-49</b>	Mastery -- Grade 5
PO2. Communicate (silent, oral, written, pictorial) how the earth's movement, in relation to the sun, creates day and night <i>(Grades 6-8)</i>					
PO1. Explain the motion of earth in relation to the sun, including the concepts of day, night, season and year		Grade 6 -- Laser Disc (Physical)		<b>Laser Disc Test</b>	Mastery -- Grade 6
PO2. Explain concepts of day and night, season and year					
<b>6SC-E2</b> Describe common objects in the solar system and explain their relationships <i>(Grades 4-5)</i>					
PO1. Describe common objects in the solar system		Grade 5 -- Solar System		<b>Chpt 1 Test pgs. 48-49</b>	Mastery -- Grade 5
PO2. Explain how objects in the solar system are related <i>(Grades 6-8)</i>					
PO1. Explain the relationship between common objects in the solar system and the universe		Grade 6 -- Laser Disc (Physical)		<b>Laser Disc Test</b>	Mastery -- Grade 6
PO2. Describe common objects in the solar system					
<b>6SC-E3</b> Describe the composition (including the formation of minerals, rocks and soil) and the structure of the earth <i>(Grades 4-5)</i>					
PO1. Describe the layers of the earth and their composition		Grade 4 -- Solid Earth			Mastery -- Grade 4
PO2. Explain how rocks, minerals, and soil are formed					
PO3. Describe the differences between minerals and rocks					

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STATE STANDARD	TANQUE VERDE EXTENSION	CORRELATION Text	DAP	INSTRUCTIONAL LEVEL
<b>ESSENTIALS (Grades 4-8) (cont.)</b>				
6SC-E3 (cont.) <i>(Grades 6-8)</i> PO1. Explain the processes involved in the formation of the earth's structure PO2. Describe the composition of the earth		Grade 6 -- Unit B	<b>Unit B Test</b>	Mastery -- Grade 6
<b>6SC-E4</b> Provide evidence of how life and environmental conditions have changed <i>(Grades 4-5)</i> PO1. Describe how life changed over time (geologic and recent) PO2. Describe how environmental conditions have changed over time (geologic and recent) <i>(Grades 6-8)</i> PO1. Compare and contrast the life and environmental conditions within the geological time periods		Grade 4 -- Solid Earth		Mastery -- Grade 4
		Grade 6 -- Unit B	<b>Unit B Test</b>	Mastery -- Grade 6
<b>6SC-E5</b> Explain how earth processes seen today, including erosion, movement of lithospheric plates, and changes in atmospheric composition, are similar to those that occurred in the past <i>(Grades 4-5)</i> PO1. Identify earth processes PO2. Compare the processes which affect the earth today with those that occurred in the past <i>(Grades 6-8)</i> PO1. Interpret evidence that erosion, plate movement and changes in atmospheric composition as seen today also occurred in the past		Grade 4 -- Solid Earth		Mastery -- Grade 4
		Grade 6 -- Unit B	<b>Unit B Test</b>	Mastery -- Grade 6
<b>6SC-E6</b> Describe the distribution and circulation of the world's water through ocean currents, glaciers, rivers, ground water and atmosphere <i>(Grades 4-5)</i> PO1. Explain how water is cycled in nature PO2. Identify the distribution of water on earth and in the atmosphere		Grade 4 -- Weather		Mastery -- Grade 4

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STATE STANDARD	TANQUE VERDE EXTENSION	Text	CORRELATION	DAP	INSTRUCTIONAL LEVEL
<b>ESSENTIALS (Grades 4-8) (cont.)</b>					
6SC-E6 (cont.) <i>(Grades 6-8)</i> PO1. Describe the role water plays within the operation of the earth PO2. Describe the movement of water on the earth PO3. Explain the water cycle			Grade 7 -- Chpt. 19, p. 500 <b>Chpt. Test Chpt. 18</b>		Mastery -- Grade 7
<b>6SC-E7</b> Describe the composition and physical characteristics (including currents, waves, tides and features of the ocean floor) of the earth's bodies of water <i>(Grades 4-5)</i> PO1. Define currents, waves, tides and ocean floor features PO2. Describe the basic characteristics of the earth's bodies of fresh water PO3. Describe the basic characteristics of the earth's bodies of salt water <i>(Grades 6-8)</i> PO1. Describe the types of bodies of water and their physical characteristics PO2. Describe the chemical characteristics of salt water and fresh water PO3. Describe the physical characteristics of salt water and fresh water PO4. Explain water movement			Grade ???		Mastery -- Grade ??
<b>6SC-E8</b> Describe and model large-scale and local weather systems <i>(Grades 4-5)</i> PO1. Describe the difference between weather and climate PO2. Define basic terms associated with weather systems including fronts, pressure systems and types of clouds <i>(Grades 6-8)</i> PO1. Create a weather system model PO2. Describe large-scale and local weather systems			Grade 6 -- Unit E	<b>Unit E Test</b>	Mastery -- Grade 6
			Grade 4 -- Weather		Mastery -- Grade 4
			Grade 6 -- Laser Disc Weather	??	Mastery -- Grade 6

