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SCIENCE: A Closer Look
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Grade 2

Correlated with

Wisconsin
Science Assessment Framework

Grade 4

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Performance Standards	Assessment Frameworks	Macmillan/McGraw-Hill SCIENCE: A Closer Look
A. SCIENCE CONNECTIONS		
By the end of Grade 4 students will:	***By the beginning of Grade 4 students will:***	
A.4.1 When conducting science investigations ask and answer questions that will help decide the general areas of science being addressed.	A.4.1 a. Describe the connections between and among the general domains of science; which are, physical, earth, and life science.	pp. 39, 44-45, 129, 135, 176-177, 195, 199A-199B, 208-209, 267, 275, 306-307, 309, 325, 336-337, 399, 426-427
	b. Recognize and use information from the domains of science (physical, earth, and life science) to ask and answer testable questions during investigations.	pp. 3, 11, 23, 26, 27A-27B, 29, 32, 39, 42, 55, 58, 59, 59A-59B, 61, 63, 65A-65B, 69, 72, 73, 89, 92, 93, 93A-93B, 95, 97, 103, 106, 109A-109B, 121, 124, 129, 132, 133A-133B, 135, 137, 155, 160, 161, 161A-161B, 163, 166, 171, 173, 187, 190, 191, 191A-191B, 195, 198, 199, 199A-199B, 201, 206, 207, 223, 226, 231, 234, 235A-235B, 237, 240, 253, 256, 257A-257B, 259, 261, 267, 272, 273A-273B, 275, 278, 295, 298, 299A-299B, 301, 304, 309, 312, 313, 325, 328, 329A-329B, 329C-329D, 331, 334, 335, 339, 344, 361, 364, 365A-365B, 367, 370, 371, 377, 380, 385, 388, 389A-389B, 399, 402, 403, 403A-403B, 405, 407, 415, 418, 419A-419B, 421, 424

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A.4.2 When faced with a science-related problem, decide what evidence, models, or explanations previously studied can be used to better understand what is happening now.	A.4.2 a. Compare previously studied evidence, models, or explanations with current observations to show that things change, stay the same, or follow a pattern. *Examples: plant growth that occurred a month ago and current plant growth; weather observations in the spring and fall…*	pp. 23, 26, 39, 42, 61, 63, 65A-65B, 93A-93B, 103, 106, 121, 135, 155, 161A-161B, 171, 198, 199 199A-199B, 223, 231, 234, 237, 253, 256, 257A-257B, 259, 261, 272, 273A-273B, 309, 325, 328, 329A-329B, 329C-329D, 331, 339, 344, 364, 367, 370, 371, 399, 402, 403, 403A-403B, 405, 418, 419A-419B
A.4.3 When investigating a science-related problem, decide what data can be collected to determine the most useful explanations.	A.4.3 a. Identify and collect data which provides the best evidence that things change, stay the same, or follow a pattern.	pp. 27A-27B, 59A-59B, 61, 65A-65B, 121, 231, 237, 272, 273A-273B, 364, 402, 403, 419A-419B
A.4.4 When studying science-related problems, decide which of the science themes are important.	A.4.4 a. Identify change or lack of changes (constancy) and/or patterns that can be observed with data. *Examples of themes: change, constancy, patterns, evidence…*	pp. 27A-27B, 59A-59B, 61, 65A-65B, 121, 231, 237, 272, 273A-273B, 364, 402, 403, 419A-419B
A.4.5 When studying a science-related problem, decide what changes over time are occurring or have occurred.	A.4.5 a. Identify change or lack of changes (constancy) over an extended period of time. *Examples: temperature changes during the seasons, amount of daylight during different seasons, life cycle, growth, erosion, and changes in state between solid and liquid…*	pp. 23, 26, 39, 42, 61, 63, 65A-65B, 93A-93B, 103, 106, 121, 135, 155, 161A-161B, 171, 198, 199 199A-199B, 223, 231, 237, 253, 256, 257A-257B, 259, 261, 273A-273B, 331, 344

