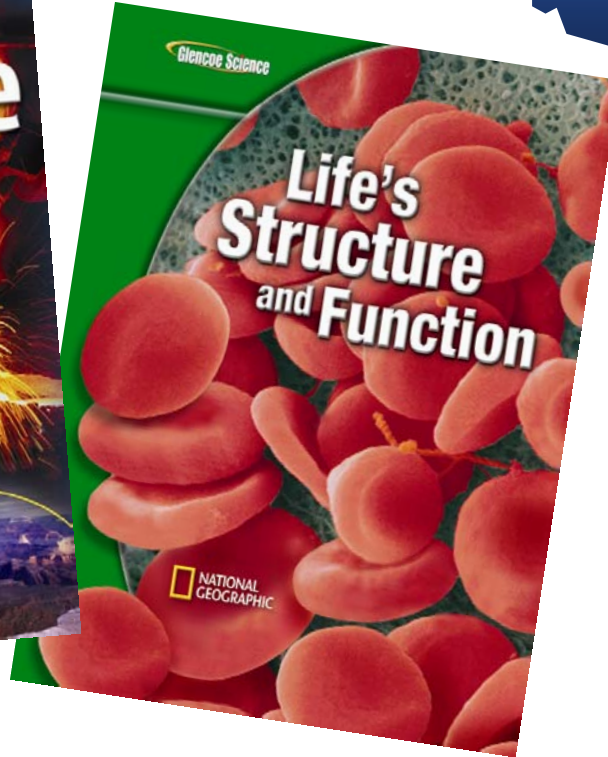




Glencoe

Academic Content Standards  
Science Grade 8



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STANDARDS	PAGE REFERENCES
<b>Earth and Space Sciences</b>	
<i>The Universe</i>	
1. Describe how objects in the solar system are in regular and predictable motions that explain such phenomena as days, years, seasons, eclipses, tides and moon cycles.	<b>Student Edition:</b> 307, 309-311, 313-316 <i>Integrate Earth Science</i> 168 <i>Lab</i> 321 <i>Launch Lab</i> 305 <b>Teacher Wraparound Edition:</b> D 310; FF 166; FYI 309; TC 304
2. Explain that gravitational force is the dominant force determining motions in the solar system and in particular keeps the planets in orbit around the sun.	<b>Student Edition:</b> 337, 338, 350, 358-359 <i>MiniLAB</i> 345 <i>National Geographic</i> 339

Codes used for Teacher Wraparound Edition pages are the initial caps of headings on that page.

STANDARDS	PAGE REFERENCES
3. Compare the orbits and composition of comets and asteroids with that of Earth.	<b>Student Edition:</b> 309, 311, 356-359 <i>Integrate Physics</i> 308 <i>Launch Lab</i> 305 <b>Teacher Wraparound Edition:</b> AS 359; D 357; TC 304
4. Describe the effect that asteroids or meteoroids have when moving through space and sometimes entering planetary atmospheres (e.g., meteor-"shooting star" and meteorite).	<b>Student Edition:</b> 357-359 <i>Accidents in Science</i> 362 <b>Teacher Wraparound Edition:</b> A 357; FYI 358; TPK 356
5. Explain that the universe consists of billions of galaxies that are classified by shape.	<b>Student Edition:</b> 386-387, 391 <i>National Geographic</i> 390 <b>Teacher Wraparound Edition:</b> CU 391; DIN 389; FYI 387
6. Explain interstellar distances are measured in light years (e.g., the nearest star beyond the sun is 4.3 light years away).	<b>Student Edition:</b> 373 <i>Design Your Own Lab</i> 392-393 <b>Teacher Wraparound Edition:</b> AS 374; CC 373; D 394; IM 371
7. Examine the life cycle of a star and predict the next likely stage of a star.	<b>Student Edition:</b> 383-385 <i>Integrate Physics</i> 382 <b>Teacher Wraparound Edition:</b> FF 384; RT 385; VL 383
8. Name and describe tools used to study the universe (e.g., telescopes, probes, satellites and spacecraft).	<b>Student Edition:</b> 324-325, 342-346, 348, 350-351, 359 <i>Lab</i> 379 <i>National Geographic</i> 318 <b>Teacher Wraparound Edition:</b> D 377; FYI 355, 383
<b>Earth Systems</b>	
9. Describe the interior structure of Earth and Earth's crust as divided into tectonic plates riding on top of the slow moving currents of magma in the mantle.	<b>Student Edition:</b> 186-187, 190-192, 195, 196-197, 226-227, 229-231 <i>National Geographic</i> 193 <b>Teacher Wraparound Edition:</b> IM 194; RT 231; TC 180

