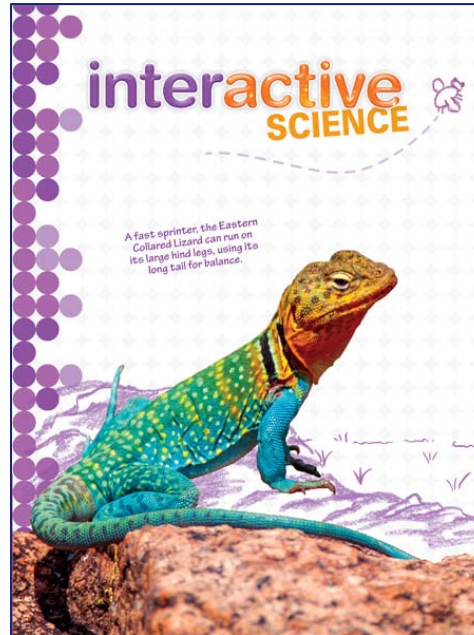


A Correlation of Interactive Science

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to the

West Virginia Criteria for Grade 5 Science

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SUBJECT:	Science	SPECIFIC GRADE:	5
COURSE:	Science – 6005 – Grade 5 Science	TITLE	Pearson Interactive Science
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NON-NEGOTIABLE EVALUATION CRITERIA

**2016-2022
Group IV – Science
Grade 5**

Equity, Accessibility and Format				
Yes	No	N/A	CRITERIA	NOTES
			<p>1. INTER-ETHNIC The instructional 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 Pearson Interactive Science student edition text show people of a variety of ages and ethnicities participating in everyday and science-related activities. The Untamed Science video feature (www.PearsonRealize.com) 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>SE/TE: Photographs: 51, 60, 71, 75, 76, 134, 314, 324, 327, 331, 340, 347, 376-377 Illustrations: 40, 83, 107, 132, 178, 242, 296, 348, 367, 389, 399, 400</p> <p>TE Only: School-to-Home Letter: xxxvi-xxxvii, 1E-1F</p> <p>Online: Untamed Science Videos: “Feeling a Little Rusty?”, “Observing Our Planetary Neighbors”</p>

			<p>2. EQUAL OPPORTUNITY 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 Interactive Science text highlight the contributions of specific people of varying genders and cultures to science. Sample references include: SE/TE: 84, 134, 141, 294, 382, 386</p>
			<p>3. FORMAT This resource is available as an option for adoption in an interactive electronic format.</p>	<p>Pearson Interactive Science ©2016 focuses on an implementation of Problem-Based Learning, STEM, Performance Expectation Activities, and support for new standards while transitioning to a digital platform, Realize (www.PearsonRealize.com). 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>4. BIAS The instructional material is free of political bias.</p>	<p>The Interactive Science program is free of political bias. Part 1 of the Skills Handbook, “The Nature of Science”, discusses what questions can and cannot be answered empirically and how scientists draw conclusions from evidence.</p>
			<p>5. INQUIRY 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 Interactive Science 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>6. SAFETY 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 3: “How do scientists collect and interpret data?” explicitly address safety rules for performing scientific investigations.</p>

GENERAL EVALUATION CRITERIA

**2016-2022
Group IV – Science
Grade 5**

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 2^{1st} Century which includes opportunities for students to develop:</i>				
Next Generation Skills:					
Thinking and Problem-Solving Skills 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>SE/TE: STEM Activity: 106, 149, 366 Explore It!: 16, 34, 78, 158, 174, 236, 264, 290, 368, 380 Investigate It!: 40–41, 178–179, 242–243, 348–349, 388–389 Apply It!: 94-97, 190-193, 308-311</p>	<p>1. provides opportunities for student collaboration.</p>				

