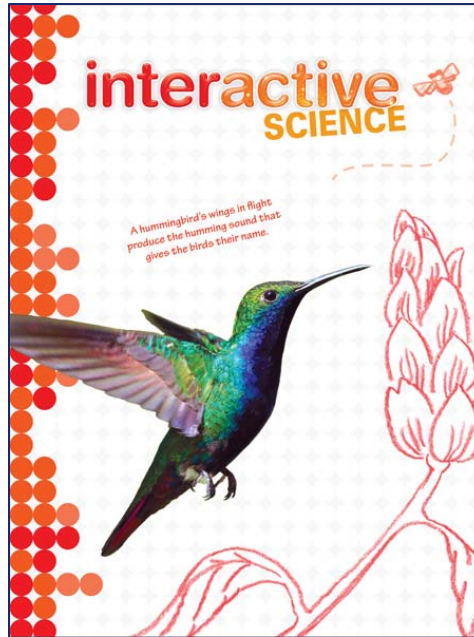


# A Correlation of Interactive Science

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to the

## West Virginia Criteria for Grade 4 Science

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<b>PUBLISHER:</b>	Pearson Education Inc., publishing as Scott Foresman		
<b>SUBJECT:</b>	Science	<b>SPECIFIC GRADE:</b>	4
<b>COURSE:</b>	Science – 6004 – Grade 4 Science	<b>TITLE</b>	Pearson Interactive Science
<b>COPYRIGHT:</b>	2016		
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### NON-NEGOTIABLE EVALUATION CRITERIA

2016-2022  
Group IV – Science  
Grade 4

Equity, Accessibility and Format				
Yes	No	N/A	CRITERIA	NOTES
			<p><b>1. INTER-ETHNIC</b> The <b>instructional</b> materials meets the requirements of inter-ethnic: concepts, content and illustrations, as set by WV Board of Education Policy (Adopted December 1970).</p>	<p>Photographs and illustrations throughout the <b>Pearson Interactive Science</b> student edition text show people of a variety of ages and ethnicities participating in everyday and science-related activities. The Untamed Science video feature (<a href="http://www.PearsonRealize.com">www.PearsonRealize.com</a>) follows a diverse group of young scientists around the globe in search of answers to the big questions of science. School-to-Home Letters communicating the material that will be studied in each chapter are available in English and Spanish. Sample references include:</p> <p><b>SE/TE:</b>  <b>Photographs:</b> 16-17, 33, 57, 60, 88, 95, 98, 151, 162, 207, 296-297, 312, 337, 360  <b>Illustrations:</b> 7, 12-13, 35, 68, 97, 160, 330, 375, 376</p> <p><b>TE Only:</b>  <b>School-to-Home Letter:</b> xxxvi-xxxvii, 1E-1F</p> <p><b>Online:</b>  <b>Untamed Science Videos:</b> “The Power of Pedaling”, “What Is an Ecosystem?”</p>

			<p><b>2. EQUAL OPPORTUNITY</b> The instructional material meets the requirements of equal opportunity: concepts, content, illustration, heritage, roles contributions, experiences and achievements of males and females in American and other cultures, as set by WV Board of Education Policy (Adopted May 1975).</p>	<p>Biography pages, Science Career pages, and content (including photographs) embedded throughout the <b>Pearson Interactive Science</b> text highlight the contributions of specific people of varying genders and cultures to science. Sample references include: <b>SE/TE:</b> 98, 162, 207, 212, 214, 315, 350, 359, 360</p>
			<p><b>3. FORMAT</b> This resource is available as an option for adoption in an interactive electronic format.</p>	<p><b>Pearson Interactive Science ©2016</b> focuses on an implementation of Problem-Based Learning, STEM, Performance Expectation Activities, and support for new standards while transitioning to a digital platform, Realize (<a href="http://www.PearsonRealize.com">www.PearsonRealize.com</a>). The Realize platform provides classrooms with engagement in the program’s digital assets, flexibility in terms of re-organizing chapters and uploading custom content, search functionality, and reporting of assessments. This transition will also help provide greater access on various devices.</p>
			<p><b>4. BIAS</b> The instructional material is free of political bias.</p>	<p>The <b>Interactive Science</b> program is free of political bias. Part 1 of the Skills Handbook, “The Nature of Science”, discusses the scientific method and how scientists draw conclusions from evidence.</p>
			<p><b>5. INQUIRY</b> This resource must include rigorous and developmentally appropriate active inquiry, investigations, and hands-on activities.</p>	<p>Inquiry activities are included for each section (Try It! and Explore It!) and chapter or unit (Investigate It!, Apply It!, and/or Design It!) of the <b>Interactive Science</b> program. Investigate It! activities include directed, guided, and open-inquiry options. Additionally, a STEM Activity in each chapter requires students to use mathematical thinking, design thinking, hands-on experimenting, and modeling to solve problems.</p>
			<p><b>6. 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.</p>	<p>Part 1, Lesson 2: “How do scientists use tools?” explicitly address safety rules for performing scientific investigations.</p>

## GENERAL EVALUATION CRITERIA

**2016-2022  
Group IV – Science  
Grade 4**

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 PRODUCTS	(IMR Committee) Responses				
	I=In-depth, A=Adequate, M=Minimal, N=Nonexistent	I	A	M	N
	<i>In addition to alignment of Content Standards and Objectives (CSOs), materials must also clearly connect to Learning for the 21<sup>st</sup> Century which includes opportunities for students to develop:</i>				
<b>Next Generation Skills:</b>					
<b>Thinking and Problem-Solving Skills</b> Science Content:					
<p>Many investigations and research activities in Interactive Science are designed to be undertaken in pairs, small groups, or as a class. For representative examples, see</p> <p><b>SE/TE:</b>  <b>STEM Activity:</b> 119, 349, 362  <b>Explore It!:</b> 62, 120, 194, 254, 266, 308, 314, 322, 356  <b>Investigate It!:</b> 34-35, 68-69, 96-97, 160-161, 212-213, 278-279, 330-331, 364-365  <b>Apply It!:</b> 106-109, 224-227, 290-293</p>	<p>1. provides opportunities for student collaboration.</p>				