STANDARDS	PAGE REFERENCES
10. Explain that most major geological events (e.g., earthquakes, volcanic eruptions, hot spots and mountain building) result from plate motion.	<p><b>Student Edition:</b> 196-197, 210-213, 219-224, 226-229, 285, 292 <i>Use the Internet Lab</i> 200-201</p> <p><b>Teacher Wraparound Edition:</b> D 285; FYI 197; TPK 190</p>
11. Use models to analyze the size and shape of Earth, its surface and its interior (e.g., globes, topographic maps, satellite images).	<p><b>Student Edition:</b> 195, 214, 230-231, 306-307, 344, 354 <i>National Geographic</i> 193</p> <p><b>Teacher Wraparound Edition:</b> LD 354; MM 230</p>
12. Explain that some processes involved in the rock cycle are directly related to thermal energy and forces in the mantle that drive plate motions.	<p><b>Student Edition:</b> 186-187, 195, 221-223, 227-228, 231 <i>MiniLAB</i> 220</p> <p><b>Teacher Wraparound Edition:</b> FYI 221, 223, 227; IC 228</p>
13. Describe how landforms are created through a combination of destructive (e.g., weathering and erosion) and constructive processes (e.g., crustal deformation, volcanic eruptions and deposition of sediment).	<p><b>Student Edition:</b> 186-187, 196-197, 219-223, 227-228, 285, 292 <i>Lab</i> 189 <i>National Geographic</i> 193</p> <p><b>Teacher Wraparound Edition:</b> D 285; FYI 197</p>
14. Explain that folding, faulting and uplifting can rearrange the rock layers so the youngest is not always found on top.	<p><b>Student Edition:</b> 250-252 <i>Lab</i> 256 <i>National Geographic</i> 253</p> <p><b>Teacher Wraparound Edition:</b> D 252</p>
15. Illustrate how the three primary types of plate boundaries (transform, divergent and convergent) cause different landforms (e.g., mountains, volcanoes and ocean trenches).	<p><b>Student Edition:</b> 191-194, 196-198</p> <p><b>Teacher Wraparound Edition:</b> AS 199; MM 196; USW 192</p>

STANDARDS	PAGE REFERENCES
<b>Life Sciences</b>	
<i>Heredity</i>	
<p>1. Describe that asexual reproduction limits the spread of detrimental characteristics through a species and allows for genetic continuity.</p>	<p><b>Student Edition:</b> 42</p> <p><b>Teacher Wraparound Edition:</b> D 42</p> <p><b><i>Life's Structure and Function A</i></b></p> <p><b>Student Edition:</b> 103-104</p> <p><b>Teacher Wraparound Edition:</b> LD 102</p>
<p>2. Recognize that in sexual reproduction new combinations of traits are produced which may increase or decrease an organism's chances for survival.</p>	<p><b>Student Edition:</b> 46-48</p> <p><b>Teacher Wraparound Edition:</b> SJ 46</p> <p><b><i>Life's Structure and Function A</i></b></p> <p><b>Student Edition:</b> 106-107, 158-161</p> <p><i>Applying Science</i> 159</p> <p><b>Teacher Wraparound Edition:</b> LD 160; VL 159</p>
<i>Evolutionary Theory</i>	
<p>3. Explain how variations in structure, behavior or physiology allow some organisms to enhance their reproductive success and survival in a particular environment.</p>	<p><b>Student Edition:</b> 50, 52</p> <p><i>Integrate Environment</i> 49</p> <p><i>Lab</i> 54-55</p> <p><i>National Geographic</i> 51</p> <p><b>Teacher Wraparound Edition:</b> AS 53; TPK 49</p> <p><b><i>Life's Structure and Function A</i></b></p> <p><b>Student Edition:</b> 159, 160-161</p> <p><i>Applying Science</i> 159</p> <p><i>Lab</i> 164</p> <p><i>MiniLab</i> 173</p> <p><b>Teacher Wraparound Edition:</b> LD 160; USW 162</p>