<p>(continued) TE Only: 21st Century Learning: 108, 110, 152, 170, 215, 235, 241, 268, 322, 378 Performance Expectation Activity: 99a, 99b, 99d, 195a, 195b, 195d, 313c, 313d</p>	<p>(continued) 1. provides opportunities for student collaboration.</p>					
<p>SE/TE: STEM Activity: 5-6, 57-58, 105, 147, 201, 261, 319-320, 365 Design It!: 398-403</p>	<p>2. requires students to investigate and discover multiple solutions through inquiry.</p>					
<p>TE Only: 21st Century Learning: 32, 241, 288, 346, 378 Performance Expectation Activity: 99a, 195d, 313a, 313c ELA/Literacy: 99b, 99c, 99d, 99e, 195a, 195c, 313b</p>	<p>3. includes options for using technology tools to gather information, make informed decisions and justify solutions.</p>					
<p>SE/TE: STEM Activity: 4-7, 56-59, 104-107, 146-149, 200-203, 260-263, 318-321, 364-367 Design It!: 398-403 TE Only: 21st Century Learning: 85, 176, 208, 390 Online: Quest: Plan a Trip Around the World of Patterns</p>	<p>4. engages students in critical thinking and the synthesis of information to analyze real-world problems.</p>					

<p>SE/TE: STEM Activity: 4-7, 146-149, 200-203, 318-321, 364-367 TE Only: Performance Expectation Activity: 99e, 195b, 195d, 313a, 313d ELA/Literacy: 99c, 99d, Online: Quest: Plan a Trip Around the World of Patterns</p>	<p>5. offers activities to connect multiple scientific phenomena to real-world events.</p>						
<p>Information and Communication Skills <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>TE Only: 21st Century Learning: 241, 346</p>	<p>6. interact with secure external multimedia resources for local and global collaboration.</p>						
<p>TE Only: 21st Century Learning: 11, 32, 108, 110, 170, 208, 215, 274, 288, 322, 378, 390 Performance Expectation Activity: 99a, 99d, 99e, 195a, 195b, 195c, 195d, 313a, 313b, 313c, 313d ELA/Literacy: 99b, 99c</p>	<p>7. develop conceptual understanding and research skills.</p>						

<p>SE/TE: Performance-Based Assessment: 98-99, 194-195, 312-313, 404</p> <p>TE Only: 21st Century Learning: 152, 241, 288, 346, 378 Performance Expectation Activity: 99a, 99b, 99c, 99d, 99e, 195a, 195c, 195d, 313a, 313b, 313c, 313d</p> <p>Online: Quest: Plan a Trip Around the World of Patterns</p>	<p>8. articulate thoughts and ideas through oral, written, and multimedia communications.</p>						
<p>Personal and Workplace Productivity Skills <i>For students mastery of content standards and objectives, the instructional materials will provide students with opportunities to:</i></p>							
<p>SE/TE: STEM Activity: 106, 149, 366 Investigate It!: 40–41, 178–179, 242–243, 348–349, 388–389</p> <p>TE Only: 21st Century Learning: 110, 170, 235, 268, 322 Performance Expectation Activity: 99a, 99b, 99c, 99d, 195a, 195b, 195c, 195d, 313a, 313c, 313d</p>	<p>9. use interpersonal skills to work cooperatively to accomplish a task.</p>						
<p>SE/TE: STEM Activity: 5-6, 57-58, 105, 147, 201, 261, 319-320, 365, 383 Apply It!: 94-97, 190-193, 308-311</p> <p>TE Only: Investigate It!: 41d, 83d, 133d, 179d, 243d, 297d, 349d, 389d</p>	<p>10. develop and initiate a plan of action to complete a task or project.</p>						

