

DISTRICT



Educational Excellence for Everyone

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Science
Instructional Sequence
Harcourt Science
2001-2002

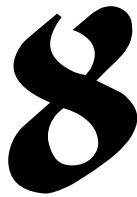
Grade 4



BOARD OF EDUCATION
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DISTRICT



Educational Excellence for Everyone

DR. BETTY A. ROSA
Community Superintendent

To All District 8 Science Instructors,

District 8 has created the *Scope and Sequence Charts, Calendars and the Science Concept Maps* in order to provide you greater flexibility in developing your classroom programs.

We are aware that materials vary from school to school. The curriculum map allows you to develop your program using available materials, while at the same time addressing the content that must be covered on each grade level. When more than one material is indicated per topic, the teacher may choose any one of them to teach the topic i.e. Foss or Insight Kits.

As this fall marks the first year of transition for science instructional materials (grades K - 8), not all schools have received sufficient numbers of books and kits to support all teaching staff at grade level. Therefore, it is necessary to schedule the distribution of these materials with your fellow teachers to best accommodate your school. Wherever necessary, the implementation of the district's suggested curriculum must be supported. It is expected that all materials will be rotated however necessary to support effective instruction in all content areas regardless of the curriculum materials in use.

Implementation of grade level assessments are of extreme importance this year. As novel forms of assessment accompany newly adopted curricula, we must follow-up on the success of our endeavors. Therefore, the District will issue new assessment materials for grades 2-8 according to the *Scope and Sequence Calendar*. These assessment materials will emulate the hands-on inquiry based model for science instruction as mandated by the State of New York. Along with your teacher based assessments, it is the District's intent to use these tools to assist in identifying students who might be at risk of falling below State Standards, as well as to measure the progress of our newly adopted curriculum. **Have a wonderful year!**

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Appendix

Science Calendar Grade 4

Concept Map Grade 4

Grade 4

Harcourt Science Pacing

2001 - 2002

Unit	Chapter	Lesson	Suggested Number of Days
A A world of Living Things	1 Living Things	1 What are Cells?	2
		2 What Are Animals?	2
		3 What Are Plants?	2
		4 What Are Fungi?	2
		Review & Assessment	1
	2 Animal Growth and Adaptations	1 What Are the Basic Needs of Animals?	3
		2 How Do Animal's Body Parts Help Them Meet Their Needs?	3
		3 How Do Animal's Behaviors Help Them Meet Their Needs?	3
		Review & Assessment	1
	3 Plant Growth and Adaptations	1 What Do Plants Need to Live?	2
		2 How Do Leaves, Stems, and Roots Help Plants Live?	2
		3 How Do Plants Reproduce?	2
		Review & Assessment	1
	4 Human Body Systems	1 How Do the Muscular and Skeletal Systems Work?	2
		2 How Do the Respiratory and Circulatory Systems Work?	2
		3 How Do the Nervous and Digestive Systems Work?	2
		Review & Assessment	2

**Dead Line for Mandatory District Unit Assessment:
"TO BE ANNOUNCED"**

Grade 4

Harcourt Science Pacing

2001-2002

Unit	Chapter	Lesson	Suggested Number of Days
B Looking at Ecosystems	1 Ecosystems	1 What Are Systems?	2
		2 What Makes Up an Ecosystem?	3
		3 What Are Habitats and Niches?	2
		4 What Are Tropical Rain Forests and Coral Reefs?	3
		5 What Are Some Salt Water Communities?	3
		Review & Assessment	2
	2 Protecting Ecosystems	1 What Kinds of Changes Occur in Ecosystems?	3
		2 How Do People Change Ecosystems?	3
		3 What Is Conservation?	2
		Review & Assessment	2

**Dead Line for Mandatory District Unit Assessment:
"TO BE ANNOUNCED"**

Grade 4

Harcourt Science Pacing

2001-2002

Unit	Chapter	Lesson	Suggested Number of Days
C Earth's Surface	1 Earthquakes and Volcanoes	1 What Are the Layers of the Earth?	3
		2 What Causes Earthquakes?	3
		3 How Do Volcanoes Form?	4
		Review & Assessment	1
	2 Fossils	1 How Do Fossils Form?	2
		2 What Can We Learn from Fossils?	3
		3 How Do Fossil Fuels Form?	3
		Review & Assessment	1

**Dead Line for Mandatory District Unit Assessment:
"TO BE ANNOUNCED"**

Grade 4

Harcourt Science Pacing

2001-2002

Unit	Chapter	Lesson	Suggested Number of Days
D Pattern on Earth and in Space	1 Weather Conditions	1 What Makes up Earth's Atmosphere?	2
		2 How Do Air Masses Affect Weather?	3
		3 How Is Weather Predicted?	2
		Review & Assessment	1
	2 The Oceans	1 What Role Do Oceans Play in the Water Cycle?	2
		2 What Are the Motions of Oceans?	3
		3 What Is the Ocean Floor Like?	3
		Review & Assessment	1
	3 Planets and Other Objects in Space	1 How Do Earth and Its Moon Move?	2
		2 How Do Objects Move in the Solar System?	2
		3 What Are the Planets Like?	4
		4 How Do People Study the Solar System?	3
		Review & Assessment	2

**Dead Line for Mandatory District Unit Assessment:
"TO BE ANNOUNCED"**

Grade 4

Harcourt Science Pacing

2001 - 2002

Unit	Chapter	Lesson	Suggested Number of Days
E Matter and Energy	1 Matter and Its Changes	1 What Are Three States of Matter?	2
		2 How Can Matter Be Measured and Compared	2
		3 What Are Some Useful Properties of Matter?	3
		4 What Are Physical and Chemical Changes?	3
		Review & Assessment	2
	2 Heat-Energy on the Move	1 How Does Heat Affect Matter?	2
		2 How Can Thermal Energy Be Transferred?	3
		3 How Is Thermal Energy Produced and Used?	2
		Review & Assessment	1
	3 Sound	1 What Is Sound?	2
		2 Why Do Sounds Differ?	2
		3 How Do Sound Waves Travel?	3
		Review & Assessment	1
	4 Light	1 How Does Light Move?	4
		2 How Are Light and Color Related?	3
		Review & Assessment	2

**Dead Line for Mandatory District Unit Assessment:
"TO BE ANNOUNCED"**

Grade 4

Harcourt Science Pacing

2001 - 2002

Unit	Chapter	Lesson	Suggested Number of Days
F Forces and Motion	1 Electricity and Magnetism	1 What Is Static Electricity?	2
		2 What Is an Electric Current?	2
		3 What Is a Magnet?	2
		4 What Is an Electromagnet?	3
		Review & Assessment	2
	2 Motion-Forces at Work	1 What is Motion?	2
		2 What Effects Do Forces Have on Objects?	3
		3 What Are Some Forces in Nature?	3
		Review & Assessment	1
	3 Simple Machines	1 How Does a Lever Help Us Do Work?	3
		2 How Do a Pulley and a Wheel and Axle Help Us Do Work?	2
		3 How Do Some Other Simple Machines Help Us Do Work?	3
		Review & Assessment	1

**Dead Line for Mandatory District Unit Assessment:
"TO BE ANNOUNCED"**

Grade 4

Science Pacing

2001 - 2002

New York City HIV Curriculum	Suggested Number of Periods	Calendar Dates
What causes diseases? How can we avoid contracting or transmitting a disease? <u>(Classroom Teacher)</u>	1	June 20 - 26
How does the body fight disease? How does HIV affect the immune system? <u>(Classroom Teacher)</u>	1	
How is HIV transmitted? How have myths about HIV transmission affected our society? <u>(Classroom Teacher)</u>	1	
How Can we help each other make healthy choices? <u>(Classroom teacher)</u>	1	
Identify sources for information and help within the community. <u>(Classroom Teacher)</u>	1	