STANDARDS	PAGE REFERENCES
<p>4. Explain that diversity of species is developed through gradual processes over many generations (e.g., fossil record).</p>	<p><b>Student Edition:</b> 274-276, 288-290, 293</p> <p><b>Teacher Wraparound Edition:</b> RT 279; SJ 275; TC 270; VL 277, 289</p> <p><b>Life's Structure and Function A Student Edition:</b> 158-163, 165, 169, 172-174 <i>Integrate Earth Science</i> 169</p> <p><b>Teacher Wraparound Edition:</b> CC 162</p>
<p>5. Investigate how an organism adapted to a particular environment may become extinct if the environment, as shown by the fossil record, changes.</p>	<p><b>Student Edition:</b> 278, 279, 282, 286, 291 <i>National Geographic</i> 283</p> <p><b>Teacher Wraparound Edition:</b> D 296; FYI 282; SJ 284; TPK 288</p> <p><b>Life's Structure and Function A</b> The following pages can be used to meet this standard.</p> <p><b>Student Edition:</b> 160, 169, 174-175 <i>Lab</i> 164</p> <p><b>Teacher Wraparound Edition:</b> DIF 168</p>
<p><b>Physical Sciences</b></p>	
<p><b>Forces and Motion</b></p>	
<p>1. Describe how the change in the position (motion) of an object is always judged and described in comparison to a reference point.</p>	<p><b>Student Edition:</b> 522-523, 527, 528-529, 567-568 <i>Accidents in Science</i> 542 <i>Design Your Own Lab</i> 570-571</p> <p><b>Teacher Wraparound Edition:</b> A 523; AS 532; FF 525; RT 527</p>
<p>2. Explain that motion describes the change in the position of an object (characterized by a speed and direction) as time changes.</p>	<p><b>Student Edition:</b> 524-526, 528-529, 552, 556-559, 567-568 <i>Design Your Own Lab</i> 570-571</p> <p><b>Teacher Wraparound Edition:</b> AS 527, 532; DIN 526; VL 525</p>

STANDARDS	PAGE REFERENCES
3. Explain that an unbalanced force acting on an object changes that object's speed and/or direction.	<b>Student Edition:</b> 550-551, 552-555 <i>Science and Society</i> 572 <b>Teacher Wraparound Edition:</b> A 552; DIN 554; TPK 550; USW 551
<b>Nature of Energy</b>	
4. Demonstrate that waves transfer energy.	<b>Student Edition:</b> 212-213, 694, 697, 701-703, 708-710 <i>National Geographic</i> 216 <i>Science and History</i> 234 <i>Use the Internet Lab</i> 200-201 <b>Teacher Wraparound Edition:</b> FF 698; UA 697
5. Demonstrate that vibrations in materials may produce waves that spread away from the source in all directions (e.g., earthquake waves and sound waves).	<b>Student Edition:</b> 212-213, 694, 701-703 <i>Integrate Earth Science</i> 696 <i>Lab</i> 706 <i>Launch Lab</i> 693 <i>National Geographic</i> 216 <b>Teacher Wraparound Edition:</b> FF 698; FYI 212