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B. NATURE OF SCIENCE		
By the end of Grade 4 students will:	***By the beginning of Grade 4 students will:***	
B.4.1 Use encyclopedias, source books, texts, computers, teachers, parents, other adults, journals, popular press, and various other resources, to help answer science-related questions and plan investigations.	B.4.1 a. Recognize that a variety of resources can be used to answer questions and plan investigations.	pp. 36, 41, 57, 63, 65, 65A-65B, 69, 71, 82, 88, 89, 91, 93, 95, 98, 103, 107, 108, 109A-109B, 123, 129, 138, 139, 148, 155, 168, 171, 187, 195, 199A-199B, 203, 223, 227, 267, 271, 275, 277, 295, 333, 357, 361, 373, 377, 385, 408, 415, 423, 425, R13
	b. Determine which resources are the most appropriate resources to use when asking testable questions and planning investigations. *Example, given a science-related question, list the resources necessary and appropriate to answer questions and plan investigations…*	pp. 36, 41, 57, 63, 65, 65A-65B, 69, 71, 82, 88, 89, 91, 93, 95, 98, 103, 107, 108, 109A-109B, 123, 129, 138, 139, 148, 155, 168, 171, 187, 195, 199A-199B, 203, 223, 227, 267, 271, 275, 277, 295, 333, 357, 361, 373, 377, 385, 408, 415, 423, 425, R13
B.4.2: Acquire information about people who have contributed to the development of major ideas in the sciences and learn about the cultures in which these people lived and worked.	B.4.2 a. Identify commonly known careers in science (e.g., doctor, astronaut, veterinarian, nurse).	pp. 66-67, 82, 110-111, 126-127, 148, 216, 288, 354, 374-375, 434
	b. Recognize that men and women from many cultures have contributed to science throughout history.	pp. 66-67, 110-111, 126-127, 280-281, 374-375
B.4.3 Show how the major developments of scientific knowledge in the earth and space, life and environmental, and physical sciences have changed over time.	B.4.3 a. Know that much has been learned about objects, events, and phenomena in nature through scientific inquiry, but much more remains to be learned and understood.	pp. 4-9, 44-45, 271, 279, 374-375

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	b. Communicate understandings about science *using timelines or simple diagrams as possible tools* to show how scientific knowledge has changed over time. *Examples: human understandings about the earth's shape has changed, or human understandings about the changes in the composition and configuration of the solar system…*	pp. 242-243
C. SCIENCE INQUIRY		
By the end of Grade 4 students will:	***By the beginning of Grade 4 students will:***	
C.4.1 Use the vocabulary of the unifying themes to ask questions about objects, organisms, and events being studied.	C.4.1 a. Ask testable questions about the natural world being studied.	pp. 3, 11, 23, 26, 27A-27B, 29, 32, 39, 42, 55, 58, 59, 59A-59B, 61, 63, 65A-65B, 69, 72, 73, 89, 92, 93, 93A-93B, 95, 97, 103, 106, 109A-109B, 121, 124, 129, 132, 133A-133B, 135, 137, 155, 160, 161, 161A-161B, 163, 166, 171, 173, 187, 190, 191, 191A-191B, 195, 198, 199, 199A-199B, 201, 206, 207, 223, 226, 231, 234, 235A-235B, 237, 240, 253, 256, 257A-257B, 259, 261, 267, 272, 273A-273B, 275, 278, 295, 298, 299A-299B, 301, 304, 309, 312, 313, 325, 328, 329A-329B, 329C-329D, 331, 334, 335, 339, 344, 361, 364, 365A-365B, 367, 370, 371, 377, 380, 385, 388, 389A-389B, 399, 402, 403, 403A-403B, 405, 407, 415, 418, 419A-419B, 421, 424