<p><b>(continued)</b>  <b>TE Only:</b>  <b>21st Century Learning:</b> 13, 65, 123, 158, 203, 205, 242, 262, 268, 324, 352, 366  <b>Performance Expectation Activity:</b> 111a, 111b, 111c, 111d, 111e, 111f, 229a, 229c, 229d, 295a, 295b, 295c, 295d</p>	<p><b>(continued)</b>  1. provides opportunities for student collaboration.</p>					
<p><b>SE/TE:</b>  <b>STEM Activity:</b> 4-6, 50-52, 82-84, 116-118, 178-180, 234-236, 300-302, 346-348  <b>Design It!:</b> 374-379</p>	<p>2. requires students to investigate and discover multiple solutions through inquiry.</p>					
<p><b>TE Only:</b>  <b>21st Century Learning:</b> 27, 86, 196, 205, 306, 358, 366  <b>Performance Expectation Activity:</b> 111c, 111d, 229b, 229c, 229d, 295a, 295c, 295d</p>	<p>3. includes options for using technology tools to gather information, make informed decisions and justify solutions.</p>					
<p><b>SE/TE:</b>  <b>STEM Activity:</b> 4-7, 50-53, 82-85, 116-119, 178-181, 234-237, 300-303, 346-349  <b>Design It!:</b> 374-379  <b>TE Only:</b>  <b>21st Century Learning:</b> 32, 60, 71, 94, 99, 184, 215, 262, 271, 352  <b>Online:</b>  <b>Quest:</b> Make a Human Body Road Map</p>	<p>4. engages students in critical thinking and the synthesis of information to analyze real-world problems.</p>					

<p><b>SE/TE:</b>  <b>STEM Activity:</b> 4-7, 50-53, 82-85, 116-119, 178-181, 234-237, 300-303, 346-349</p> <p><b>TE Only:</b>  <b>Performance Expectation Activity:</b> 111b, 111c, 229a, 229b</p> <p><b>Online:</b>  <b>Quest:</b> Make a Human Body Road Map</p>	<p>5. offers activities to connect multiple scientific phenomena to real-world events.</p>						
<p><b>Information and Communication Skills</b>  <i>For student mastery of content standards and objectives, the instructional materials will include multiple strategies that provide students with opportunities to:</i></p>							
<p><b>TE Only:</b>  <b>21st Century Learning:</b> 86, 140, 196, 271, 358  <b>At-Home Lab:</b> 157  <b>ELA/Literacy:</b> 111c, 229b  <b>Science Notebook:</b> 306  <b>Differentiated Instruction:</b> 321</p>	<p>6. interact with secure external multimedia resources for local and global collaboration.</p>						
<p><b>TE Only:</b>  <b>21st Century Learning:</b> 13, 27, 32, 86, 94, 134, 182, 184, 196, 205, 242, 262, 271, 306, 358, 366, 352  <b>Performance Expectation Activity:</b> 111b, 111c, 111d, 111f, 229b, 229c, 229d, 295a, 295c, 295d</p>	<p>7. develop conceptual understanding and research skills.</p>						

<p><b>SE/TE:</b>  <b>Performance-Based Assessment:</b> 110-111, 228-229, 294-295, 380  <b>TE Only:</b>  <b>21st Century Learning:</b> 60, 123, 205, 242, 262, 268, 318, 324, 352, 366  <b>ELA/Literacy:</b> 111a, 111d  <b>Performance Expectation Activity:</b> 111e, 111f, 111g, 229a, 229b, 229c, 229d, 295a, 295b, 295c, 295d  <b>Online:</b>  <b>Quest:</b> Make a Human Body Road Map</p>	<p>8. articulate thoughts and ideas through oral, written, and multimedia communications.</p>						
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**Personal and Workplace Productivity Skills**  
*For students mastery of content standards and objectives, the instructional materials will provide students with opportunities to:*

<p><b>SE/TE:</b>  <b>STEM Activity:</b> 6, 53, 85, 119, 181, 237, 303, 349, 357, 362  <b>Investigate It!:</b> 34-35, 68-69, 96-97, 160-161, 212-213, 278-279, 330-331, 364-365  <b>TE Only:</b>  <b>21st Century Learning: Performance Expectation Activity:</b> 111a, 111b, 111c, 111d, 111e, 111f, 229a, 229c, 229d, 295a, 295b, 295c, 295d</p>	<p>9. use interpersonal skills to work cooperatively to accomplish a task.</p>						
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<p><b>SE/TE:</b>  <b>STEM Activity:</b> 4-6, 50-52, 82-84, 116-118, 178-180, 234-236, 300-302, 346-348  <b>Apply It!:</b> 106-109, 224-227, 290-293</p> <p><b>TE Only:</b>  <b>Investigate It!:</b> 35a, 35d, 69a, 69d, 97a, 97d, 161a, 161d, 213a, 213d, 279a, 279d, 331a, 331d, 365a, 365d</p>	<p>10. develop and initiate a plan of action to complete a task or project.</p>						
<p><b>SE/TE:</b>  <b>Investigate It!:</b> 34-35, 330-331;  <b>Explore It!:</b> 62, 194; <b>Apply It!:</b> 106-109; <b>Design It!:</b> 374-379</p> <p><b>TE Only:</b>  <b>Performance Expectation Activity:</b> 111a, 111b, 111c, 111d, 111e, 111f, 111g, 229a, 229b, 229c, 229d, 295a, 295b, 295c, 295d</p>	<p>11. practice time- and project-management skills</p>						
<p><b>SE/TE:</b>  <b>STEM Activity:</b> 7, 53, 85, 119, 181, 237, 303, 349</p> <p><b>TE Only:</b>  STEM Activity: 6, 52, 84, 118, 180, 236, 302, 348</p>	<p>12. reflect upon and evaluate the results of a task or project.</p>						

<p><b>SE/TE:</b>  <b>STEM Activity:</b> 4-7, 50-53, 82-85, 116-119, 178-181, 234-237, 300-303, 346-349  <b>Investigate It!:</b> 34-35, 68-69, 96-97, 160-161, 212-213, 278-279, 330-331, 364-365  <b>Apply It!:</b> 106-109, 224-227, 290-293</p> <p><b>TE Only:</b>  <b>Performance Expectation Activity:</b> 111a, 111c, 111d, 111e, 111f, 229a, 229b, 295a, 295b, 295c, 295d</p>	<p>13. assume various roles and responsibilities when working independently or as a group.</p>					
<p><b>SE/TE:</b>  <b>Science Careers:</b> 98, 162, 207, 212, 214, 315, 350, 359, 360</p>	<p>14. explore science-related careers.</p>					
<p><b>TE Only:</b>  <b>21st Century Learning:</b> 13, 27, 32, 86, 94, 134, 182, 184, 196, 205, 242, 262, 271, 306, 358, 366, 352  <b>Performance Expectation Activity – ELA/Literacy:</b> 111a, 111b, 111c, 111d, 111e, 111f, 111g, 229a, 229b, 229c, 229d, 295a, 295b, 295c, 295d</p>	<p>15. conduct research, validate sources, and report findings ethically.</p>					

<p>Students can assess and demonstrate their mastery of the concepts covered throughout each lesson by answering Got It? questions at the end of the lesson and completing the Chapter Review for each chapter. Additional Lesson Check worksheets are available in the Teacher's Edition. Sample references include:</p> <p><b>SE/TE:</b>  <b>Got It?:</b> 21, 27, 61, 67, 91, 127, 135, 147, 153, 187, 199, 243, 259, 271, 307, 321, 355, 363  <b>Chapter Review:</b> 42-43, 74-75, 102-103, 170-171, 220-221, 286-287, 338-339, 370-371</p> <p><b>TE Only:</b>  <b>Lesson Check:</b> 15b, 27b, 61b, 91b, 127b, 141b, 187b, 211b, 265b, 307b, 355b</p>	<p>16. provide learning experiences for students to demonstrate mastery through multiple efforts.</p>						
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## Developmentally Appropriate Instructional Resources and Strategies

*For student mastery of content standards and objectives, the instructional materials:*

For each Grade 4 chapter, the Interactive Science program contains three **Leveled Content Readers** (Below-Level, On-Level, and Advanced) with foldout prompts and activities to coach students at their reading level.

