



CONNECTICUT
Content Standards and Expected Performances
Core Science for Grades 6-8

Life Science © 2005, *Earth Science* © 2005, *Physical Science* © 2005

OBJECTIVES	PAGE REFERENCES		
	<i>Life Science</i>	<i>Earth Science</i>	<i>Physical Science</i>
Grade 6			
Core Themes, Content Standards, and Expected Performances			
<p><i>Properties of Matter – How does the structure of matter affect the properties and uses of materials?</i></p> <p>6.1 - Materials can be classified as pure substances or mixtures, depending on their chemical and physical properties.</p> <ul style="list-style-type: none"> ◆ Mixtures are made of combinations of elements and/or compounds, and they can be separated by using a variety of physical means. ◆ Pure substances can be either elements or compounds, and they cannot be broken down by physical means. 	SE: 68-71 TWE: QD 69	SE: 34-35, 43-44 <i>MiniLAB</i> 43 TWE: MM 43	SE: 450-454, 458-461 <i>Lab</i> 457 TWE: D 454 DI 456 FYI 453 IM 452 LD 460

OBJECTIVES	PAGE REFERENCES		
	<i>Life Science</i>	<i>Earth Science</i>	<i>Physical Science</i>
C1. Describe the properties of common elements, such as oxygen, hydrogen, carbon, iron and aluminum.	SE: 67 TWE: TFYI 67	TWE: TPK 34 SJ 35 ACT 36	SE: 523, 570-576, 578-582, 584-588 <i>Integrate Environment</i> 637 <i>Lab</i> 583, 592-593 <i>Science and History</i> 594 TWE: FYI 579, 585
C 2. Describe how the properties of simple compounds, such as water and table salt, are different from the properties of the elements of which they are made.	SE: 66-69 TWE: QD 68 DISC 68 TFYI 69	SE: 39-44 TWE: DI 43	SE: 602-603 <i>Integrate Environment</i> 637 TWE: D 603 FYI 610
C 3. Explain how mixtures can be separated by using the properties of the substances from which they are made, such as particle size, density, solubility and boiling point.	SE: 69 TWE: DI 69 QD 69	SE: 43-44 TWE: TFYI 42	SE: 459-463 <i>Launch Lab</i> 449 <i>MiniLAB</i> 453 TWE: CD 463 DIN 459 LD 460 MM 461

OBJECTIVES	PAGE REFERENCES		
	<i>Life Science</i>	<i>Earth Science</i>	<i>Physical Science</i>
<p><i>Matter and Energy in Ecosystems</i> – How do matter and energy flow through ecosystems?</p> <p>6.2 - An ecosystem is composed of all the populations that are living in a certain space and the physical factors with which they interact.</p> <ul style="list-style-type: none"> ◆ Populations in ecosystems are affected by biotic factors, such as other populations, and abiotic factors, such as soil and water supply. ◆ Populations in ecosystems can be categorized as producers, consumers and decomposers of organic matter. 	SE: 219, 229, 684-685, 686-687, 688-695, 696-697 TWE: DISC 690 LD 691 AS 693	SE: 549-556 TWE: IL 551 R 556	SE: <i>Integrate Environment</i> 111 <i>Integrate History</i> 713
<p>C4. Describe how abiotic factors, such as temperature, water and sunlight, affect the ability of plants to create their own food through photosynthesis.</p>	SE: 712-719 <i>LAB</i> 701 <i>LAB: Design Your Own</i> 702-703 <i>MiniLAB</i> 714 <i>Applying Math</i> 716 <i>Science Online</i> 717 TWE: ACT 713 QD 713 IQL 716 TFYI 716 DISC 717	SE: 549-551 TWE: TFYI 551	SE: <i>Integrate Life Science</i> 392 TWE: FYI 745