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	b. Ask testable questions that can be answered using scientific vocabulary/ themes. *Examples: change, pattern, measurement…*	pp. 3, 11, 23, 29, 39, 55, 61, 65A-65B, 69, 89, 95, 103, 109A-109B, 121, 129, 135, 155, 163, 171, 187, 195, 199A-199B, 201, 223, 231, 237, 253, 259, 267, 273A-273B, 275, 295, 301, 309, 325, 329C-329D, 331, 339, 361, 367, 377, 385, 389A-389B, 399, 405, 415, 419A-419B, 421
C.4.2 Use the science content being learned to ask questions, plan investigations, make observations, make predictions, and offer explanations.	C.4.2 a. Plan a simple investigation, using science content from physical, earth/space, or life/ environmental science.	pp. 3, 11, 23, 26, 27A-27B, 29, 32, 39, 42, 55, 58, 59, 59A-59B, 61, 63, 65A-65B, 69, 72, 73, 89, 92, 93, 93A-93B, 95, 97, 103, 106, 109A-109B, 121, 124, 129, 132, 133A-133B, 135, 137, 155, 160, 161, 161A-161B, 163, 166, 171, 173, 187, 190, 191, 191A-191B, 195, 198, 199, 199A-199B, 201, 206, 207, 223, 226, 231, 234, 235A-235B, 237, 240, 253, 256, 257A-257B, 259, 261, 267, 272, 273A-273B, 275, 278, 295, 298, 299A-299B, 301, 304, 309, 312, 313, 325, 328, 329A-329B, 329C-329D, 331, 334, 335, 339, 344, 361, 364, 365A-365B, 367, 370, 371, 377, 380, 385, 388, 389A-389B, 399, 402, 403, 403A-403B, 405, 407, 415, 418, 419A-419B, 421, 424

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	b. Decide what observations are needed to explain the results.	pp. 4, 11, 12, 26, 27A-27B, 29, 32, 39, 42, 65A-65B, 89, 103, 106, 121, 124, 129, 135, 137, 155, 160, 163, 171, 173, 187, 190, 191, 195, 198, 199, 226, 234, 237, 256, 272, 273A-273B, 295, 298, 301, 329C-329D, 331, 344, 405, 407, 415, 418, 424
	c. Predict the results of the investigations.	pp. 3, 8, 23, 29, 32, 65A-65B, 155, 171, 173, 198, 199A-199B, 206, 207, 231, 235A-235B, 237, 253, 273A-273B, 301, 309, 325, 331, 367, 377, 385, 399, 402, 403A-403B, 405, 415, 419A-419B, 421
	d. Conduct simple investigations.	pp. 3, 11, 23, 26, 29, 32, 39, 42, 55, 58, 59, 61, 63, 69, 72, 73, 89, 92, 93, 95, 97, 103, 106, 121, 124, 129, 132, 135, 137, 155,160, 161, 163, 166, 171, 173, 187, 190, 191, 195, 198, 199, 201, 206, 207, 223, 226, 231, 234, 237, 240, 253, 256, 259, 261, 267, 272, 275, 278, 295, 298, 301, 304, 309, 312, 313, 325, 328, 331, 334, 335, 339, 344, 361, 364, 367, 370, 371, 377, 380, 385, 388, 399, 402, 403, 405, 407, 415, 418, 421, 424
	e. Use evidence collected to explain results.	pp. 3, 11, 23, 29, 39, 55, 61, 65A-65B, 69, 89, 95, 103, 109A-109B, 121, 129, 135, 155, 163, 171, 187, 195, 199A-199B, 201, 223, 231, 237, 253, 259, 267, 273A-273B, 275, 295, 301, 309, 325, 329C-329D, 331, 339, 361, 367, 377, 385, 389A-389B, 399, 405, 415, 419A-419B, 421