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PERFORMANCE STANDARDS – SCIENCE
ELEMENTARY SCHOOL

Standards	Grade 4
<p>S1 Physical Sciences Concepts</p>	
<p>S1a The student produces evidence that demonstrates understanding of properties of objects and materials, such as similarities and differences in the size, weight, and color of objects; the ability of materials to react with other substances; and different states of materials.</p>	<p>B 7 D 32-33, 35 E 1, 4-5, 6-9, 7-8, 10-11, 12-15, 18-23, 24-25, 26-31, 28, 35, 36-37, 42, 44, 48-53, 49, 56, 63, 70-75, 84-89, 93, 94-95 F 6-9, 18-21, 34-35 WB220-221, 222, 224, 225-226, 227, 228, 229, 232, 234, 235-236, 237, 238, 239, 240, 247, 275, 292-293, 294, 295, 304, 305, 306, 321</p>
<p>S1b The student produces evidence that demonstrates understanding of position and motion of objects, such as how the motion of an object can be described by tracing and measuring its position over time; and how sound is produced by vibrating objects.</p>	<p>D 46-47 E 68-69, 70-75, 76-77, 78-81, 82-83, 84-89, 85, 90-91, 92, 93, 94-95 F 1, 38-39, 40-43, 44-45, 46-53, 56-59, 63, 64-65, 70-75, 90-91, 94-95 WB261-262, 263, 265, 266-267, 268, 269, 270, 271-272, 273, 275, 276, 315-316, 317, 319, 320-321, 322, 324, 330, 337, 348</p>
<p>S1c The student produces evidence that demonstrates understanding of light, heat, electricity, and magnetism, such as the variation of heat and temperature; how light travels in a straight line until it strikes an object or how electrical circuits work.</p>	<p>B 7 C 1 D 85 E 1, li-j, 40-41, 42-45, 46-47, 48-53, 54-55, 56-59, 57, 60-61, 63, 64-65, 68-69, 70-75, 92, 94-95, 98-99, 100-107, 108-109, 110-113, 117, 118-119 F 1, li-j, 4-5, 6-9, 10-11, 12-15, 16-17, 18-21, 21, 22-23, 24-29, 26-27, 30-31, 33, 34-35, 47, 54-55, 56-59, 60-61, 64-65, 84, 85 WB223, 243-244, 245, 246, 247, 248-249, 250, 251, 252, 253-254, 255, 256, 257, 258, 261-262, 263, 265, 276, 279-280, 281, 282, 283, 284-285, 286, 287, 288, 289, 292-293, 294, 295, 296, 297-298, 299, 300, 301, 302-303, 304, 305, 306, 307-308, 309, 311, 313, 321, 325-326, 327, 328, 329, 330, 331, 345</p>
<p>S2 Life Sciences Concepts</p>	
<p>S2a The student produces evidence that demonstrates understanding of characteristics of organisms, such as survival and environmental support; the relationship between structure and function; and variations in behavior.</p>	<p>A 1, li-j, 14-17, 16, 18-19, 20-23, 34-35, 38-39, 40-45, 42, 46-47, 48-53, 54-55, 56-61, 60, 64, 65, 66-67, 70-71, 72-75, 76-77, 78-81, 81, 82-83, 84-87, 86, 91, 92-93 B li-j, 4-5, 6-9, 10-11, 12-17, 18-19, 26-27, 28-33, 36-41, 46-47, 50-51, 78-79 C 36-39, 42-49, 58-59, 62-63 D 7 WB11, 12-13, 14, 15, 16, 22, 23, 28, 29, 30-31, 32, 33, 34, 35-36, 37, 38, 39, 40, 41, 43-44, 45, 46, 47, 48-49, 50, 51, 52, 53-54, 57, 58, 79-80, 83, 84-85, 87, 88, 93, 94-95, 96, 97, 98, 101, 102, 103, 146, 147, 150, 152, 158</p>
<p>S2b The student produces evidence that demonstrates understanding of life cycles of organisms, such as how inheritance and environment determine the characteristics of an organism; and that all plants and animals have life cycles.</p>	<p>A 20-23, 24-25, 27, 30-31, 34-35, 38-39, 40-45, 48-53, 66-67, 72-75, 78-81, 84-87, 92-93 B 4-5, 50-51 C 42-49 WB15, 16, 17-18, 21, 29, 30-31, 32, 34, 40, 56, 57, 58, 152</p>
<p>S2c The student produces evidence that demonstrates understanding of organisms and environments, such as the interdependence of animals and plants in an ecosystem; and populations and their effects on the environment.</p>	<p>A 38-39, 48-53, 66-67, 72-75, 78-81 B li-j, 4-5, 6-9, 10-11, 12-17, 17, 18-19, 20-25, 45, 46-47, 50-51, 52-57, 60-65, 65, 66-67, 68-73, 77, 78-79 C 40-41, 42-49, 58-59, 60, 61, 62-63 D 56 WB30-31, 32, 34, 40, 79-80, 81, 83, 84-85, 86, 87, 88, 89-90, 91, 93, 104, 105, 107-108, 111, 116, 122, 146, 148-149, 150, 152</p>

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ELEMENTARY SCHOOL

Standards	Grade 4
<p>S2d The student produces evidence that demonstrates understanding of change over time, such as evolution and fossil evidence depicting the great diversity of organisms developed over geologic history.</p>	<p>C 34-35, 36-39, 40-41, 42-49, 44, 58-59, 60, 61, 62-63 WB143-144, 145, 146, 147, 148-149, 150, 152, 158</p>
<p>S3 Earth and Space Sciences Concepts.</p>	
<p>S3a The student produces evidence that demonstrates understanding of properties of Earth materials, such as water and gases; and the properties of rocks and soils, such as texture, color, and ability to retain water.</p>	<p>B 28-33, 34-35, 37, 46-47 D 4-5, 6-9, 32-33, 34-37, 39, 40-45, 57, 58-59 E 4-5, 6-9, 16-17, 18-23, 36-37 WB99-100, 161-162, 163, 179-180, 181, 183, 188, 220-221, 222, 224, 228, 230-231, 232, 233, 234, 240</p>
<p>S3b The student produces evidence that demonstrate understanding of objects in the sky, such as Sun, Moon, planets, and other objects that can be observed and described; and the importance of the Sun to provide the light and heat necessary for survival.</p>	<p>B 21, 45 D 13, 16, 40-45, 58-59, 62-63, 64-67, 68-69, 70-73, 74-75, 76-81, 80, 90-91, 93, 94-95 E 48-53, 56-59, 64-65, 100-107 WB170, 182, 197-198, 200, 201, 202-203, 204, 205, 206, 207-208, 209, 211, 215, 217, 252, 253-254, 255, 283</p>
<p>S3c The student produces evidence that demonstrates understanding of changes in Earth and sky, such as changes caused by weathering, volcanism, and earthquakes; and the patterns of movement of objects in the sky.</p>	<p>B 1, 52-57, 60-65 C 1, li-j, 12-13, 14-17, 18-19, 20-25, 26-27, 28, 29, 30-31 D li-j, 10-11, 12-17, 15, 16, 20-23, 27, 28-29, 32-33, 34-37, 58-59, 64-67, 94-95 WB82, 110, 111, 128, 130-131, 132, 133, 134, 135-136, 139, 140, 166-167, 169, 174, 175, 176, 177, 182, 183, 194, 201, 204</p>
<p>S4 Scientific Connections and Applications</p>	
<p>S4a Big ideas and unifying concepts, such as order and organization; models, form and function; change and constancy; and cause and effect.</p>	<p>A 4-5, 6-11, 20-23, 24-25, 26-29, 30-31, 33, 34-35, 40-45, 46-47, 48-53, 65, 66-67, 70-71, 72-75, 74, 76-77, 78-81, 82-83, 84-87, 92-93, 98-101, 102-103, 104-107, 110-113, 117, 118-119 B 1, 4-5, 6-9, 12-17, 20-25, 26-27, 34-35, 36-41, 46-47, 50-51, 52-57, 60-65, 66-67, 68-73, 77 C 1, li-j, 4-5, 6-11, 8, 10, 12-13, 14-17, 18-19, 20-25, 26-27, 28, 29, 30-31, 31, 34-35, 36-39, 40-41, 42-49, 44, 52-57, 58-59, 60, 61, 62-63 D li-j, 6-9, 7, 10-11, 12-17, 13, 15, 16, 20-23, 21, 27, 28-29, 32-33, 34-37, 35, 38-39, 40-45, 42-43, 46-47, 48-53, 51, 52, 56, 57, 58-59, 64-67, 65, 68-69, 70-73, 72, 74-75, 76-81, 80, 85, 93, 94-95, 95 E 6-9, 7-8, 24-25, 26-31, 27, 36-37, 42, 44, 49, 56-59, 63, 68-69, 70-75, 76-77, 78-81, 93, 94-95, 100-107, 101, 117, 118-119 F li-j, 10-11, 12-15, 22-23, 24-29, 30-31, 33, 34-35, 56-59, 68-69, 70-75, 76-77, 78-81, 82-83, 84-89, 90-91, 92, 93, 94-95 WB2-3, 4, 6, 14, 16, 17-18, 22, 29, 30-31, 32, 33, 34, 40, 46, 48-49, 50, 51, 52, 53-54, 57, 58, 66-67, 68, 70, 73, 74, 75, 76, 79-80, 81, 82, 83, 87, 92, 93, 94-95, 96, 101, 103, 104, 105, 107-108, 110, 111, 114, 116, 125-126, 127, 128, 129, 130-131, 132, 133, 134, 135-136, 137, 139, 140, 141, 143-144, 145, 146, 147, 148-149, 150, 152, 158, 165, 166-167, 169, 174, 175, 176, 177, 182, 183, 184-185, 186, 187, 188, 189-190, 193, 194, 195, 200, 201, 202-203, 204, 207-208, 209, 210, 217, 224, 228, 235-236, 237, 238, 239, 247, 261-262, 263, 265, 266-267, 268, 269, 270, 281, 283, 289, 297-298, 299, 301, 307-308, 311, 321, 329, 333-334, 335, 336, 337, 338-339, 340, 341, 342, 343-344, 345, 346, 347, 348, 349 R 26-27, 28-29, 30-31, 32-33, 34-35,</p>