OBJECTIVES	PAGE REFERENCES		
	<i>Life Science</i>	<i>Earth Science</i>	<i>Physical Science</i>
C 5. Explain how populations are affected by predator-prey relationships.	SE: 697, 698-700 LAB 701 TWE: DI 698 VL 699 CU 700	TWE: DI 555	See Glencoe's <i>Life Science</i> © 2005 and/or <i>Earth Science</i> © 2005.
C 6. Describe common food webs in different Connecticut ecosystems.	SE: 727-728 TWE: SJ 699 DI 727 DISC 727 VL 728	SE: 549-556* TWE: MM 550 VL 550 *These references discuss ocean food webs.	SE: <i>Integrate Environment</i> 111
<i>Energy in the Earth's Systems – How do external and internal sources of energy affect the Earth's systems?</i> 6.3 - Variations in the amount of the sun's energy hitting the Earth's surface affect daily and seasonal weather patterns. ◆ Local and regional weather are affected by the amount of solar energy these areas receive and by their proximity to a large body of water.	SE: 714-718 <i>Applying Math</i> 716 <i>Science Online</i> 717 TWE: DI 715, 717 DISC 717 QD 717	SE: 454-461, 462, 484-487 LAB: <i>Design Your Own</i> 444-445 <i>Launch Lab</i> 453 <i>MiniLAB</i> 485 TWE: QD 484 CC 485	SE: 167 <i>Integrate Earth Science</i> 162, 176 <i>National Geographic</i> 166, 197 <i>Science Stats</i> 182 TWE: CB 182 D 167 SJ 111
C 7. Describe the effect of heating on the movement of molecules in solids, liquids and gases.	SE: 69, 73 TWE: TFYI 69	SE: 46-51, 436-437 <i>Integrate Chemistry</i> 97 TWE: UAA 436	SE: 158-159, 164-165, 476-481 <i>Lab</i> 171 TWE: LD 165 VL 161

OBJECTIVES	PAGE REFERENCES		
	<i>Life Science</i>	<i>Earth Science</i>	<i>Physical Science</i>
C 8. Explain how local weather conditions are related to the temperature, pressure and water content of the atmosphere and the proximity to a large body of water.	See Glencoe's <i>Earth Science</i> © 2005 and/or <i>Physical Science</i> © 2005.	SE: 454-461, 462-469 <i>MiniLAB</i> 456 <i>Science Online</i> 463 TWE: TFYI 465 A 469	SE: <i>Integrate Earth Science</i> 162, 176 <i>National Geographic</i> 197
C 9. Explain how the uneven heating of the Earth's surface causes winds.	SE: 715-717	SE: 439-443 TWE: IM 424F CFU 443	See Glencoe's <i>Life Science</i> © 2005 and/or <i>Earth Science</i> © 2005.
<i>Science and Technology in Society – How do science and technology affect the quality of our lives?</i> 6.4 - Water moving across and through earth materials carries with it the products of human activities. ◆ Most precipitation that falls on Connecticut eventually reaches Long Island Sound.	SE: 779	SE: 238-248, 249-254, 600-607 TWE: CC 240 DI 243 SJ 251 DIS 251 UAA 251	SE: 648 <i>Integrate History</i> 713 <i>Launch Lab</i> 695 <i>Science and Society</i> 718
C 10. Explain the role of septic and sewage systems on the quality of surface and ground water.	SE: 783-784	SE: 602 <i>National Geographic</i> 603 TWE: DIS 602 ACT 603 NG 603	SE: <i>Integrate History</i> 713
C 11. Explain how human activity may impact water resources in Connecticut, such as ponds, rivers and the Long Island Sound ecosystem.	SE: 754, 755 TWE: TFYI 755 AIL 760 DISC 762	SE: 600-607 <i>Integrate Health</i> 606 TWE: DI 601 TFYI 604 CD 604 IL 605 R 607	SE: 648 <i>Integrate History</i> 713 <i>Launch Lab</i> 695 <i>Science and Society</i> 718

