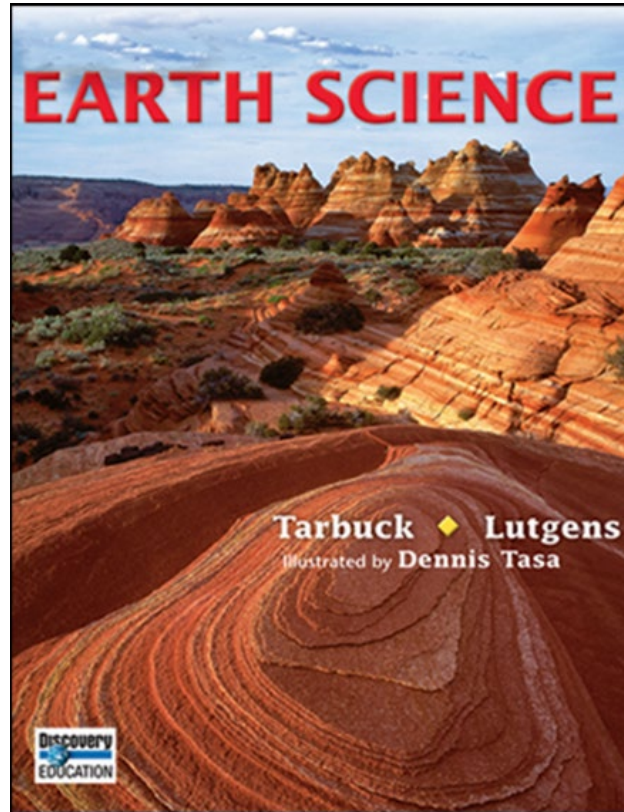


A Correlation of



To the

**West Virginia  
Course 6201 – Earth and Space Science  
Evaluation Criteria**

<b>PUBLISHER:</b>	Savvas Learning Co., formerly Pearson K-12 Learning		
<b>SUBJECT:</b>	Science	<b>SPECIFIC Course:</b>	Earth and Space Science
<b>COURSE:</b>	6201 – Earth and Space Science	<b>TITLE</b>	Earth Science
<b>COPYRIGHT:</b>	2017		
<b>SE ISBN:</b>	9781418341244	<b>TE ISBN:</b>	9780133172126
URL for Online Resources:	SavvasRealize.com		
Teacher Demo Account Username:	WestVirginiaHSscience	Teacher Demo Account Password:	Savvas2022! (For state reviewer use only)
Student Demo Account Username:	wvstudent104	Student Demo Account Password:	Savvas2022 (For state reviewer use only)

**NON-NEGOTIABLE EVALUATION CRITERIA**  
**2022-2028**  
**Group IV – Science**  
**Earth and Space Science**

<b>Equity, Accessibility and Format – This section to be completed by the County Adoption Committee Evaluation Responses</b>			
Yes	No	CRITERIA	NOTES – by County Adoption Committee
X		<b>1. INTER-ETHNIC</b> The instructional resource meets the requirements of inter-ethnic: concepts, content and illustrations, as set by WV Board of Education Policy 2445.41.	The photographic, illustrative, and digital resources found throughout the Savvas <b>Earth Science</b> program include a majority of earth images. When human images are used, they represent a variety of ages, and ethnicities participating in everyday and science-related activities. See pages 64, 100, 116, 139, 141, 177, 190, 247, 342, 664
X		<b>2. EQUAL OPPORTUNITY</b> The instructional resource meets the requirements of equal opportunity: concepts, content, illustration, heritage, roles contributions, experiences and achievements of males and females in American and other cultures.	The instructional resources of the Savvas <b>Earth Science</b> program acknowledge the contributions and experiences of males and females in advancing the concepts of earth science. Examples include Hubble, page 6; Earheart, page 27; Hutton, page 336; Smith, page 344; Copernicus, Brahe, Kepler, Galileo, and Newton, pages 617-620; and Huygens, page 656. See also Teacher Edition: Carson, 115; Bell, 713; Career Connections, 731; and Integrate Language Arts, page 700.

**SE = Student Edition; TE = Teacher Edition; Digital Resources:** The symbol > indicates a click to reach each digital asset on the Realize platform.

X		<b>3. FORMAT</b> This resource includes an interactive electronic/digital component for students.	Yes, the instructional resources of the Savvas <b>Earth Science</b> program include both print, digital student text as well as lab worksheets, chapter summaries and assessments.
X		<b>4. BIAS</b> The instructional resource is free of political bias.	Yes, the instructional resources of the Savvas <b>Earth Science</b> program are free of political bias.
X		<b>5. COMMON CORE</b> The instructional resource does not reference Common Core academic standards. (WV Code §18-2E-1b-1)	The instructional resources of the Savvas <b>Earth Science</b> program do not reference Common Core academic standards.
X		<b>6. INQUIRY</b> This resource must include rigorous and developmentally appropriate active inquiry, investigations, and hands-on activities.	Yes, the instructional resources of the Savvas <b>Earth Science</b> program includes a variety of rigorous and developmentally appropriate inquiry investigations, hands-on labs, interactive digital activities. Inquiry investigations can be found in every chapter. Look for these on the <b>Savvas Realize</b> platform. Example: Chapter 2 Minerals – Investigation 2 Crystal Systems (lab activity) – Lab worksheet Mineral Identification
X		<b>7. SAFETY</b> This resource must include explicit guidance for demonstrating the safe and proper techniques for handling, manipulating and caring for developmentally appropriate science materials and treating living organisms humanely.	Yes, the Savvas <b>Earth Science</b> program contains explicit explanations and guidance of safety procedures and techniques on the investigation lab worksheets. Look for the bolded ' <b>Safety</b> label' on the investigation worksheet and the corresponding safety symbols. Explanatory notes and cautions are included. Also see Science Safety, pages 736-737.

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## GENERAL EVALUATION CRITERIA

**2022 -2028  
Group IV – Science**

**Earth and Space Science**

The general evaluation criteria apply to each grade level and are to be evaluated for each grade level unless otherwise specified. These criteria consist of information critical to the development of all grade levels. In reading the general evaluation criteria and subsequent specific grade level criteria, **e.g. means “examples of” and i.e. means that “each of” those items must be addressed.** Eighty percent of the general and eighty percent of the specific criteria must be met with I (In-depth) or A (Adequate) in order to be recommended.

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	(IRR Committee) Responses										
	I=In-depth	A=Adequate	M=Minimal	N=Nonexistent	I		A		M		N
	<b>In addition to alignment of West Virginia College- and Career-Readiness Standards (WCCRS) for Science, instructional resources must also include opportunities for students to develop:</b>										
<b>College- and Career- Readiness Skills</b>											
<b>Thinking and Problem-Solving Skills</b>											
<i>Science Content:</i>											
Representative Citations: <b>SE/TE:</b> Inquiry Exploration Lab: Rock Identification, 86–87 Inquiry Exploration Lab: Investigating the Permeability of Soils, 181 Inquiry Exploration Lab: How Does Temperature Affect Water Density?, 440–441	1. provides opportunities for student collaboration.				<b>X</b>						

**SE = Student Edition; TE = Teacher Edition; Digital Resources:** The symbol > indicates a click to reach each digital asset on the Realize platform.

<p>Continued:</p> <p><b>TE Only:</b></p> <p>Build Science Skills, 48, 78</p> <p>21<sup>st</sup> Century Learning: Interpersonal and Collaborative Skills, 88</p> <p>Differentiated Instruction, 165</p> <p>Build Vocabulary, 238</p> <p>Evaluate Understanding, 239</p> <p>Reteach, 294</p> <p>Teacher Demo: Synthetic Seawater, 423</p> <p>Differentiated Instruction, 430</p> <p>Build Science Skills, 437</p> <p>How does latitude affect climate?, 498</p> <p>How can you measure dew point?, 526</p> <p>Differentiated Instruction, 661</p> <p>Integrate Language Arts, 682</p>						
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**SE = Student Edition; TE = Teacher Edition; Digital Resources:** The symbol > indicates a click to reach each digital asset on the Realize platform.

<p>Representative Citations:  <b>SE/TE:</b>          Inquiry Exploration Lab: What Causes Weathering?, 125          Inquiry Exploration Lab: Effect of Temperature on Chemical Weathering, 150–151          Inquiry Exploration Lab: Paleomagnetism and the Ocean Floor, 272–273          Inquiry Try It!: Where Are Volcanoes Located? 279          Inquiry Try It!: What Can Become A Fossil?, 335          Inquiry Exploration Lab: Fossil Occurrence and the Age of Rocks, 356–357          Inquiry Exploration Lab: Modeling the Geologic Time Scale, 386–387          Inquiry Try It!: Global Climate Change: What Is Causing It?, 587          Inquiry Exploration Lab: What Is the Shape Of A Planetary Orbit?, 643          Inquiry Exploration Lab: Modeling The Solar System, 666–667          Inquiry Try It!: How Does The Position Of The Setting Sun Change?, 673</p>	<p>2. requires students to investigate and discover multiple solutions through inquiry.</p>	<p><b>X</b></p>						
<p>Representative Citations:  <b>SE/TE:</b>          Earth &amp; Space: Studying Earth From Space, 25          Submersibles, 400          Earth &amp; Its Systems: Shoes and Toys as Drift Meters, 454</p> <p><b>TE Only:</b>          Use Community Resources, 220          Build Science Skills: Apply Concepts, 565</p>	<p>3. includes options for using technology tools to gather information, make informed decisions and justify solutions.</p>	<p><b>X</b></p>						

**SE = Student Edition; TE = Teacher Edition; Digital Resources:** The symbol > indicates a click to reach each digital asset on the Realize platform.

<p>Representative Citations:  <b>SE/TE:</b>  Think Critically, 17  Think Critically, 30  Think Critically, 62  Think Critically, 90  Think Critically, 122  Think Critically, 154  Think Critically, 184  Think Critically, 244  Think Critically, 276  Think Critically, 304  Think Critically, 332  Think Critically, 360</p> <p><b>TE Only:</b>  21<sup>st</sup> Century Learning: Critical Thinking and Systems Thinking: What observation led to the theory of plate tectonics?, 274  21<sup>st</sup> Century Learning: Critical Thinking and Systems Thinking: How can you measure dew point?, 526  21<sup>st</sup> Century Learning: Critical Thinking and Systems Thinking: How do forests affect climate?, 608</p>	<p>4. engages students in critical thinking and the synthesis of information to analyze real-world problems.</p>	<p><b>X</b></p>						
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**SE = Student Edition; TE = Teacher Edition; Digital Resources:** The symbol > indicates a click to reach each digital asset on the Realize platform.