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Standards	Grade 4
<p>S4a Big ideas and unifying concepts, such as order and organization; models, form and function; change and constancy; and cause and effect. Continued</p>	<p>36-37</p>
<p>S4b The designed world, such as development of agricultural techniques; and the viability of technological designs.</p>	<p>A 32, 62-63, 88-89 B 42-43, 60-65 C 26-27 D 24-25, 54-55, 56, 82-83, 84-89, 92, 94-95 E 32-33, 60-61, 62, 90-91, 114-115, 116 F 32, 60-61, 92 WB116, 210, 212-213, 214, 216, 217, 233</p>
<p>S4c Personal health, such as nutrition, substance abuse, and exercise; germs and toxic substances; personal and environmental safety.</p>	<p>A 23, 101, 113 C 17 D 17 F 9, 15 R 8-9, 12-13, 15, 16-17, 18, 19, 20, 21, 22, 23, 24, 26-27, 28-29, 30-31, 32-33, 34-35, 36-37</p>
<p>S4d Science as a human endeavor, such as communication, cooperation, and diverse input in scientific research; and the importance of reason, intellectual honesty, and skepticism.</p> <p>S4d Science as a human endeavor, such as communication, cooperation, and diverse input in scientific research; and the importance of reason, intellectual honesty, and skepticism. Continued</p>	<p>A 1i-j, 12-13, 18-19, 22, 24-25, 30-31, 32, 38-39, 46-47, 54-55, 63, 64, 67, 70-71, 76-77, 82-83, 89, 90, 96-97, 102-103, 115, 116 B 1i-j, 4-5, 10-11, 43, 44, 50-51, 58-59, 66-67, 71, 74-75, 76, 79 C 1i-j, 4-5, 27, 28, 40-41, 43, 50-51, 58-59, 60 D 1i-j, 10-11, 14, 25, 26, 32-33, 38-39, 54, 55, 56, 62-63, 68-69, 74-75, 82-83, 90-91, 92 E 1i-j, 16-17, 17, 24-25, 32, 33, 34, 40-41, 54-55, 60, 61, 62, 68-69, 76-77, 82-83, 91, 92, 95, 98-99, 108-109, 114-115, 116 F 1i-j, 4-5, 10-11, 16-17, 22-23, 30-31, 32, 38-39, 44-45, 45, 47, 54-55, 61, 62, 65, 68-69, 76-77, 87, 90-91, 92</p> <p>WB7-8, 12-13, 25-26, 35-36, 37, 48-49, 53-54, 66-67, 84-85, 107-108, 117-118, 119, 125-126, 148-149, 153-154, 166-167, 184-185, 197-198, 202-203, 230-231, 235-236, 253-254, 261-262, 266-267, 271-272, 273, 279-280, 281, 284-285, 292-293, 297-298, 307-308, 315-316, 317, 325-326, 333-334, 338-339</p>
<p>S5 Scientific Thinking</p>	
<p>S5a Asks questions about natural phenomena; objects and organisms; and events and discoveries.</p>	<p>A 1i-j, 2, 25, 36, 68, 94, 103 B 1i-j, 2, 5, 35, 48, 59 C 1i-j, 2, 32, 35 D 1i-j, 2, 30, 39, 60, 63 E 1i-j, 2, 17, 25, 38, 48, 66, 68-69, 77, 96 F 1i-j, 2, 16-17, 36, 45, 66, 77 WB79-80, 302-303, 304</p>
<p>S5b Uses concepts from Science Standards 1 to 4 to explain a variety of observations and phenomena.</p>	<p>A 1i-j, 4-5, 7, 12-13, 15, 18-19, 21, 24-25, 35, 38-39, 41, 43, 46-47, 49, 54-55, 57, 58, 60, 65, 67, 70-71, 74, 76-77, 80, 82-83, 85, 93, 96-97, 102-103, 106, 108-109, 114, 119 B 1i-j, 4-5, 7, 10-11, 13, 14, 15, 18-19, 28, 34-35, 38, 45, 47, 50-51, 54, 58-59, 64, 66-67, 69, 71, 77, 79 C 1i-j, 4-5, 9, 12-13, 18-19, 24, 31, 34-35, 40-41, 43, 50-51, 53, 58, 63 D 1i-j, 4-5, 10-11, 14, 15, 18-19, 21, 24, 27, 29, 32-33, 38-39, 39, 46-47, 54,</p>

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Standards	Grade 4
<p>S5b Uses concepts from Science Standards 1 to 4 to explain a variety of observations and phenomena. Continued</p>	<p>57, 59, 62-63, 68-69, 74-75, 79, 82-83, 85, 87, 90, 91, 93, 95 E 1i-j, 4-5, 7, 10-11, 16-17, 21, 22, 24-25, 32, 37, 40-41, 44, 46-47, 50, 54-55, 58, 60, 65, 68-69, 73, 76-77, 79, 82-83, 86, 93, 95, 98-99, 101, 105, 106, 108-109, 117, 119 F 1i-j, 4-5, 10-11, 16-17, 19, 22-23, 27, 33, 35, 38-39, 44-45, 50, 54-55, 58, 63, 65, 68-69, 72, 73, 76-77, 79, 82-83, 90, 93, 95 WB2-3, 4, 7-8, 9, 12-13, 14, 17-18, 19, 25-26, 27, 30-31, 35-36, 37, 43-44, 48-49, 50, 53-54, 61-62, 63, 66-67, 71-72, 73, 79-80, 84-85, 86, 89-90, 91, 99-100, 101, 107-108, 109, 112-113, 114, 117-118, 119, 125-126, 130-131, 132, 135-136, 143-144, 145, 148-149, 150, 153-154, 155, 161-162, 163, 166-167, 179-180, 181, 184-185, 197-198, 199, 202-203, 212-213, 214, 220-221, 222, 225-226, 230-231, 232, 235-236, 237, 243-244, 248-249, 250, 253-254, 255, 261-262, 263, 266-267, 268, 271-272, 273, 279-280, 281, 284-285, 286, 292-293, 294, 297-298, 302-303, 307-308, 309, 315-316, 317, 320-321, 325-326, 333-334, 338-339, 340, 343-344</p>
<p>S5c Uses evidence from reliable sources to construct explanations.</p>	<p>A 1i-j, 4-5, 25, 33, 35, 38-39, 46-47, 65, 70-71, 82-83, 93, 102-103, 103, 117, 119 B 1i-j, 4-5, 10-11, 26-27, 47, 50-51, 59 C 1i-j, 4-5, 12-13, 18-19, 29, 31, 34-35, 35, 40-41, 51, 61 D 1i-j, 10-11, 18-19, 27, 29, 32-33, 38-39, 39, 46-47, 57, 62-63, 68-69, 74-75, 95 E 1i-j, 4-5, 10-11, 17, 21, 27, 37, 40-41, 65, 77, 108-109, 119 F 1i-j, 10-11, 16-17, 35, 44-45, 45, 47, 50, 54-55, 65, 68-69, 77, 82-83, 87, 95 WB2-3, 4, 25-26, 30-31, 32, 43-44, 45, 53-54, 55, 66-67, 68, 79-80, 81, 94-95, 96, 107-108, 125-126, 127, 135-136, 137, 166-167, 168, 171-172, 173, 184-185, 186, 189-190, 197-198, 202-203, 204, 207-208, 209, 220-221, 222, 225-226, 227, 243-244, 245, 284-285, 286, 297-298, 299, 302-303, 320-321, 322, 325-326, 333-334, 335, 343-344, 345</p>
<p>S5d Evaluates different points of view using relevant experiences, observations, and knowledge; and distinguishes between fact and opinion.</p>	<p>A 1i-j, 4-5, 7, 12-13, 18-19, 21, 24-25, 35, 38-39, 46-47, 54-55, 62, 65, 67, 70-71, 76-77, 80, 82-83, 93, 96-97, 102-103, 119 B 1i-j, 4-5, 10-11, 13, 18-19, 34-35, 45, 47, 50-51, 58-59, 64, 66-67, 69, 71, 77, 79 C 1i-j, 4-5, 12-13, 18-19, 31, 34-35, 40-41, 43, 50-51, 58 D 1i-j, 4-5, 10-11, 14, 18-19, 22, 24, 27, 29, 32-33, 38-39, 46-47, 54, 57, 59, 62-63, 68-69, 74-75, 82-83, 90, 93, 95 E 1i-j, 4-5, 10-11, 16-17, 17, 21, 24-25, 32, 37, 40-41, 46-47, 54-55, 60, 65, 68-69, 76-77, 82-83, 93, 95, 98-99, 108-109, 114, 117, 119 F 1i-j, 4-5, 10-11, 16-17, 19, 22-23, 25, 27, 33, 35, 38-39, 45, 47, 50, 54-55, 58, 63, 65, 68-69, 73, 76-77, 79, 82-83, 87, 93, 95 WB2-3, 4, 7-8, 12-13, 14, 17-18, 19, 25-26, 27, 30-31, 35-36, 37, 43-44, 48-49, 53-54, 55, 61-62, 63, 66-67, 68, 79-80, 84-85, 86, 99-100, 107-108, 109, 112-113, 117-118, 119, 125-126, 127, 130-131, 132, 135-136, 143-144, 148-149, 150, 153-154, 161-162, 163, 166-167, 168, 171-172, 173, 179-180, 181, 184-185, 197-198, 199, 202-203, 212-213, 214, 220-221, 222, 225-226, 227, 230-231, 235-236, 237, 243-244, 245, 248-249, 250, 253-254, 255, 261-262, 263,</p>