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STATE STANDARD	TANQUE VERDE EXTENSION	Text	CORRELATION	DAP	INSTRUCTIONAL LEVEL
<b>ESSENTIALS (Grades 4-8) (cont.)</b>					
<b>6SC-E9</b> Describe the composition, properties and structure of the atmosphere <i>(Grades 4-5)</i> PO1. Describe the composition of the layers of the atmosphere <i>(Grades 6-8)</i> PO1. Create a model of the atmosphere PO2. Describe the properties of the atmosphere PO3. Explain the composition of the atmosphere		Grade 4 -- Weather		??	Mastery -- Grade 4
		Grade 6 -- Laser Disc Grade 8 -- Chpt. 8 (Solids, liquids, gases)	<b>Laser Disc Test Chpt. 8 Test</b>		Mastery -- Grade 8
<b>6SC-E10</b> Explain how technology has impacted both earth and space science <i>(Grades 4-5)</i> PO1. Explain the impact of technology on earth science PO2. Explain the impact of technology on space science <i>(Grades 6-8)</i> PO1. Describe technological advances that have impacted both earth and space science		Grade 5 -- Solar System & Beyond "Thinking Critically" p. B23			Mastery -- Grade 5
		Grade 6 -- Laser Disc	<b>Laser Disc Test</b>		Mastery -- Grade 6
<b>PROFICIENCY (Grades 9-12)</b>					
Students know and are able to do all of the above and the following:					
<b>6SC-P1</b> Explain prominent scientific theories of the origin of the universe and the solar system PO1. Describe the processes explained by prominent scientific theories of the origin of the universe PO2. Describe the processes explained by prominent scientific theories of the origin of the solar system PO3. Relate physical laws to processes involved in the formation of the universe and solar system			<b>Chpt. 24 -- Evolution of Stars; Chapter 22/24 Notes; Final Exam</b>		Mastery -- Grade 9
<b>6SC-P2</b> Demonstrate an understanding of the earth's tilt, rotation and revolution and their effects on the seasons and the length of days PO1. Describe how the earth's rotation causes day and night					

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STATE STANDARD	TANQUE VERDE EXTENSION	Text	CORRELATION	DAP	INSTRUCTIONAL LEVEL
<b>PROFICIENCY (Grades 9-12) (cont.)</b>					
<b>6SC-P2 (cont.)</b>					
PO2. Describe how the earth's tilt on its axis and revolution around the sun cause changes in relative length of days and nights					
PO3. Describe how the earth's tilt on its axis and revolution around the sun cause changes in the season					
<b>6SC-P3</b> Use the theory of plate tectonics to explain relationships among earthquakes, volcanoes, mid-oceans ridges and deep sea trenches					
PO1. Describe the relationship between the earth's internal heat and plate tectonics					
PO2. Explain how plate interactions cause earthquakes, volcanoes, mid-oceanic ridges and deep sea trenches					
PO3. Describe how earthquakes, volcanoes, mid-oceanic ridges, and deep sea trenches are interrelated, using plate techtonics					
<b>6SC-P4</b> Use evidence (e.g., fossils, rock layers, ice coils, radiometric dating) to investigate how earth has changed or remained constant over short and long periods of time					
PO1. Determine changes in earth's geologic history, using data from relative age-dating techniques					
PO2. Determine changes in earth's geologic history, using data from absolute age-dating techniques					
PO3. Describe changes or relative constancy in earth's geologic history, using the evidence gained through geologic dating techniques					
<b>6SC-P5</b> Identify, investigate and predict the factors that influence the quality of water and how it can be reused, recycled and conserved					
PO1. Describe physical and chemical properties of water that make water a unique and essential solvent					
PO2. Describe factors that impact water quality					
PO3. Describe factors that influence the reuse, recycling and conservation of water					