OBJECTIVES	PAGE REFERENCES		
	<i>Life Science</i>	<i>Earth Science</i>	<i>Physical Science</i>
Grade 7 Core Themes, Content Standards and Expected Performances			
<p><i>Energy Transfer and Transformations – What is the role of energy in our world?</i></p> <p>7.1 - Energy provides the ability to do work and can exist in many forms.</p> <ul style="list-style-type: none"> ◆ Work is the process of making objects move through the application of force. ◆ Energy can be stored in many forms and can be transformed into the energy of motion. 	<p>See Glencoe's <i>Earth Science</i> © 2005 and/or <i>Physical Science</i> © 2005.</p>	<p>SE: 524-525</p>	<p>SE: 100-102, 108-111, 126-131, 134-135, 176-177, 235-237 <i>Lab</i> 116-117, 148-149, 246-247 <i>National Geographic</i> 241 TWE: SJ 127</p>
<p>C 12. Explain the relationship among force, distance and work, and use the relationship ($W=F \times D$) to calculate work done in lifting heavy objects.</p>	<p>See Glencoe's <i>Physical Science</i> © 2005.</p>	<p>See Glencoe's <i>Physical Science</i> © 2005.</p>	<p>SE: 128-129, 134-135 <i>Lab</i> 148-149 <i>MiniLAB</i> 129 TWE: A 128</p>
<p>C 13. Explain how simple machines, such as inclined planes, pulleys and levers, are used to create mechanical advantage.</p>	<p>SE: 491 <i>National Geographic Visualizing</i> 492 <i>Oops!</i> 504 TWE: TFYI 491 ACT 492 QD 492</p>	<p>See Glencoe's <i>Physical Science</i> © 2005.</p>	<p>SE: 132-136, 138-145 <i>Lab</i> 147, 148-149 TWE: D 133, 141 DI 137, 146 FYI 136 QD 139</p>

OBJECTIVES	PAGE REFERENCES		
	<i>Life Science</i>	<i>Earth Science</i>	<i>Physical Science</i>
C 14. Describe how different types of stored (potential) energy can be used to make objects move.	See Glencoe's <i>Earth Science</i> © 2005 and/or <i>Physical Science</i> © 2005.	SE: <i>Integrate Physics</i> 213	SE: 103-105, 107-109, 176-177, 232-237 <i>Integrate Environment</i> 111 <i>Lab</i> 106, 116-117 <i>National Geographic</i> 110 TWE: LD 110 SJ 111
<i>Structure and Function – How are organisms structured to ensure efficiency and survival?</i> 7.2 - Many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance. ◆ All organisms are composed of one or more cells; each cell carries on life-sustaining functions. ◆ Multicellular organisms need specialized structures and systems to perform basic life functions.	SE: 482-503, 510-531, 538-559, 566-585, 592-613, 620-641, 650-671 TWE: TFYI 488, 491, 493, 513, 569, 572 UA 488, 519	See Glencoe's <i>Life Science</i> © 2005 and/or <i>Physical Science</i> © 2005.	SE: 427-431, 742-743 <i>Integrate Life Science</i> 324-326, 427-428 <i>National Geographic</i> 340 <i>Science and Society</i> 440 TWE: UA 325 FYI 427 QD 428 TPK 742
C 15. Describe the basic structures of an animal cell, including nucleus, cytoplasm, mitochondria and cell membrane, and how they function to support life.	SE: 38-45 <i>MiniLAB</i> 40 <i>Applying Math</i> 44 <i>LAB</i> 46 TWE: DI 41, 42 VL 41 TFYI 41 MM 43	See Glencoe's <i>Life Science</i> © 2005 and/or <i>Physical Science</i> © 2005.	SE: 742-743 TWE: FF 101

OBJECTIVES	PAGE REFERENCES		
	<i>Life Science</i>	<i>Earth Science</i>	<i>Physical Science</i>
C 16. Describe the structures of the human digestive, respiratory and circulatory systems, and explain how they function to bring oxygen and nutrients to the cells and expel waste materials.	SE: 523-529, 540-543, 550-551 <i>MiniLAB</i> 528 <i>LAB</i> 549 TWE: TFYI 525, 527, 543 IM 526 AR 542 VL 542	See Glencoe's <i>Life Science</i> © 2005 and/or <i>Physical Science</i> © 2005.	SE: 114-115, 745-747 TWE: IM 114
C 17. Explain how the human musculo-skeletal system supports the body and allows movement.	SE: 484-495 <i>Applying Math</i> 487 <i>Science Online</i> 491 <i>National Geographic Visualizing</i> 492 <i>MiniLAB</i> 494 TWE: QD 485 CC 485 MM 487 SJ 488 ACT 491, 492 TFYI 491, 493 DI 494	See Glencoe's <i>Life Science</i> © 2005 and/or <i>Physical Science</i> © 2005.	SE: 126-127, 766 <i>MiniLAB</i> 129 <i>National Geographic Science Online</i> 69 TWE: A 140