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<p>S5e Identifies problems; proposes and implements solutions; and evaluates the accuracy, design, and outcomes of investigations.</p> <p>S5</p>	<p>A li-j, 25, 103 B li-j, 50-51, 59, 71 C li-j, 35, 51 D li-j, 39 E li-j, 17, 54-55, 65, 77, 82-83, 95 F li-j, 10-11, 16-17, 35, 44-45, 45, 47, 65, 77, 87 WB107-108, 109, 253-254, 255, 271-272, 273, 297-298, 299, 302-303, 320-321, 322</p>
<p>S5f Works individually and in teams to collect and share information and ideas.</p>	<p>A 1, li-j, 4-5, 33, 35, 46-47, 65, 117 B 1, li-j, 4-5, 26-27, 47, 50-51 C 1, li-j, 12-13, 18-19, 29, 31, 34-35, 40-41, 61 D 1, li-j, 38-39, 46-47, 68-69, 74-75, 95 E 1, li-j, 17, 27 F 1, li-j, 16-17, 45, 47, 82-83, 87 WB2-3, 4, 30-31, 32, 79-80, 81, 94-95, 96, 107-108, 135-136, 137, 184-185, 186, 189-190, 202-203, 204, 207-208, 209, 343-344, 345</p>
<p>S6 Scientific Tools and Technologies</p>	
<p>S6a Uses technology and tools (such as rulers, computers, balances, thermometers, watches, magnifiers, and microscopes) to gather data and extend the senses.</p>	<p>A li-j, 8, 12-13, 18-19, 50, 82-83, 96-97, 102-103 B li-j, 10-11, 45, 50-51, 71 C li-j, 4-5 D li-j, 21, 27, 62-63, 74-75, 93 E li-j, 10-11, 35, 40-41, 54-55, 63, 65, 82-83, 95 F li-j, 42, 44-45, 50, 54-55, 63, 68-69, 72, 82-83 WB7-8, 12-13, 17-18, 53-54, 61-662, 84-85, 107-108, 109, 125-126, 197-198, 207-208, 225-226, 243-244, 253-254, 255, 266-267, 271-272, 273, 320-321, 325-326, 333-334, 343-344 R 2, 3, 4, 5</p>
<p>S6b Collects and analyzes data using concepts and techniques in Mathematics Standard 4, such as average, data displays, graphing, variability, and sampling.</p>	<p>A 1e, 3, 11, 12-13, 17, 23, 29, 37, 38-39, 45, 46-47, 53, 59, 61, 62, 69, 75, 81, 87, 95, 101, 102-103, 106, 107, 113 B 1e, 3, 9, 17, 24, 25, 29, 32, 33, 41, 49, 50-51, 57, 65, 68, 70, 72, 73 C 1e, 3, 4-5, 7, 11, 16, 17, 24, 25, 33, 39, 49, 50-51, 57, 60, 63 D 1e, 3, 9, 10-11, 17, 22, 23, 29, 31, 37, 45, 46-47, 53, 59, 61, 67, 73, 79, 81, 89 E 1e, 3, 9, 13, 14, 15, 19, 23, 31, 39, 43, 45, 52, 53, 54-55, 59, 63, 67, 75, 79, 81, 85, 89, 97, 107, 113 F 1e, 3, 9, 10-11, 15, 21, 29, 37, 43, 49, 51, 53, 57, 59, 67, 68-69, 74, 75, 81, 89 WB7-8, 53-54, 153-154, 155, 174, 189-190, 191, 253-254, 297-298, 333-334</p>
<p>S6c Acquires information from multiple sources, such as experimentation and print and non-print sources.</p>	<p>A li-j, 81 B li-j, 55, 63, 64 C li-j, 23, 57 D li-j, 7, 22, 41 E li-j, 9, 15, 17, 81, 89 F li-j, 16-17, 20, 28, 43, 45, 47, 53, 75, 81, 87, 89 WB138, 164, 215</p>
<p>S7 Scientific Communication</p>	
<p>S7a Represents data and results in multiple ways, such as numbers, tables, and graphs; drawings, diagrams, and artwork; and technical and creative writing.</p>	<p>A li-j, 11, 17, 23, 45, 53, 54-55, 61, 67, 81, 85, 101, 113 B li-j, 9, 10-11, 17, 25, 32, 41, 65, 66-</p>

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<p>S8c A design, such as building a model or scientific apparatus.</p>	<p>A 4-5, 33, 35, 46-47, 65, 117 B 4-5, 26-27, 47, 50-51 C 12-13, 18-19, 29, 31, 34-35, 40-41, 61 D 38-39, 46-47, 68-69, 74-75, 95 E 27 F 82-83 WB2-3, 4, 30-31, 32, 79-80, 81, 94-95, 96, 107-108, 135-136, 137, 184-185, 186, 189-190, 202-203, 204, 207-208, 209, 343-344, 345</p>
<p>S8d Non-experimental research using print and electronic information, such as journals, video, or computers.</p>	<p>A 1e, 2c, 2d, 11, 17, 23, 29, 36c, 36d, 45, 53, 61, 68c, 68d, 75, 81, 94c, 94d, 101, 107, 113, 120 B 1e, 2c, 2d, 9, 17, 25, 41, 48c, 48d, 55, 57, 63, 64, 65, 73, 80 C 1e, 2c, 2d, 11, 17, 23, 25, 32c, 32d, 49, 57, 64 D 1e, 2c, 2d, 7, 9, 17, 22, 30c, 30d, 37, 41, 45, 53, 60c, 60d, 67, 73, 81, 89, 96 E 1e, 2c, 2d, 9, 15, 23, 31, 38c, 38d, 45, 53, 59, 66c, 66d, 75, 81, 89, 96c, 96d, 107, 113, 120 F 1e, 2c, 2d, 9, 15, 20, 21, 28, 29, 36c, 36d, 43, 53, 66c, 66d, 75, 81, 89, 96 WB138, 164, 215</p>

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Standards	Grade 4
<p>STANDARD 1 - ANALYSIS, INQUIRY, AND DESIGN Scientific Inquiry</p>	
<p>1. The central purpose of scientific inquiry is to develop explanations of natural phenomena in a continuing, creative process.</p>	
<p>ask "why" questions in attempts to seek greater understanding concerning objects and events they have observed and heard about.</p>	<p>A 1i-j, 2, 36, 68, 94 B 1i-j, 2, 48 C 1i-j, 2, 32 D 1i-j, 2, 30, 60 E 1i-j, 2, 38, 66, 96 F 1i-j, 2, 36, 66</p>
<p>question the explanations they hear from others and read about, seeking clarification and comparing them with their own observations and understandings.</p>	<p>A 1i-j, 4-5, 8, 12-13, 16, 18-19, 21, 28, 33, 44, 46-47, 50, 54-55, 60, 65, 70-71, 74, 76-77, 79, 82-83, 86, 91, 96-97, 100, 102-103, 105, 108-109, 112, 117 B 1i-j, 4-5, 7, 10-11, 16, 18-19, 24, 25, 26-27, 30, 34-35, 37, 40, 45, 50-51, 56, 58-59, 63, 66-67, 69, 77 C 1i-j, 4-5, 10, 12-13, 15, 18-19, 21, 29, 34-35, 37, 40-41, 44, 46, 50-51, 56, 61 D 1i-j, 4-5, 7, 10-11, 13, 18-19, 21, 27, 32-33, 35, 38-39, 41, 46-47, 57, 62-63, 68-69, 72, 74-75, 77, 80, 82-83, 85, 93 E 1i-j, 4-5, 7, 10-11, 13, 16-17, 19, 21, 24-25, 28, 30, 35, 40-41, 44, 46-47, 49, 54-55, 57, 63, 68-69, 71, 76-77, 82-83, 85, 93, 98-99, 101, 105, 108-109, 112, 117 F 1i-j, 4-5, 7, 10-11, 13, 16-17, 19, 22-23, 26, 33, 38-39, 42, 44-45, 47, 50, 54-55, 63, 68-69, 72, 76-77, 80, 82-83, 86, 93 WB2-3, 7-8, 12-13, 17-18, 25-26, 30-31, 35-36, 43-44, 48-49, 53-54, 61-62, 66-67, 71-72, 79-80, 89-90, 94-95, 99-100, 107-108, 112-113, 117-118, 125-126, 130-131, 135-136, 143-144, 148-149, 153-154, 161-162, 166-167, 171-172, 179-180, 184-185, 189-190, 197-198, 202-203, 207-208, 212-213, 220-221, 225-226, 230-231, 235-236, 243-244, 248-249, 253-254, 261-262, 266-267, 271-272, 279-280, 284-285, 292-293, 297-298, 302-303, 307-308, 315-316, 320-321, 325-326, 333-334, 338-339, 343-344</p>
<p>develop relationships among observations to construct descriptions of objects and events and to form their own tentative explanations of what they have observed.</p>	<p>A 1i-j, 4-5, 7, 11, 12-13, 18-19, 21, 24-25, 35, 38-39, 46-47, 65, 70-71, 76-77, 80, 82-83, 96-97, 102-103 B 1i-j, 4-5, 10-11, 13, 17, 18-19, 34-35, 45, 47, 50-51, 58-59, 64, 65, 66-67, 69, 71, 77 C 1i-j, 4-5, 12-13, 14, 18-19, 34-35, 40-41, 49, 50-51 D 1i-j, 4-5, 9, 10-11, 27, 29, 32-33, 38-39, 45, 46-47, 53, 57, 59, 62-63, 66, 68-69, 74-75, 82-83, 93, 95 E 1i-j, 4-5, 10-11, 16-17, 18-23, 24-25, 30, 36-37, 37, 40-41, 46-47, 54-55, 68-69, 75, 76-77, 81, 82-83, 93, 95, 98-99, 107, 108-109, 113, 117, 119 F 1i-j, 4-5, 9, 10-11, 16-17, 19, 22-23, 27, 29, 33, 35, 38-39, 44-45, 50, 54-55, 58, 63, 65, 68-69, 73, 75, 76-77, 82-83, 93 WB2-3, 7-8, 12-13, 14, 17-18, 19, 25-26, 27, 30-31, 43-44, 48-49, 53-54, 61-62, 63, 66-67, 79-80, 84-85, 86, 99-100, 105, 107-108, 112-113, 125-126, 130-131, 132, 135-136, 143-144, 148-149, 150, 153-154, 161-162, 163, 166-167, 179-180, 181, 184-185, 197-198, 199, 202-203, 212-213, 214, 220-221, 225-226, 230-231, 232, 233, 234, 235-236, 237, 240, 248-249, 250, 253-254, 261-262, 263, 266-267, 271-272, 273, 279-280, 281, 284-285, 292-293, 297-298, 302-303, 307-308, 315-316, 320-321, 325-326, 327, 333-334, 338-339, 343-344</p>