<p>TE Only: Performance Expectation Activity: 99a, 99b, 99c, 99d, 99e, 195a, 195b, 195c, 195d, 313a, 313b, 313c, 313d</p>	<p>11. practice time- and project-management skills</p>						
<p>SE/TE: STEM Activity: 7, 59, 107, 149, 203, 263, 321, 367</p>	<p>12. reflect upon and evaluate the results of a task or project.</p>						
<p>SE/TE: STEM Activity: 4-7, 56-59, 104-107, 146-149, 200-203, 260-263, 318-321, 364-367 Investigate It!: 40-41, 82-83, 132-133, 178-179, 242-243, 296-297, 348-349, 388-389 Apply It!: 94-97, 190-193, 308-311 TE Only: Performance Expectation Activity: 99a, 99b, 99c, 99d, 99e, 195a, 195b, 195c, 195d, 313a, 313b, 313c, 313d</p>	<p>13. assume various roles and responsibilities when working independently or as a group.</p>						
<p>SE/TE: 134, 382, 386</p>	<p>14. explore science-related careers.</p>						
<p>TE Only: 21st Century Learning: 11, 32, 108, 110, 170, 208, 215, 274, 288, 322, 378, 390 Performance Expectation Activity – ELA/Literacy: 99a, 99b, 99c, 99d, 99e, 195a, 195b, 195c, 195d, 313a, 313b, 313c, 313d</p>	<p>15. conduct research, validate sources, and report findings ethically.</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:

SE/TE:

Got It?: 21, 33, 65, 77, 113, 157, 173, 209, 235, 289, 335, 379

Chapter Review: 48-49, 90-91, 138-139, 186-187, 252-253, 304-305, 356-357, 394-395

TE Only:

Lesson Check: 15b, 27b, 73b, 119b, 165b, 215b, 229b, 269b, 283b, 343b, 387b

16. provide learning experiences for students to demonstrate mastery through multiple efforts.

Developmentally Appropriate Instructional Resources and Strategies

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

For each Grade 5 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, 23, 55, 87, 113, 121, 159, 175, 205, 217, 237, 246, 301, 337, 381

Differentiated Instruction: 43, 69, 72, 111, 119, 157, 168, 207, 245, 267, 299, 331, 332, 377

RTI: 15, 27, 39, 73, 125, 165, 209, 223, 269, 289, 335, 347, 379, 387, 395

Leveled Content Reader Support: 1G-1H, 52G-52H, 142G-142H, 196G-196H, 256G-256H, 360G-360H

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

<p>The 2016 edition of Interactive Science 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>TE Only: CCC: 11, 52, 100, 142, 196, 256, 314, 360 SEP: 1, 53, 101, 143, 197, 357, 315, 361 Performance Expectation Activity: 99a-99e, 195a-195d, 313a-313d</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>Reading Path</p> <ul style="list-style-type: none"> • Target Reading Skills, continual vocabulary support, and graphic organizers help students develop critical reading skills and strategies. • Core content in the Write-in Student Editions and Leveled Readers with built-in ELL support give students tools to become successful readers. 	<p>19. provide multiple opportunities for incorporating various learning modalities.</p>						

(continued)
Inquiry Path

- ABCs of Inquiry—Activity Before Concept activities in the Write-in Student Edition engage students and set a purpose for reading.
- 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.

Digital Path

- Interactive Science goes digital at PearsonRealize.com. Engage students in today's digital world with exciting resources.
- 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.

(continued)

19. provide multiple opportunities for incorporating various learning modalities.

<p>SE/TE: Try It!: 2, 54, 102, 144, 198, 258, 316, 362 Explore It!: 16, 22, 28, 34, 74, 78, 114, 120, 174, 216, 264, 276, 290, 328, 336, 344, 368, 380 Investigate It!: 40–41, 82–83, 132–133, 178–179, 242–243, 296–297, 348–349, 388–389 Apply It!: 94-97, 190-193, 308-311</p>	<p>20. cultivate investigative abilities leading to logical conclusions.</p>					
<p>SE/TE: Vocabulary Smart Cards: 43-46, 85-88, 135-136, 181-184, 245-250, 299-302, 351-354, 391-392 TE Only: Science – Writing: 26 Science Notebook: 124 Science – Reading: 154 Science – Language Arts: 161, 370, 372, 376, 384 Elaborate: 224, 232</p>	<p>21. incorporate authentic vocabulary acquisition.</p>					
<p>For each hands-on investigation in the Interactive Science 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>SE/TE: 16, 40, 230, 308, 348 TE Only: 5, 34, 57, 102, 144, 147, 178, 201, 261, 319, 362, 388</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, and there is an Online Lesson Quiz for each lesson and an Online Chapter Test for each chapter at PearsonRealize.com. Sample references include:

SE/TE:

Got It?: 21, 33, 65, 77, 113, 157, 173, 209, 235, 289, 335, 379

Chapter Review: 48-49, 90-91, 138-139, 186-187, 252-253, 304-305, 356-357, 394-395

Benchmark Practice: 50, 92, 140, 188, 254, 306, 358, 396

TE Only:

Lesson Check: 15b, 27b, 73b, 119b, 165b, 215b, 229b, 269b, 283b, 343b, 387b

Chapter Test: 49a-49b, 91a-91b, 139a-139b, 253a-253b, 305a-305b, 357a-357b, 395a-395b

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>SE/TE: Science Notebook: 20, 24, 30, 84, 124, 130, 152, 162, 238, 244, 339, 345, 359, 382, 385, 397 Performance-Based Assessment: 98-99, 194-195, 312-313, 404</p> <p>TE Only: Performance Expectation Activity: 99a, 99b, 99c, 99d, 195a, 195b, 195c, 195d, 313a, 313c, 313d</p> <p>Online: Lesson Quizzes Chapter Tests Quest: Plan a Trip Around the World of Patterns</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>Online: 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, 53, 101, 143, 197, 257, 315, 361

Apply the Big Question: 49, 139, 187, 189, 305, 307, 357, 390, 395

Unlock the Big Question: 2, 17, 27, 35, 67, 109, 121, 144, 167, 225, 271, 323, 345, 369, 375

Review the Big Question: 42, 47, 89, 90, 137, 185, 251, 252, 303, 304, 355, 356, 393, 394

Answer the Big Question: 91, 253

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>TE Only: CCC: 11, 52, 100, 142, 196, 256, 314, 360</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>SE/TE: Let's Read Science!: 3, 55, 103, 145, 199, 259, 317, 363 Do the Math!: 26, 72, 152, 164, 172, 209, 219, 239, 350, 386</p> <p>TE Only: Science – Social Studies: 12, 71, 219, 222, 226, 274, 371, 382 Science – Writing: 26, 31, 62, 130, 207, 266, 279, 286, 340 Performance Expectation Activity – ELA/Literacy: 99a, 99b, 99c, 99d, 99e, 195a, 195b, 195c, 195d, 313b, 313c, 313d Performance Expectation Activity – Math: 99a, 99b, 195b, 313a, 313c, 313d</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, 60A, 78A, 108A, 126A, 158A, 174A, 216A, 270A, 290A, 328A, 368A, 380A

Professional Development

Note – Teacher Background:

1C-1D, 52C-52D, 142C-142D, 314C-314D, 360C-360D

Professional Development

Note – Content Refresher: 15,

20, 25, 64, 73, 84, 100, 112, 131, 164, 166, 180, 210, 287, 387

Lab Support: 40, 54, 82, 132,

144, 178, 242, 296, 348, 388

STEM Activity – Background:

56, 104-105, 146, 200-201, 260, 318-319, 364-365

Activity Card Support: 41a,

83a, 133a, 179a, 243a, 297a, 349a, 389a

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

Life Skills

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

<p>SE/TE: Performance-Based Assessment: 98-99, 194-195, 312-313, 404 STEM Activity: 7, 59, 107, 149, 203, 263, 321, 367</p> <p>TE Only: Performance Expectation Activity: 99a-99e, 195a-195d, 313a-313d</p>	30. persevere to complete a task.						
<p>TE Only: Activity Card Support: 41a, 83a, 133a, 179a, 243a, 297a, 349a, 389a Performance Expectation Activity: 99a, 99b, 99c, 99d, 195a, 195b, 195c, 195d, 313a, 313c, 313d</p>	31. be exposed to varying viewpoints.						
<p>SE/TE: At-Home Lab: 64, 378 STEM Activity: 260 Science in Your Backyard: 298</p> <p>TE Only: ELL Support: 35 At-Home Lab: 142E 21st Century Learning: 235</p>	32. engage in physical activity to promote the understanding of science content.						