OBJECTIVES	PAGE REFERENCES		
	<i>Life Science</i>	<i>Earth Science</i>	<i>Physical Science</i>
<p><i>Energy in the Earth's Systems – How do external and internal sources of energy affect the Earth's systems?</i></p> <p>7.3 - Landforms are the result of the interaction of constructive and destructive forces over time.</p> <ul style="list-style-type: none"> ◆ Volcanic activity and the folding and faulting of rock layers during the shifting of the Earth's crust affect the formation of mountains, ridges and valleys. ◆ Glaciation, weathering and erosion change the Earth's surface by moving earth materials from place to place. 	<p>See Glencoe's <i>Earth Science</i> © 2005 and/or <i>Physical Science</i> © 2005.</p>	<p>SE: 154-159, 182-187, 210-214, 215-220 <i>Launch Lab</i> 209 <i>MIniLAB</i> 211</p> <p>TWE: SJ 158, 183, 212 DIS 183 TPK 210 LD 216</p>	<p>SE: 45-46, 464 <i>Science Online</i> 102</p> <p>TWE: CUR 102 FYI 53, 464</p>
<p>C 18. Describe how folded and faulted rock layers provide evidence of the gradual up and down motion of the Earth's crust.</p>	<p>See Glencoe's <i>Earth Science</i> © 2005 and/or <i>Physical Science</i> © 2005.</p>	<p>SE: 157-158, 280-284, 300-303</p> <p>TWE: QD 157, 302 DIS 158 CFU 159 LD 282 VL 284 MM 287 A 303</p>	<p>SE: <i>Integrate Earth Science</i> 295 <i>Science Online</i> 53</p> <p>TWE: FYI 53, 294</p>
<p>C 19. Explain how glaciation, weathering and erosion create and shape valleys and floodplains.</p>	<p>See Glencoe's <i>Earth Science</i> © 2005 and/or <i>Physical Science</i> © 2005.</p>	<p>SE: 215-220, 238-248 <i>Lab</i> 221</p> <p>TWE: DIS 219 R 220 CC 242</p>	<p>SE: 464 <i>Science Online</i> 102</p> <p>TWE: DIN 294 FYI 464</p>

OBJECTIVES	PAGE REFERENCES		
	<i>Life Science</i>	<i>Earth Science</i>	<i>Physical Science</i>
C 20. Explain how the boundaries of tectonic plates can be inferred from the location of earthquakes and volcanoes.	See Glencoe's <i>Earth Science</i> © 2005 and/or <i>Physical Science</i> © 2005.	SE: 280-289, 300-303, 333-335 <i>Science Online</i> 282 TWE: TPK 280 ACT 283 CC 287 DI 288, 302 R 335	SE: 45-46 <i>Science Online</i> 53 TWE: FYI 53 IM 299
<i>Science and Technology in Society – How do science and technology affect the quality of our lives?</i> 7.4 - Technology allows us to improve food production and preservation, thus improving our ability to meet the nutritional needs of growing populations. ◆ Various microbes compete with humans for the same sources of food.	Refrigeration during shipping keeps microbes from growing and contaminating food. Visit www.microbes.info/ for specific information.	Refrigeration during shipping keeps microbes from growing and contaminating food. Visit www.microbes.info/ for specific information.	Refrigeration during shipping keeps microbes from growing and contaminating food. Visit www.microbes.info/ for specific information.
C 21. Describe how freezing, dehydration, pickling and irradiation prevent food spoilage caused by microbes.	Microbes need room temperatures, moisture, and oxygen to grow. Irradiation kills microbes. TWE: CC 779	Microbes need room temperatures, moisture, and oxygen to grow. Irradiation kills microbes.	Microbes need room temperatures, moisture, and oxygen to grow. Irradiation kills microbes.