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Standards	Grade 4
2. Beyond the use of reasoning and consensus, scientific inquiry involves the testing of proposed explanations involving the use of conventional techniques and procedures and usually requiring considerable ingenuity	
develop written plans for exploring phenomena or for evaluating explanations guided by questions or proposed explanations they have helped formulate.	<p>A 1i-j, 25, 103 B 1i-j, 5, 35, 59 C 1i-j, 35, 51 D 1i-j, 39, 63 E 1i-j, 17, 25, 48, 68-69, 77 F 1i-j, 10-11, 16-17, 35, 44-45, 45, 65, 77 WB79-80, 297-298, 299, 302-303, 304, 320-321, 322</p>
share their research plans with others and revise them based on their suggestions.	<p>A 1i-j, 25, 70-71, 93, 103 B 1i-j, 59 C 1i-j, 35, 51 D 1i-j, 39 E 1i-j, 17, 77 F 1i-j, 10-11, 35, 44-45, 65, 77 WB43-44, 45, 297-298, 299, 302-303, 320-321, 322</p>
carry out their plans for exploring phenomena through direct observation and through the use of simple instruments that permit measurements of quantities (e.g., length, mass, volume, temperature, and time.	<p>A 4-5, 7, 12-13, 18-19, 21, 24-25, 35, 38-39, 46-47, 65, 70-71, 76-77, 80, 82-83, 93, 96-97, 102-103, 119 B 1i-j, 4-5, 10-11, 13, 18-19, 34-35, 45, 47, 50-51, 58-59, 64, 69, 77 C 4-5, 12-13, 18-19, 31, 34-35, 40-41, 50-51 D 1i-j, 4-5, 10-11, 18-19, 21, 27, 29, 32-33, 38-39, 46-47, 57, 59, 62-63, 68-69, 74-75, 82-83, 93, 95 E 1i-j, 4-5, 6-9, 10-11, 12-15, 15, 16-17, 24-25, 35, 36-37, 37, 40-41, 46-47, 54-55, 63, 65, 68-69, 76-77, 82-83, 93, 95, 98-99, 108-109, 117, 119 F 4-5, 10-11, 16-17, 19, 22-23, 27, 33, 35, 42, 50, 54-55, 58, 63, 68-69, 72, 73, 75, 76-77, 82-83, 89, 93, 95 WB2-3, 7-8, 12-13, 14, 17-18, 19, 25-26, 27, 30-31, 43-44, 48-49, 53-54, 55, 61-62, 63, 66-67, 68, 79-80, 84-85, 86, 99-100, 107-108, 112-113, 125-126, 127, 130-131, 132, 135-136, 143-144, 148-149, 150, 153-154, 161-162, 163, 166-167, 168, 171-172, 173, 179-180, 181, 184-185, 197-198, 199, 202-203, 207-208, 212-213, 214, 220-221, 225-226, 227, 228, 229, 230-231, 232, 235-236, 237, 240, 243-244, 245, 248-249, 250, 253-254, 261-262, 263, 266-267, 271-272, 279-280, 281, 284-285, 292-293, 297-298, 302-303, 307-308, 320-321, 325-326, 333-334, 335, 338-339, 343-344 R 2, 4, 5</p>
3. The observations made while testing proposed explanations, when analyzed using conventional and invented methods, provide new insights into phenomena.	
organize observations and measurements of objects and events through classification and the preparation of simple charts and tables.	<p>A 4-5, 7, 12-13, 18-19, 21, 24-25, 33, 35, 38-39, 46-47, 59, 65, 70-71, 76-77, 80, 82-83, 93, 96-97, 102-103, 119 B 1i-j, 4-5, 10-11, 13, 18-19, 34-35, 45, 47, 50-51, 58-59, 64, 68, 69, 72, 74, 77 C 4-5, 7, 12-13, 18-19, 23, 24, 31, 34-35, 38, 40-41, 50-51 D 1i-j, 4-5, 10-11, 18-19, 22, 27, 29, 32-33, 38-39, 46-47, 57, 59, 62-63, 68-69, 74-75, 82-83, 93, 95 E 4-5, 10-11, 16-17, 24-25, 37, 40-41, 46-47, 52, 65, 68-69, 76-77, 82-83, 93, 95, 98-99, 108-109, 117, 119 F 4-5, 10-11, 16-17, 19, 22-23, 27, 33, 35, 50, 54-55, 57, 58, 63, 68-69, 73, 76-77, 82-83, 93, 95 WB2-3, 7-8, 12-13, 14, 17-18, 19, 25-26, 27, 30-31, 43-44, 48-49, 53-54, 55, 61-62, 63, 66-67, 68, 79-80, 84-85, 86, 99-100, 107-108, 112-113, 125-126,</p>

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Standards	Grade 4
<p>organize observations and measurements of objects and events through classification and the preparation of simple charts and tables. Continued</p>	<p>127, 130-131, 132, 135-136, 143-144, 148-149, 150, 153-154, 161-162, 163, 166-167, 168, 171-172, 173, 174, 179-180, 181, 184-185, 197-198, 199, 202-203, 212-213, 214, 220-221, 225-226, 227, 230-231, 235-236, 237, 243-244, 245, 248-249, 250, 261-262, 263, 266-267, 271-272, 279-280, 281, 284-285, 292-293, 297-298, 302-303, 307-308, 320-321, 325-326, 333-334, 335, 338-339, 343-344</p>
<p>interpret organized observations and measurements, recognizing simple patterns, sequences, and relationships.</p>	<p>A 1i-j, 4-5, 7, 12-13, 15, 18-19, 21, 24-25, 35, 38-39, 41, 46-47, 49, 54-55, 58, 65, 67, 70-71, 74, 76-77, 80, 82-83, 85, 93, 96-97, 102-103, 114, 119 B 1i-j, 4-5, 10-11, 13, 14, 18-19, 28, 34-35, 38, 45, 47, 50-51, 54, 58-59, 64, 69, 71, 77, 79 C 1i-j, 4-5, 12-13, 14, 18-19, 24, 31, 34-35, 40-41, 50-51, 53 D 1i-j, 4-5, 10-11, 15, 18-19, 21, 24, 27, 29, 32-33, 38-39, 46-47, 54, 57, 59, 62-63, 66, 68-69, 74-75, 79, 82-83, 85, 91, 93, 95 E 1i-j, 4-5, 7, 10-11, 16-17, 24-25, 30, 37, 40-41, 44, 46-47, 50, 54-55, 65, 68-69, 73, 76-77, 79, 82-83, 86, 93, 95, 98-99, 101, 108-109, 117, 119 F 1i-j, 4-5, 10-11, 16-17, 19, 22-23, 27, 33, 35, 38-39, 50, 54-55, 58, 63, 65, 68-69, 72, 73, 76-77, 79, 82-83, 90, 93, 95 WB2-3, 7-8, 12-13, 14, 17-18, 19, 25-26, 27, 30-31, 35-36, 43-44, 48-49, 50, 53-54, 55, 61-62, 63, 66-67, 68, 79-80, 84-85, 86, 99-100, 101, 107-108, 109, 112-113, 114, 125-126, 127, 130-131, 132, 135-136, 143-144, 148-149, 150, 153-154, 155, 161-162, 163, 166-167, 168, 171-172, 173, 179-180, 181, 184-185, 197-198, 199, 202-203, 212-213, 214, 220-221, 225-226, 227, 230-231, 235-236, 237, 243-244, 245, 248-249, 250, 253-254, 255, 261-262, 263, 266-267, 271-272, 273, 279-280, 281, 284-285, 292-293, 297-298, 302-303, 307-308, 320-321, 325-326, 327, 333-334, 335, 338-339, 340, 343-344</p>
<p>share their findings with others and actively seek their interpretations and ideas.</p>	<p>A 1i-j, 12-13, 18-19, 24-25, 38-39, 46-47, 54-55, 67, 70-71, 76-77, 82-83, 96-97, 102-103 B 1i-j, 4-5, 10-11, 50-51, 58-59, 66-67, 71, 79 C 1i-j, 4-5, 40-41, 43, 50-51, 58 D 1i-j, 10-11, 14, 32-33, 38-39, 54, 62-63, 68-69, 74-75, 82-83, 90 E 1i-j, 16-17, 18-23, 24-25, 32, 36-37, 40-41, 54-55, 60, 68-69, 76-77, 82-83, 95, 98-99, 108-109 F 1i-j, 4-5, 10-11, 22-23, 38-39, 44-45, 54-55, 65, 68-69, 76-77 WB7-8, 12-13, 25-26, 35-36, 37, 48-49, 53-54, 66-67, 84-85, 107-108, 117-118, 119, 125-126, 148-149, 153-154, 166-167, 184-185, 197-198, 202-203, 230-231, 232, 233, 234, 235-236, 240, 253-254, 261-262, 266-267, 271-272, 273, 279-280, 281, 284-285, 292-293, 297-298, 307-308, 315-316, 317, 325-326, 333-334, 338-339</p>
<p>adjust their explanations and understandings of objects and events based on their findings and new ideas.</p>	<p>A 1i-j, 4-5, 35 B 1i-j C 1i-j D 1i-j, 32-33 E 1i-j, 4-5, 17, 21, 37, 108-109, 119 F 1i-j, 16-17, 45, 47, 50, 87 WB2-3, 4, 220-221, 222, 284-285, 286</p>
<p>STANDARD 2--INFORMATION SYSTEMS</p>	
<p>1. Information technology is used to retrieve, process, and communicate information and as a tool to enhance learning.</p>	