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C.4.3 Select multiple sources of information to help answer questions selected for classroom investigations.	C.4.3 a. Select a variety of resources that best answer questions and plan investigations. *Scientific resource examples: textbooks, internet, on-line and electronic resources, science speakers, reference books, peers, field trips...*	pp. 63, 65A-65B, 69, 89, 95, 103, 109A-109B, 123, 129, 155, 171, 187, 195, 199A-199B, 223, 275, 295, 361, 377, 385, 415
	b. Recognize that there are multiple sources of information available to answer investigative questions. *Scientific resource examples: textbooks, internet, on-line and electronic resources, science speakers, reference books, peers, field trips…*	pp. 63, 65A-65B, 69, 89, 95, 103, 109A-109B, 123, 129, 155, 171, 187, 195, 199A-199B, 223, 275, 295, 361, 377, 385, 415
	c. Decide which of the resources are appropriate/credible to the investigation at hand. *Example: Using a comic book is probably not an excellent resource for a science investigation…*	pp. 63, 65A-65B, 69, 89, 95, 103, 109A-109B, 123, 129, 155, 171, 187, 195, 199A-199B, 223, 275, 295, 361, 377, 385, 415
	d. Develop a list of issues that citizens must make decisions about and describe a strategy for becoming informed about the science behind these issues.	pp. 162, 163, 166, 168, 200, 201, 202, 203, 204, 205, 206, 207, 210-213, 214, 215
C.4.4 Use simple science equipment including rulers, balances, graduated cylinders, hand lenses, thermometers, and computers safely and effectively to collect data relevant to questions and investigations.	C.4.4 a. Select and safely use equipment relevant to a science investigation. *Examples: rulers, balances, graduated cylinders, hand lenses, thermometers, and computers…*	pp. 3, 29, 39, 69, 89, 95, 103, 129, 135, 171, 187, 195, 223, 231, 253, 259, 267, 275, 301, 309, 325, 339, 367, 377, 385, 399, 405, 415, 421, R3, R4, R5, R6
	b. Collect data relevant to questions and investigations	pp. 3, 29, 39, 69, 89, 95, 103, 129, 135, 171, 187, 195, 223, 231, 253, 259, 267, 275, 301, 309, 325, 339, 367, 377, 385, 399, 405, 415, 421, R3, R4, R5, R6

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C.4.5 Use data they have collected to develop explanations and answer questions generated by investigations.	C.4.5 a. Interpret data (use the results of their data) to answer questions developed during their investigations.	pp. 3, 6, 11, 23, 65A-65B, 132, 135, 198, 223, 231, 237, 272, 273A-273B, 295, 299A-299B, 301, 364, 370, 389A-389B, 402, 418, 419A-419B, 421
C.4.6 Communicate the results of their investigations in ways their audiences will understand by using charts, graphs, drawings, written descriptions, and various other means.	C.4.6 a. Report the results of science investigations to different audiences (friends, teachers, and younger students) by using graphs, tables, and illustrations.	pp. 27A-27B, 55, 59A-59B, 61, 65A-65B, 69, 89, 92, 93, 95, 103, 106, 121, 135, 160, 161A-161B, 163, 171, 173, 190, 191A-191B, 195, 201, 235A-235B, 237, 299A-299B, 301, 364, 367, 389A-389B, 402, 403, 403A-403B, 419A-419B
C.4.7 Support their conclusions with logical arguments.	C.4.7 a. State evidence from data collected to justify/explain conclusions from investigations.	pp. 9, 11, 14, 39, 129, 171, 173, 201, 231, 237, 257A-257B, 259, 267, 273A-273B, 275, 309, 325, 329C-329D, 361, 370
C.4.8 Ask additional questions that might help focus or further an investigation.	C.4.8 a. After completing an investigation, develop additional questions that support new investigations about the original topic of study. *Example: "I wonder what would happen if…"*	pp. 3, 11, 23, 29, 39, 55, 61, 65A-65B, 69, 89, 95, 103, 109A-109B, 121, 129, 135, 155, 163, 171, 187, 195, 199A-199B, 201, 223, 231, 237, 253, 259, 267, 273A-273B, 275, 295, 301, 309, 325, 329C-329D, 331, 339, 361, 367, 377, 385, 389A-389B, 399, 405, 415, 419A-419B, 421