<p>Representative Citations:  <b>SE/TE:</b>  Apply Concepts, 17  Concepts in Action, 62  Concepts in Action, 90  Understand Concepts, 121  Connect Concepts, 122  Apply Concepts, 154  Writing in Science, 184  Concepts in Action, 214  Apply Concepts, 244  Apply Concepts, 304  Design an Experiment, 332  Concepts in Action, 360  Concepts in Action, 418  Concepts in Action, 444  Concepts in Action, 472  Concepts in Action, 500  Writing in Science, 528  Apply Concepts, 554  Concepts in Action, 584  Apply Concepts, 610  Apply Concepts, 640  Concepts in Action, 670  Concepts in Action, 726</p>	<p>5. offers activities to connect multiple scientific phenomena to real-world events.</p>	<p><b>X</b></p>						
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<b>Information and Communication Skills/Science</b> <i>For student mastery of college- and career- readiness standards, the instructional resources will include multiple strategies that provide students with opportunities to:</i>						
<p><b>Representative citations for supporting content include:</b></p> <p><b>TE Only:</b>            Inquiry Try It!: How Do Local Bodies of Water Affect Your Community, 157            Build Science Skills: Observe, 230            Integrate Oceanography: Explore ridges and Trenches, 256            Build Science Skills: Use the internet, 294            21<sup>st</sup> Century Learning: Civic Literacy, 302            21<sup>st</sup> Century Learning: Economic Literacy, 442            Differentiated Instruction, 484            Teaching Tip, 587            Differentiated Instruction, 708</p>	<p>6. interact with secure external multimedia resources for local and global collaboration.</p>	<p><b>X</b></p>				
<p>Representative Citations:  <b>SE/TE:</b>            Connecting Concepts, 8            Apply Concepts, 17            Concepts in Action, 62            Concepts in Action, 90            Understand Concepts, 121            Connect Concepts, 122            Apply Concepts, 154            Inquiry Try It!: How Do Local Bodies of Water Affect Your Community, 157            Writing in Science, 184            Concepts in Action, 214            Apply Concepts, 244            Apply Concepts, 304            Concepts in Action, 360            Performance-Based Assessment: Research, 418            Concepts in Action, 444            Concepts in Action, 584            Apply Concepts, 610            Apply Concepts, 640            Concepts in Action, 670</p>	<p>7. develop conceptual understanding and research skills.</p>	<p><b>X</b></p>				

**SE = Student Edition; TE = Teacher Edition; Digital Resources:** The symbol > indicates a click to reach each digital asset on the Realize platform.

<p>Representative Citations:  <b>SE/TE:</b>  Go Further, 329  Performance-Based Assessment: Research, 418  Performance-Based Assessment: Summarize, 696</p> <p><b>TE Only:</b>  Build Science Skills: Student Activity: Analyze Data, 175  Integrate Chemistry, 178  Teaching Tips, 180  Build Science Skills: Observe, 230  21<sup>st</sup> Century Learning: Civic Literacy, 302  21<sup>st</sup> Century Learning: Economic Literacy, 442  21<sup>st</sup> Century Learning: Creativity and Intellectual Curiosity, 470  Differentiated Instruction, 484  21<sup>st</sup> Century Learning: Problem Identification, Formulation, and Solution, 582  Integrate Social Studies, 614  Integrate Language Arts, 633  Differentiated Instruction, 708  Incorporating ELA Standards, 730</p>	<p>8. articulate thoughts and ideas through oral, written, and multimedia communications.</p>	<p><b>X</b></p>						
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**SE = Student Edition; TE = Teacher Edition; Digital Resources:** The symbol > indicates a click to reach each digital asset on the Realize platform.

<p>Representative Citations:  <b>SE/TE:</b>  Figure 4: Big Bang Theory, 6  Figure 10: Prime Meridian, 12  Figure 4: Electron Dot Diagrams, 39  Figure 13: The Silicon-Oxygen Tetrahedron, 47  Figure 24: Types of Sand Dunes, 206  Figure 1: A Curious Fit, 248  Figure 5: Breakup Of Pangaea, 252  Figure 5: Folded Mountains, 312  Fossil Data Table, 356  Figure 2: Ocean Surface Currents, 449  Figure 14: Cyclone, 569  Figure 9: Global Climates, 594–595  Figure 23: Which Way Does the Tail Point?, 661  Raisin Dough Analogy, 719</p> <p><b>Realize™ Digital Resources:</b>  &gt;Reading and Study Workbook &gt;Chapter 1:  Introduction to Earth Science&gt;Section 1.2: A View  of Earth  &gt;Reading and Study Workbook&gt;Chapter 5:  Weathering, Soil, and Mass Movements&gt;Section  5.2: Soil  &gt;Reading and Study Workbook&gt;Chapter 9: Plate  Tectonics&gt;Section 9.1: Continental Drift  &gt;Reading and Study Workbook&gt;Chapter 9: Plate  Tectonics&gt;Section 9.4: Mechanisms of Plate  Motions  &gt;Lab Manual&gt;Chapter 16: The Dynamic  Ocean&gt;Investigation 16: Shoreline Features</p>	<p>9. analyze and interpret visually expressed information (e.g., flowchart, diagram, model, graph, table, or digital mapping technology).</p>	<p><b>X</b></p>					
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**Personal and Workplace Productivity Skills**

*For student mastery of college- and career- readiness standards, the instructional resources will provide students with opportunities to:*

<p>Representative Citations:  <b>SE/TE:</b>                  Inquiry Exploration Lab: Rock Identification, 86–87                  Inquiry Exploration Lab: Investigating the Permeability of Soils, 181                  Inquiry Exploration Lab: How Does Temperature Affect Water Density?, 440–441</p> <p><b>TE Only:</b>                  Build Science Skills: Solve Problems, 21                  21<sup>st</sup> Century Learning: Interpersonal and Collaborative Skills, 88                  Use Community Resources, 174                  Reading Strategy, 228                  Monitor Your Understanding, 296                  Build Science Skills, Use Models, 297                  21<sup>st</sup> Century Learning: Interpersonal and Collaborative Skills, 388                  Use Community Resources, 509                  Integrate Social Studies: Storm Warnings, 574                  Build Science Skills: Predict, 578                  Use Community Resources, 711</p> <p><b>Realize™ Digital Resources:</b>                  &gt;Lab Manual&gt;Chapter 8: Earthquakes and Earth’s Interior&gt;Investigation 8A: Modeling Liquefaction                  &gt;Lab Manual&gt;Chapter 8: Earthquakes and Earth’s Interior&gt;Investigation 8B: Design and Build a Simple Seismograph                  &gt;Lab Manual&gt;Chapter 9: Plate Tectonics&gt;Investigation 9: Modeling a Plate Boundary                  &gt;Lab Manual&gt;Chapter 20: Weather Patterns and Severe Storms&gt;Investigation 20A: Analyzing Severe Weather Data</p>	<p>10. use interpersonal skills to work cooperatively to accomplish a task.</p>	<p>X</p>					
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**SE = Student Edition; TE = Teacher Edition; Digital Resources:** The symbol > indicates a click to reach each digital asset on the Realize platform.

<p>Representative Citations:  <b>SE/TE:</b>          Inquiry Exploration Lab: Modeling Seafloor Depth Transects, 414–415          Performance-Based Assessment: Design an Experiment, 500          Performance-Based Assessment: Design an Experiment, 528</p> <p><b>TE Only:</b>          Differentiated Instruction, 148          Address Misconceptions, 232          Build Science Skills: Student Activity: Design Experiments, 514          21<sup>st</sup> Century Learning: Critical Thinking and Systems Thinking: How can you measure dew point?, 526          Integrate Social Studies: Storm Warnings, 574</p> <p><b>Realize™ Digital Resources:</b>          &gt;Lab Manual&gt;Chapter 8: Earthquakes and Earth's Interior&gt;Investigation 8B: Design and Build a Simple Seismograph          &gt;Lab Manual&gt;Chapter 4: Earth's Resources&gt;Investigation 4B: Desalinization by Distillation</p>	<p>11. develop and initiate a plan of action to complete a task or project.</p>	<p><b>X</b></p>						
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**SE = Student Edition; TE = Teacher Edition; Digital Resources:** The symbol > indicates a click to reach each digital asset on the Realize platform.

<p>Representative Citations:  <b>SE/TE:</b>  Go Further, 329  Performance-Based Assessment: Design an Experiment, 500  Performance-Based Assessment: Design an Experiment, 528</p> <p><b>TE Only:</b>  Study Tip: Organize New Information, 182  Study Tip: Organize New Information, 330  Differentiated Instruction, 383  Study Tip: Organize New Information, 498  Study Tip: Change Subjects and Take Breaks, 526  Differentiated Instruction, 655  STEM Activity: Plate Tectonics: Measuring Plate Movement, 720</p> <p><b>Realize™ Digital Resources:</b>  &gt;Lab Manual&gt;Chapter 8: Earthquakes and Earth's Interior&gt;Investigation 8B: Design and Build a Simple Seismograph  &gt;Lab Manual&gt;Chapter 4: Earth's Resources&gt;Investigation 4B: Desalinization by Distillation</p>	12. practice time- and project-management skills	<b>X</b>						
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<p>Representative Citations:  <b>SE/TE:</b>          Inquiry Exploration Lab: Rock Identification, 86–87          Inquiry Exploration Lab: Investigating the Permeability of Soils, 181          Inquiry Exploration Lab: How Does Temperature Affect Water Density?, 440–441</p> <p><b>TE Only:</b>          Build Science Skills: Make Judgments, 9          Build Science Skills: Solve Problems, 21          Build Math Skills: Line Graphs, 398          Build Science Skills: Communicate Results, 400          Build Science Skills: Student Activity: Design Experiments, 514          Assess: Evaluate Understanding, 659</p> <p><b>Realize™ Digital Resources:</b>          &gt;Lab Manual&gt;Chapter 8: Earthquakes and Earth's Interior&gt;Investigation 8B: Design and Build a Simple Seismograph          &gt;Lab Manual&gt;Chapter 4: Earth's Resources&gt;Investigation 4B: Desalinization by Distillation</p>	<p>13. reflect upon and evaluate the results of a task or project.</p>	<p><b>X</b></p>					
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**SE = Student Edition; TE = Teacher Edition; Digital Resources:** The symbol > indicates a click to reach each digital asset on the Realize platform.