<p>The Interactive Science program provides many opportunities for the student to investigate the natural world in various contexts. Sample references include:</p> <p>SE/TE: Try It!: 102, 144, 198, 258 Explore It!: 16, 22, 78, 114, 120, 158, 174, 216, 224, 236, 290, 328, 368, 380 Investigate It!: 178–179, 242–243, 296–297, 348–349 At-Home Lab: 36, 64, 111, 128, 221, 227, 292, 378 Lightning Lab: 13, 20, 25, 76, 80, 213, 234, 272, 282, 287, 346</p>	<p>33. investigate the natural world and universe.</p>				
<p>SE/TE: Performance-Based Assessment: 98-99, 194-195, 312-313, 404 TE Only: 21st Century Learning: 11, 85, 108, 152, 176, 215, 235, 241, 288, 309, 385 Performance Expectation Activity: 99a, 99b, 99c, 99d, 195a, 195b, 195c, 195d, 313a, 313c, 313d</p>	<p>34. practice situational language (e.g., presentations, debates, speeches, collaborative discussions, social media) in real-world activities.</p>				

<p>SE/TE: My Planet Diary: 8, 60, 108, 150, 166, 204, 210, 270, 322, 374 Go Green: 69, 156, 176, 240, 325, 383</p> <p>TE Only: 21st Century Learning: 32, 85, 176, 208, 215, 346, 378, 390 Performance Expectation Activity: 99d, 99e, 195b, 195d, 313a, 313b, 313c Science – Social Studies: 12, 71, 111, 219, 222, 226, 233, 274, 371, 382</p>	<p>35. understand the impact of global issues and events on their lives, communities, and greater society.</p>				
<p>Part 1, Lesson 3: “How do scientists collect and interpret data?” discusses how various scientific tools are used to collect data. Laboratory equipment is used in investigations throughout the program. Sample references include:</p> <p>SE/TE: Try It! 2, 54, 102, 144, 198, 258, 316, 362 Explore It! 16, 34, 66, 78, 114, 120, 158, 174, 216, 224, 284, 290, 328, 336, 344, 368, 380 Investigate It! 40–41, 82–83, 132–133, 178–179, 242–243, 296–297, 348–349, 388–389 Apply It! 94-97, 190-193, 308-311</p>	<p>36. use laboratory equipment properly.</p>				

SPECIFIC EVALUATION CRITERIA

2016-2022 Group IV – Science Grade 5

Fifth Grade Science objectives identify, compare, classify and explain our living and designed worlds. 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. Fifth Grade Science expands understanding of earth and sky, life cycles and habitats of organisms, properties, positions and motions of objects and energy. Major content concepts at the fifth grade level include changes in properties of matter, structures, functions and adaptations of organisms, and the structure of the earth's system. 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. Fifth 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
General Science Content					
Structure and Properties of Matter					
<p>SE/TE: 8, My Planet Diary; 9, Matter; 12, Atoms; 14-15, Compounds; 34, Explore It!; 36, At-Home Lab; 48, Chapter Review – Lesson 1</p> <p>TE Only: 9, ELL Support; 12, Differentiated Instruction; 15, RTI: Response to Intervention; 15a, My Planet Diary; 15b, Lesson 1 Check – Questions 1-4; 39a, Explore It!; 49a, Chapter 1 Test – Questions 1, 5; 99a, Performance Expectation Activity</p>	<p>1. develop a model to describe that matter is made of particles too small to be seen.</p>				