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D. PHYSICAL SCIENCE		
By the end of Grade 4 students will:	***By the beginning of Grade 4 students will:***	
Properties of Earth Materials		
D.4.1 Understand that objects are made of more than one substance, by observing, describing, and measuring the properties of earth materials, including properties of size, weight, shape, color, temperature, and the ability to react with other substances.	D.4.1 a. Describe the properties of earth materials. *Examples: rocks, minerals, soils, air, water, and wood…*	pp. 155, 162, 163, 164, 165, 166, 167, 168, 169, 171, 172, 173, 178-181, 182, 183, 184D, 184, 185, 186, 187, 188, 189, 190, 191, 191A-191B, 192, 193, 194, 195, 196, 197, 198, 199, 199A-199B, 200, 201, 202, 203, 210-213, 214, 215, 244-247, 401, TR64, TR65, TR66
	b. Describe objects by the materials they are made of and by their physical properties.	pp. 306-307, 336-337, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348-351, 352, 353
	c. Observe that earth materials physically react with other substances in different ways based on their properties.	pp. 322D, 322, 323, 324, 328, 329, 330, 352, 353
D.4.2 Group and/or classify objects and substances based on the properties of earth materials.	D.4.2 a. Classify objects based on their observable physical properties; such as, texture, color, hardness, shape, and composition.	pp. 292D, 292, 293, 294, 295, 296, 297, 298, 299A-299B, 299, 300, 301, 302, 303, 304, 305, 306-307, 308, 309, 310, 311, 312, 313, 314, 315, 316-319, 320, 321, TR72, TR73
D.4.3 Understand that substances can exist in different states - solid, liquid, gas.	D.4.3 a. Know that there are three states of matter: solid, liquid, or gas. *Examples*: *Recognize that water can exist as liquid water, ice, and water vapor. Recognize that air takes up space…*	pp. 292, 299A-299B, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316-319, 320, 321, TR72, TR73

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	b. Communicate that common substances exists either as a solid, liquid or gas.	pp. 292, 299A-299B, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316-319, 320, 321, TR72, TR73
D.4.4 Observe and describe changes in form, temperature, color, speed, and direction of objects and construct explanations for the changes.	D.4.4 a. Observe and describe physical changes in matter. *Example: change in size, shape, color, temperature, speed, or direction…*	pp. 322D, 322, 323, 324, 326, 327, 329, 329A-329B, 329C-329D, 330, 331, 332, 333, 334, 335, 336-337, 348-351, 352, 353, 364, 365, 368, 369, 372, 373, TR74, TR75, TR76
D.4.5 Construct simple models of what is happening to materials and substances undergoing change, using simple instruments or tools to aid observations and collect data.	D.4.5 a. Illustrate/show/model what is happening to something as it is physically changing. *Example: Use a simple model such as a ball rolling down a ramp as an illustration of acceleration of a car, or an ice cube melting as a model for snow melting or changing state of matter…*	pp. 322D, 325, 327, 329, 329A-329B, 329C-329D, 331, 333, 334, 335, 345, 364, 365A-365B, 372
	b. Use appropriate simple science instruments to aid in making observations and collect data.	pp. 325, 329, 335, 365A-365B
Position and Motion of Objects		
D.4.6 Observe and describe physical event in objects at rest or in motion.	D. 4.6 a. Compare, contrast, and explain what happens to an object at rest and an object in motion: *Examples: Motion does not happen if the forces are balanced. Motion occurs because of unbalanced forces (push or pull)…*	pp. 363, 364, 365, 367, 372, 373, 383, 390-393, 394, 395

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D.4.7 Observe and describe physical events involving objects and develop record-keeping systems to follow these events by measuring and describing changes in their properties, including position relative to another object, motion over time, and position due to forces	D.4.7 a. Describe and explain the position of an object by its position relative to another object, its motion (over time) relative to another object, and the forces acting upon it.	pp. 360, 361, 362, 363, 365, 394, 395, TR76
	b. Devise simple record-keeping systems. *Examples: Use charts, graphs, or diagrams, to track physical events by measuring and describing changes in their properties, including position relative to another object, motion over time, and position due to forces…*	pp. 364, 365, 365A-365B, 367, 370, 371, 373
Light, Heat, Electricity, and Magnetism		
D.4.8 Ask questions and make observations to discover the differences between substances that can be touched (matter) and substances that cannot be touched (forms of energy, light, heat, electricity, sound, and magnetism).	D.4.8 a. Ask questions about the differences between matter (substances that can be touched) and energy.	Opportunities to address: pp. 296, 400 Refer also to Grade 4.
	b. Describe and record observational differences between matter (substances that can be touched) and energy. (*Examples: Light, heat, sound, electricity, and magnetism…)*	Opportunities to address: pp. 296, 400 Refer also to Grade 4.