In addition, the Teacher's Edition provides strategies for supporting English Language Learners, suggestions for Response to Intervention (RTI), and guidelines for differentiating instruction for extra support or for on-level and advanced learners. Sample references include:

### TE Only:

**ELL Support:** 9, 17, 23, 55, 81, 121, 141, 149, 177, 201, 217, 261, 309, 315, 351

**Differentiated Instruction:** 11, 21, 31, 57, 89, 122, 125, 133, 144, 151, 159, 185, 240, 248

**RTI:** 15, 25, 61, 91, 127, 147, 153, 159, 205, 217, 259, 287, 321, 355, 363

**Leveled Readers:** 1G-1H, 46G-46H, 78G-78H, 112G-112H, 174G-174H, 230G-230H, 296G-296H, 342G-342H

17. include multiple research-based strategies for differentiation, intervention and enrichment to support all learners.

<p>The 2016 edition of <b><i>Interactive Science</i></b> was developed to support the Next Generation Science Standards, which are designed to prepare students for college, career, and citizenship. As such, the Teacher’s Edition includes guidance for incorporating the relevant Cross-Cutting Concepts and Science and Engineering Practices from the NGSS at the beginning of each Chapter, and provides activities to address specific NGSS Performance Expectations at the end of each unit.</p> <p><b>TE Only:</b>  <b>CCC:</b> 11, 46, 78, 112, 174, 230, 297, 343  <b>SEP:</b> 1, 47, 79, 113, 175, 231, 297, 343  <b>Performance Expectation Activity:</b> 111a-111g, 229a-229d, 295a-295d</p>	<p>18. support college and career readiness.</p>							
<p>The Interactive Science program supports multiple learning modalities through its Reading, Inquiry, and Digital Paths.</p> <p><b>Reading Path</b></p> <ul style="list-style-type: none"> <li>• Target Reading Skills, continual vocabulary support, and graphic organizers help students develop critical reading skills and strategies.</li> <li>• Core content in the Write-in Student Editions and Leveled Readers with built-in ELL support give students tools to become successful readers.</li> </ul>	<p>19. provide multiple opportunities for incorporating various learning modalities.</p>							

<p><b>(continued)</b>  <b>Inquiry Path</b></p> <ul style="list-style-type: none"> <li>• ABCs of Inquiry—Activity Before Concept activities in the Write-in Student Edition engage students and set a purpose for reading.</li> <li>• Scaffolded inquiry activities consist of directed, guided, and open inquiry options to allow students to move from teacher-directed to student-centered hands-on experiences.</li> </ul> <p><b>Digital Path</b></p> <ul style="list-style-type: none"> <li>• Interactive Science goes digital at PearsonRealize.com. Engage students in today's digital world with exciting resources.</li> <li>• PearsonRealize.com can be used for teacher-led instruction from a single computer or a tablet, with an interactive whiteboard, or by students working at their own pace at school or at home.</li> </ul>	<p><b>(continued)</b></p> <p>19. provide multiple opportunities for incorporating various learning modalities.</p>					
<p><b>SE/TE:</b>  <b>Try It!:</b> 48, 176, 344  <b>Explore It!:</b> 62, 92, 266, 272, 308, 314, 322, 356  <b>Investigate It!:</b> 68-69, 96-97, 160-161, 212-213, 278-279, 330-331, 364-365  <b>Apply It!:</b> 106-109, 224-227, 290-293</p>	<p>20. cultivate investigative abilities leading to logical conclusions.</p>					

<p><b>SE/TE:</b>  <b>Vocabulary Smart Cards:</b> 37-40, 71-72, 99-100, 163-168, 215-218, 281-284, 333-336, 367-368</p> <p><b>TE Only:</b>  <b>Vocabulary Smart Cards:</b> 1E-1F, 3, 46E-46F, 49, 78E-78F, 81, 112E-112F, 115, 174E-174F, 177, 230E-230F, 233, 296E-296F, 299, 342E-342F, 345</p>	<p>21. incorporate authentic vocabulary acquisition.</p>						
<p>For each hands-on investigation in the <b>Interactive Science</b> program, safety rules and precautions specific to the activities involved are indicated in the student edition by a stop sign icon as well as in the teacher edition lab or STEM activity support. Sample references include:</p> <p><b>SE/TE:</b> 80, 92, 97, 160, 212, 213, 292, 312-313  <b>TE Only:</b> 2, 5, 28, 51, 83, 96, 114, 117, 179, 235, 291, 301, 344, 347, 364</p>	<p>22. integrate laboratory safety practices within learning experiences.</p>						

**Assessment**

*The materials provide:*

Throughout each lesson in the student edition, students are asked to complete write-in interactions to check their understanding of the concepts covered. These culminate in a Got It? group of questions where students can assess their understanding of the lesson overall. Additional Lesson-level worksheets and chapter-level assessments are available in the Teacher's Edition. Sample references include:

**SE/TE:**

**Got It?:** 21, 27, 61, 91, 135, 147, 153, 199, 243, 259, 271, 307, 321, 355, 363

**Chapter Review:** 42-43, 74-75, 102-103, 170-171, 220-221, 286-287, 338-339, 370-371

**Benchmark Practice:** 44, 76, 104, 172, 222, 288, 340, 372

**TE Only:**

**Lesson Check:** 15b, 27b, 61b, 91b, 127b, 141b, 187b, 211b, 265b, 307b, 355b

**Chapter Test:** 43a-43b, 75a-75b, 103a-103b, 171a-171b, 221a-221b, 287a-287b, 339a-339b, 371a-371b

23. ongoing diagnostic formative and summative assessments.