<p>SE/TE: 2, Try It!; 19, Volume</p> <p>TE Only: 1C, A Matter of Change; 1, SEP: Using Mathematics and Computational Thinking; 99b, Performance Expectation Activity, ELA/Literacy, Mathematics</p>	<p>2. measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved.</p>						
<p>SE/TE: 10-11, Elements; 16-21, Lesson 2; 26, Do the Math!; 28, Explore It!; 33 Solubility; 40-41, Investigate It!; 49, Chapter Review – Question 9; 98, Plan an Investigation; 99, Investigate Mixtures</p> <p>TE Only: 11, CCC: Scale, Proportion, and Quantity; 21b, Lesson 2 Check – Questions 1-4, 6, 7; 41a – 41d, Activity Card Support; 99c, Performance Expectation Activity</p>	<p>3. make observations and measurements to identify materials based on their properties.</p>						
<p>SE/TE: 16, Explore It!; 38, Lightning Lab; 98, Plan an Investigation; 99, Investigate Mixtures</p> <p>TE Only: 21a, Explore It!; 30, Professional Development Note; 39b, Lesson 5 Check – Questions 2, 6; 99d, ELA/Literacy, Performance Expectation Activity</p>	<p>4. conduct an investigation to determine whether the mixing of two or more substances results in new substances.</p>						

Matter and Energy in Organisms and Ecosystems					
<p>SE/TE: 150-157, Lesson 1; 162, Food Chains; 162, Lightning Lab; 163, Food Webs; 186, Chapter Review - Lesson 1; 195, Create a Food Web Model</p> <p>TE Only: 100, CCC: Energy and Matter; 142, Systems and System Models; 143, SEP: Developing and Using Models; 154, Differentiated Instruction; 157b, 163, Science Notebook; 195a, Performance Expectation Activity; 195c, Performance Expectation Activity</p>	<p>5. use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.</p>				
<p>SE/TE: 114, Explore It!; 132-133, Investigate It!; 146-149, STEM Activity: Let It Self-Water!; 154-155, Photosynthesis; 156-157, Respiration</p> <p>TE Only: 100, CCC: Energy and Matter; 100D, In Thin Air; 101, SEP: Engaging in Argument from Evidence; 119a, Explore It!; 133a-133d, Activity Card Support; 152, Science Notebook; 157, Differentiated Instruction; 195b, ELA/Literacy; 195b, Performance Expectation Activity</p>	<p>6. support an argument that plants get the materials they need for growth chiefly from air and water.</p>				

<p>SE/TE: 151, Plants and Energy; 154-155, Photosynthesis; 156-157, Respiration; 158-165, Lesson 2; 186, Chapter Review – Lessons 1 and 2; 187, Chapter Review – Question 11; 189, Go Green!; 195, Create a Food Web Model</p> <p>TE Only: 142, CCC: Systems and System Models; 143, SEP: Developing and Using Models; 157, Differentiated Instruction; 157b, Lesson 1 Check – Questions 1-6; 163, Science Notebook; 165a, Explore It!; 165b, Lesson 2 Check – Questions 1-7; 195c, Performance Expectation Activity</p>	<p>7. develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.</p>						
<p>Earth's Systems</p>							
<p>SE/TE: 4-7, STEM Activity: Trap and Store; 198, Try It!; 200-203, STEM Activity: Filter it Out!; 206-207, The Water Cycle; 210-215, Lesson 2; 216-223, Lesson 3; 224, Explore It!; 228-229, Types of Clouds; 232-235, Factors that Affect Climate; 238-239, Water Erosion and Deposition; 252-253, Chapter Review – Questions 10, 11; 254, Benchmark Practice – Question 6; 313, Landforms and Weather</p>	<p>8. develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.</p>						

<p>(continued) TE Only: 196, CCC: Systems and System Models; 197, SEP: Developing and Using Models; 198, Teacher Background; 206, Science Notebook; 207, Differentiated Instruction; 215a, My Planet Diary; 215b, Lesson 2 Check – Questions 1-6; 229a, Explore It!; 253a, Chapter 5 Test – Question 10; 313a, ELA/Literacy, Mathematics, Performance Expectation Activity</p>	<p>(continued) 8. develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.</p>						
<p>SE/TE: 206-207, The Water Cycle; 209, Do the Math; 213, Do the Math!; 213, Hydrosphere; 213, Lightning Lab</p> <p>TE Only: 213, Differentiated Instruction; 313b, ELA/Literacy; 313b, Performance Expectation Activity</p>	<p>9. describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.</p>						