STANDARDS	PAGE REFERENCES
<b>Science and Technology</b>	
<b>Understanding Technology</b>	
<p>1. Examine how science and technology have advanced through the contributions of many different people, cultures and times in history.</p>	<p><b>Student Edition:</b>  26, 182-183, 434-435  <i>Accidents in Science</i> 716  <i>Integrate Career</i> 127, 467  <i>Integrate History</i> 681  <i>Integrate Physics</i> 340  <i>Science and History</i> 426</p> <p><b>Teacher Wraparound Edition:</b>  FF 25</p> <p><b>Life's Structure and Function A</b></p> <p><b>Student Edition:</b>  21, 23, 24-25, 53, 112-113, 129  <i>Accidents in Science</i> 120  <i>National Geographic</i> 22  <i>Time: Science and History</i> 60, 178  <i>The Nature of Science</i> 4</p> <p><b>Teacher Wraparound Edition:</b>  CDIV 14; DIF 116; HS 60; TFYI 11</p>
<p>2. Examine how choices regarding the use of technology are influenced by constraints caused by various unavoidable factors (e.g., geographic location, limited resources, social, political and economic considerations).</p>	<p><b>Student Edition:</b>  27  <i>Accidents in Science</i> 716  <i>Integrate History</i> 681  <i>Integrate Life Science</i> 617  <i>Science and Society</i> 658</p> <p><b>Teacher Wraparound Edition:</b>  D 325</p> <p><b>Life's Structure and Function A</b></p> <p><b>Student Edition:</b>  143-145, 167  <i>Integrate Environment</i> 144  <i>National Geographic</i> 50-51  <i>The Nature of Science</i> 2-5</p> <p><b>Teacher Wraparound Edition:</b>  CB 3; CDIV 144</p>

STANDARDS	PAGE REFERENCES
<b>Abilities To Do Technological Design</b>	
<p>3. Design and build a product or create a solution to a problem given more than two constraints (e.g., limits of cost and time for design and production, supply of materials and environmental effects).</p>	<p><b>Student Edition:</b>  <i>Design Your Own Lab</i> 540-541, 598-599  <i>National Geographic</i> 90-91, 632-633  <i>Science and History</i> 114, 234, 512  <i>Science and Society</i> 172, 572, 600</p> <p><b>Life’s Structure and Function A</b>  The following pages can be used to meet this standard.</p> <p><b>Student Edition:</b>  <i>Lab</i> 29, 164  <i>Lab: Design Your Own</i> 58-59, 176-177  <i>MiniLab</i> 113</p> <p><b>Teacher Wraparound Edition:</b>  AS 164</p>
<p>4. Evaluate the overall effectiveness of a product design or solution.</p>	<p><b>Student Edition:</b>  <i>Accidents in Science</i> 716  <i>Design Your Own Lab</i> 540-541  <i>Integrate Health</i> 682  <i>MiniLAB</i> 18  <i>National Geographic</i> 712  <i>Science and History</i> 512  <i>Science and Society</i> 572, 600</p> <p><b>Life’s Structure and Function A</b>  The following pages can be used to meet this standard.</p> <p><b>Student Edition:</b>  <i>Lab</i> 29, 164  <i>Lab: Design Your Own</i> 58-59, 176-177  <i>MiniLab</i> 113</p> <p><b>Teacher Wraparound Edition:</b>  AS 164</p>