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E. EARTH AND SPACE SCIENCE		
By the end of Grade 4 students will:	***By the beginning of Grade 4 students will:***	
Properties of Earth Materials		
E.4.1 Investigate that earth materials are composed of rocks and soils and correctly use the vocabulary for rocks, minerals, and soils during these investigations.	E.4.1 a. Describe the properties of earth materials. *Examples: Earth materials consist of rocks and soils. Rocks are made up of a combination of two or more minerals. Soil is a mixture of earth materials and can vary from place to place (e.g., clay vs. sand)…*	pp. 155, 162, 163, 164, 165, 166, 167, 168, 169, 171, 172, 173, 178-181, 182, 183, 184D, 184, 185, 186, 187, 188, 189, 190, 191, 191A-191B, 192, 193, 194, 195, 196, 197, 198, 199, 199A-199B, 200, 201, 202, 203, 210-213, 214, 215, 244-247, 401, TR64, TR65, TR66
E.4.2 Show that Earth materials have different physical and chemical properties, including the properties of soils found in Wisconsin.	E.4.2 a. Compare and contrast properties of soil including color, texture, and capacity to hold water.	pp. 150-151, 194, 195, 196, 197, 198, 199, 199A-199B, 210-213, 215, TR66
	b. Compare and contrast properties of rocks and minerals; such as, hardness, color, texture, and appearance.	pp. 170, 171, 173, 186, 187, 188, 189, 190, 191, 191A-191B, 192, 193, 203, 210-213, 215, 216, TR66
E.4.3 Develop descriptions of the land and water masses of the earth and of Wisconsin's rocks and minerals, using the common vocabulary of earth and space science.	E.4.3 a. Describe land and water masses, including land masses in Wisconsin. *Examples: Recognize that continents are made up of rocks, minerals, and soils. Recognize that oceans are large bodies of water. Recognize that Wisconsin has a specific topography and unique bodies of water. Explain the impact of glaciation on Wisconsin's topography…*	pp. 152D, 152, 154, 155, 156, 157, 158, 159, 161, 161A-161B, 162, 163, 164, 165, 166, 167, 168, 169, 170, 172, 173, 174, 175, 176-177, 178-181, 182, 183, 184, 210-213, 244-247, TR64, TR65

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Objects in the Sky		
E.4.4 Identify celestial objects (stars, sun, moon, planets) in the sky, noting changes in patterns of those objects over time.	E.4.4 a. Identify the sun, moon, and stars in the sky, and recognize that they appear to change position in the sky over time. *Examples*: *Recognize the sun as a star. Identify that the appearance of the moon changes throughout the month. Understand that earth is a planet in our solar system*…	pp. 254-257, 262, 263, 265, 266, 267, 268, 269, 270, 271, 272, 273, 273A-273B, 276, 277, 280-281, 286, 287, 374-375, TR70, TR71
Changes in the Earth and Sky		
E.4.5 Describe the weather commonly found in Wisconsin in terms of clouds, temperature, humidity, and forms of precipitation, and the changes that occur over time, including seasonal changes.	E.4.5 a. Identify both daily and seasonal weather changes in Wisconsin, noting changes in temperature, wind, precipitation, cloud cover, and sunshine.	Opportunities to address: pp. 176-177, 220D, 220, 222, 223, 224, 225, 226, 227, 228, 229, 235A-235B, 236, 237, 238, 239, 240, 241, 242-243, 244-247, 248, 249, 258, 259, 260, 261, 262, 263, 264, 265, TR68, TR69
E.4.6 Using the science themes, find patterns and cycles in the earth's daily, yearly, and long-term changes.	E.4.6 a. Describe changes, patterns, and cycles that are observable during night/day and seasonal events on earth.	pp. 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 268, 269, 270, 271, 273, 273A-273B, 275, 276-279, 280-281, 282-285, 286, 287, TR70
	b. Recognize that there are patterns in the earth’s motion activities.	pp. 252, 253, 254, 255, 256, 257, 257A-257B, 262, 263, 276, 277, 282-285, 286, 287, TR70

