

## 6th Grade Science Framework

### State Goal and Percentage: 11 – Scientific Inquiry 20%

**State Goal 11: Understand the process of scientific inquiry and technological design to investigate questions, conduct experiments, and solve problems.**

**Standard and Skills: 11.A Scientific Inquiry 10%**  
**Stage: F**

Standard	Assessment Objective	Instruction & Assessment		Cross curricular connection		Additional Resources
		Instruction and guided practice	Assessment	Reading Assessment number	Math Assessment number	
11.A.3a To formulate hypotheses that can be tested by collecting data	11.7.01	<ul style="list-style-type: none"> <li>▪ Chapter 1 – Science in Our World, section 1, 2, 3, and 4</li> </ul>	<ul style="list-style-type: none"> <li>▪ Scientific scenario is given, students must investigate and apply scientific method</li> </ul>	1.6.08	8.6.07	Other books, internet resources, etc.
11.A.3b Conduct scientific experiments that control all but one variable	11.7.02	<ul style="list-style-type: none"> <li>▪ Penny lab</li> </ul>	<ul style="list-style-type: none"> <li>▪ Lab write-ups</li> </ul>			
11.A.3c Collect and record data accurately using consistent measuring and recording techniques and media	11.7.03	<ul style="list-style-type: none"> <li>▪ Pendulum lab</li> </ul>	<ul style="list-style-type: none"> <li>▪ Section review questions</li> </ul>			
11.A.3d Explain the existence of unexpected results in a data set	11.7.04	<ul style="list-style-type: none"> <li>▪ Lab Safety</li> </ul>				(time frame estimated August – mid Sept.)
11.A.3e Use data manipulation tools and quantitative (e.g., mean, mode, simple equations) and representational methods (e.g., simulations, image processing) to analyze measurements	11.7.06					

<p>11.A.3f Interpret and represent results of analysis to produce findings</p>								<p>11.A.3g Report and display the process and results of a scientific investigations</p>
<p>13.A.3a Identify and reduce potential hazards in science activities</p>						<p>13.7.01 13.7.02 13.7.03 13.7.04 13.7.05 13.7.06</p>		<p>13.A.3c Explain what is similar and different about observational and experimental investigations</p> <p>13.B.3c Describe how occupations use scientific and technological knowledge and skills</p>

6th Grade Science Framework

State Goal and Percentage: 11 – Scientific Inquiry 20%

State Goal 11: Understand the process of scientific inquiry and technological design to investigate questions, conduct experiments, and solve problems.

Standard and Skills: 11B – Technological Design 10%

Stage: F

Standard	Assessment Objective	Instruction & Assessment		Cross curricular connection		Additional Resources
		Instruction and guided practice	Assessment	Reading Assessment number	Math Assessment number	
11.B.3a Identify an actual design problem and establish criteria for determining the success of a solution	11.7.07	<ul style="list-style-type: none"> <li>Paper airplane lab</li> </ul>	<ul style="list-style-type: none"> <li>Lab write up</li> </ul>		7.6.01	Other books, internet resources, etc.
11.B.3b Sketch, propose, compare design solutions to the problem considering available materials, tools, cost effectiveness and safety	11.7.08					
11.B.3c Select the most appropriate design and build a prototype or simulation	11.7.09					
11.B.3d Test the prototype using available materials,	11.7.10					

<p>instruments and technology and record the data</p> <p>11.B.3e Evaluate the test results based on established criteria, note sources of error and recommend improvements</p> <p>11.B.3f Using available technology, report the relative success of the design based on the test results and criteria</p>						
<p>13.A.3a Identify and reduce potential hazards in science activities</p> <p>13.A.3b Analyze historical and contemporary cases in which the work of science has been affected by both valid and biased scientific practices</p> <p>13.A.3c Explain what is similar and different about observational and experimental investigations</p> <p>13.B.3a Identify and explain ways that scientific knowledge and economics drive technological development</p>	<p>13.7.01</p> <p>13.7.02</p> <p>13.7.03</p> <p>13.7.04</p> <p>13.7.05</p> <p>13.7.06</p>					

<p>13.B.3b Identify important contributions to science and technology that have been made by individuals and groups from various cultures</p> <p>13.B.3c Describe how occupations use scientific and technological knowledge and skills</p> <p>13.B.3d Analyze the interaction of resource acquisition, technological development and ecosystem impact.</p>						
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## 6th Grade Science Framework

State Goal and Percentage: 12 – Integrated Science 60%

**State Goal 12: Understand the fundamental concepts, principles and interconnections of the life, physical, and earth/space sciences**

**Standard and Skills: 12C Matter and Energy – 10%**

**Stage: F**

Standard	Assessment Objective	Instruction & Assessment		Cross curricular connection		Additional Resources
		Instruction and guided practice	Assessment	Reading Assessment number	Math Assessment number	
12.C.3a Explain interactions of energy with matter including changes of state and conservation of mass and energy  12.C.3b Model and describe the chemical and physical characteristics of matter	12.7.33	<ul style="list-style-type: none"> <li>▪ Chapter 2 – Introduction to Matter, sections 1-5</li> <li>▪ Mass Number Activity</li> <li>▪ Atoms to Ions Activity</li> <li>▪ Volume Lab</li> <li>▪ Change of state concept map</li> </ul>	Chapter test  Worksheet/visual representation  Lab write up	1.8.08	6.6.12	Other books, internet resources, etc.  (mid Sept. – mid Oct.)
	12.7.34			7.6.01		
	12.7.35					
	12.7.36					
	12.7.37					
	12.7.38					
	12.7.39					
	12.7.40					
12.7.41						