STANDARDS	PAGE REFERENCES
<b>Scientific Inquiry</b>	
<i>Doing Scientific Inquiry</i>	
<p>1. Choose the appropriate tools or instruments and use relevant safety procedures to complete scientific investigations.</p>	<p><b>Student Edition:</b>  17  <i>Lab 326-327, 510-511, 618</i>  <i>Science Skill Handbook 729-731, 733-735</i>  <i>Use the Internet Lab 28-29</i></p> <p><b>Teacher Wraparound Edition:</b>  SJ 9; USW 10</p> <p><b><i>Life's Structure and Function A</i></b></p> <p><b>Student Edition:</b>  15  <i>Lab 88-89</i>  <i>Lab: Design Your Own 30-31, 58-59, 146-147, 176-177</i>  <i>Lab: Use the Internet 118-119</i>  <i>Launch Lab 39</i></p> <p><b>Teacher Wraparound Edition:</b>  AIL 30, 58, 88</p>
<p>2. Describe the concepts of sample size and control and explain how these affect scientific investigations.</p>	<p><b>Student Edition:</b>  22  <i>Science and History 114</i>  <i>Science Skill Handbook 728-729</i></p> <p><b>Teacher Wraparound Edition:</b>  DIN 20; LD 19, 100</p> <p><b><i>Life's Structure and Function A</i></b></p> <p><b>Student Edition:</b>  10-11  <i>Applying Science 13</i>  <i>Lab: Design Your Own 30-31</i>  <i>Science Online 10</i>  <i>Science Skill Handbook 190-191</i></p>

STANDARDS	PAGE REFERENCES
<p>3. Read, construct and interpret data in various forms produced by self and others in both written and oral form (e.g., tables, charts, maps, graphs, diagrams and symbols).</p>	<p><b>Student Edition:</b>  <i>Design Your Own Lab</i> 598-599, 624-625  <i>Lab</i> 189, 326-327, 341, 379  <i>Math Skill Handbook</i> 765-766  <i>Use the Internet Lab</i> 200-201</p> <p><b>Teacher Wraparound Edition:</b>            CC 22</p> <p><b><i>Life's Structure and Function A</i></b>  <b>Student Edition:</b>  <i>Applying Science</i> 13  <i>Lab: Design Your Own</i> 30-31, 176-177  <i>Math Skills Handbook</i> 218-219</p>
<p>4. Apply appropriate math skills to interpret quantitative data (e.g., mean, median and mode).</p>	<p><b>Student Edition:</b>  <i>Applying Math</i> 47, 291, 419, 582, 583  <i>Design Your Own Lab</i> 424-425  <i>Math Skill Handbook</i> 758, 762-766</p> <p><b><i>Life's Structure and Function A</i></b>  <b>Student Edition:</b>  <i>Applying Math</i> 46, 74, 133  <i>Lab</i> 135  <i>Lab: Design Your Own</i> 176-177  <i>Math Skill Handbook</i> 205-214  <i>MiniLab</i> 11, 138</p> <p><b>Teacher Wraparound Edition:</b>            DIF 132</p>

STANDARDS	PAGE REFERENCES
<b>Scientific Ways of Knowing</b>	
<b>Nature of Science</b>	
<p>1. Identify the difference between description (e.g., observation and summary) and explanation (e.g., inference, prediction, significance and importance).</p>	<p><b>Student Edition:</b>  14-19, 21-23, 47-48, 391, 410-413  <i>MiniLAB</i> 243, 345  <i>National Geographic</i> 20  <i>Science and Society</i> 658  <b>Teacher Wraparound Edition:</b>  FYI 47  <b>Life's Structure and Function A</b>  <b>Student Edition:</b>  8-11  <i>Applying Science</i> 109  <i>Lab</i> 82, 105, 135  <i>Lab: Design Your Own</i> 30-31, 176-177  <i>Launch Lab</i> 97  <b>Teacher Wraparound Edition:</b>  LD 10</p>
<b>Ethical Practices</b>	
<p>2. Explain why it is important to examine data objectively and not let bias affect observations.</p>	<p><b>Student Edition:</b>  15  <i>Science Skill Handbook</i> 732  <b>Teacher Wraparound Edition:</b>  A 15  <b>Life's Structure and Function A</b>  <b>Student Edition:</b>  11  <i>Science Skill Handbook</i> 194</p>