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E.4.7 Using the science themes, describe resources used in the home, community, and nature as a whole.	E.4.7 a. Using the themes of form and function, models, organization, systems; identify resources (i.e., soils, rocks, minerals, and plants) that are used by humans. *Examples: How wood is used for building materials, how soils and plants are used for producing food and other manufactured materials, or how fossil fuels are used in the manufacturing of plastics…*	pp. 162, 163, 164, 165, 167, 168, 184, 188, 189, 190, 191, 194-199, 200, 201, 202, 203, 204, 205, 206, 207, 208-209, 210-213, 214, 215, 401, 426, TR66, TR67
E.4.8 Illustrate resources humans use in mining, forestry, farming, and manufacturing in Wisconsin and elsewhere in the world.	E.4.8 a. Distinguish between natural and manufactured materials.	pp. 188, 189, 190, 202, 203, 208-209, 216, 306-307
	b. Identify that natural resources such as soils, rocks, minerals, fossil fuels, and plants are used to make manufactured goods that people use in their daily lives.	pp. 190, 202, 203, 208-209, 299B, 306, 307, 426-427
F. LIFE AND ENVIRONMENTAL SCIENCE		
By the end of Grade 4 students will:	***By the beginning of Grade 4 students will:***	
The Characteristics of Organisms		
F.4.1 Discover how each organism meets its basic needs for water, nutrients, protection, and energy in order to survive.	F.4.1 a. Describe the basic needs of an organism. *Examples: energy, food, water, air, and protectio*n…	pp. 23, 24, 25, 26, 27, 47, 51, 56, 59, 76-79, 89, 90, 93, 94, 164, 167, R10, R11, R12, R13, TR56
	b. Communicate (understand) that plants and animals have certain structures with specific functions that help them grow, reproduce, and survive.	pp. 11, 12, 13, 26, 27, 27A-27B, 30, 31, 32, 33, 34, 35, 36, 37, 39, 42, 46-49, 50, 57, 58, 59, 59A-59B, 68, 69, 70, 71, 72, 73, 74, 76, 77, 78, 79, 80, 89, 93, 93A-93B, 123, 125, 129, 130, 131, 132, 133, 137, 139, R8, R9, R10, R11, TR56, TR57, TR58, TR59

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F.4.2 Investigate how organisms, especially plants, respond to both internal cues (the need for water) and external cues (changes in the environment).	F.4.2 a. Describe how plants respond to changes in their environment.	pp. 42, 43, 102, 103, 104, 105, 109, 112-115, 116, 117, 135, 142, TR61
	b. Observe and describe how an organism's behavior helps it to survive in a changing environment.	pp. 42, 43, 102, 103, 104, 105, 106, 107, 109, 112-115, 116, 117, 123, 135, 142-145, TR61
	c. Identify that animals have senses that help them to detect internal and external cues. *Examples: Recognize that when an animal is hungry, it eats; when it is thirsty, it drinks; when it is tired, it sleeps. Hibernation activities, the need to conserve water, or personal protection such as hiding from a predator…*	pp. 42, 58, 72, 73, R9
Life Cycles of Organisms		
F.4.3 Illustrate the different ways that organisms grow through life stages and survive to produce new members of their type.	F.4.3 a. Identify that plants and animals have life cycles, which are different for each organism.	pp. 8, 9, 18-19, 25, 30, 31, 34, 35, 48, 49, 50, 60, 62, 63, 64, 65, 65A-65B, 66, 67, 78, 79, 80, 81, 93A, TR56, TR57, TR59
	b. Explain to others that offspring look very much, but not exactly, like their parents or one another.	pp. 24, 35, 40, 41, 43, 47, 50, 60, 61, 76-79, TR58, TR59
	c. Explain that organisms have structures and behaviors that help them survive during each stage of their life cycle.	pp. 8, 9, 18-19, 25, 30, 31, 34, 35, 48, 49, 50, 60, 62, 63, 64, 65, 65A-65B, 66, 67, 78, 79, 80, 81, 93A, TR56, TR57, TR59