<p>Representative Citations:  <b>SE/TE:</b>          Inquiry Exploration Lab: Effect of Temperature On Chemical Weathering, 150          Assess: Reteach, 239          Differentiated Instruction, 348          Build Science Skills: Make Judgements, 466</p> <p><b>TE Only:</b>          Build Reading Literacy: Reciprocal Teaching, 159D</p> <p><b>Realize™ Digital Resources:</b>          &gt;Lab Manual&gt;Chapter 8: Earthquakes and Earth's Interior&gt;Investigation 8B: Design and Build a Simple Seismograph          &gt;Lab Manual&gt;Chapter 4: Earth's Resources&gt;Investigation 4B: Desalinization by Distillation</p>	<p>14. assume various roles and responsibilities when working independently or as a group.</p>	<p><b>X</b></p>						
<p>Representative Citations:  <b>SE/TE:</b>          Earth Scientists, 23          The Birth of Modern Astronomy, 617–621</p> <p><b>TE Only:</b>          Background, 269          Career Connections, 731</p>	<p>15. explore science-related careers.</p>	<p><b>X</b></p>						

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<p>Representative Citations:  <b>SE/TE:</b>  Writing in Science 7. Descriptive Paragraph, 170  Performance-Based Assessment: Research, 418  Inquiry Try It!: Global Climate Change: What is Causing It?, 587  STEM Activity: Earth And Human Activity, 728  STEM Activity: Earth's Place in the Universe, 731</p> <p><b>TE Only:</b>  Build Science Skills: Solve Problems, 21  Build Science Skills: Pose Questions, 146  Integrate Chemistry: Acid Rain on Karst Topography, 178  Differentiated Instruction, 195  Build Science Skills: Research, 230  Assess: Reteach, 239  Integrate Oceanography: Explore ridges and Trenches, 256  Build Science Skills: Use the internet, 294  Build Science Skills: Communicate Results, 400  21<sup>st</sup> Century Learning: Accountability and Adaptability, 416  Build Science Skills: Compare and Contrast, 576  Teaching Tip, 587</p>	<p>16. conduct research, validate sources, and report findings in an ethical manner.</p>	<p><b>X</b></p>					
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<p>Representative Citations:  <b>SE/TE:</b>  Hardness, 52  Inquiry Exploration Lab: Investigating the Permeability of Soils, 181  Inquiry Try It! How Can Buildings Be Made Earthquake-Safe?, 217  Think Critically 9. Apply Concepts, 591  Inquiry Try It! What is the shape of a Planetary Orbit?, 643  Inquiry Try It! How Does the Position of the Setting Sun Change?, 673</p> <p><b>TE Only:</b>  Build Reading Literacy: Summarize, 139  Build Reading Literacy: Directed Reading/Thinking Activity, 145  Go Further, 441  Teaching Tips, 636</p>	<p>17. provide learning experiences for students to demonstrate mastery through multiple efforts.</p>	<p><b>X</b></p>						
<p><b>Developmentally Appropriate Instructional Resources and Strategies</b>  <i>For student mastery of college- and career-readiness standards, the instructional resources:</i></p>								
<p>Representative Citations:  <b>TE Only:</b>  Differentiated Instruction: Special Needs, 12  Differentiated Instruction: English Language Learners, 76  Differentiated Instruction: English Language Learners, 165  Differentiated Instruction: Visually Impaired, 206  Differentiated Instruction: Special Needs, 354  Differentiated Instruction: English Language Learners, 449  Differentiated Instruction: Gifted, 484  Differentiated Instruction: Visually Impaired, 538  Differentiated Instruction: English Language Learners, 661  Differentiated Instruction: Gifted, 708</p>	<p>18. include multiple research-based strategies for differentiation, intervention and enrichment to support all learners.</p>	<p><b>X</b></p>						

**SE = Student Edition; TE = Teacher Edition; Digital Resources:** The symbol > indicates a click to reach each digital asset on the Realize platform.

<p>Representative Citations:  <b>TE Only:</b>  Use Visuals, 98  Integrate Chemistry, 98  Build Science Skills: Student Activity: Observe 129  Go Further, 211  Use Community Resources, 371  Teacher Demo: Wave Motion: Expected Outcomes, 455  Instruct: Build Science Skills: Predict, 462  Build Reading Literacy: Compare and Contrast, 465  Teacher Demo: Compression and Expansion, 511  Build Science Skills: Student Activity: Use Models, 632  Teacher Demo: Modeling a Comet's Tail, 662  Go Further, 723</p> <p><b>Realize™ Digital Resources:</b>  &gt;Reading and Study Workbook &gt;Chapter 1: Introduction to Earth Science&gt;Section 1.4: Earth System Science; Section 1.4(B) Earth System Science  &gt;Reading and Study Workbook &gt;Chapter 5: Weathering, Soil, and Mass Movements&gt;Section 5.2: Soil; Section 5.2(B): Soil  &gt;Reading and Study Workbook&gt;Chapter 12: Geologic Time&gt;Section 12.3: Dating With Radioactivity; Section 12.3(B): Dating With Radioactivity</p>	<p>19. provide multiple opportunities for incorporating various learning modalities.</p>	<p><b>X</b></p>					
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<p>Representative Citations:  <b>SE/TE:</b>          Analyze and Conclude 1–4, 87          Analyze and Conclude 1–4, 181          Analyze and Conclude 1–10, 329</p> <p><b>TE Only:</b>          Build Science Skills: Solve Problems, 21          Earth &amp; Space, 25          Integrate Chemistry, 73          Build Science Skills: Student Activity: Design Experiments, 195          Address Misconceptions, 404          Build Science Skills: Use Models, 437          Build Science Skills: Analyze Data, 576          For Enrichment, 682          Integrate Chemistry: Formation of Heavy Elements, 711          Earth &amp; History: Teaching Tip, 722</p> <p><b>Realize™ Digital Resources:</b>          &gt;Lab Manual&gt;Chapter 8: Earthquakes and Earth's Interior&gt;Investigation 8A: Modeling Liquefaction          &gt;Lab Manual&gt;Chapter 9: Plate Tectonics&gt;Investigation 9: Modeling a Plate Boundary          &gt;Lab Manual&gt;Chapter 11: Mountain Building&gt;Investigation 11: Interpreting a Geologic Map</p>	<p>20. cultivate investigative skills leading students to form logical conclusions.</p>	<p><b>X</b></p>					
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**SE = Student Edition; TE = Teacher Edition; Digital Resources:** The symbol > indicates a click to reach each digital asset on the Realize platform.

<p>Representative citations of vocabulary resources found throughout the program:</p> <p><b>SE/TE:</b>  Vocabulary, 18  Vocabulary, 50  Vocabulary, 70  Vocabulary, 94</p> <p><b>TE Only:</b>  Build Vocabulary, 18  Build Vocabulary, 50  Build Vocabulary, 70  Build Vocabulary, 94  Build Vocabulary, 133</p> <p><b>Realize™ Digital Resources:</b>  &gt;Reading and Study Workbook &gt;Chapter 1:  Introduction to Earth Science&gt;Section 1.2: A View  of Earth  &gt;Reading and Study Workbook &gt;Chapter 3:  Rocks&gt;Section 3.1: The Rock Cycle  &gt;Reading and Study Workbook &gt;Chapter 3:  Rocks&gt;Section 3.2: Igneous Rocks  &gt;Reading and Study Workbook&gt;Chapter 7:  Glaciers, Deserts, and Wind&gt;Section 7.3:  Landscapes Shaped by Wind  &gt;Reading and Study Workbook&gt;Chapter 8:  Earthquakes and Earth’s Interior&gt;Section 8.4:  Earth’s Layered Structure</p>	<p>21. incorporate authentic scientific vocabulary and technical terminology.</p>	<p>X</p>					
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**SE = Student Edition; TE = Teacher Edition; Digital Resources:** The symbol > indicates a click to reach each digital asset on the Realize platform.

<p>Representative Citations:  <b>SE/TE:</b>          Inquiry Quick Lab Why Are Some Volcanoes Explosive?, 287          Inquiry Try It! Can You Model How Rocks Deform?, 307          Part B: Completing a Depth Transect, 415          Inquiry Try It! How Do Ocean Waves Form?, 447          Using Chemicals Safely, 737          Using Sharp Instruments, 737</p> <p><b>TE Only:</b>          Build Science Skills: Student Activity: Design Experiments, 54          Inquiry Exploration Lab: Finding The Product That Best Conserves Resources, 118          Teacher Demo: Creating A Continental Rift, 264          Inquiry Quick Lab: Why are Some Volcanoes Explosive?, 287          Teacher Demo: Synthetic Seawater, 423          Inquiry Try It!: How Can You Model A Tornado?, 557          Address Misconceptions, 636          Inquiry Exploration Lab: Teacher Demo: Tracking Sunspots, 692</p> <p><b>Realize™ Digital Resources:</b>          &gt;Lab Manual&gt;Chapter 8: Earthquakes and Earth's Interior&gt;Investigation 8A: Modeling Liquefaction          &gt;Lab Manual&gt;Chapter 14: The Ocean Floor&gt;Investigation 14: Modeling the Ocean Floor</p>	<p>22. integrate laboratory safety practices within learning experiences.</p>	<p>X</p>					
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**SE = Student Edition; TE = Teacher Edition; Digital Resources:** The symbol > indicates a click to reach each digital asset on the Realize platform.

<b>Life Skills</b> <i>For student mastery of college- and career- readiness standards, the instructional resources will provide students with opportunities to:</i>						
<p>Representative Citations:  <b>SE/TE:</b>            Go Further, 210            Go Further, 329            Performance-Based Assessment: Research, 418            Performance-Based Assessment: Summarize, 696</p> <p><b>TE Only:</b>            Build Reading Literacy, 8            Focus: Build Vocabulary: Vocabulary Rating Chart, 126            Build Reading Literacy, 145            Build Reading Literacy, 200            Build Vocabulary: Vocabulary Rating Chart, 347            Build Reading Literacy, 593            Build Reading Literacy, 652            STEM Activity: Plate Tectonics: Measuring Plate Movement: Incorporating ELA Standards, 730</p>	<p>23. persevere to complete a task and generate high quality work.</p>	<p><b>X</b></p>				
<p>Representative Citations:  <b>SE/TE:</b>            Performance-Based Assessment: Draw Conclusions, 122            Performance-Based Assessment: Research, 418            Performance-Based Assessment: Observe, 554            Inquiry Try It! Global Climate Change: What Is Causing It?, 587            Go Further, 607</p> <p><b>TE Only:</b>            Build Science Skills: Infer, 403            Use Visuals, 411</p>	<p>24. be exposed to and be respectful of varying viewpoints and positions of scientific issues.</p>	<p><b>X</b></p>				

**SE = Student Edition; TE = Teacher Edition; Digital Resources:** The symbol > indicates a click to reach each digital asset on the Realize platform.

