



# Physical Science with Earth Science

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STANDARDS	PAGE REFERENCES
<p><b>Science As Inquiry</b> requires students to combine processes and scientific knowledge with scientific reasoning and critical thinking to develop their understanding of science.</p>	
<p><b>8.2.1</b> By the end of eighth grade, students will develop the abilities needed to do scientific inquiry.</p>	
<ul style="list-style-type: none"> <li>Identify questions and form hypotheses that can be examined through scientific investigations.</li> </ul>	<p><b>Student Edition:</b> 6-13 <i>Design Your Own Lab</i> 28-29, 88-89, 144-145, 242-243, 540-541, 568-569 <i>Lab</i> 271, 310-311, 380-381, 775 <i>Model and Invent Lab</i> 710-711 <b>Teacher Wraparound Edition:</b> IL 236, 274, 464</p>
<ul style="list-style-type: none"> <li>Design and conduct a scientific investigation.</li> </ul>	<p><b>Student Edition:</b> 7-10 <i>Design Your Own Lab</i> 28-29, 88-89, 144-145, 242-243, 540-541, 568-569 <i>Lab</i> 523 <b>Teacher Wraparound Edition:</b> A 13, 743; ACT 9; AIL 541, 742; IL 109; R 13</p>

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<ul style="list-style-type: none"> <li>Use appropriate tools and techniques to gather, analyze, and interpret data.</li> </ul>	<p><b>Student Edition:</b>  <i>Lab 87, 271, 278-279, 523, 559, 636-637, 741, 742-743, 776-777</i>  <i>Design Your Own Lab 144-145, 344-345, 414-415, 446-447, 540-541</i>  <i>Model and Invent Lab 176-177</i>  <i>Use the Internet Lab 476-477</i></p>
<ul style="list-style-type: none"> <li>Given evidence, develop descriptions, explanations, predictions, and models.</li> </ul>	<p><b>Student Edition:</b>  <i>Design Your Own Lab 28-29, 88-89, 144-145, 242-243, 344-345, 414-415, 540-541, 568-569</i>  <i>Lab 118-119, 300, 310-311, 636-637, 693, 776-777, 830</i></p>
<ul style="list-style-type: none"> <li>Show the relationship between evidence and explanations.</li> </ul>	<p><b>Student Edition:</b>  <i>Lab 51, 196, 230, 379, 468, 523, 636-637, 741, 742-743, 830</i>  <i>Model and Invent Lab 176-177</i>  <i>Design Your Own Lab 344-345, 568-569</i>  <i>Use the Internet Lab 476-477, 508-509</i></p>
<ul style="list-style-type: none"> <li>Recognize and analyze alternative explanations and predictions.</li> </ul>	<p><b>Student Edition:</b>  218-222, 354-361  <i>Communicating Your Data 29, 89, 119, 209, 243, 279, 569, 637, 741, 775, 777</i>  <b>Teacher Wraparound Edition:</b>  CYD 87</p>
<ul style="list-style-type: none"> <li>Communicate scientific procedures and explanations.</li> </ul>	<p><b>Student Edition:</b>  22-26  <i>Lab 27, 300, 379, 380-381, 507, 653</i>  <i>Design Your Own Lab 28-29, 88-89, 144-145, 446-447, 540-541, 568-569</i>  <i>Communicating Your Data 693</i>  <b>Teacher Wraparound Edition:</b>  A 345</p>