OBJECTIVES	PAGE REFERENCES		
	<i>Life Science</i>	<i>Earth Science</i>	<i>Physical Science</i>
Grade 8 Core Themes, Content Standards and Expected Performances			
<p><i>Forces and Motion – What makes objects move the way they do?</i></p> <p>8.1 - An object's inertia causes it to continue moving the way it is moving unless it is acted upon by a force to change its motion.</p> <ul style="list-style-type: none"> ◆ The motion of an object can be described by its position, direction of motion and speed. ◆ An unbalanced force acting on an object changes its speed and/or direction of motion. ◆ Objects moving in circles must experience force acting toward the center. 	<p>See Glencoe's <i>Earth Science</i> © 2005 and/or <i>Physical Science</i> © 2005.</p>	<p>SE: 637 <i>MiniLAB</i> 641 TWE: A 641</p>	<p>SE: 38-44, 45-46, 53-56, 81-82 <i>Launch Lab</i> 37 TWE: A 55 DIN 81</p>
<p>C 22. Calculate the average speed of a moving object and illustrate the motion of objects in graphs of distance over time.</p>	<p>See Glencoe's <i>Physical Science</i> © 2005.</p>	<p>See Glencoe's <i>Physical Science</i> © 2005.</p>	<p>SE: 39-43 <i>Lab</i> 58-59 <i>Launch Lab</i> 37 <i>National Geographic</i> 49 TWE: IM 43</p>
<p>C 23. Describe the qualitative relationships among force, mass and changes in motion.</p>	<p>See Glencoe's <i>Physical Science</i> © 2005.</p>	<p>See Glencoe's <i>Physical Science</i> © 2005.</p>	<p>SE: 54-56, 68-70, 75-78 <i>Lab</i> 57, 58-59, 90-91 TWE: FYI 78 LD 70 QD 77</p>
<p>C 24. Describe the forces acting on an object moving in a circular path.</p>	<p>See Glencoe's <i>Earth Science</i> © 2005 and/or <i>Physical Science</i> © 2005.</p>	<p>SE: 637 <i>MiniLAB</i> 641</p>	<p>SE: 76, 79-82 <i>Science and History</i> 92 TWE: DIN 81</p>

OBJECTIVES	PAGE REFERENCES		
	<i>Life Science</i>	<i>Earth Science</i>	<i>Physical Science</i>
<p><i>Heredity and Evolution – What processes are responsible for life’s unity and diversity?</i></p> <p>8.2 - Reproduction is a characteristic of living systems and it is essential for the continuation of every species.</p> <ul style="list-style-type: none"> ◆ Heredity is the passage of genetic information from one generation to another. ◆ Some of the characteristics of an organism are inherited and some result from interactions with the environment. 	SE: 96-115, 124-140, 152-162, 163-169, 170-173, 666-670 <i>MiniLAB</i> 101 TWE: SJ 101 IQL 102, 670 QD 668 TFYI 668 CC 668, 670 VL 668	SE: 394-399 <i>Launch Lab</i> 391 <i>LAB</i> 407 TWE: DI 394 CD 396 FF 489	SE: 744-745
<p>C 25. Explain the similarities and differences in cell division in somatic and germ cells.</p>	SE: 98-102, 104-109 <i>Applying Skills #5</i> , 109 <i>LAB</i> 103 TWE: DI 106 AR 107	See Glencoe’s <i>Life Science</i> © 2005.	See Glencoe’s <i>Life Science</i> © 2005.
<p>C 26. Describe the structure and function of the male and female human reproductive systems, including the process of egg and sperm production.</p>	SE: 104-105, 627-631 <i>National Geographic Visualizing</i> 624-625 <i>MiniLAB</i> 630 <i>Self-Check # 1, #2, #3, #4, #6</i> , 631 TWE: ACT 628 DISC 628 SJ 629 IM 629	See Glencoe’s <i>Life Science</i> © 2005.	See Glencoe’s <i>Life Science</i> © 2005.