<p>Representative Citations:  <b>SE/TE:</b>  Inquiry Exploration Lab: Mineral Identification, 58  Inquiry Exploration Lab: Rock Identification, 86  Inquiry Exploration Lab: Finding the Product that Best Conserves Resources, 118  Inquiry Exploration Lab: Effect of Temperature on Chemical Weathering, 150  Inquiry Exploration Lab: Investigating the Permeability of Soils, 181  Inquiry Try It!, Can You Model How Rocks Deform?, 307  Inquiry Try It!: What Can Become A Fossil?, 335  Inquiry Exploration Lab: Modeling the Geologic Time Scale, 386  Inquiry Exploration Lab: How Does Temperature Affect Water Density?, 440  Inquiry Try It!: Modeling The Angle Of The Sun, 475  Inquiry Exploration Lab: Heating Land and Water, 496  Inquiry Try It!: How Do Gradients Influence Speed?, 531  Inquiry Exploration Lab: Modeling Synodic and Sidereal Months, 636  Inquiry Try It!: What Is The Shape Of A Planetary Orbit?, 643</p> <p><b>Realize™ Digital Resources:</b>  &gt;Lab Manual&gt;Chapter 8: Earthquakes and Earth's Interior&gt;Investigation 8A: Modeling Liquefaction  &gt;Lab Manual&gt;Chapter 14: The Ocean Floor&gt;Investigation 14: Modeling the Ocean Floor</p>	<p>25. engage in hands-on activities to promote the understanding of science content.</p>	<p>X</p>					
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**SE = Student Edition; TE = Teacher Edition; Digital Resources:** The symbol > indicates a click to reach each digital asset on the Realize platform.



<p>Representative Citations:  <b>SE/TE:</b>  Inquiry Exploration Lab: Mineral Identification, 58  Inquiry Exploration Lab: Rock Identification, 86  Inquiry Exploration Lab: Finding the Product that Best Conserves Resources, 118  Inquiry Exploration Lab: Effect of Temperature on Chemical Weathering, 150  Inquiry Exploration Lab: Investigating the Permeability of Soils, 181  Inquiry Try It!, Can You Model How Rocks Deform?, 307  Inquiry Try It!: What Can Become A Fossil?, 335  Inquiry Exploration Lab: Modeling the Geologic Time Scale, 386  Inquiry Exploration Lab: How Does Temperature Affect Water Density?, 440  Inquiry Try It!: Modeling The Angle Of The Sun, 475  Inquiry Exploration Lab: Heating Land and Water, 496  Inquiry Try It!: How Do Gradients Influence Speed?, 531  Inquiry Exploration Lab: Modeling Synodic and Sidereal Months, 636  Inquiry Try It!: What Is The Shape Of A Planetary Orbit?, 643</p> <p><b>Realize™ Digital Resources:</b>  &gt;Lab Manual&gt;Chapter 8: Earthquakes and Earth's Interior&gt;Investigation 8A: Modeling Liquefaction  &gt;Lab Manual&gt;Chapter 14: The Ocean Floor&gt;Investigation 14: Modeling the Ocean Floor  &gt;Lab Manual&gt;Chapter 25: Beyond Our Solar System&gt;Investigation 25: Modeling the Rotation of Neutron Stars</p>	<p>26. investigate the natural world and universe.</p>	<p>X</p>					
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<p>Representative Citations:  <b>SE/TE:</b>  Go Further, 210  Go Further, 329  Performance-Based Assessment: Research, 418  Performance-Based Assessment: Summarize, 696</p> <p><b>TE Only:</b>  Evaluate Understanding, 147  Integrate Chemistry, 178  Evaluate Understanding, 376  21<sup>st</sup> Century Learning: Interpersonal and Collaborative Skills, 388  Differentiated Instruction, 484  Build Science Skills: Predict, 573  Stem Activity: Plate Tectonics, 730</p>	<p>27. practice situational language (e.g., presentations, debates, speeches, collaborative discussions, social media) in real-world activities.</p>	<p>X</p>					
<p>Representative Citations:  <b>SE/TE:</b>  Inquiry Exploration Lab, 118–119  Temperature Controls, 488–492  Inquiry Exploration Lab, 550  Inquiry Try It!, 587  Circulation in the Atmosphere, 591  Natural Processes That Change Climate, 600–601  Human Impact on Climate, 602–603  Inquiry Exploration Lab, 606–607  Stem Activity: The Bycatch Problem, 728</p> <p><b>TE Only:</b>  Inquiry Try It!: How Do Local Bodies of Water Affect Your Community, 157  Build Science Skills: Observe, 230  Integrate Oceanography: Explore ridges and Trenches, 256  Build Science Skills: Use the internet, 294  21<sup>st</sup> Century Learning: Civic Literacy, 302  21<sup>st</sup> Century Learning: Economic Literacy, 442  Differentiated Instruction, 484  Teaching Tip, 587</p>	<p>28. understand the impact of global issues and events on their lives, communities, and greater society.</p>	<p>X</p>					

**SE = Student Edition; TE = Teacher Edition; Digital Resources:** The symbol > indicates a click to reach each digital asset on the Realize platform.

<p>Representative Citations:  <b>SE/TE:</b>          Inquiry Quick Lab Why Are Some Volcanoes Explosive?, 287          Inquiry Try It! Can You Model How Rocks Deform?, 307          Part B: Completing a Depth Transect, 415          Inquiry Try It! How Do Ocean Waves Form?, 447          Using Chemicals Safely, 737          Using Sharp Instruments, 737</p> <p><b>TE Only:</b>          Build Science Skills: Student Activity: Design Experiments, 54          Inquiry Exploration Lab: Finding The Product That Best Conserves Resources, 118          Teacher Demo: Creating A Continental Rift, 264          Inquiry Quick Lab: Why are Some Volcanoes Explosive?, 287          Teacher Demo: Synthetic Seawater, 423          Inquiry Try It!: How Can You Model A Tornado?, 557          Address Misconceptions, 636          Inquiry Exploration Lab: Teacher Demo: Tracking Sunspots, 692</p> <p><b>Realize™ Digital Resources:</b>          &gt;Lab Manual&gt;Chapter 8: Earthquakes and Earth's Interior&gt;Investigation 8A: Modeling Liquefaction          &gt;Lab Manual&gt;Chapter 14: The Ocean Floor&gt;Investigation 14: Modeling the Ocean Floor</p>	<p>29. use laboratory equipment properly.</p>	<p>X</p>					
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<b>Assessment</b> <i>The instructional resources provide:</i>					
<p>Assessments are found in every chapter and lesson. The program also includes a Progress Monitoring Assessments, Teacher Edition and a Test Prep Workbook. Representative Citations:</p> <p><b>SE/TE:</b>            Big Idea Q, 124            Chapter 5 Pretest, 124            Inquiry Try It!: What Causes Weathering?: Think About It, 125            5.1 Weathering: Key Questions, 126            Reading Checkpoint, 129            Inquiry Exploration Lab: Effect of Temperature on Chemical Weathering: Analyze and Conclude, 151            Chapter 5 Assessment, 153–154            Chapter 5 Standardized Test Prep, 155</p> <p><b>TE Only:</b>            Chapter 5 Pretest, 124</p> <p><b>Realize™ Digital Resources:</b>            Chapter Tests&gt;Chapter 2            Spanish Chapter Tests&gt;Chapter 2</p>	<p>30. ongoing diagnostic formative and summative assessments.</p>	<p>X</p>			

**SE = Student Edition; TE = Teacher Edition; Digital Resources:** The symbol > indicates a click to reach each digital asset on the Realize platform.

<p>A variety of assessment formats are found in every chapter and lesson. Representative Citations:</p> <p><b>SE/TE:</b>          Big Idea Q, 124          Chapter 5 Pretest, 124          Inquiry Try It!: What Causes Weathering?: Think About It, 125          5.1 Weathering: Key Questions, 126          Reading Checkpoint, 129          Inquiry Exploration Lab: Effect of Temperature on Chemical Weathering: Analyze and Conclude, 151          Chapter 5 Assessment, 153–154          Review Content, 153          Understand Concepts, 153          Think Critically, 154          Analyze Data, 154          Concepts in Action, 154          Performance-Based Assessment, 154          Chapter 5 Standardized Test Prep, 155</p> <p><b>TE Only:</b>          Chapter 5 Pretest, 124</p> <p><b>Realize™ Digital Resources:</b>          Chapter Tests&gt;Chapter 2          Spanish Chapter Tests&gt;Chapter 2</p>	<p>31. a variety of assessment formats, including performance tasks as well as multimedia simulations, portfolio evaluations, and data-dependent and open-ended questions.</p>	<p>X</p>						
<p>Assessments, questions, activities assist students in mastering earth science concepts. Representative Citations:</p> <p><b>SE/TE:</b>          5.1 Weathering: Key Questions, 126          Chapter 5 Assessment, 153–154          Chapter 5 Standardized Test Prep, 155</p> <p><b>TE Only:</b>          Chapter 5 Pretest, 124</p>	<p>32. rubrics wherein all learners demonstrate progress toward mastery.</p>	<p>X</p>						

**SE = Student Edition; TE = Teacher Edition; Digital Resources:** The symbol > indicates a click to reach each digital asset on the Realize platform.

**Organization, Presentation and Format***The instructional resources:*

The sequence demonstrated by the SE table of contents begins at a logical point—an introduction to Earth Science—and progresses through the materials and interactions of the planet followed by the characteristics and interactions of the atmosphere and study of the solar system and universe. Representative Citations:

**SE/TE:**

Contents, v–ix

A logical instructional sequence exists in the Teacher Edition, typified by the following representative citations:

**TE Only:**

2 Minerals Planning Guide, 32A–32B

Chapter 2 Access Prior Knowledge, 32

Engage/Explore, 33

1 Focus, 34

2 Instruct, 34–42

3 Assess, 43

33. are organized in logical sequence to optimize instructional effectiveness and efficiency.