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<ul style="list-style-type: none"> <li>Use mathematics in scientific inquiry.</li> </ul>	<p><b>Student Edition:</b>            22-26  <i>Lab 27</i>, 51, 118-119, 175, 278-279, 310-311  <i>Design Your Own Lab</i> 88-89  <i>Model and Invent Lab</i> 176-177  <i>Applying Math</i> 181, 798  <i>MiniLAB</i> 824  <i>Math Skill Handbook</i> 862-878  <i>Extra Math Problems</i> 879-890</p> <p><b>Teacher Wraparound Edition:</b>            IL 170</p>
<p><b>Physical Science</b> focuses on science facts, concepts, principles, theories, and models that are important for all students to know, understand and use.</p>	
<p><b>8.3.1</b> By the end of eighth grade, students will develop an understanding of properties and changes of properties in matter.</p>	
<ul style="list-style-type: none"> <li>Investigate and demonstrate that characteristic properties of a substance (e.g., density, boiling point, and solubility) do not depend on the amount of the substance.</li> </ul>	<p><b>Student Edition:</b>            560-563, 700-702</p>
<ul style="list-style-type: none"> <li>Observe, describe, and measure physical and chemical properties of matter.</li> </ul>	<p><b>Student Edition:</b>            260-263, 374-375, 560-567  <i>MiniLAB</i> 267, 375  <i>Lab</i> 406, 616, 636-637  <i>Integrate Environment</i> 560  <i>Applying Math</i> 621</p> <p><b>Teacher Wraparound Edition:</b>            A 567; ACT 563; DI 561; MM 563; QD 520</p>
<ul style="list-style-type: none"> <li>Explain that all matter is composed of elements which may combine in a variety of ways to form compounds.</li> </ul>	<p><b>Student Edition:</b>            552-558, 688-692, 694-702, 703-709  <i>MiniLAB</i> 555  <i>Lab</i> 559  <i>Applying Math</i> 705  <i>Model and Invent Lab</i> 710-711</p> <p><b>Teacher Wraparound Edition:</b>            A 558, 702; ACT 556, 697; DIS 707; IM 554; SJ 554</p>

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<ul style="list-style-type: none"> <li>Investigate and explain that in chemical reactions new properties are created and total mass is conserved.</li> </ul>	<p><b>Student Edition:</b>            567, 573 #22, 721-725  <i>Applying Math</i> 566  <i>Section Review</i> 567  <i>Design Your Own Lab</i> 568-569  <i>MiniLAB</i> 724</p> <p><b>Teacher Wraparound Edition:</b>            A 569; IM 550F; MM 732; QD 722; SCB 550E, 718E</p>
<p><b>8.3.2 By the end of eighth grade, students will develop an understanding of motion and forces.</b></p>	
<ul style="list-style-type: none"> <li>Investigate and describe the motion of an object by its position, direction of motion, and speed.</li> </ul>	<p><b>Student Edition:</b>            70-75, 76-80, 95 #12  <i>Launch Lab</i> 69  <i>MiniLAB</i> 71  <i>Applying Math</i> 72  <i>National Geographic</i> 78  <i>Lab</i> 379</p> <p><b>Teacher Wraparound Edition:</b>            A 75; CFU 80; IL 109; LD 79; QD 73; V 78; VL 74</p>
<ul style="list-style-type: none"> <li>Investigate and demonstrate that the speed and/or direction of an object changes when a force is applied to that object.</li> </ul>	<p><b>Student Edition:</b>            81-86, 93 #17, 98-103, 104-111  <i>Science Online</i> 82  <i>MiniLAB</i> 83  <i>Lab</i> 87, 118-119  <i>Design Your Own Lab</i> 88-89</p> <p><b>Teacher Wraparound Edition:</b>            A 89; ACT 85; AIL 88; SJ 85; TPK 81; VL 82</p>
<p><b>8.3.3 By the end of eighth grade, students will develop an understanding of the forms of energy and how energy is transferred.</b></p>	
<ul style="list-style-type: none"> <li>Investigate and describe the transfer of light energy.</li> </ul>	<p><b>Student Edition:</b>            269, 301-309, 327-330, 331-337, 456-461, 462-467  <i>Science and History</i> 478</p> <p><b>Teacher Wraparound Edition:</b>            CB 478; CC 305; DI 303; QD 465; R 330; SCB 286E; TFYI 460; VL 458</p>