<p>In addition to the written assessments discussed in criterion 23 above, the Interactive Science program includes Science Notebook activities, Performance-Based Assessments, Performance Expectation Activities, and various online assessments. Sample References include:</p> <p><b>SE/TE:</b>  <b>Science Notebook:</b> 10, 25, 31, 57, 60, 122, 144, 162, 173, 185, 202, 247, 258, 289, 316, 358, 376  <b>Performance-Based Assessment:</b> 110-111, 228-229, 294-295, 380</p> <p><b>TE Only:</b>  <b>Performance Expectation Activity:</b> 111a, 111b, 111c, 111d, 111e, 111f, 111g, 229a, 229b, 229c, 229d, 295a, 295b, 295c, 295d</p> <p><b>Online:</b>  <b>Lesson Quizzes</b>  <b>Chapter Tests</b>  <b>Quest:</b> Make a Human Body Road Map</p>	<p>24. a variety of assessment formats, including performance tasks as well as multimedia simulations, portfolio evaluations, and data-dependent and open-ended questions.</p>						
<p><b>Online:</b>  Scoring Rubrics for Performance-Based Assessments</p>	<p>25. rubrics wherein all learners demonstrate progress toward mastery.</p>						

## Organization, Presentation and Format

*The materials:*

Each chapter of Interactive Science introduces a Big Question that the lessons within the chapter aim to help the student answer. The student is periodically refocused on this question, and the progress they have made toward answering it scientifically, via Unlock the Big Question interactivities at the end of each lesson and Review the Big Question, Answer the Big Question, and Apply the Big Question exercises at the end of the chapter. Sample references include:

### SE/TE:

**Introduce the Big Question:** 1, 47, 79, 113, 175, 231, 297, 343

**Unlock the Big Question:** 2, 16-17, 22-23, 48, 67, 86-87, 92-93, 95, 97, 114, 120-121, 142-143, 153, 161, 265, 271, 279, 298, 365

**Review the Big Question:** 42-43, 101, 102-103, 169, 214, 219, 285, 286-287, 369, 370-371, 373

**Apply the Big Question:** 43, 74, 103, 162, 171, 221, 287, 339, 371

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

<p>The Interactive Science program incorporates the Cross-Cutting Concepts outlined in the Next Generation Science Standards at the chapter level in the Teacher’s Edition.</p> <p><b>TE Only:</b>  <b>CCC:</b> 11, 46, 78, 112, 174, 230, 297, 343</p>	<p>27. connect common themes across multiple science disciplines.</p>					
<p>Cross-curricular connections to mathematics, social studies, writing and language arts occur throughout the program. Sample references include:</p> <p><b>SE/TE:</b>  <b>Let’s Read Science!:</b> 3, 49, 81, 115, 177, 233, 299, 345  <b>Do the Math!:</b> 18, 66, 94, 156, 197, 264, 329, 361</p> <p><b>TE Only:</b>  <b>Science –Social Studies:</b> 19, 29, 60, 89, 93, 145, 184, 192, 248, 263, 269, 320, 353  <b>Science – Writing:</b> 11, 20, 26, 59, 131, 132, 138, 150, 158, 204, 209, 240, 275  <b>Performance Expectation Activity – ELA/Literacy:</b> 111a, 111b, 111c, 111d, 111e, 111f, 111g, 229a, 229b, 229c, 229d, 295a, 295b, 295c, 295d  <b>Performance Expectation Activity – Math:</b> 111a, 111b, 111d, 111e, 111g, 229a, 229c, 229d, 295a, 295b, 295c, 295d</p>	<p>28. integrate cross-curricular connections.</p>					

The Teacher's Edition Curriculum Planning section includes a Pacing Guide in days per activity and a correlation of the program to the Next Generation Science Standards. A Lesson Plan suggests amounts of time for individual activities within each lesson. Teacher support for science content knowledge and hands-on activity management occurs throughout the text. Sample references include:

**TE Only:**

**Lesson Plan:** 8A, 22A, 54A, 62A, 86A, 92A, 120A, 142A, 154A, 188A, 200A, 238A, 260A, 314A

**Professional Development**

**Note – Teacher Background:**

1C-1D, 46C-46D, 78C-78D, 112C-112D, 174C-174D, 230C-230D, 296C-296D, 342C-342D

**Professional Development**

**Note – Content Refresher:** 11, 8,

18, 20, 30, 64, 67, 70, 90, 112, 131, 145, 150, 197, 200, 207, 238, 241, 243, 275, 342, 350, 353

**Lab Support:** 2, 22, 34, 48, 68, 80, 96, 114, 160, 176, 212, 232, 278, 298, 308, 314, 330, 344, 364

**STEM Activity – Background:**

4, 50-51, 82-83, 116-117, 178-179, 234-235, 300-301, 346

**Activity Card Support:** 35a, 69a, 97a, 161a, 213a, 279a, 331a, 365a

29. provide educators necessary science content knowledge, pedagogy, and management techniques to guide learning experiences.

<b>Life Skills</b> <i>For student mastery of content standards and objectives, the instructional materials will provide students with opportunities to:</i>						
<p><b>SE/TE:</b>  <b>Performance-Based Assessment:</b> 110-111, 228-229, 294-295, 380  <b>STEM Activity:</b> 7, 53, 85, 119, 181, 237, 303, 349</p> <p><b>TE Only:</b>  <b>Performance Expectation Activity:</b> 111a, 111b, 111c, 111d, 111e, 111f, 111g, 229a, 229b, 229c, 229d, 295a, 295b, 295c, 295d</p>	<p>30. persevere to complete a task.</p>					
<p><b>TE Only:</b>  <b>Activity Card Support:</b> 35a, 69a, 97a, 161a, 213a, 279a, 331a, 365a  <b>Performance Expectation Activity:</b> 111a, 111b, 111c, 111d, 111e, 111f, 229a, 229c, 229d, 295a, 295b, 295c, 295d</p>	<p>31. be exposed to varying viewpoints.</p>					
<p><b>SE/TE:</b>  <b>STEM Activity:</b> 51  <b>Explore It!:</b> 356</p> <p><b>TE Only:</b>  <b>ELL Support:</b> 135  <b>RTI:</b> 33  <b>Performance Expectation Activity:</b> 111f, 229b</p>	<p>32. engage in physical activity to promote the understanding of science content.</p>					