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**SE = Student Edition; TE = Teacher Edition; Digital Resources:** The symbol > indicates a click to reach each digital asset on the Realize platform.

<p>Representative Citations:  <b>SE/TE:</b>  Oceanography, 3  Meteorology, 3  Astronomy, 3  Biosphere, 9  Nonmetallic Mineral Resources, 100  Fossils and Evolution, 345  Eras, 355  Periods and Epochs, 355  Marine Life Zones, 430</p> <p><b>TE Only:</b>  Integrate Physics, 81  Integrate Chemistry, 178  Integrate Physics, 228  Integrate Physics, 308  Integrate Biology, 377  Integrate Biology, 383  Integrate Astronomy, 384  Integrate Biology, 594  Integrate Physics, 677  Integrate Chemistry, 711</p>	<p>34. connect common themes across multiple science disciplines.</p>	<p>X</p>					
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**SE = Student Edition; TE = Teacher Edition; Digital Resources:** The symbol > indicates a click to reach each digital asset on the Realize platform.

<p>Representative Citations:  <b>SE/TE:</b>  Writing in Science: Explain, 116  Math Practice: Calculate, 221  Writing in Science: Describe, 341  Math Practice: Calculate, 509  Concepts in Action: Writing in Science, 528  Math Practice: Interpret Maps, 542  Skills Handbook: Math Skills, 740–744</p> <p><b>TE Only:</b>  Build Reading Literacy, 1D  Integrate Social Studies, 142  Integrate Language Arts, 206  Integrate Math, 226  Build Reading Literacy, 296  Integrate Language Arts, 354  Integrate Social Studies, 574  Integrate Language Arts, 622  Integrate Social Studies, 627  Integrate Language Arts, 700</p>	<p>35. integrate cross-curricular connections.</p>	<p>X</p>					
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<p>Representative Citations:  <b>TE Only:</b>  Earth Science Refresher: Uniformitarianism vs. Catastrophism, 1C  Teaching Tips, 57  Address Misconceptions, 92C  Address Misconceptions, 93  Teacher Demo: Recognizing Ore Minerals, 99  Earth Science Refresher: Deep-Earth Water Cycle, 156C  Earth Science Refresher: Why do we have plate tectonics?, 246C  Address Misconceptions, 306C  Address Misconceptions, 315  Earth Science Refresher: Guyots, Paraboloids, and Sea Level, 392C  Teaching Tips, 454  Earth Science Refresher: Water in the Atmosphere, 474C  Address Misconceptions, 530C  Teacher Demo: Air Pressure, 533  Address Misconceptions, 538  Earth Science Refresher: The History of Climate, 586C  Earth Science Refresher: Chace and the Sun's Chromosphere, 672C  Teaching Tips, 692  Teacher Demo: "Stretching" Light Waves, 719</p>	<p>36. provide educators necessary science content knowledge, pedagogy, and management techniques to guide learning experiences.</p>	<p>X</p>					
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# SPECIFIC EVALUATION CRITERIA

**2022-2028**  
**Group IV – Science**  
**CCR Earth and Space Science**

## Earth and Space Science

All West Virginia teachers are responsible for classroom instruction that integrates content standards, foundational skills, literacy, learning skills, computer science and technology tools. Students in grades 9 - 12 will advance through a developmentally appropriate progression of standards. The following chart represents the College- and Career-Readiness Indicators for Science that will be developed in grades 9 – 12.

College- and Career-Readiness Indicators for Science	
Grades 9 - 12	
Nature of Science	
<ul style="list-style-type: none"> <li>• Scientific knowledge is simultaneously reliable and subject to change based on empirical evidence and interpretation.</li> <li>• Scientific knowledge is obtained through a combination of observations of the natural world and inferences based on those observations.</li> <li>• Science is a creative human endeavor which is influenced by social and cultural biases.</li> <li>• A primary goal of science is the formation of theories and laws. Theories are inferred explanations of some aspect of the natural world based on successfully tested information from evidence and evaluated phenomena. Laws describe relationships among what has been observed in the natural world.</li> <li>• Scientific investigations use a variety of methods to address questions about the natural and material world.</li> </ul>	
Practices of Scientists and Engineers	Science Connecting Concepts
<ul style="list-style-type: none"> <li>• Asking questions and defining problems</li> <li>• Developing and using models</li> <li>• Planning and carrying out investigations</li> <li>• Analyzing and interpreting data</li> <li>• Using mathematical and computational thinking</li> <li>• Constructing explanations and designing solutions</li> <li>• Engaging in argument from evidence</li> <li>• Obtaining, evaluating, and communicating information</li> </ul>	<ul style="list-style-type: none"> <li>• Observing patterns</li> <li>• Investigating and explaining cause and effect</li> <li>• Recognizing scale, proportion, and quantity</li> <li>• Defining systems and system models</li> <li>• Tracking energy and matter flows, into, out of, and within systems to understand system behavior</li> <li>• Determining the relationships between structure and function</li> <li>• Studying stability and change</li> </ul>

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Science Literacy	Science Lab Safety
<ul style="list-style-type: none"> <li>• Producing clear and coherent technical writing in which the development, organization and style are appropriate for the science topic</li> <li>• Correctly utilizing and explaining visually expressed information (e.g., flowchart, diagram, model, graph, table, or digital mapping technology) in a science narrative.</li> <li>• Appropriately using technical terminology or scientific concepts and processes to create visually expressed information</li> <li>• Reading with understanding articles about science in the popular press and engaging in</li> </ul>	<ul style="list-style-type: none"> <li>• Requiring student lab safety training and demonstrating appropriate proficiency before participating in lab activities</li> <li>• Archiving signed student safety contracts documenting lab safety training and medical contraindications (e.g., allergies, contact lenses, medical conditions)</li> <li>• Wearing proper protective gear as needed (e.g., goggles, apron, and gloves)</li> <li>• Requiring grade appropriate lab equipment operation and safety training</li> <li>• Using and following SDS protocols</li> </ul>

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The specific evaluation criteria apply to each grade level and are to be evaluated for each grade level unless otherwise specified. These criteria consist of information critical to the development of all grade levels. **In specific course criteria with bullet points, each of those items must be addressed.** Eighty percent of the general and eighty percent of the specific criteria must be met with I (In-depth) or A (Adequate) in order to be recommended.

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCT	(IRR Committee) Responses									
	I=In-depth	A=Adequate	M=Minimal	N=Nonexistent	I	A	M	N		
	In addition to alignment of West Virginia College- and Career-Readiness Standards (WVCCRS) for Science, instructional resources must also include opportunities for students to develop:									
College- and Career-Readiness Standards										
Earth and Space Science										
Space Systems										
<b>SE/TE:</b> Figure 12 Structure of the Sun, 685 Nuclear Fusion, 689 Earth & Space, Solar Variability and Climate Change, 691 Standardized Test Prep (Questions 3–6), 697 Stellar Evolution, 707–709 Figure 10, 709 Active Art, Lives of Stars, 709 Figure 11, Stellar Evolution, 710 Burnout and Death, 710–712	1. Develop a model based on evidence to illustrate the life span of the sun and the role of nuclear fusion in the sun’s core to release energy that eventually reaches Earth in the form of radiation in relation to: <ul style="list-style-type: none"> <li>• atomic structure</li> <li>• periodic table</li> <li>• energy transfer</li> <li>• fusion vs fission</li> <li>• structure of the sun</li> <li>• sunspots and other solar phenomenon (space weather).</li> </ul>				X					