OBJECTIVES	PAGE REFERENCES		
	<i>Life Science</i>	<i>Earth Science</i>	<i>Physical Science</i>
C 27. Describe how genetic information is organized in genes on chromosomes, and explain sex determination in humans.	SE: 110-114, 138, 139 <i>MiniLAB</i> 111 <i>Science Online</i> 115 TWE: DISC 112 CC 112 MM 113 QD 113	See Glencoe's <i>Life Science</i> © 2005 and/or <i>Physical Science</i> © 2005.	SE: 744-745
<i>Earth in the Solar System – How does the position of Earth in the solar system affect conditions on our planet?</i> 8.3 - The solar system is composed of planets and other objects that orbit the sun. ◆ Gravity is the force that governs the motions of objects in the solar system. ◆ The motion of the Earth and moon relative to the sun causes daily, monthly and yearly cycles on Earth.	See Glencoe's <i>Earth Science</i> © 2005 and/or <i>Physical Science</i> © 2005.	SE: 660-665, 690-694, 696-701, 702-709, 710-713 <i>Launch Lab</i> 659 <i>Science Online</i> 663 <i>MiniLAB</i> 699 TWE: ACT 663 QD 664, 697 R 665	SE: 75-78, 82
C 28. Explain the effect of gravity on the orbital movement of planets in the solar system.	See Glencoe's <i>Earth Science</i> © 2005 and/or <i>Physical Science</i> © 2005.	SE: 690-694 <i>National Geographic</i> 693 <i>LAB</i> 695 TWE: NG 693	SE: 75-78, 82

OBJECTIVES	PAGE REFERENCES		
	<i>Life Science</i>	<i>Earth Science</i>	<i>Physical Science</i>
C 29. Explain how the regular motion and relative position of the sun, Earth and moon affect the seasons, phases of the moon and eclipses.	See Glencoe's <i>Earth Science</i> © 2005.	SE: 666-670 <i>Science Online</i> 669 LAB 675 TWE: IM 658F VL 668 QD 669 DIS 669, 670 ACT 670 LD 670 R 674	See Glencoe's <i>Earth Science</i> © 2005.
<i>Science and Technology in Society – How do science and technology affect the quality of our lives?</i> 8.4 - In the design of structures there is a need to consider factors such as function, materials, safety, cost and appearance. ◆ Bridges can be designed in different ways to withstand certain loads and potentially destructive forces.	See Glencoe's <i>Earth Science</i> © 2005.	SE: 318* <i>MiniLAB</i> 318 TWE: A 318 R 319 *These references discuss structures in general, not just bridges.	See Glencoe's <i>Earth Science</i> © 2005.
C 30. Explain how beam, truss and suspension bridges are designed to withstand the forces that act on them.	This objective can be met during teacher/class discussion.	This objective can be met during teacher/class discussion.	This objective can be met during teacher/class discussion.

Codes Used for TWE Codes

Life Science

ACT	Activity
AIL	Additional Inquiry Lab
AR	Active Reading
AS	Assessment
CC	Curriculum Connection
CU	Check for Understanding
DI	Differentiated Instruction
DISC	Discussion
IM	Identifying Misconceptions
IQL	Inquiry Lab
LD	Lab Demonstration
MM	Make a Model
QD	Quick Demo
SJ	Science Journal
TFYI	Teacher For Your Information
UA	Use an Analogy
VL	Visual Learning

Earth Science

A	Assessment
ACT	Activity
CC	Curriculum Connection
CD	Cultural Diversity
CFU	Check for Understanding
DI	Differentiated Instruction
DIS	Discussion
FF	Fun Fact
IL	Inquiry Lab
IM	Identifying Misconceptions
LD	Lab Demonstration
MM	Make a Model
NG	National Geographic
QD	Quick Demo
R	Reteach
SJ	Science Journal
TFYI	Teacher FYI
TPK	Tie to Prior Knowledge
UAA	Use an Analogy
VL	Visual Learning

Physical Science

A	Activity
CB	Content Background
CD	Cultural Diversity
CUR	Curriculum Connection
D	Discussion
DI	Daily Intervention
DIN	Differentiated Instruction
FYI	Teacher FYI
IM	Identifying Misconceptions
LD	Lab Demonstration
MM	Make a Model
QD	Quick Demo
SJ	Science Journal
TPK	Tie to Prior Knowledge
UA	Use an Analogy
VL	Visual Learning