<p>The <b>Interactive Science</b> program provides many opportunities for the student to investigate the natural world in various contexts. Sample references include:</p> <p><b>SE/TE:</b>  <b>Try It!:</b> 2, 48, 80, 114, 176, 232, 298, 344  <b>Explore It!:</b> 22, 62, 92, 120, 136, 142, 148, 254, 266, 272, 322, 356  <b>Investigate It!:</b> 34-35, 68-69, 96-97, 212-213, 330-331, 364-365  <b>At-Home Lab:</b> 24, 30, 64, 95, 146, 157, 186, 258, 321, 354  <b>Lightning Lab:</b> 20, 59, 88, 139, 152, 241, 250, 265, 306, 311, 327</p>	<p>33. investigate the natural world and universe.</p>						
<p><b>SE/TE:</b>  <b>Performance-Based Assessment:</b> 110-111, 228-229, 294-295, 380  <b>TE Only:</b>  <b>21st Century Learning:</b> 13, 27, 32, 60, 65, 71, 86, 94, 99, 123, 134, 139, 215, 242, 262, 268, 271, 306, 328, 352, 358, 366  <b>Performance Expectation Activity:</b> 111a, 111b, 111c, 111d, 111e, 111f, 111g, 229a, 229b, 229c, 229d, 295a, 295b, 295c</p>	<p>34. practice situational language (e.g., presentations, debates, speeches, collaborative discussions, social media) in real-world activities.</p>						

<p><b>SE/TE:</b>  <b>My Planet Diary:</b> 8, 16, 54, 86, 128, 154, 206, 238, 260, 304, 350  <b>Go Green:</b> 13, 122, 192, 196, 211, 270, 362</p> <p><b>TE Only:</b>  <b>21st Century Learning:</b> 32, 71, 94, 99, 215, 271  <b>Performance Expectation Activity:</b> 111a, 111b, 111c, 111d, 111e, 111f, 111g, 229a, 229c, 229d, 295a, 295b, 295c, 295d  <b>Science – Social Studies:</b> 19, 29, 60, 89, 93, 145, 184, 192, 248, 263, 269, 320, 353</p>	<p>35. understand the impact of global issues and events on their lives, communities, and greater society.</p>						
<p>Part 1, Lesson 2: “How do scientists use tools?” discusses how various scientific tools are used to collect data. Laboratory equipment is used in investigations throughout the program. Sample references include:</p> <p><b>SE/TE:</b>  <b>Try It!:</b> 2, 48, 176, 232, 298, 344  <b>Explore It!:</b> 22, 28, 120, 136, 142, 188, 194, 244, 266, 272, 356  <b>Investigate It!:</b> 34-35, 68-69, 96-97, 160-161, 212-213, 278-279, 330-331, 364-365  <b>Apply It!:</b> 106-109, 224-227, 290-293</p>	<p>36. use laboratory equipment properly.</p>						

## SPECIFIC EVALUATION CRITERIA

### 2016-2022 Group IV – Science Grade 4

Fourth Grade Science objectives build on the study of geology, astronomy, chemistry and physics. Through a progressive rigorous, integrated approach, the inquiry-based program of study blends science and 21st century skills and provides students opportunities to demonstrate scientific literacy in the fields of life science, physical science, and earth and space sciences. By engaging in active inquiries, investigations and hands-on activities throughout the instructional day, students focus on the major themes of science: systems, changes, and models in order to develop conceptual understanding and research skills as described in the objectives. Fourth Grade Science promotes cooperative learning, group decisions, cultural diversity, and careers. The curricular focus develops basic problem-solving skills through observing, experimenting and concluding. Engineering, Technology, and the Application of Science objectives are integrated throughout instruction as students define problems and design solutions related to the course objectives. Students use safe and proper techniques for handling, manipulating, and caring for science materials and treating living organisms humanely. Fourth Grade Science intentionally supports developmental and academic growth. All West Virginia teachers are responsible for classroom instruction that integrates content literacy and *21st Century Learning Skills and Technology Tools*.

#### **General Science Content**

The General Science Standard is a content standard that provides an integrated approach to science instruction that is arranged in a coherent manner, follows the logic of learning progressions and spans kindergarten through middle school. The three disciplines of science--Physical Science, Life Science, and Earth and Space Science--are limited to the major topics in the core ideas from each discipline. From the Life Science discipline the core ideas are the following: From Molecules to Organisms: Structures and Processes; Ecosystems: Interactions, Energy, and Dynamics; Heredity: Inheritance and Variation of Traits Across Generations; and Biological Evolution: Unity and Diversity. From the Physical Science discipline, the topics are the following: Matter and Its Interactions; Motion and Stability, Forces and Interactions; Energy; and Waves and Their Applications in Technologies for Information Transfer. Earth's Place in the Universe; Earth's Systems; and Earth and Human Activity are the topics from the Earth and Space Science discipline. Limiting instruction to the main topics of core ideas allows opportunities for deep exploration of important concepts and provides time for students to develop meaningful understandings, engage in science and engineering practices, and reflect on crosscutting concepts and the nature of science. The foundation not only provides an organizational structure for the acquisition of new knowledge, it prepares students to engage in deeper levels of scientific and engineering practices as they continue to high school, college, and beyond.

#### **Earth and Space Science Content**

The Earth and Space Standard is a content standard which spans kindergarten through high school and provides opportunities for students to investigate processes that operate on Earth and also address its place in the solar system and the galaxy. The standard encompasses three core ideas: Earth's Place in the Universe; Earth's Systems; and Earth and Human Activity. Beginning in kindergarten, students make observations, ask questions, and make predictions as they describe patterns in their local Weather and Climate. In later grades, the content progresses to include these topics: Space Systems: Patterns and Functions; Earth Systems: Processes that Shape the Earth; Earth's Systems: Space Systems: Stars and the Solar System; History of Earth; and Human Impacts. Elementary students observe and investigate matter and processes in their own yards and neighborhoods with their own eyes; the content continues in the grades that follow to include investigations of invisibly small phenomena to the unimaginably large and distant. As students investigate the atmosphere, hydrosphere, geosphere, and biosphere, they gain understanding of the differing sources of energy, matter cycles, multiple systems' interconnections, and feedbacks which cause Earth to change over time.

#### **Life Science Content**

The Life Science Standard is a content standard which spans kindergarten through high school and focuses on patterns, processes, and relationships of living organisms. The standard includes four core ideas: From Molecules to Organisms: Structures and Processes; Ecosystems: Interactions, Energy, and Dynamics; Heredity: Inheritance and Variation of Traits across Generations; and Biological Evolution: Unity and Diversity. These four core ideas, which represent basic life science fields of investigation—structures and processes in organisms, ecology, heredity, and evolution—have a long history and solid foundation based on the



research evidence established by many scientists working across multiple fields. Beginning in kindergarten, curious learners explore Animals, Plants, and Their Environment as they learn of the Interdependent Relationships in Ecosystems. In the grades which follow, the inquiry continues as the standards encompass these topics: Structure, Function, and Information Processing; Inheritance and Variation of Traits: Life Cycles and Traits; Matter and Energy in Organisms and Ecosystems; and Growth, Development, and Reproduction of Organisms. Investigations include single molecules, organisms, ecosystems, and the entire biosphere that is all life on Earth. Students examine processes that occur on time scales from the blink of an eye to those that happen over billions of years. As they make observations, construct hypotheses, perform experiments, evaluate evidence, build models, and use technology to explore how life works, they prepare to answer questions about themselves and the world around them.