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<p>Continued:  <b>TE ONLY:</b>          Build Science Skills: Use Analogies, 707          Facts and Figures, 709          Facts and Figures, 710          Build Science Skills: Use Analogies, 712 Reteach,          714          25.5 Assessment: Questions 5–7, 714</p> <p><b>Realize™ Digital Resources:</b>          &gt;Lab Manual&gt;Chapter 22: Origin of Modern          Astronomy&gt;Investigation 22: Measuring the Angle          of the Sun at Noon          &gt;Lab Manual&gt;Chapter 24: Studying the          Sun&gt;Investigation 24: Measuring the Diameter of          the Sun          &gt;Reading and Study Workbook&gt;Chapter 24:          Studying the Sun&gt;Section 24.3: The Sun          &gt;Reading and Study Workbook&gt;Chapter 25:          Beyond Our Solar System&gt;Section 25.1:          Properties of Stars          &gt;Reading and Study Workbook&gt;Chapter 25:          Beyond Our Solar System&gt;Section 25.2: Stellar          Evolution</p>							
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<p><b>SE/TE:</b>  Earth's Place in the Universe, 6  Expanding Universe, 718–719  The Big Bang, 720–721  Standardized Test Prep, 727</p> <p><b>TE Only:</b>  The Birth of the Universe, 698C–698D  Address Misconception, 720</p> <p><b>Realize™ Digital Resources:</b>  &gt;Lab Manual&gt;Chapter 23: Touring Our Solar System&gt;Investigation 23: Exploring Orbits  &gt;Reading and Study Workbook &gt;Chapter 1: Introduction to Earth Science&gt;Section 1.1: What is Earth Science?  &gt;Reading and Study Workbook&gt;Chapter 25: Beyond Our Solar System&gt;Section 25.2: Stellar Evolution  &gt;Reading and Study Workbook&gt;Chapter 25: Beyond Our Solar System&gt;Section 25.3: The Universe</p>	<p>2. Construct an explanation of the Big Bang theory based on astronomical evidence of light spectra, motion of distant galaxies, and composition of matter in the universe.</p> <ul style="list-style-type: none"> <li>• expansion of the universe</li> <li>• frequency &amp; wavelength</li> <li>• origin theories of the universe</li> <li>• blue shift/ red shift</li> <li>• Hubble constant</li> <li>• dark matter/dark energy</li> <li>• cosmic background radiation</li> <li>• EM spectrum</li> <li>• properties of light.</li> </ul>	<p><b>X</b></p>					
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<p><b>SE/TE:</b>  Figure 4 Materials That Formed the Planets, 648  Hertzsprung-Russel Diagram, 704–706  Main Sequence Stage, 708  Red Giant Stage, 709  Death of Massive Stars, 711  Nucleosynthesis, 712  Stellar Remnants, 712–714  Analyze Data, 726</p> <p><b>Realize™ Digital Resources:</b>  &gt;Reading and Study Workbook&gt;Chapter 23:  Touring Our Solar System&gt;Section 23.1: The Solar System  &gt;Reading and Study Workbook&gt;Chapter 25:  Beyond Our Solar System&gt;Section 25.1:  Properties of Stars  &gt;Reading and Study Workbook&gt;Chapter 25:  Beyond Our Solar System&gt;Section 25.2: Stellar Evolution  &gt;Reading and Study Workbook&gt;Chapter 25:  Beyond Our Solar System&gt;Section 25.3: The Universe</p>	<p>3. Use at least two different formats (e.g., oral, graphical, textual, mathematical) to communicate scientific ideas about the way stars, over their life cycle, produce elements.</p> <ul style="list-style-type: none"> <li>• HR diagram</li> <li>• life cycle of stars</li> <li>• atomic theory</li> <li>• periodic table</li> <li>• fusion vs fission</li> <li>• nucleosynthesis.</li> </ul>	<p><b>X</b></p>					
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<p><b>SE/TE:</b>  Earth-Sun Relationships, 481–482  Ancient Greeks, 615–616  Figure 4, Retrograde Motion, 617  Birth of Modern Astronomy, 617–621  Johannes Kepler, 618  Table 1, Period of Revolution and Solar Distances of Planets, 618  The Solar System Model Evolves, 619  Sir Isaac Newton &amp; Universal Gravitation, 620  22.1 Assessment, 621  Motions of Earth, 622–627  Figure 13: Sidereal Day, 623  Inquiry: Modeling Synodic and Sidereal Months, 636–637</p> <p><b>TE Only:</b>  Common Themes, 612C  Visualizing Planetary Orbits, 618</p> <p><b>Realize™ Digital Resources:</b>  &gt;Lab Manual&gt;Chapter 23: Touring Our Solar System&gt;Investigation 23: Exploring Orbits  &gt;Reading and Study Workbook&gt;Chapter 17: Earth's Atmosphere&gt; Section 17.1: Atmosphere Characteristics  &gt;Reading and Study Workbook&gt;Chapter 22: Origin of Modern Astronomy&gt;Section 22.1: Early Astronomy  &gt;Reading and Study Workbook&gt;Chapter 22: Origin of Modern Astronomy&gt;Section 22.2: The Earth-Moon-Sun System</p>	<p>4. Use mathematical or computational representations (modeling) to predict the motion of orbiting objects in the solar system.</p> <ul style="list-style-type: none"> <li>• introduce velocity and acceleration</li> <li>• modeling Kepler's Laws</li> <li>• Newtonian Gravity.</li> </ul>	<p><b>X</b></p>						
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History of Earth						
<p><b>SE/TE:</b>            Continental Drift, 248–253            Sea Floor Spreading, 254–260            Earth’s Moving Plates, 261–263            Divergent Boundaries, 264            Convergent Boundaries, 265–267            Transform Fault Boundaries, 268            What Causes Plate Motions?, 270–271            Paleomagnetism and the Ocean Floor, 272–273            Visual Summary, Figure 5, 282–283            Convergent Boundary Mountains, 320–322            Inquiry Lab: Rates of Mountain Building, 323 11.3            Assessment, 325            Earth &amp; Its Systems, 326–327            Mid-Ocean Ridges, 405            Stem Activity: Plate Tectonics, 730</p> <p><b>TE ONLY:</b>            Integrate History, 256            Teacher Demo, Observing Plate Movement, 284</p> <p><b>Realize™ Digital Resources:</b>            &gt;Lab Manual&gt;Chapter 9: Plate            Tectonics&gt;Investigation 9: Modeling a Plate            Boundary            &gt;Reading and Study Workbook&gt;Chapter 9: Plate            Tectonics&gt;Section 9.1: Continental Drift            &gt;Reading and Study Workbook&gt;Chapter 9: Plate            Tectonics&gt;Section 9.2: Sea-Floor Spreading            &gt;Reading and Study Workbook&gt;Chapter 9: Plate            Tectonics&gt;Section 9.3: Theory of Plate Tectonics            &gt;Reading and Study Workbook&gt;Chapter 9: Plate            Tectonics&gt;Section 9.4: Mechanisms of Plate            Motions</p>	<p>5. Evaluate evidence of the past and current movements of continental and oceanic crust and the theory of plate tectonics to explain the ages of crustal rocks.</p> <ul style="list-style-type: none"> <li>• Hypothesis of Continental Drift</li> <li>• fossil evidence</li> <li>• seafloor spreading</li> <li>• slab-push/plate pull</li> <li>• subduction</li> <li>• magnetic field reversal</li> <li>• oceanic vs continental crust.</li> </ul>	<p><b>X</b></p>				

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<p><b>SE/TE:</b>  Formation of Earth, 4–5  Discovering Earth’s Composition  Uniformitarianism, 336  Relative Dating, 337–340  Correlation, 340–341  12.1 Assessment, 341  The Fossil Record, 344–345  Dating with Radioactivity, 347–351  Inquiry Try It! What are Fossils? 363  Inquiry Exploration Lab: Modeling the Geologic Time Scale, 386–387  The Lunar Surface, 631  Lunar History, 633–634  The Planets: An Overview, 645–646  Formation of the Solar System, 647–648</p> <p><b>TE ONLY:</b>  Use Visuals: Figure 14, 348  Build Science Skills: Apply Concepts, 348  Relate Cause and Effect, 350  Before You Teach Earth’s History, 362C–362D</p> <p><b>Realize™ Digital Resources:</b>  &gt;Reading and Study Workbook&gt;Chapter 12:  Geologic Time&gt;Section 12.1: Discovering Earth’s History  &gt;Reading and Study Workbook&gt;Chapter 12:  Geologic Time&gt;Section 12.2: Fossils: Evidence of Past Life  &gt;Reading and Study Workbook&gt;Chapter 12:  Geologic Time&gt;Section 12.3: Dating With Radioactivity  &gt;Reading and Study Workbook&gt;Chapter 12:  Geologic Time&gt;Section 12.4: The Geologic Time Scale</p>	<p>6. Apply scientific reasoning and evidence from ancient Earth materials, meteorites, and other planetary surfaces to construct an account of Earth’s formation and early history.</p> <ul style="list-style-type: none"> <li>• xenoliths</li> <li>• radiometric dating</li> <li>• relative dating</li> <li>• cratering</li> <li>• moon origin theories.</li> </ul>	<p><b>X</b></p>					
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<p><b>SE/TE:</b>  Earth's Major Spheres, 7–9  Earth's Changing Surface, 9–10  The Rock Cycle, 67–69  Formation of Sedimentary Rocks, 76  Formation of Mineral Deposits, 98–100  Landscapes Shaped by Wind, 203–205  Layers Defined by Composition, 233–234  Layers Defined by Physical Properties, 234–235  Evidence for Continental Drift, 249–250  Figure 10 Sea-Floor Spreading and Subduction, 257  Earth's Moving Plates, 261–263  Divergent Boundaries, 264  Convergent Boundaries, 265–267  Transform Fault Boundaries, 268  Earth &amp; Its Systems: Plate Tectonics into the Future, 269  Plate Motion Mechanisms, 271  Inquiry: Exploration Lab? Paleomagnetism and the Ocean Floor, 272–273  Volcanoes and Plate Tectonics, 280–285  Other Volcanic Landforms, 292–293  Intrusive Igneous Activity, 295–297  Principle of Isostasy, 310–311  Uniformitarianism, 336  Relative Dating, 337–341  Precambrian Time, 364–366  Ocean Floor Features, 401–404  Mid-Ocean Ridges, 405–406  Explaining Coral Atolls—Darwin's Hypothesis, 406</p> <p><b>TE ONLY:</b>  Earth Science Refresher, 306C</p> <p><b>Realize™ Digital Resources:</b>  &gt;Lab Manual&gt;Chapter 8: Earthquakes and Earth's Interior&gt;Investigation 8A: Modeling Liquefaction</p>	<p>7. Develop a model to illustrate how Earth's internal and surface processes operate at different spatial and temporal scales to form continental and ocean-floor features through a process of constructive and destructive forces.</p> <ul style="list-style-type: none"> <li>• constructive forces <ul style="list-style-type: none"> <li>○ volcanic activity</li> <li>○ tectonic forces</li> <li>○ mineral formation</li> <li>○ rock formation</li> </ul> </li> <li>• destructive forces <ul style="list-style-type: none"> <li>○ subduction</li> <li>○ convection</li> <li>○ coastal erosion</li> <li>○ weathering</li> </ul> </li> <li>• mass wasting.</li> </ul>	<p><b>X</b></p>					
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<p>(Continued) &gt;Lab Manual&gt;Chapter 9: Plate Tectonics&gt;Investigation 9: Modeling a Plate Boundary</p>								
<p><b>SE/TE:</b> What is a System, 18 Earth as a System, 19–20 People and the Environment, 20–21 Mechanical Weathering, 126–128 Soil Erosion, 140–142 Triggers of Mass Movements, 144–145 Types of Mass Movements, 145–147 Wells 173–174 Figure 17 &amp; Figure 18, 174–175 Folds, 312–313 Continental Accretion, 324–325 Inquiry Quick Lab: Rates of Mountain Building, 323 Earth &amp; Its Systems: Mountain Building Away from Plate Margins, 326–327 Factors That Affect Climate, 588–591 Natural Processes that Change Climate, 600–601 Human Impact on Climate, 602–603 Earth &amp; Space, 691</p> <p><b>Realize™ Digital Resources:</b> &gt;Lab Manual&gt;Chapter 7: Glaciers, Deserts, and Wind&gt;Investigation 7: Continental Glaciers Change Earth's Topography &gt;Reading and Study Workbook &gt;Chapter 1: Introduction to Earth Science&gt;Section 1.4: Earth System Science &gt;Reading and Study Workbook &gt;Chapter 5: Weathering, Soil, and Mass Movements&gt;Section 5.1: Weathering &gt;Reading and Study Workbook &gt;Chapter 5: Weathering, Soil, and Mass Movements&gt;Section 5.2: Soil &gt;Reading and Study Workbook &gt;Chapter 5: Weathering, Soil, and Mass Movements&gt;Section 5.3: Mass Movements</p>	<p>8. Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems.</p> <ul style="list-style-type: none"> <li>• map and GIS data interpretation</li> <li>• examples could include: <ul style="list-style-type: none"> <li>○ coastal erosion</li> <li>○ greenhouse gasses</li> <li>○ global temperatures</li> <li>○ rising ocean levels</li> <li>○ loss of wetlands</li> <li>○ acid rain</li> <li>○ injection wells/earthquakes.</li> <li>○ loss of ground vegetation/erosion.</li> </ul> </li> </ul>	<p><b>X</b></p>						