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	d. Communicate to others that life stages occur in a specific order.	pp. 8, 9, 18-19, 25, 30, 31, 34, 35, 48, 49, 50, 60, 62, 63, 64, 65, 65A-65B, 66, 67, 78, 79, 80, 81, 93A, TR56, TR57, TR59
Organisms and Their Environment		
F.4.4 Using the science themes, develop explanations for the connections among living and nonliving things in various environments.	F.4.4 a. Using the themes, including systems, models, explanations, form and function, evolution, and order, to identify something as living or nonliving.	pp. 22, 24, 33, 297
	b. Explain to others that some animals eat plants for food. Other animals eat animals for food. *Examples*: *food webs/food chains…*	pp. 27, 92, 94, 95, 96, 97, 98, 99, 100, 101, 116, 117, 122, 123, 131, 136, 138, TR60
	c. Explain to others that plants and animals both depend on nonliving things in the environment (habitat). *Examples: water, air, and soil….*	pp. 88, 89, 90-93, 93A-93B, 120, 121, 122-125, 128, 130-133, 134, 135, 136-139, 140, 141, 142-145, 146, 162, 163, 164, 167, 210-213, TR62, TR63
G. SCIENCE APPLICATIONS		
By the end of Grade 4 students will:	***By the beginning of Grade 4 students will:***	
G.4.1 Identify the technology used by someone employed in a job or position in Wisconsin and explain how the technology helps.	G.4.1 a. Identify how technology helps people do their jobs in Wisconsin. *Examples may include robots, machines, transportation, computers, and telecommunication devices…*	Opportunities to address: pp. 82, 126-127, 148, 216, 242-243, 288, 354, 374-375, 434

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G.4.2 Discover what changes in technology have occurred in a career chosen by a parent, grandparent, or an adult friend over a long period of time.	G.4.2 a. Describe how careers have changed as technology has changed over time.	pp. 82, 126-127, 148, 216, 242-243, 271, 280-281, 288, 336-337, 354, 374-375, 434
G.4.3 Determine what science discoveries have led to changes in technologies that are being used in the workplace by someone employed locally.	G.4.3 a. Determine which science discoveries have led to changes in technologies that are being used in the workplace by someone employed locally. *Example: Understandings about tooth decay has led to sealants…*	Opportunities to address: pp. 82, 126-127, 148, 216, 242-243, 288, 354, 374-375, 434
G.4.4 Identify the combinations of simple machines in a device used in the home, the workplace, or elsewhere in the community.	G.4.4 a. Identify that a simple machine is something that makes work easier for humans.	pp. 358D, 376, 377, 378, 379, 380, 381, 394, 395, TR76, TR77
	b. Identify common tools in the home, workplace, and community; identify the simple machines within the tool.	pp. 376, 378, 379, 380, 381, 390-393, 394, 395, 434, TR77
G.4.5 Ask questions to find answers about how devices and machines were invented and produced.	G.4.5 a. Identify that technology is the result of people asking questions and finding answers through science inquiry.	pp. 44-45, 176-177, 208-209, 242-243, 274, 276, 280-281, 306-307, 336-337, 426-427, R6
H. SCIENCE IN SOCIAL AND PERSONAL PERSPECTIVES		
By the end of Grade 4 students will:	***By the beginning of Grade 4 students will:***	
H.4.1 Describe how science and technology have helped, and in some cases hindered, progress in providing better food, more rapid information, quicker and safer transportation, and more effective health care.	H.4.1 a. List examples of how science and technology have had an impact on food quality and quantity, transportation, health, sanitation, and communication.	pp. 242-243, 280-281, 306-307, 336-337, 354, 426-427

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H.4.2 Using the science themes, identify local and state issues that are helped by science and technology and explain how science and technology can also cause a problem.	H.4.2 a. Using the themes of change, evolution, and systems, describe the impact of science and technology on societal issues. *Examples: air and water pollution, and recycling...*	pp. 162, 163, 166, 168, 200, 201, 202, 203, 204, 205, 206, 207, 210-213, 214, 215
H.4.3 Show how science has contributed to meeting personal needs, including hygiene, nutrition, exercise, safety, and health care.	H.4.3 a. Show how science has contributed to the quality of personal health and safety.	pp. 242-243, 280-281, 306-307, 336-337, 354, 426-427
H.4.4 Develop a list of issues that citizens must make decisions about and describe a strategy for becoming informed about the science behind these issues.	H.4.4 a. Develop a list of issues that citizens must make decisions about and describe a strategy for becoming informed about the science behind these issues. *Examples: invasive species, recycling, exercise, nutrition, safety, and hygiene…*	pp. 162, 163, 166, 168, 200, 201, 202, 203, 204, 205, 206, 207, 210-213, 214, 215, R9, R12, R13, R14, R15, R16, R17, R18