### **Physical Science Content**

The Physical Science Standard is a content standard which spans kindergarten through high school as two subjects, physics and chemistry, are presented in a coherent approach which addresses four core ideas: Matter and Its Interactions; Motion and Stability, Forces and Interactions; Energy; and Waves and Their Applications in Technologies for Information Transfer. Beginning in kindergarten, students explore pushes and pulls as an introduction to the Forces and Interactions Topic. The inquiry continues through each programmatic level and includes the following topics: Light and Sound, Structure and Properties of Matter, Forces and Interactions, Energy, Waves and Information, Matter and Energy in Organisms and Ecosystems, Waves and Electromagnetic Radiation, and Chemical Reactions. An understanding of these topics allows students to answer two fundamental questions- “What is everything made of?” and “Why do things happen?” Students apply these core ideas to explain and predict a wide variety of phenomena, such as the evaporation of water, the transmission of sound, the digital storage and transmission of information, the tarnishing of metals, and photosynthesis, to name just a few. Because such explanations and predictions rely on a basic understanding of matter and energy, students’ abilities to conceive the interactions of matter and energy are central to their science education.

### **Chemistry Content**

The Chemistry Standard is a content standard which focuses on the core concepts: Structure and Properties of Matter and Chemical Reactions. Opportunities are provided for studying in-depth phenomena central not only to the physical sciences, but to life science and earth and space science, as well. The standard includes the chemistry concepts found in the Physical Science Standard, but *not* those emphasizing Forces & Interactions, Energy, and Waves and Electromagnetic Radiation. Instead the standard goes into greater depth in the study of matter, its composition, and its changes by including concepts such as the periodic table and modern theories of bonding, the effects of temperature, concentration, and vapor pressure on solubility, types of chemical reactions, stoichiometry, molarity, and gas laws. The standard blends the core ideas with scientific and engineering practices and crosscutting concepts to support students in developing useable knowledge to explain ideas across the science disciplines. There is an emphasis on several scientific practices which include developing and using models, planning and conducting investigations, analyzing and interpreting data, using mathematical and computational thinking and constructing explanations.

### **Physics Content**

The Physics Standard is a content standard which focuses on the core concepts: Forces and Interactions, Energy, and Waves and Electromagnetic Radiation. Opportunities are provided for studying in-depth phenomena central not only to the physical sciences, but to life science and earth and space science, as well. The standard includes the physics concepts found in the Physical Science Standard, but *not* those emphasizing Structure and Properties of Matter and Chemical Reactions. Instead the standard goes into greater depth in the studies of elastic and inelastic collisions, buoyancy and fluid dynamics, projectile motion, vectors, circuits and currents, and optics. The standard blends the core ideas with scientific and engineering practices and crosscutting concepts to support students in developing useable knowledge to explain ideas across the science disciplines. There is an emphasis on several scientific practices which include developing and using models, planning and conducting investigations, analyzing and interpreting data, using mathematical and computational thinking and constructing explanations.

### **Environmental Content**

The Environmental Standard is a content standard which focuses on chemical, physical, biological, and geological processes and the interdependent relationships in the natural world. Concepts from the major science disciplines—Life Science, Physical Science, and Earth and Space Science—are integrated into six environmental topics which include: Biogeochemical cycles, Energy Conservation, Ecosystems, Oceans and Climate, Water Management, Land Use. There is an emphasis on several scientific practices that include developing and using models; planning and conducting investigations; analyzing and interpreting data;

constructing explanations; engaging in arguments from evidence; obtaining, evaluating, and communicating information; and synthesizing concepts across various science disciplines. The standard provides opportunities for students to develop an understanding of systems of a complex world and the interdependence of organisms as well as an appreciation of the ecosystem in which they live. As students develop an awareness of the environment and its associated problems, they acquire knowledge and skills of how to work individually and collectively toward solutions of current problems and the prevention of new ones.

### **Forensic Science Content**

The Forensic Science Standard is a content standard which applies the knowledge and technology of science to criminal and civil law. Concepts from the three major disciplines--Life Science, Physical Science, and Earth and Space Science--are reinforced and made relevant and pertinent to students as they acquire techniques and skills and learn the limitations of the modern crime laboratories. There is an emphasis on several scientific practices which include planning and carrying out investigations; analyzing and interpreting data; obtaining, evaluating and communicating information; and using mathematics and computations. Students must address the attention to detail and protocol that are necessary for providing impartial scientific evidence that may be used in courts of law to support the prosecution or defense in criminal and civil investigations. These skills and attitudes transfer readily to other areas of science.

### **Human Anatomy and Physiology Content**

Human Anatomy and Physiology is a content standard which addresses the structures and functions of the human body. While concepts from the Life Science discipline are the major focus of study, concepts from the Physical Sciences are incorporated to explain processes and mechanisms of the human body. The interdisciplinary nature of the sciences is revealed through the interdependency of body systems. There is an emphasis on several scientific practices which include asking questions, developing and using models, constructing explanations, and obtaining and communicating information. Engineering Design Standards are integrated throughout instruction as students define problems and design solutions related to the course objectives. The standard encompasses gross and microscopic anatomy, basic biochemistry and physiological concepts which are foundational to medical fields of study and useful as students make health related decisions.

### **Engineering, Technology, and Applications of Science**

Engineering, Technology, and Applications of Science Standards (ETS) are included in science instruction, kindergarten through high school, and provide opportunities for students to utilize science and appreciate the distinctions and relationships between engineering, technology, and applications of science. The ETS are in programmatic levels- Kindergarten through Second Grade, Third through Fifth Grade, Middle School, and High School. As Engineering, Technology, and the Application of Science objectives are integrated with content from the three major strands of science- life science, physical science, and earth and space science- students develop understandings of how scientific knowledge is acquired, scientific explanations are developed, and science is applied in the world around us. The interactive cycle of design offers potential in applying science knowledge and engaging in engineering practices. Students gain experiences and understandings about the following: 1.) using technology to modify the natural world to fulfill human needs or desires; 2.) using an engineering approach to design objects, use processes, or construct systems to meet human needs and wants; and 3.) applying scientific knowledge for a specific purpose, whether to do more science, design a product, process, or medical treatment, develop a new technology, or to predict the impacts of human actions.