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Standards	Grade 4
use a variety of equipment and software packages to enter, process, display, and communicate information in different forms using text, tables, pictures, and sound.	A 1e, 29, 75 B 1e, 9, 33 C 1e, 57 D 1e, 81 E 1e, 73 F 1e, 21, 43
access needed information from printed media, electronic data bases, and community resources	A 1e, 2d, 11, 17, 23, 36d, 45, 53, 68d, 81, 94d, 107, 113, 120 B 1e, 2d, 9, 17, 41, 48d, 55, 57, 63, 64, 73, 80 C 1e, 2d, 11, 23, 25, 32d, 57, 64 D 1e, 2d, 7, 9, 22, 30d, 37, 41, 53, 60d, 67, 73, 81, 96 E 1e, 2d, 9, 15, 31, 38d, 45, 59, 66d, 75, 81, 89, 113, 120 F 1e, 2d, 9, 20, 21, 28, 29, 43, 53, 66d, 75, 81, 89, 96 WB138, 164, 215
2. Knowledge of the impacts and limitations of information systems is essential to its effective and ethical use.	
describe the uses of information systems in homes, schools, and businesses.	A 1e, 2d, 11, 17, 23, 29, 36d, 45, 53, 68d, 75, 81, 87, 94d, 107, 113, 120 B 1e, 2d, 9, 17, 33, 41, 48d, 57, 73, 80 C 1e, 2d, 11, 25, 32d, 39, 57, 64 D 1e, 2d, 9, 23, 30d, 37, 53, 60d, 67, 73, 81, 96 E 1e, 2d, 9, 15, 31, 38d, 45, 59, 66d, 75, 89, 113, 120 F 1e, 2d, 9, 21, 29, 36d, 43, 59, 66d, 75, 89, 96
demonstrate ability to evaluate information	A 81 B 55, 63, 64 C 23, 57 D 7, 22, 41 E 9, 15, 81, 89 F 20, 28, 43, 53, 75, 81, 89 WB138, 164, 215
3. Information technology can have positive and negative impacts on society, depending upon how it is used.	
describe the uses of information systems in homes and schools.	A 1e, 2d, 11, 17, 23, 29, 36d, 45, 53, 68d, 75, 81, 87, 94d, 107, 113, 120 B 1e, 2d, 9, 17, 33, 41, 48d, 57, 73, 80 C 1e, 2d, 11, 25, 32d, 39, 57, 64 D 1e, 2d, 9, 23, 30d, 37, 53, 60d, 67, 73, 81, 96 E 1e, 2d, 9, 15, 31, 38d, 45, 59, 66d, 75, 89, 113, 120 F 1e, 2d, 9, 21, 29, 36d, 43, 59, 66d, 75, 89, 96
demonstrate ability to evaluate information critically.	A 81 B 55, 63, 64 C 23, 57 D 7, 22, 41 E 9, 15, 81, 89 F 20, 28, 43, 53, 75, 81, 89 WB138, 164, 215
STANDARD 4 - SCIENCE	
Physical Setting	
1. The Earth and celestial phenomena can be described by principles of relative motion and perspective.	
describe patterns of daily, monthly, and seasonal changes in their environment.	D 1i-j, 10-11, 15, 16, 18-19, 20-23, 27, 28-29, 64-67, 93, 94-95 WB166-167, 171-172, 173, 174, 175, 176, 177, 182, 201, 204
2. Many of the phenomena that we observe on Earth involve interactions among components of air, water, and land.	
describe the relationships among air, water, and land on Earth.	C 34-35, 36-39, 44, 61, 62-63 D 6-9, 21, 32-33, 34-37, 58-59 WB82, 143-144, 145, 147, 158, 182, 183, 194

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Standards	Grade 4
3. Matter is made up of particles whose properties determine the observable characteristics of matter and its reactivity.	
observe and describe properties of materials using appropriate tools.	A 12-13, 18-19, 50, 82-83 B 10-11, 45 E 1, 4-5, 6-9, 10-11, 12-15, 36-37 WB7-8, 12-13, 17-18, 53-54, 84-85, 220-221, 222, 224, 225-226, 227, 228, 229, 240 R 2
describe chemical and physical changes, including changes in states of matter.	D 32-33, 35 E 7-8, 24-25, 26-31, 36-37, 44, 49, 56, 63 WB224, 235-236, 237, 238, 239, 247
4. Energy exists in many forms, and when these forms change energy is conserved.	
describe a variety of forms of energy (e.g., heat, chemical, light) and the changes that occur in objects when they interact with those forms of energy.	D 32-33, 85 E 1, 1i-j, 18-23, 26-31, 28, 35, 36-37, 40-41, 42-45, 46-47, 48-53, 54-55, 56- 59, 57, 60-61, 63, 64-65, 68-69, 70-75, 76-77, 78-81, 82-83, 84-89, 92, 93, 94- 95, 100-107, 117, 118-119 F 10-11, 12-15, 34-35, 47 WB234, 240, 243-244, 245, 246, 247, 248-249, 250, 251, 252, 253-254, 255, 256, 257, 258, 259, 261-262, 263, 265, 266-267, 268, 269, 270, 275, 276, 281, 282, 283, 289, 297-298, 299, 301, 321
observe the way one form of energy can be transformed into another form of energy present in common situations (e.g., mechanical to heat energy, mechanical to electrical energy, chemical to heat energy).	E 26-31, 42-45, 54-55, 56-59, 64-65 F 10-11, 12-15, 34-35, 47 WB238, 239, 253-254, 255, 256, 257, 258, 297-298, 299, 301, 321
5. Energy and matter interact through forces that result in changes in motion.	
describe the effects of common forces (pushes and pulls) on objects, such as those caused by gravity, magnetism, and mechanical forces.	B 7 C 1 D 42-43 F 1, 4-5, 6-9, 16-17, 18-21, 34-35, 44- 45, 46-53, 47, 54-55, 56-59, 60-61, 63, 64-65, 68-69, 70-75, 76-77, 78-81, 82- 83, 84-89, 85, 90-91, 92, 93, 94-95 WB292-293, 294, 295, 296, 302-303, 304, 305, 306, 320-321, 324, 325-326, 327, 328, 329, 330, 331, 333-334, 335, 336, 337, 338-339, 340, 341, 342, 343- 344, 345, 346, 347, 348
describe how forces can operate across distances.	D 42-43 F 1, 16-17, 18-21, 34-35, 40-43, 46- 53, 56-59, 60-61, 63, 64-65, 76-77, 78- 81, 90-91, 92, 94-95 WB302-303, 309, 317, 319, 322, 324, 329, 330, 338-339, 340, 342, 348
The Living Environment	
1. Living things are both similar to and different from each other and nonliving things.	
describe the characteristics of and variations between living and nonliving things.	A 1, 14-17, 34-35, 38-39, 40-45, 46- 47, 48-53, 66-67, 70-71, 72-75, 76-77, 78-81, 82-83, 84-87, 86, 91, 92-93 B 1i-j, 4-5, 6-9, 12-17, 50-51 D 7 WB9, 11, 14, 22, 29, 30-31, 32, 33, 34, 40, 43-44, 45, 47, 48-49, 50, 51, 52, 53- 54, 58, 79-80, 83, 84-85, 87, 88
describe the life processes common to all living things.	A 1, 18-19, 20-23, 24-25, 27, 34-35, 38-39, 40-45, 66-67, 70-71, 72-75, 76- 77, 78-81, 82-83, 84-87, 92-93, 100, 101, 106 D 7 E 101 WB12-13, 14, 15, 16, 17-18, 21, 22, 29, 43-44, 46, 48-49, 52, 53-54, 56, 57, 58, 64
2. Organisms inherit genetic information in a variety of ways that result in continuity of structure and function between parents and offspring.	