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<p><b>SE/TE:</b>  The Rock Cycle, 67–68  Visual Summary, 68  Seismic Waves, 222–223  The Process of Sea-Floor Spreading, 256–257  Figure 10: Sea-Floor Spreading and Subduction, 257  What Causes Plate Motions? 270  Plate Motion Mechanisms, 271  Figure 2.3, Whole Mantle Convection, 271</p> <p><b>TE Only:</b>  Teacher Demo: Seismic Waves, 223  Build Science Skills, Use models, 270</p> <p><b>Realize™ Digital Resources:</b>  &gt;Lab Manual&gt;Chapter 8: Earthquakes and Earth’s Interior&gt;Investigation 8A: Modeling Liquefaction  &gt;Reading and Study Workbook &gt;Chapter 3: Rocks&gt;Section 3.1: The Rock Cycle  &gt;Reading and Study Workbook&gt;Chapter 9: Plate Tectonics&gt;Section 9.2: Sea-Floor Spreading  &gt;Reading and Study Workbook&gt;Chapter 9: Plate Tectonics&gt;Section 9.4: Mechanisms of Plate Motions</p>	<p>9. Develop a model based on seismic and magnetic evidence of Earth’s interior to describe the cycling of matter by thermal convection and the resulting plate tectonics.</p> <ul style="list-style-type: none"> <li>• layers of the Earth</li> <li>• density</li> <li>• heat transfer</li> <li>• temperature gradients</li> <li>• radioactive decay</li> <li>• differentiation</li> <li>• Earth’s formation</li> <li>• chemical composition</li> <li>• seismic waves.</li> </ul>	<p><b>X</b></p>					
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<p><b>SE/TE:</b>          Inquiry Try It!, 125          Mechanical Weathering, 126–132          Inquiry Exploration Lab: Effect of Temperature on Chemical Weathering, 150</p> <p><b>TE Only:</b>          Build Science Skills, 195</p> <p><b>Realize™ Digital Resources:</b>          &gt;Lab Manual&gt;Chapter 5: Weathering, Soil, and Mass Movements&gt;Investigation 5: Some Factors That Affect Soil Erosion          &gt;Lab Manual&gt;Chapter 6: Running Water and Groundwater&gt;Investigation 6A: Rivers Shape the Land          &gt;Reading and Study Workbook&gt;Chapter 8: Earthquakes and Earth’s Interior&gt;Section 8.2: Measuring Earthquakes          &gt;Reading and Study Workbook&gt;Chapter 8: Earthquakes and Earth’s Interior&gt;Section 8.3: Earthquake Hazards          &gt;Reading and Study Workbook&gt;Chapter 8: Earthquakes and Earth’s Interior&gt;Section 8.4: Earth’s Layered Structure</p>	<p>10. Plan and conduct investigations of the properties of water and its effects on Earth materials and surface processes.</p> <ul style="list-style-type: none"> <li>• water cycle</li> <li>• mechanical &amp; chemical weathering</li> <li>• chemical reactions</li> <li>• solutions</li> <li>• pH scale.</li> </ul>	<p><b>X</b></p>					
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<p><b>SE/TE:</b>  Earth &amp; Its Systems, The Carbon Cycle, 85  Earth's Blanket of Air, 110  Biogenous Sediment, 408–409  Composition of the Atmosphere, 477–478  Human Impact on Climate, 602–603</p> <p><b>TE Only:</b>  Earth Science Refresher, 186C</p> <p><b>Realize™ Digital Resources:</b>  &gt;Lab Manual&gt;Chapter 17: Earth's Atmosphere&gt;  Investigation 17B: Investigating Factors That  Control Temperature  &gt;Lab Manual&gt;Chapter 21: Climate&gt;Investigation  21: Modeling the Greenhouse Effect  &gt;Reading and Study Workbook &gt;Chapter 3:  Rocks&gt;Section 3.4: Metamorphic Rocks  &gt;Reading and Study Workbook &gt;Chapter 4:  Earth's Resources&gt;Section 4.4: Protecting  Resources  &gt;Reading and Study Workbook&gt;Chapter 14: The  Ocean Floor&gt;Section 14.3: Seafloor Sediments  &gt;Reading and Study Workbook&gt;Chapter 17:  Earth's Atmosphere&gt; Section 17.1: Atmosphere  Characteristics  &gt;Reading and Study Workbook&gt;Chapter 21:  Climate&gt;Section 21.3: Climate Changes</p>	<p>11. Develop a quantitative model to describe the cycling of carbon among the hydrosphere, atmosphere, geosphere, and biosphere.</p> <ul style="list-style-type: none"> <li>• biogeochemical cycles</li> <li>• carbon cycle</li> <li>• carbon reservoirs</li> <li>• carbon budget.</li> </ul>	<p><b>X</b></p>					
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<p><b>SE/TE:</b>          People and the Environment, 20–21          Soil Formation, 135–137          Discovering Earth’s History, 336–341          Types of Fossils, 342–343          The Fossil Record, 344–346          Inquiry-Fossil Occurrence and the Age of Rocks, 356–357          How Earth Works, 438–439          World Soils, 755–757</p> <p><b>Realize™ Digital Resources:</b>          &gt;Lab Manual&gt;Chapter 13: Earth’s History&gt;Investigation 13: Determining Geologic Ages          &gt;Lab Manual&gt;Chapter 19: Air Pressure and Wind&gt;Investigation 19: Analyzing Pressure Systems          &gt;Lab Manual&gt;Chapter 20: Weather Patterns and Severe Storms&gt;Investigation 20A: Analyzing Severe Weather Data          &gt;Reading and Study Workbook &gt;Chapter 5: Weathering, Soil, and Mass Movements&gt;Section 5.2: Soil          &gt;Reading and Study Workbook&gt;Chapter 12: Geologic Time&gt;Section 12.1: Discovering Earth’s History          &gt;Reading and Study Workbook&gt;Chapter 12: Geologic Time&gt;Section 12.2: Fossils: Evidence of Past Life          &gt;Reading and Study Workbook&gt;Chapter 12: Geologic Time&gt;Section 12.3: Dating With Radioactivity          &gt;Reading and Study Workbook&gt;Chapter 12: Geologic Time&gt;Section 12.4: The Geologic Time Scale</p>	<p>12. Construct an argument based on evidence about the simultaneous coevolution of Earth systems and life on Earth.</p> <ul style="list-style-type: none"> <li>• Earth’s history</li> <li>• evolution of earth’s atmosphere</li> <li>• soil development</li> <li>• requirements for life and how they change with changing earth conditions</li> </ul>	<p><b>X</b></p>					
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Weather and Climate					
<p><b>SE/TE:</b>  Ancient Climates, 250–251  Quaternary Period, 384–385  Ocean Currents and Climate, 450  Energy Transfer as Heat, 483–485  Figure 9: Energy Transfer as Heat, 483  What Happens to Solar Radiation? 486–487  How Earth Works: Earth’s Atmosphere, 494–495  Inquiry Exploration Lab: Heating Land and Water, 496–497  Water’s Changes of State, 504–506  Factors Affecting Wind, 534–536  El Nino and La Nina, 546–547  Powered By The Sun, 588  Inquiry Lab: Quick Lab: Observing How Land and Water Absorb and Release Energy, 590  Climate Changes, 600–603  Solar Variability and Climate Change, 691</p> <p><b>Realize™ Digital Resources:</b>  &gt;Reading and Study Workbook&gt;Chapter 9: Plate Tectonics&gt;Section 9.1: Continental Drift  &gt;Reading and Study Workbook&gt;Chapter 13: Earth’s History&gt;Section 13.3: Mesozoic Era: Age of Reptiles  &gt;Reading and Study Workbook&gt;Chapter 17: Earth’s Atmosphere&gt; Section 17.2: Heating the Atmosphere  &gt;Reading and Study Workbook&gt;Chapter 17: Earth’s Atmosphere&gt; Section 17.3: Temperature Controls  &gt;Reading and Study Workbook&gt;Chapter 18: Moisture, Clouds, and Precipitation&gt;Section 18.1: Water in the Atmosphere  &gt;Reading and Study Workbook&gt;Chapter 19: Air Pressure and Wind&gt;Section 19.2: Pressure Center and Winds</p>	<p>13. Use a model to describe how variations in the flow of energy into and out of Earth systems result in changes in climate.</p> <ul style="list-style-type: none"> <li>• changes in climate</li> <li>• orbital changes, precession, and Milankovitch cycles</li> <li>• volcanic impacts</li> <li>• ocean circulation impacts on atmosphere</li> <li>• glaciation</li> <li>• atmospheric composition.</li> </ul>	<p><b>X</b></p>			

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<p><b>SE/TE:</b>  Temperature Controls, 488–492  Inquiry Exploration Lab, 550  Circulation in the Atmosphere, 591  Natural Processes That Change Climate, 600–601  Human Impact on Climate, 602–603  Inquiry-Human Impact of Climate and Weather, 606–607</p> <p><b>TE Only:</b>  Integrate Biology, 197  Common Themes &amp; The History of Climate, 586C</p> <p><b>Realize™ Digital Resources:</b>  &gt;Lab Manual&gt;Chapter 21: Climate&gt;Investigation 21: Modeling the Greenhouse Effect  &gt;Reading and Study Workbook&gt;Chapter 17: Earth’s Atmosphere&gt; Section 17.3: Temperature Controls  &gt;Reading and Study Workbook&gt;Chapter 19: Air Pressure and Wind&gt;Section 19.3: Regional Wind Systems  &gt;Reading and Study Workbook&gt;Chapter 21: Climate&gt;Section 21.3: Climate Changes</p>	<p>14. Analyze geoscience data and the results from the global climate models to make an evidence-based forecast of the current rate of global or regional climate change and associated future impacts to Earth systems.</p> <ul style="list-style-type: none"> <li>• local barometric pressure</li> <li>• precipitation</li> <li>• relative humidity</li> <li>• clouds</li> <li>• air temperature</li> <li>• surface temperature</li> <li>• rising sea level.</li> </ul>	<p><b>X</b></p>					
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Human Sustainability							
<p><b>SE/TE:</b>  Environmental Problems, 21–22  Freshwater Pollution, 108–109  Land Resources, 111–112  Protecting Resources, 113–116 Assessment 4.4, 117  Earth and Its Resources, 117  Environmental Problems Associated With Groundwater, 174–176  Earthquake Hazards, 228–232 Tsunamis, 230  Assessment 8.3, 232  Tornado Warnings, 574  How Earth Works, 578–579 Critical Thinking, 584  Concepts in Action, 584</p> <p><b>TE ONLY:</b>  Integrate Biology, 197  Integrate Biology, 317  Integrate Social Studies, 574  The History of Climate, 586C–586D</p> <p><b>Realize™ Digital Resources:</b>  &gt;Lab Manual&gt;Chapter 4: Earth's Resources&gt;Investigation 4B: Desalinization by Distillation  &gt;Lab Manual&gt;Chapter 21: Climate&gt;Investigation 21: Modeling the Greenhouse Effect  &gt;Reading and Study Workbook&gt;Chapter 17: Earth's Atmosphere&gt; Section 17.3: Temperature Controls  &gt;Reading and Study Workbook&gt;Chapter 19: Air Pressure and Wind&gt;Section 19.3: Regional Wind Systems  &gt;Reading and Study Workbook&gt;Chapter 21: Climate&gt;Section 21.3: Climate Changes</p>	<p>15. Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity. Examples include:</p> <ul style="list-style-type: none"> <li>• access to fresh water-surface and groundwater</li> <li>• fertile soils-river deltas</li> <li>• fossil fuels and mining</li> <li>• natural disasters</li> <li>• severe weather</li> <li>• rising sea level</li> <li>• mass migrations.</li> </ul>	<b>X</b>					