### **Literacy**

Literacy Standards span middle and high school and address skills which are critical to building knowledge in science. The standards work in tandem with the specific content standard demands outlined in the West Virginia Next Generation Science Standards and Objectives. Reading in science requires an appreciation of the norms and conventions of the sciences which includes a working knowledge of domain-specific words, phrases, and symbols; an understanding of the nature of evidence used to support claims; an attention to precision and detail; and the capacity to make and assess intricate arguments, synthesize complex information often presented qualitatively and quantitatively in tables and graphs, and follow detailed procedures and accounts of events and concepts. Students also need to be able to gain knowledge from elaborate diagrams and data that convey information and illustrate scientific concepts. Likewise, writing and presenting information orally are key means for students to assert and defend claims in science, demonstrate what they know about a concept, and convey what they have experienced, imagined, thought, and learned. The skills and understandings students are expected to demonstrate in both reading and writing have a wide applicability outside the classroom and workplace and serve students as they address public and private responsibilities and interests.

For student mastery of content standards and objectives, the instructional materials will provide students with the opportunity to

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCTS	(IMR Committee) Responses				
	I=In-depth, A=Adequate, M=Minimal, N=Nonexistent	I	A	M	N
<b>General Science Content</b>					
Energy					
<p><b>SE/TE:</b> 11, Kinetic Energy; 14, Energy and Motion; 42-43, Chapter Review – Lesson 1; 30, A Conduction Example; 31, Convection/Radiation; 44, Benchmark Practice – Question 5; 62, Explore It!; 63, Speed; 75, Chapter Review - Lesson 2; 76, Benchmark Practice - Question 3; 77, Go Green!; 82-85, STEM Activity: How Can You Keep Liquids Warm or Cold?</p> <p><b>TE Only:</b> 14, Science Notebook; 33b, Lesson 1 Check – Questions 1-6; 46, CCC: Energy and Matter; 67a, Explore It!; 111a, ELA/Literacy, Performance Expectation Activity</p>	<p>1. use evidence to construct an explanation relating the speed of an object to the energy of that object.</p>				

<p><b>SE/TE:</b>  2, Try It!; 8-15, Lesson1; 16-21, Lesson 2; 22-27, Lesson 3; 28-34, Lesson 4; 34-35, Investigate It!; 36, Science in Your Backyard; 42-43, Chapter Review – Lessons 2 and 4; 44, Benchmark Practice – Questions 4 and 5; 45, Solar Cooking; 80, Try It!; 82-85, STEM Activity: How Can You Keep Liquids Warm or Cold?; 86-91, Lesson 1; 92-95, Lesson 2; 103, Chapter Review – Question 9; 104, Benchmark Practice – Question 5; 194, Explore It!</p> <p><b>TE Only:</b>  1C-1D, Teacher Background; 1G-1H, Leveled Content Reader Support; 1I, CCC: Energy and Matter; 27b, Lesson 3 Check – Question 5; 33a, Explore It!; 33b, Lesson 1 Check – Questions 1-6; 35a-35d, Activity Card Support; 43a, Chapter 1 Test – Question 1; 43a-43b, Chapter 1 Test – Questions 1, 7-10; 78C, Electrical Charges and Interactions; 78D, Transformer Basics; 78, CCC: Energy and Matter; 91b, Lesson 1 Check – Questions 1, 2, 6; 95a, Explore It!; 95b, Lesson 2 Check – Questions 1-6; 97b, Directed Inquiry; 103a-103b, Chapter 3 Test – Questions 1, 5, 9, 10; 111b, ELA/Literacy, Mathematics, Performance Expectation Activity; 199a, Explore It!</p>	<p>2. make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.</p>						
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<p><b>SE/TE:</b> 15, Elastic (Potential Energy); 58, Forces Affect Objects; 59, Force and Motion; 59, Lightning Lab; 110, Height and Potential Energy; 316-317, A Bouncing-Ball Experiment; 328, Go Further</p> <p><b>TE Only:</b> 46, CCC: Energy and Matter; 111c, ELA/Literacy; 111c, Performance Expectation Activity; 328, 21<sup>st</sup> Century Learning</p>	<p>3. ask questions and predict outcomes about the changes in energy that occur when objects collide.</p>					
<p><b>SE/TE:</b> 9-15, Lesson 1; 32-33, Changes of Other Energy to Heat; 45, Solar Cooking; 92-95, Lesson 2; 96-97, Investigate It!; 102-103, Chapter Review – Lessons 1 and 2; 104, Benchmark Practice – Question 5; 111, Design a Device; 344, Try It!</p> <p><b>TE Only:</b> 79, SEP: Constructing Explanations and Designing Solutions; 91b, Lesson 1 Check – Questions 4-6; 95a, Explore It!; 97a-97d, Activity Card Support; 103a-103b, Chapter 3 Test – Questions 4, 5, 7, 9; 111d, Performance Expectation Activity;</p>	<p>4. apply scientific ideas to design, test, and refine a device that converts energy from one form to another.*</p>					

<p><b>SE/TE:</b> 13, Go Green; 45, Solar Cooking; 194-199, Lesson 3; 211, Fossil Fuels; 220, Chapter Review – Lesson 3;</p> <p><b>TE Only:</b> 4, Background; 13, 21<sup>st</sup> Century Learning; 32, 21<sup>st</sup> Century Learning; 71, 21<sup>st</sup> Century Learning; 77, Build Enduring Understanding; 93, Science – Social Studies; 94, 21<sup>st</sup> Century Learning; 196, 21<sup>st</sup> Century Learning; 198, Science Notebook; 199, Professional Development Note; 199a, Explore It!; 199b, Lesson 3 Check – Questions 1-6; 221a-221b, Chapter 5 Test – Questions 5, 7; 229d, ELA/Literacy, Performance Expectation Activity; 230D, Harnessing Solar Energy/How Hybrids Save Energy</p>	<p>5. obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.</p>							
<p>Waves: Waves and Information</p>								
<p><b>SE/TE:</b> 16-21, Lesson 1; 20, Lightning Lab; 36, Science in Your Backyard ; 269, Ocean and Seas</p> <p><b>TE Only:</b> 1C, The Speed of Sound; 1G-1H, Leveled Content Reader Support; 18, Professional Development Note; 19, Common Misconception; 19, Science Notebook; 21b, Lesson 2 Check – Questions 1-6; 111e, Performance Expectation Activity, ELA/Literacy, 111e, Mathematics</p>	<p>6. develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move.</p>							

<p><b>SE/TE:</b> 96-97, Investigate It!</p> <p><b>TE Only:</b> 1D, Did You Know? 97a-97d, Activity Card Support; 111f, Performance Expectation Activity</p>	<p>7. generate and compare multiple solutions that use patterns to transfer information.*</p>						
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Structure, Function, and Information Processing