Chpt. 22 -- Enrichment/Planet Earth, Earth's Moon, Exploration of the Moon; Chpts. 22/24 Notes; Chpt. 24 -- Critical Thinking; Semester 2 Exam

Mastery -- Grade 9

Chpt. 9 -- Earthquakes Depths Lab, Computer Lab, Locating An Earthquake Epicenter, Swallowed Up, Notes, Exam; Chpt. 10 -- Science & Society, Critical Thinking, Enrichment/Volcanoes & Earth, Notes, Volcano Report, Computer Lab, Volcanic Rocks & Their Formation, Exam; Semester 1 Exam; Chpt. 11-- Enrichment Continental Drift, Seafloor Spreading, Theory of Plate Tectonics, Before Pangaea, Rodinia, Notes, Computer Lab, Patterns of Magnetic Polarity Reversals Plate Boundaries, Exam; Chat. 16 -- Study Guide/Climatic Changes; Semester 2 Exam

Mastery -- Grade 9

Chpt. 12 -- Critical Thinking, Enrichment/Fossils, Extinction of Dinosaurs, Relative & Absolute Age of Rocks, Notes, Exam; Chpt. 16 -- Critical Thinking, Study Guide/Climatic Changes; Sem. 2 Exam

Mastery -- Grade 9

Chpt 8 -- Science & Society, Critical Thinking, Enrichment/Water Wars; Chpt 19 -- Study Guide/ Water Pollution; Chpt. 20 -- Enrichment/ Acid Rain, Water Pollution; Chpt 19 & 20 -- Notes and Exam; Sem.2 Final Exam

Mastery -- Grade 9

## STANDARD 6: EARTH AND SPACE SCIENCE

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STATE STANDARD	TANQUE VERDE EXTENSION	Text	CORRELATION	DAP	INSTRUCTIONAL LEVEL
<p>PO4. Predict future trends in water quality control and conservation, based on factors that influence water quality and usage</p>					Mastery -- Grade 9
<p><b>6SC-P6</b> Identify and compare the interactions between water and other earth systems including the biosphere, lithosphere and atmosphere</p> <p>PO1. Describe the processes involved in the water cycle</p> <p>PO2. Describe the interactions between water and the biosphere</p> <p>PO3. Describe the interactions between water and the lithosphere</p> <p>PO4. Describe the interactions between water and the atmosphere</p> <p>PO5. Compare the interactions between water and earth systems</p>			<p>Science &amp; Society -- Chpts. 7, 8, 15; Study Guides -- Chpt. 6 (Weathering, Soil, Land Use &amp; Soil Loss), Chpt. 7 (Glaciers), Chpt. 15 (What is Weather?, Changing the Weather), Chpt. 19 -- Water Pollution), Enrichment -- Chpt. 6 (Weathering), Chpt. 7 (Developing Land), Chpt. 8 (Water Wars), Chpt. 20 (Acid Rain); Notes &amp; Exam -- Chpts. 6, 7, 8, 14 -16, 19-20, Sem. 2 Exam</p>		Mastery -- Grade 9
<p><b>6SC-P7</b> Investigate, analyze and evaluate the factors that may influence weather; describe their effects on the environment and daily activities on earth</p> <p>PO1. Analyze how weather and climate are influenced by heat transferred from the sun to the earth</p> <p>PO2. Analyze how weather is influenced by both natural and artificial earth features (e.g., mountain ranges, cities, bodies of water)</p> <p>PO3. Analyze how weather is influenced by both natural and artificial synamic processes (e.g., sunspots, volcanoes, pollution, air and ocean currents)</p> <p>PO4. Evaluate the effects of various weather factors on the environment and daily activities on earth</p>			<p>Study Guides -- Chpts. 14 (Energy from the Sun), 15 What is Weather; Changing the Weather, 16 (What is Climate?, Climate Changes), 20 (Air Pollution); Enrichment -- Chpts. (14 (Movement of Air), 15 (Changing Weather), 16 (What is Climate? Climate types), 20 (Acid Rain); Science &amp; Society -- Chpt. 15; Notes &amp; Exam -- Chpts. 14-16; Sem. 2 Exam</p>		