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Standards	Grade 4
recognize that traits of living things are both inherited and acquired or learned.	A 54-55, 56-61, 64, 65, 66-67 WB35-36, 37, 39, 40
recognize that for humans and other living things there is genetic continuity between generations.	A 86
3. Individual organisms and species change over time.	
describe how the structures of plants and animals complement the environment of the plant or animal.	A 40-45, 72-75, 92-93 B 12-17, 18-19, 20-25, 26-27, 28-33, 36-41, 46-47 WB87, 89-90, 91, 93, 94-95, 97, 98, 101, 102, 103, 104
observe that differences within a species may give individuals an advantage in surviving and reproducing.	A 1, 48-53, 66-67, 72-75, 78-81, 92-93 WB30-31, 32, 34, 40
4. The continuity of life is sustained through reproduction and development.	
describe the major stages in the life cycles of selected plants and animals.	A 18-19, 20-23, 34-35, 40-45, 66-67, 82-83, 84-87, 92-93 WB12-13, 14, 15, 16, 22, 53-54, 56, 57, 58
describe evidence of growth, repair, and maintenance, such as nails, hair, and bone, and the healing of cuts and bruises.	A 82-83, 84-87, 92-93 WB53-54, 57, 58
5. Organisms maintain a dynamic equilibrium that sustains life.	
describe basic life functions of common living specimens (guppy, mealworm, gerbil).	A 1i-j, 18-19, 20-23, 34-35, 38-39, 40-45, 56-61, 60, 66-67, 72-75, 84-87, 92-93 B 4-5, 50-51 E 101 WB12-13, 14, 15, 16, 22, 29, 38, 39, 40, 45, 47, 58, 93, 96
describe some survival behaviors of common living specimens.	A 1, 48-53, 65, 66-67, 72-75, 78-81, 92-93 WB30-31, 32, 34, 40
describe the factors that help promote good health and growth in humans.	A 1, 23, 100, 101, 102-103, 106, 113 WB64 R 8-9, 12-13, 26-27, 28-29, 30-31, 32-33, 34-35, 36-37
6. Plants and animals depend on each other and their physical environment.	
describe how plants and animals, including humans, depend upon each other and the nonliving environment.	A 1i-j, 38-39, 40-45, 65, 66-67, 72-75, 88-89, 90, 92-93 B 1, 4-5, 12-17, 18-19, 20-25, 28-33, 45, 46-47, 65 D 49 WB29, 40, 41, 45, 47, 58, 79-80, 81, 87, 93, 98, 104
describe the relationship of the sun as an energy source for living and nonliving cycles.	A 1, 70-71, 72-75, 92-93 B 20-25, 21, 45 D 7, 70-73, 94-95 E 48-53, 56-59, 64-65 WB43-44, 47, 58, 170, 252, 253-254, 255
7. Human decisions and activities have had a profound impact on the physical and living environment.	
identify ways in which humans have changed their environment and the effects of those changes.	A 32 B 1i-j, 52-57, 58-59, 60-65, 66-67, 68-73, 74-75, 77, 78-79 WB111, 112-113, 116, 117-118, 119, 121, 122, 123
STANDARD 5 - TECHNOLOGY	
Computer Technology	
3. Computers, as tools for design, modeling, information processing, communication, and system control, have greatly increased human productivity and knowledge.	
use the computer as a tool for generating and drawing ideas.	A 1e, 2d, 11, 17, 23, 29, 36d, 45, 53, 68d, 75, 81, 94d, 107, 113, 120 B 1e, 2d, 9, 17, 33, 41, 48d, 57, 73, 80 C 1e, 2d, 11, 25, 32d, 57, 64 D 1e, 2d, 9, 30d, 37, 53, 60d, 67, 73,

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Standards	Grade 4
	81, 96 E 1e, 2d, 9, 15, 31, 38d, 45, 59, 66d, 73, 75, 113, 120 F 1e, 2d, 9, 21, 29, 43, 66d, 75, 89, 96
Technological Systems 4. Technological systems are designed to achieve specific results and produce outputs, such as products, structures, services, energy, or other systems.	
identify familiar examples of technological systems that are used to satisfy human needs and wants, and select them on the basis of safety, cost, and function.	F 10-11, 12-15, 33, 34-35 WB297-298, 299, 300, 301, 321
assemble and operate simple technological systems, including those with interconnecting mechanisms to achieve different kinds of movement.	F 10-11, 12-15, 24-29, 26-27, 33, 34-35, 76-77, 78-81, 90-91, 92, 94-95 WB297-298, 299, 300, 301, 311, 321, 338-339, 342, 348
understand that larger systems are made up of smaller component subsystems.	B 4-5, 6-9, 46-47 F 10-11, 12-15, 22-23, 24-29, 26-27, 30-31, 33, 34-35 WB79-80, 81, 83, 104, 105, 297-298, 299, 300, 301, 307-308, 311, 321
History and Evolution of Technology 5. Technology has been the driving force in the evolution of society from an agricultural to an industrial to an information base.	
identify technological developments that have significantly accelerated human progress.	A 30-31, 32, 62-63, 88-89, 114-115, 116 B 42-43, 74-75 C 26-27, 58-59 D 24-25, 54-55, 84-89, 90-91, 94-95 E 32-33, 60-61, 62, 90-91, 114-115, 116 F 30-31, 32, 60-61, 62, 90-91, 92 WB210, 216, 217
Impacts of Technology 6. Technology can have positive and negative impacts on individuals, society, and the environment and humans have the capability and responsibility to constrain or promote technological development	
describe how technology can have positive and negative effects on the environment and on the way people live and work.	A 32 B 1, 1i-j, 52-57, 58-59, 60-65, 65, 66-67, 68-73, 74-75, 76, 77, 78-79 C 52-57, 53 D 6-9, 12-17, 28-29, 56 E 56-59 WB111, 112-113, 116, 117-118, 120, 121, 122, 123, 165, 170, 176, 257
STANDARD 6--INTERCONNECTEDNESS: COMMON THEMES	
Systems Thinking 1. Through systems thinking, people can recognize the commonalities that exist among all systems and how parts of a system interrelate and combine to perform specific functions.	
observe and describe interactions among components of simple systems.	A 40-45, 48-53, 66-67, 72-75, 92-93 B 4-5, 6-9, 12-17, 18-19, 20-25, 36-41, 45, 46-47, 52-57 D 40-45, 58-59, 64-67, 68-69, 70-73, 76-81, 94-95 F 10-11, 12-15, 24-29, 34-35 WB33, 34, 58, 79-80, 81, 83, 84-85, 86, 88, 89-90, 92, 93, 103, 104, 105, 188, 201, 202-203, 204, 206, 217, 297-298, 299, 301, 311, 321
identify common things that can be considered to be systems (e.g., a plant population, a subway system, human beings).	A 40-45, 48-53, 66-67, 72-75, 92-93 B 4-5, 6-9, 12-17, 18-19, 20-25, 36-41, 45, 46-47, 52-57 D 40-45, 58-59, 64-67, 68-69, 70-73, 76-81, 94-95 F 10-11, 12-15, 24-29, 34-35 WB33, 34, 58, 79-80, 81, 83, 84-85, 86, 88, 89-90, 92, 93, 103, 104, 105, 188, 201, 202-203, 204, 206, 217, 297-298, 299, 301, 311, 321

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Standards	Grade 4
<p>Models 2. Models are simplified representations of objects, structures, or systems used in analysis, explanation, interpretation, or design.</p>	
<p>analyze, construct, and operate models in order to discover attributes of the real thing.</p>	<p>A 4-5, 33, 35, 46-47, 65, 117 B 4-5, 26-27, 47, 50-51 C 12-13, 18-19, 29, 31, 34-35, 40-41, 61 D 38-39, 46-47, 68-69, 74-75, 95 E 27 F 82-83 WB2-3, 4, 30-31, 32, 79-80, 81, 94-95, 96, 107-108, 135-136, 137, 184-185, 186, 189-190, 202-203, 204, 207-208, 209, 343-344, 345</p>
<p>discover that a model of something is different from the real thing but can be used to study the real thing.</p>	<p>A 4-5, 33, 35, 46-47, 65, 117 B 4-5, 26-27, 47, 50-51 C 12-13, 18-19, 29, 31, 34-35, 40-41, 61 D 38-39, 46-47, 68-69, 74-75, 95 E 27 F 82-83 WB2-3, 4, 30-31, 32, 79-80, 81, 94-95, 96, 107-108, 135-136, 137, 184-185, 186, 189-190, 202-203, 204, 207-208, 209, 343-344, 345</p>
<p>use different types of models, such as graphs, sketches, diagrams, and maps, to represent various aspects of the real world.</p>	<p>A 7, 8, 10, 27, 61, 73, 80, 84, 99, 100, 106 B 14-15, 21, 22, 23, 28, 32, 62-63, 65, 70 C 22-23, 45, 54-55 D 7, 8, 15, 22, 34-35, 40-41, 43, 46-47, 66, 76, 86 E 19, 22, 44, 50, 51, 54-55, 63, 72-73, 85, 86-87, 111 F 13, 14, 26-27, 28, 52, 73 WB182, 253-254</p>
<p>Magnitude and Scale 3. The grouping of magnitudes of size, time, frequency, and pressures or other units of measurement into a series of relative order provides a useful way to deal with the immense range and the changes in scale that affect the behavior and design of systems.</p>	
<p>provide examples of natural and manufactured things that belong to the same category yet have very different sizes, weights, ages, speeds, and other measurements.</p>	<p>A 81 C 49 E 1, 10-11, 15, 18-23 F 1, 40-43, 63, 64-65, 75, 89 WB225-226, 227, 317, 319, 322, 330</p>
<p>identify the biggest and the smallest values as well as the average value of a system when given information about its characteristics and behavior.</p>	<p>A 1, 53, 70-71, 102-103 B 1i-j, 4-5, 29 C 25 D 45 E 3, 43 F 1, 40-43, 44-45, 46-53, 54-55, 63, 64-65 WB43-44, 45, 79-80, 317, 319, 322, 324, 330 R 5, 6</p>
<p>Equilibrium and Stability 4. Equilibrium is a state of stability due either to a lack of changes (static equilibrium) or a balance between opposing forces (dynamic equilibrium).</p>	
<p>cite examples of systems in which some features stay the same while other features change.</p>	<p>A 40-45 B 6-9, 12-17, 20-25, 34-35, 46-47, 52-57, 60-65, 78-79 C 1, 1i-j, 14-17, 20-25, 28, 30-31, 42-49, 62-63 D 34-37, 38-39, 40-45, 58-59, 64-67, 80, 94-95 F 10-11, 12-15, 26-27, 34-35 WB83, 84-85, 88, 104, 105, 110, 111, 130-131, 132, 133, 134, 135-136, 139, 152, 183, 184-185, 187, 188, 194, 195, 201, 204, 297-298, 299, 300, 301, 321</p>
<p>distinguish between reasons for stability - from lack of changes to changes that counterbalance one another to changes within cycles.</p>	<p>B 12-17, 20-25, 46-47, 52-57 C 20-25, 30-31 D 32-33, 34-37, 58-59, 64-67, 65, 94-95 F 44-45, 46-53, 56-59, 64-65 WB82, 84-85, 86, 88, 89-90, 93, 104,</p>