	12.7.42					
	12.7.43					
13.A.3a Identify and reduce potential hazards in science activities	13.7.01					
	13.7.02					
13.A.3c Explain what is similar and different about observational and experimental investigations	13.7.03					
	13.7.04					
	13.7.05					
	13.7.06					

## 6th Grade Science Framework

State Goal and Percentage: 12 – Integrated Science 60%

**State Goal 12: Understand the fundamental concepts, principles and interconnections of the life, physical, and earth/space sciences**

**Standard and Skills: 12E Earth Science – 10%**

**Stage: F**

Standard	Assessment Objective	Instruction & Assessment	Cross curricular connection		Additional Resources
			Reading Assessment number	Math Assessment number	
12.E.3a Analyze and explain large-scale dynamic forces, events, and processes that affect the Earth's land, water and atmospheric systems	12.7.70 12.7.71 12.7.72	Chapter 18 – Climate and Climate Change  Activity – How does Earth's Shape Affect Climate Zones?	1.8.08 1.8.10 1.8.17 1.8.19 1.8.20 1.8.21 1.8.22 1.8.23	7.6.01 7.6.03 9.6.04	Other books, presentations, etc.  Science Explorer Book – Earth Science  (mid Oct. – Jan)
12.E.3b Describe interactions between solid earth, oceans, atmosphere and organisms that have resulted in ongoing changes of Earth	12.7.73 12.7.74 12.7.75	Chapters 3 and 4 – Rocks and Plate Tectonics  Activity—Horizontal Stress (spaghetti)	Written and Oral assessment  Lab write ups		
12.E.3c Evaluate the biodegradability of renewable and nonrenewable natural resources	12.7.76 12.7.77 12.7.78	Demonstration/Activity—Convection Connection (8 <sup>th</sup> grade science book)			



	<p>12.7.79</p> <p>12.7.80</p> <p>12.7.82</p> <p>12.7.83</p> <p>12.7.100</p>	<p>Deformation activity with clay</p> <p>Activity – Model of Earth’s magnetic fields p. 241 Integrated Science Book</p>				
<p>13.A.3a Identify and reduce potential hazards in science activities</p> <p>13.A.3b Analyze historical and contemporary cases in which the work of science has been affected by both valid and biased scientific practices</p> <p>13.A.3c Explain what is similar and different about observational and experimental investigations</p> <p>13.B.3a Identify and explain ways that scientific knowledge and economics drive technological development</p> <p>13.B.3b Identify important contributions to science and</p>	<p>13.7.01</p> <p>13.7.02</p> <p>13.7.03</p> <p>13.7.04</p> <p>13.7.05</p> <p>13.7.06</p>					

<p>technology that have been made by individuals and groups from various cultures</p> <p>13.B.3c Describe how occupations use scientific and technological knowledge and skills</p> <p>13.B.3d Analyze the interaction of resource acquisition, technological development and ecosystem impact.</p>						
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## 6th Grade Science Framework

### State Goal and Percentage: 12 Integrated Science 60%

**State Goal 12: Understand the fundamental concepts, principles and interconnections of the life, physical, and earth/space sciences**

**Standard and Skills: 12F Astronomy – 10%**  
**Stage: F**

Standard	Assessment Objective	Instruction & Assessment		Cross curricular connection		Additional Resources
		Instruction and guided practice	Assessment	Reading Assessment number	Math Assessment number	
12.F.3a Simulate, analyze and explain the affects of gravitational force in the solar system	12.7.91 12.7.92 12.7.93 12.7.94	Chapter 14 – Studying Stars Chapter 15 – Stars, Galaxies, and the Universe	Timeline of 10 events important to the development of astronomy	1.8.17 1.8.18	9.6.13	Other books, internet resources, etc.  (est. Jan. – Mar.)
12.F.3b Describe the organization and physical characteristics of the solar system	12.7.95 12.7.96 12.7.97 12.7.98 12.7.99 12.7.100 12.7.101	Activity – Exploring the Movement of Galaxies in the Universe Chapter 16 – Formation of the Solar System Oreo phases of the moon lab Flow chart – life cycle of the star	Chapter quizzes Chapter tests			

<p>13.A.3a Identify and reduce potential hazards in science activities</p> <p>13.A.3b Analyze historical and contemporary cases in which the work of science has been affected by both valid and biased scientific practices</p> <p>13.A.3c Explain what is similar and different about observational and experimental investigations</p> <p>13.B.3a Identify and explain ways that scientific knowledge and economics drive technological development</p> <p>13.B.3b Identify important contributions to science and technology that have been made by individuals and groups from various cultures</p> <p>13.B.3c Describe how occupations use scientific and technological knowledge and skills</p>	<p>13.7.01</p> <p>13.7.07</p> <p>13.7.08</p> <p>13.7.09</p> <p>13.7.13</p>					
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13.B.3d Analyze the interaction of resource acquisition, technological development and ecosystem impact.						
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