<p>SE/TE: 169, Changes Caused by Humans; 174, Explore It!; 174-177, Lesson 4; 176, Go Green!; 180, Tracking Migrations; 187, Chapter Review – Lesson 4; 189, Create a Compost Pile; 195, Local Resources</p> <p>TE Only: 173a, My Planet Diary; 176, 21st Century Learning; 177, Science – Writing; 177a, Explore It!; 177b, Lesson 4 Check – Questions 5, 6; 180, Science Notebook; 180, Professional Development Note; 195d, ELA/Literacy, Performance Expectation Activity</p>	<p>10. obtain and combine information about ways individual communities use science ideas to protect the Earth’s resources and environment.</p>						
<p>Space Systems: Stars and the Solar System</p>							
<p>SE/TE: 64, Gravity; 64, At-Home Lab</p> <p>TE Only: 52, CCC: Cause and Effect; 53, Engaging in Argument from Evidence; 99e, ELA/Literacy; 99e, Performance Expectation Activity</p>	<p>11. support an argument that the gravitational force exerted by Earth on objects is directed down.</p>						
<p>SE/TE: 270, My Planet Diary; 271, Stars; 272, Lightning Lab; 274, Constellations; 275, Question 9</p> <p>TE Only: 275a, My Planet Diary; 313c, ELA/Literacy; 313c, Mathematics; 313c, Performance Expectation Activity</p>	<p>12. support an argument that the apparent brightness of the sun and stars is due to their relative distances from Earth.</p>						

<p>SE/TE: 264, Explore It!; 267, Earth's Revolution; 272, Lightning Lab; 281, Earth and Moon; 313, Model a Planet's Orbit</p> <p>TE Only: 269a, Explore It!; 281, Science Notebook; Chapter 6 Test – Question 9; 313d, ELA/Literacy; 313d, Performance Expectation Activity</p> <p>Online: QUEST: Plan a Trip Around the World of Patterns</p>	<p>13. represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.</p>						
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Engineering, Technology, and Applications of Science

Engineering Design

<p>SE/TE: 4-7, STEM Activity: Trap and Store; 56-59, STEM Activity: Watch it Fly!; 104-107, STEM Activity: Come in Out of Nature; 146-149, STEM Activity: Let it Self-Water!; 200-203, STEM Activity: Filter it Out!; 260-263, STEM Activity: Breathe Deeply!; 318-321, STEM Activity: Where's the Wind Going?; 362, Try It!; 364-367, STEM Activity: Is Your Arm a Simple Machine?; 398-403, Design It!</p>	<p>14. define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.</p>						
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<p>SE/TE: 4-7, STEM Activity: Trap and Store; 56-59, STEM Activity: Watch it Fly!; 104-107, STEM Activity: Come in Out of Nature; 146-149, STEM Activity: Let it Self-Water!; 200-203, STEM Activity: Filter it Out!; 260-263, STEM Activity: Breathe Deeply!; 318-321, STEM Activity: Where's the Wind Going?; 364-367, STEM Activity: Is Your Arm a Simple Machine?; 368, Explore It!; 398-403, Design It!</p> <p>TE Only: 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>TE Only: 6, 106, 202, 320, 366</p>	<p>15. 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>SE/TE: 4-7, STEM Activity: Trap and Store; 56-59, STEM Activity: Watch it Fly!; 104-107, STEM Activity: Come in Out of Nature; 146-149, STEM Activity: Let it Self-Water!; 200-203, STEM Activity: Filter it Out!; 260-263, STEM Activity: Breathe Deeply!; 318-321, STEM Activity: Where's the Wind Going?; 364-367, STEM Activity: Is Your Arm a Simple Machine?; 398- 403, Design It!</p>	<p>16. 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>						