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Standards	Grade 4
	110, 111, 128, 135-136, 139, 182, 183, 194, 201, 217, 320-321, 329
<p>Patterns of Change</p> <p>5. Identifying patterns of change is necessary for making predictions about future behavior and conditions.</p>	
<p>use simple instruments to measure such quantities as distance, size, and weight and look for patterns in the data.</p>	<p>A 82-83 B 1i-j, 10-11, 50-51 C 4-5, 14 D 27, 62-63, 66, 74-75 E 6-9, 10-11, 12-15, 35, 36-37, 40-41 F 1, 40-43, 63, 64-65, 68-69, 75, 82-83, 84-89, 93, 94-95 WB53-54, 84-85, 125-126, 207-208, 225-226, 227, 228, 229, 240, 243-244, 317, 319, 322, 330, 333-334, 341, 343-344, 345, 346, 347, 348 R 4, 5</p>
<p>analyze data by making tables and graphs and looking for patterns of change.</p>	<p>A 3, 12-13, 37, 38-39, 46-47, 59, 75, 102-103, 107, 113 B 3, 9, 32, 33, 49, 50-51, 68, 70, 72 C 7, 24, 57 D 3, 10-11, 22, 31, 46-47 E 19, 52, 54-55, 63, 85 F 10-11, 21, 37, 43, 57, 68-69 WB7-8, 53-54, 174, 253-254, 297-298, 333-334</p>
<p>Optimization</p> <p>6. In order to arrive at the best solution that meets criteria within constraints, it is often necessary to make trade-offs.</p>	
<p>determine the criteria and constraints of a simple decision making problem.</p>	
<p>use simple quantitative methods, such as ratios, to compare costs to benefits of a decision problem.</p>	
STANDARD 7--INTERDISCIPLINARY PROBLEM SOLVING	
<p>Connections</p> <p>1. The knowledge and skills of mathematics, science, and technology are used together to make informed decisions and solve problems, especially those relating to issues of science/technology/society, consumer decision making, design, and inquiry into phenomena.</p>	
<p>analyze science/technology/society problems and issues that affect their home, school, or community, and carry out a remedial course of action.</p>	<p>A 32, 62-63, 88-89, 114-115 B 42-43, 58-59, 60-65, 66-67, 68-73, 74-75, 76, 77, 78-79 C 26-27 D 24-25, 54-55, 56 E 60-61 F 60-61 WB112-113, 116, 117-118, 121, 122, 123</p>
<p>design solutions to problems involving a familiar and real context, investigate related science concepts to inform the solution, and use mathematics to model, quantify, measure, and compute.</p>	<p>A 3, 11, 17, 23, 29, 37, 45, 53, 59, 61, 69, 75, 81, 87, 95, 101, 106, 107, 113 B 3, 9, 17, 24, 25, 29, 33, 41, 49, 57, 65, 73 C 1, 3, 11, 17, 25, 33, 39, 49, 57 D 3, 9, 17, 23, 31, 37, 45, 53, 61, 67, 73, 81, 89 E 3, 9, 13, 15, 19, 23, 31, 39, 43, 45, 53, 59, 67, 75, 79, 81, 89, 97, 107, 113 F 3, 9, 15, 21, 29, 37, 43, 47, 49, 51, 53, 56-59, 57, 60-61, 67, 74, 75, 78-81, 84, 89, 90-91, 94-95 WB328, 331, 340, 342, 345, 348</p>
<p>observe phenomena and evaluate them scientifically and mathematically by conducting a fair test of the effect of variables and using mathematical knowledge and technological tools to collect, analyze, and present data and conclusions.</p>	<p>A 1i-j, 3, 11, 17, 23, 29, 37, 45, 53, 59, 61, 69, 70-71, 75, 81, 87, 91, 93, 95, 101, 106, 107, 113 B 1i-j, 3, 9, 17, 20-25, 24, 25, 29, 33, 41, 46-47, 49, 57, 65, 73 C 1i-j, 3, 11, 17, 25, 33, 39, 49, 57 D 1i-j, 3, 9, 17, 23, 31, 37, 45, 53, 61, 67, 73, 81, 89 E 1i-j, 3, 9, 13, 15, 17, 19, 23, 31, 39, 43, 45, 53, 59, 67, 75, 79, 81, 89, 97, 107, 113 F 1i-j, 3, 9, 15, 21, 29, 37, 43, 49, 51, 53, 57, 59, 67, 74, 75, 81, 89 WB43-44, 45, 50</p>

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Standards	Grade 4
<p>Strategies</p> <p>2. Solving interdisciplinary problems involves a variety of skills and strategies, including effective work habits; gathering and processing information; generating and analyzing ideas; realizing ideas; making connections among the common themes of mathematics, science, and technology; and presenting results.</p>	
<p>students participate in an extended, culminating mathematics, science, and technology project. The project would require students to:</p> <ul style="list-style-type: none"> work effectively gather and process information generate and analyze ideas observe common themes realize ideas present results 	<p>A 1 B 1, 68-73, 77, 78-79 C 1 D 1 E 1 F 1 WB121</p>

Grade 4 Harcourt
Science Concept
Map

Life Science

A world of Living
Things

Looking at
Ecosystems

Living Things

Animal Growth
and Adaptations

Plant Growth
and Adaptations

Human Body
Systems

Ecosystems

Protecting
Ecosystems

What are Cells?

What Are the Basic
Needs of Animals?

What Do Plants Need
to Live?

How Do the Muscular
and Skeletal
Systems Work?

What Are Systems?

What Kinds of
Changes Occur in
Ecosystems?

What Are Animals?

How Do Animal's Body
Parts Help Them Meet
Their Needs?

How Do Leaves,
Stems, and Roots Help
Plants Live?

How Do the
Respiratory and
Circulatory Systems
Work?

What Makes Up an
Ecosystem?

How Do People
Change Ecosystems?

What Are Plants?

How Do Animal's
Behaviors Help Them
Meet Their Needs?

How Do Plants
Reproduce?

How Do the Nervous
and Digestive Systems
Work?

What Are Habitats
and Niches?

What Is Conservation?

What Are Fungi?

What Are Some Salt
Water Communities?

Approximate date of
Mandatory District
Unit Assesment
October 31, 2001

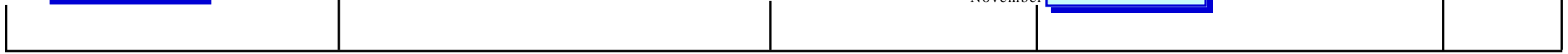
Approximate date of
Mandatory District
Unit Assesment
December 10, 2001

September

October

November

December



Grade 4 Harcourt
Science Concept
Map

Earth Science

DISTRICT
8
Educational Excellence
For Everyone

Earth's Surface

Pattern on Earth and
in Space

Earthquakes and
Volcanoes

Fossils

Weather
Conditions

The Oceans

Planets and
Other Objects
in Space

What Are the Layers
of the Earth?

How Do Fossils Form?

What Makes up
Earth's Atmosphere?

What Role Do Oceans
Play in the Water
Cycle?

How Do Earth and Its
Moon Move?

What Causes
Earthquakes?

What Can We Learn
from Fossils?

How Do Air Masses
Affect Weather?

What Are the Motions
of Oceans?

How Do Objects Move
in the Solar System?

How Do Volcanoes
Form?

How Do Fossil Fuels
Form?

How Is Weather
Predicted?

What Is the Ocean
Floor Like?

What Are the Planets
Like?

How Do People Study
the Solar System

December

January

Approximate date of
Mandatory District
Unit Assesment
January 16, 2002

February

March

Approximate date of
Mandatory District
Unit Assesment
March 7, 2002