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<ul style="list-style-type: none"> <li>Investigate and demonstrate how energy is transferred using simple machines.</li> </ul>	<p><b>Student Edition:</b> 156-159, 160-165, 166-174, 183 #11, #12 <i>Launch Lab</i> 153 <i>MiniLAB</i> 162 <i>Model and Invent Lab</i> 176-177</p> <p><b>Teacher Wraparound Edition:</b> A 162; DI 161; QD 163; RS 171; SCB 152E; SJ 162; VL 163</p>
<ul style="list-style-type: none"> <li>Investigate and describe how heat is transferred from a warmer object to a cooler object until both reach the same temperature.</li> </ul>	<p><b>Student Edition:</b> 257, 266-270, 276, 283 #21 <i>Section Review</i> 259 <i>MiniLAB</i> 267 <i>Lab</i> 278-279</p> <p><b>Teacher Wraparound Edition:</b> A 270; SJ 257; VL 267</p>
<ul style="list-style-type: none"> <li>Investigate and describe the properties and transfer of sound energy.</li> </ul>	<p><b>Student Edition:</b> 288-291, 294-299, 301-309, 320-326 <i>Applying Math</i> 293, 297 <i>MiniLAB</i> 309, 323 <i>Launch Lab</i> 319</p> <p><b>Teacher Wraparound Edition:</b> A 326; CC 298; CD 306; DIS 296; R 326; TFYI 322</p>
<ul style="list-style-type: none"> <li>Investigate and describe the transfer of energy from electrical and magnetic sources to different energy forms (e.g., heat, light, sound, and chemical).</li> </ul>	<p><b>Student Edition:</b> 392-399, 400-405, 407-413, 424-430, 431-437, 438-444, 457-458 <i>Design Your Own Lab</i> 414-415, 446-447 <i>National Geographic</i> 441 <i>Lab</i> 445</p> <p><b>Teacher Wraparound Edition:</b> CFU 437; DI 432, 436; VL 433</p>
<p><b>Earth and Space Science</b> focuses on the science facts, concepts, principles, theories, and models that are important for all students to know, understand, and use.</p>	
<p><b>8.5.1 By the end of eighth grade, students will develop an understanding of the structure of the earth.</b></p>	
<ul style="list-style-type: none"> <li>Investigate and describe the crust, mantle, and core of the earth.</li> </ul>	<p><b>Student Edition:</b> 370-372</p> <p><b>Teacher Wraparound Edition:</b> A 372; ACT 371; CC 658; CFU 372; DI 371; QD 360, 371; RS 371; SCB 352F; VL 372</p>

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<ul style="list-style-type: none"> <li>Investigate and describe how a combination of constructive and destructive forces create land forms.</li> </ul>	<p><b>Student Edition:</b> 354-361, 362-369, 373-378, 565-566, 646-652, 654-662 <i>National Geographic</i> 666</p> <p><b>Teacher Wraparound Edition:</b> A 662; DI 660; DIS 658; IM 649; LD 659; PR 377; SCB 644E; UAA 656</p>
<ul style="list-style-type: none"> <li>Investigate and describe the composition of soils.</li> </ul>	<p><b>Student Edition:</b> 650-652 <i>Lab</i> 653</p> <p><b>Teacher Wraparound Edition:</b> ACT 650; CFU 652; DIS 651; QD 650; R 652; TFYI 650</p>
<ul style="list-style-type: none"> <li>Investigate and describe the water cycle.</li> </ul>	<p><b>Student Edition:</b> 521-522, 536-537, 545 #29-#30, 663 <i>Integrate Life Science</i> 522</p> <p><b>Teacher Wraparound Edition:</b> ACT 521; CFU 522, 668; RS 665</p>
<ul style="list-style-type: none"> <li>Investigate and describe the composition of the atmosphere at different altitudes.</li> </ul>	<p><b>Student Edition:</b> 518-522, 547 #11</p> <p><b>Teacher Wraparound Edition:</b> A 519; IL 521; R 522; RS 521; SCB 516E</p>
<ul style="list-style-type: none"> <li>Investigate and describe the influence of topography, location, and oceans on climate.</li> </ul>	<p><b>Student Edition:</b> 529-534, 535-539, 545 #31 <i>Integrate Earth Science</i> 258 <i>National Geographic</i> 268 <i>Science and History</i> 382</p> <p><b>Teacher Wraparound Edition:</b> CFU 534; DIS 532; PR 534; QD 533; R 534; TFYI 532; V 268</p>
<ul style="list-style-type: none"> <li>Investigate and describe the effect of living organisms on weathering and the atmosphere.</li> </ul>	<p><b>Student Edition:</b> 518-519, 529-530, 536-539, 646-652 <i>National Geographic</i> 531</p> <p><b>Teacher Wraparound Edition:</b> RS 537; TFYI 650</p>