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<p><b>SE/TE:</b>          Petroleum and Natural Gas, 96          Tar Sands and Oil Shale, 97          Protecting Resources, 113–116          Environmental Problems Associated with Groundwater, 174–176          Gas Hydrates, 411          Manganese Nodules, 413</p> <p><b>Realize™ Digital Resources:</b>          &gt;Lab Manual&gt;Chapter 4: Earth's Resources&gt;Investigation 4A: Recovering Oil          &gt;Reading and Study Workbook &gt;Chapter 4: Earth's Resources&gt;Section 4.1: Energy and Mineral Resources          &gt;Reading and Study Workbook &gt;Chapter 4: Earth's Resources&gt;Section 4.3: Water, Air, and Land Resources          &gt;Reading and Study Workbook&gt;Chapter 6: Running Water and Groundwater&gt;Section 6.3: Water Beneath the Surface          &gt;Reading and Study Workbook&gt;Chapter 14: The Ocean Floor&gt;Section 14.4: Resources From the Seafloor</p>	<p>16. Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios. *</p> <ul style="list-style-type: none"> <li>• conservation, reuse, recycling</li> <li>• soil conservation</li> <li>• mining and drilling</li> <li>• rare earth mineral mining for technology products.</li> </ul>	<p><b>X</b></p>					
<p>For supporting content only, please see:  <b>SE/TE:</b>          Protecting Resources, 113–116          Environmental Problems Associated with Groundwater, 174–176</p> <p><b>Realize™ Digital Resources:</b>          &gt;Lab Manual&gt;Chapter 4: Earth's Resources&gt;Investigation 4A: Recovering Oil          &gt;Lab Manual&gt;Chapter 5: Weathering, Soil, and Mass Movements&gt;Investigation 5: Some Factors That Affect Soil Erosion</p>	<p>17. Create a computational simulation to illustrate the relationships among management of natural resources, the sustainability of human populations, and biodiversity.</p> <ul style="list-style-type: none"> <li>• cost of resource extraction</li> <li>• waste management</li> <li>• consumption</li> <li>• new technology development.</li> </ul>		<p><b>X</b></p>				

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<p><b>Realize™ Digital Resources:</b>  &gt;Lab Manual&gt;Chapter 17: Earth's Atmosphere&gt;  Investigation 17B: Investigating Factors That Control Temperature  For supporting content, please see:  People and the Environment, 20–21  Freshwater Pollution, 108–109  Land Resources, 111–112  Keeping Water Clean and Safe, 114  Caring for Land Resources, 115–116  Earth and Its Resources, 117  Inquiry Exploration Lab: Finding Products That Best Conserve Resources, 118–119  Environmental Problems Associated With Groundwater, 174–176</p>	<p>18. Evaluate or refine a technological solution that reduces impacts of human activities on natural systems. *</p> <ul style="list-style-type: none"> <li>• data examples include: <ul style="list-style-type: none"> <li>○ point and nonpoint pollution</li> <li>○ changes in biodiversity</li> <li>○ land use via aerial or satellite imaging</li> </ul> </li> <li>• deducing impact examples include: <ul style="list-style-type: none"> <li>○ local efforts in recycling</li> <li>○ watershed or stream monitoring</li> <li>○ geoengineering design solutions.</li> </ul> </li> </ul>	<b>X</b>					
<p><b>SE/TE:</b>  Inquiry Exploration Lab, 210–211  How Earth Works, 494–495  Figure 3, Climate Data for Two Cities, 589  Figure 15, Changes in CO2 Levels, 602  Inquiry Exploration Lab, 606–607</p> <p><b>Realize™ Digital Resources:</b>  &gt;Lab Manual&gt;Chapter 17: Earth's Atmosphere&gt;  Investigation 17A: Determining How Temperature Changes with Altitude  &gt;Lab Manual&gt;Chapter 17: Earth's Atmosphere&gt;  Investigation 17B: Investigating Factors That Control Temperature  &gt;Reading and Study Workbook&gt;Chapter 7:  Glaciers, Deserts, and Wind&gt;Section 7.3:  Landscapes Shaped by Wind  &gt;Reading and Study Workbook&gt;Chapter 17:  Earth's Atmosphere&gt; Section 17.3: Temperature Controls  &gt;Reading and Study Workbook&gt;Chapter 21:  Climate&gt;Section 21.1: Factors That Affect Climate  &gt;Reading and Study Workbook&gt;Chapter 21:  Climate&gt;Section 21.3: Climate Changes</p>	<p>19. Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity. *</p> <ul style="list-style-type: none"> <li>• hydrosphere</li> <li>• atmosphere</li> <li>• cryosphere</li> <li>• geosphere</li> <li>• biosphere</li> <li>• connection between carbon dioxide concentrations and photosynthetic biomass</li> <li>• ocean acidification</li> <li>• increasing ocean temperatures.</li> </ul>						

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**Engineering, Technology, and Applications of Science: Engineering Design**

<p><b>SE/TE:</b>                  Inquiry Exploration Lab, 118–119                  Inquiry Try It!, 587                  Inquiry Exploration Lab, 606–607                  Stem Activity: The Bycatch Problem, 728</p> <p><b>TE Only:</b></p> <p><b>Realize™ Digital Resources:</b>                  &gt;Lab Manual&gt;Chapter 4: Earth's Resources&gt;Investigation 4B: Desalinization by Distillation                  &gt;Lab Manual&gt;Chapter 20: Weather Patterns and Severe Storms&gt;Investigation 20A: Analyzing Severe Weather Data                  &gt;Reading and Study Workbook &gt;Chapter 4: Earth's Resources&gt;Section 4.4: Protecting Resources                  &gt;Reading and Study Workbook&gt;Chapter 21: Climate&gt;Section 21.1: Factors That Affect Climate                  &gt;Reading and Study Workbook&gt;Chapter 21: Climate&gt;Section 21.3: Climate Changes</p>	<p>20. Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants. In reference to:</p> <ul style="list-style-type: none"> <li>• natural disasters</li> <li>• lack of water</li> <li>• resources</li> <li>• climate change.</li> </ul>	<p><b>X</b></p>					
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<p><b>SE/TE:</b>  Inquiry Exploration Lab, 118–119  Inquiry Try It!, 157  Inquiry Try It!, 217  Inquiry Exploration Lab, 606–607  Stem Activity: Design to Reduce Waste, 729</p> <p><b>TE ONLY:</b>  Address Misconceptions, 232</p> <p><b>Realize™ Digital Resources:</b>  &gt;Lab Manual&gt;Chapter 8: Earthquakes and Earth’s Interior&gt;Investigation 8A: Modeling Liquefaction  &gt;Lab Manual&gt;Chapter 8: Earthquakes and Earth’s Interior&gt;Investigation 8B: Design and Build a Simple Seismograph  &gt;Reading and Study Workbook &gt;Chapter 4: Earth’s Resources&gt;Section 4.4: Protecting Resources  &gt;Reading and Study Workbook&gt;Chapter 21: Climate&gt;Section 21.3: Climate Changes</p>	<p>21. Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering. In reference to:</p> <ul style="list-style-type: none"> <li>• tsunamis</li> <li>• earthquakes</li> <li>• volcanic eruptions</li> <li>• flooding</li> <li>• coastal erosion</li> <li>• water quality.</li> </ul>	<b>X</b>						
<p><b>SE/TE:</b>  Tar Sands and Oil Shale, 97–98 Alternative Energy Solutions, 102–107  Reading Checkpoint, 103 Assessment 4.2, 107  Stem Activity: The Bycatch Problem, 728  Stem Activity: Space Weather Readiness, 731</p> <p><b>Realize™ Digital Resources:</b>  &gt;Lab Manual&gt;Chapter 14: The Ocean Floor&gt;Investigation 14: Modeling the Ocean Floor  &gt;Lab Manual&gt;Chapter 16: The Dynamic Ocean&gt;Investigation 16: Shoreline Features  &gt;Reading and Study Workbook &gt;Chapter 4: Earth’s Resources&gt;Section 4.2: Alternate Energy Sources</p>	<p>22. Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts in reference to:</p> <ul style="list-style-type: none"> <li>• tsunamis</li> <li>• earthquakes</li> <li>• volcanic eruptions</li> <li>• flooding</li> <li>• coastal erosion</li> <li>• water quality.</li> </ul>	<b>X</b>						

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<p><b>SE/TE:</b> For supporting content, please see: The Inquiry Exploration Lab, 605–606</p> <p><b>Realize™ Digital Resources:</b> &gt;Reading and Study Workbook&gt;Chapter 21: Climate&gt;Section 21.3: Climate Changes</p>	<p>23. Use a computer simulation to model the impact of proposed solutions to a complex real-world problem with numerous criteria and constraints on interactions within and between systems relevant to the problem in reference to:</p> <ul style="list-style-type: none"> <li>• GIS</li> <li>• disaster simulations.</li> </ul>	<b>X</b>						
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