<p><b>SE/TE:</b> 26-27, Light and Matter; 43, Chapter Review – Lesson 3; 308, Explore It!</p> <p><b>TE Only:</b> 1G-1H, Leveled Content Reader Support; 23, Build Background; 26, Common Misconception; 26, Determine; 26, Science – Writing; 27, Infer; 27b, Lesson 3 Check – Question 4; 111g, ELA/Literacy; 111g, Mathematics; 111g, Performance Expectation Activity; 296D, Using a Microscope</p>	<p>8. develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen.</p>						
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<p><b>SE/TE:</b>  114, Try It!; 116-119, STEM Activity: Natural Humidifier; 122-123, Classifying Plants; 124-127, Classifying Animals; 128-135, Lesson 2; 136-141, Lesson 3; 142-147, Lesson 4; 154, My Planet Diary; 170, Chapter Review – Lessons 1-4; 172, Benchmark Practice – Questions 4, 5, 6; 228, Write a Biography</p> <p><b>TE Only:</b>  112C, What Do Leaves and Stems Do?; 112 D, Getting to the Root of Plants; 112G-112H, Leveled Content Reader Support; 112, CCC: Systems and System Models; 113, SEP: Engaging in Argument from Evidence; 125, Differentiated Instruction; 133, Differentiated Instruction; 134, 21<sup>st</sup> Century Learning; 135a, My Planet Diary; 135b, Lesson 2 Check – Questions 1-6; 141a, Explore It!; 141b, Lesson 3 Check – Questions 1-6; 144, Differentiated Instruction – Advanced; 146, Science Notebook; 147a, Explore It!; 147b, Lesson 4 Check – Questions 2, 4, 5, 6; 151, Differentiated Instruction; 154, Professional Development Note; 159a, My Planet Diary; 171a-171b, Chapter 4 Test – Questions 2, 5, and 9; 229a, ELA/Literacy; 229a, Performance Expectation Activity</p> <p><b>Online:</b>  QUEST: Make a Human Body Road Map</p>	<p>9. construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.</p>						
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<p><b>SE/TE:</b> 128, My Planet Diary; 132, Pollen on the Move; 142, Explore It!; 154, My Planet Diary; 154-159, Lesson 6; 228, Write a Biography</p> <p><b>TE Only:</b> 111g, Performance Expectation Activity; 135a, My Planet Diary; 135b, Lesson 2 Check – Question 6; 147a, Explore It!; 154, Professional Development Note; 159a, My Planet Diary; 229b, Performance Expectation Activity</p>	<p>10. use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.</p>							
<p>Earth's Systems: Processes that Shape the Earth</p>								
<p><b>SE/TE:</b> 202-203, How Fossils Form; 210, Fossil Age; 244-251, Lesson 2; 252-253, The Rock Cycle; 260, My Planet Diary</p> <p><b>TE Only:</b> 203, 21<sup>st</sup> Century Learning; 211b, Lesson 5 Check – Question 4; 221b, Chapter 5 Test – Question 8; 230C, Uncovering Fossils; 248, Differentiated Instruction ; 249, Professional Development Note; 252, Science Notebook; 253a, Explore It!; 253b, Lesson 2 Check – Questions 1-5; 265a, My Planet Diary; 287b, Chapter 6 Test – Questions 1, 9, 10; 295d, ELA/Literacy, Performance Expectation Activity</p>	<p>11. identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.</p>							

<p><b>SE/TE:</b> 190, Plants Cause Change; 234-237, STEM Activity: Hold Back the Water; 254, Explore It!; 254-259, Lesson 3; 290-293, Apply It!</p> <p><b>TE Only:</b> 230, CCC: Cause and Effect; 256, Differentiated Instruction; 257, Science Notebook; 259a, Explore It!; 278, Lab Support; 279, Teacher Background; 279c, Guided Inquiry; 287b, 295a, ELA/Literacy, Performance Expectation Activity</p>	<p>12. make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation.</p>							
<p><b>SE/TE:</b> 280, The Galápagos Islands; 287, Chapter Review – Lesson 5; 295, Make a Map</p> <p><b>TE Only:</b> 248, Science – Social Studies; 262, 21<sup>st</sup> Century Learning; 263, Science – Social Studies; 265a, My Planet Diary; 269, Science – Social Studies; 295b, ELA/Literacy,, Performance Expectation Activity</p>	<p>13. analyze and interpret data from maps to describe patterns of Earth's features.</p>							
<p><b>SE/TE:</b> 234-237, STEM Activity: Hold Back the Water; 260, My Planet Diary; 289, STEM: Robotic Fish; 295, Create a Booklet</p> <p><b>TE Only:</b> 230D,Beach Erosion/ How Hybrids Save Energy; 260, Professional Development Note; 295c, ELA/Literacy, Performance Expectation Activity</p>	<p>14. generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.*</p>							

**Engineering, Technology and Applications of Science**

Engineering Design

**SE/TE:**  
 4-7, STEM Activity: Is It Cold in Here?; 45, Solar Cooking; 50-53, STEM Activity: Let’s Glide Away!; 82-85, STEM Activity: How Can You Keep Liquids Warm or Cold?; 116-119, STEM Activity: Natural Humidifier; 178-181, STEM Activity: Home, Sweet Home!; 234-237, STEM Activity: Hold Back the Water; 300-303, STEM Activity: Time to Clean Green!; 346-349, STEM Activity: What’s Inside?; 374-379, Design It!

**TE Only:**  
 296, CCC: Influence of Engineering, Technology, and Science on Society and the Natural World; 297, SEP: Asking Questions and Defining Problems;

15. define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

**SE/TE:**  
 4-7, STEM Activity: Is It Cold in Here?; 50-53, STEM Activity: Let’s Glide Away!; 70, Smart Plane; 82-85, STEM Activity: How Can You Keep Liquids Warm or Cold?; 116-119, STEM Activity: Natural Humidifier; 178-181, STEM Activity: Home, Sweet Home!; 234-237, STEM Activity: Hold Back the Water; 289, Robotic Fish; 295, Create a Booklet; 300-303, STEM Activity: Time to Clean Green!; 346-349, STEM Activity: What’s Inside?; 355b, Lesson 1 Check – Question 6; 374-379, Design It!

16. generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

<p><b>(continued)</b>          In the Post-Activity Discussion for each chapter's STEM Activity, students compare the solutions they have generated and present those which most successfully met the problem criteria and constraints. For representative pages, please see</p> <p><b>TE Only:</b>          6, 84, 180, 236, 302</p>	<p><b>(continued)</b>          16. generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.</p>						
<p><b>SE/TE:</b>          4-7, STEM Activity: Is It Cold in Here?; 50-53, STEM Activity: Let's Glide Away!; 82-85, STEM Activity: How Can You Keep Liquids Warm or Cold?; 116-119, STEM Activity: Natural Humidifier; 178-181, STEM Activity: Home, Sweet Home!; 234-237, STEM Activity: Hold Back the Water; 300-303, STEM Activity: Time to Clean Green!; 374-379, Design It!</p>	<p>17. plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.</p>						

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