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<p><b>8.5.2 By the end of eighth grade, students will develop an understanding of the earth's history.</b></p>	
<ul style="list-style-type: none"> <li>Investigate and describe how earth processes that occur today (e.g., volcanism, weather, and erosion) are similar to those that occurred in the past.</li> </ul>	<p><b>Student Edition:</b> 670</p> <p><b>Teacher Wraparound Edition:</b> SCB 644F</p>
<ul style="list-style-type: none"> <li>Investigate and use the fossil record to provide evidence and explain how environmental conditions have changed.</li> </ul>	<p><b>Student Edition:</b> 354-356, 669-675</p> <p><b>Teacher Wraparound Edition:</b> R 675; RS 670; TFYI 672; TPK 669</p>
<p><b>8.5.3 By the end of eighth grade, students will develop an understanding of the earth in the solar system.</b></p>	
<ul style="list-style-type: none"> <li>Investigate and list the components of the solar system.</li> </ul>	<p><b>Student Edition:</b> 186-189, 197-207, 223-229, 231-237</p> <p><i>Launch Lab</i> 185, 217</p> <p><i>Science Online</i> 187</p> <p><i>Lab</i> 230</p> <p><i>MiniLAB</i> 235</p> <p><b>Teacher Wraparound Edition:</b> ACT 232; MM 225; QD 228, R 189, 229; SCB 216E-F</p>
<ul style="list-style-type: none"> <li>Investigate and describe the motion of objects in the solar system that support the concepts of day, year, eclipses, and phases of the moon.</li> </ul>	<p><b>Student Edition:</b> 188, 190-192, 197-202</p> <p><i>MiniLAB</i> 200</p> <p><b>Teacher Wraparound Edition:</b> ACT 199; CFU 189; DI 191; DIS 191, 199; IL 202; SJ 201; TFYI 191, 199; USW 192; VL 200</p>
<ul style="list-style-type: none"> <li>Investigate and describe the influence of gravity on objects in the solar system.</li> </ul>	<p><b>Student Edition:</b> 104-111, 198-199, 206-207, 218-222</p> <p><i>Science Online</i> 105</p> <p><i>Integrate Earth Science</i> 108</p> <p><b>Teacher Wraparound Edition:</b> A 207; ACT 107; QD 107; SCB 96E; TFYI 107, 199</p>

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<ul style="list-style-type: none"> <li>Investigate and describe the sun as the major source of energy that influences the atmosphere and the earth's surface.</li> </ul>	<p><b>Student Edition:</b>  193-195, 269, 501-506, 520-522, 535-536  <i>Integrate Environment</i> 139  <i>Lab</i> 196  <i>National Geographic</i> 268  <i>Integrate Life Science</i> 827</p> <p><b>Teacher Wraparound Edition:</b>  SCB 516E; SJ 139</p>
<ul style="list-style-type: none"> <li>Investigate and describe the effect of the tilt of the earth's axis on seasons.</li> </ul>	<p><b>Student Edition:</b>  193-195  <i>MiniLab</i> 195  <i>Lab</i> 196</p> <p><b>Teacher Wraparound Edition:</b>  ACT 193; CFU 195; IM 184F, 193; LD 193;  QD 536; R 195; SCB 184E; VL 194</p>