



**CONNECTICUT  
CAPT Second Generation  
Life Science  
*Biology: The Dynamics of Life* © 2004**

STANDARDS	PAGE REFERENCES
<b>LIFE SCIENCE</b>	
<b>Ecosystems</b>	
As a result of studying various ecosystems:	
<b>Students understand that, while matter is recycled in an ecosystem, there is a one-way flow of energy in ecosystems.</b>	
<ul style="list-style-type: none"> <li>Describe the oxygen, carbon and nitrogen cycles and explain their significance.</li> </ul>	SE: 52-54, 57 <i>Inside Story</i> 55 TWE: PR 55 RE 56
<ul style="list-style-type: none"> <li>Explain how carbon dioxide and water are converted into energy-rich foods through an energy-capturing mechanism (photosynthesis).</li> </ul>	SE: 46, 48, 225-228, 230 <i>BioDigest</i> 133, 247 TWE: DIV 230
<ul style="list-style-type: none"> <li>Describe the transfer of energy from the sun to the environment and back to space, through food webs consisting of producers, consumers and decomposers.</li> </ul>	SE: 46-52 <i>Problem-Solving Lab</i> 50 <i>BioDigest</i> 133 TWE: CA 50, 53 RE 51
<b>Students understand how the number and variety of organisms and populations are dependent on the resources and physical factors of their environments.</b>	
<ul style="list-style-type: none"> <li>Explain how changes in resources, predation and climate can affect the growth of different populations.</li> </ul>	SE: 91-92, 96-99 <i>Design Your Own BioLab</i> 58-59 <i>MiniLab</i> 92 <i>Inside Story</i> 94 <i>BioDigest</i> 135 TWE: IN 97, 98 QD 97
<ul style="list-style-type: none"> <li>Explain how organisms are adapted to environmental conditions in different biomes.</li> </ul>	SE: 70-82, 83 <i>Inside Story</i> 82 TWE: BJ 77, 78
<ul style="list-style-type: none"> <li>Explain how human activity can impact the stability of various ecosystems.</li> </ul>	SE: 116-120 <i>Biology and Society</i> 60, 600 TWE: IN 116 EN 117
<b>Genetics and Evolution</b>	
As a result of studying patterns of heredity and historical changes in life forms:	
<b>Students understand how each organism carries a set of instructions (genes composed of DNA) for specifying the components and functions of the organism.</b>	
<ul style="list-style-type: none"> <li>Describe how genetic materials are organized in genes and chromosomes in the cells of living organisms.</li> </ul>	SE: 203-204, 211, 263-264, 288 <i>Inside Story</i> 205 TWE: AS 264

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<ul style="list-style-type: none"> <li>Explain how the genetic information from both parents is mixed in the fertilized egg to produce an individual with new combinations of genes and traits.</li> </ul>	SE: 253-254, 265-266, 269-270 TWE: IN 265 CD 269
<ul style="list-style-type: none"> <li>Explain how genes are related to inherited traits and how genes can be manipulated by modern technologies.</li> </ul>	SE: 253, 281, 341-345 <i>MiniLab</i> 343 <i>BioDigest</i> 360, 361 TWE: IS 342 BJ 353
<b>Students understand that the basic idea of biological evolution is that the Earth's present-day species developed from earlier species.</b>	
<ul style="list-style-type: none"> <li>Explain how environmental changes can lead to the extinction and evolution of species.</li> </ul>	SE: 115, 395-397, 409-413 <i>Problem-Solving Lab</i> 115, 397 TWE: CA 115 IN 412
<ul style="list-style-type: none"> <li>Describe how fossils and anatomical evidence provide support for the theory of evolution.</li> </ul>	SE: 397-403 <i>Investigate BioLab</i> 436-437 <i>BioDigest</i> 468 TWE: AC 400 DS 401 PR 402
<b>Cells</b>	
As a result of observing and studying cells in single and multiple-celled organisms:	
<b>Students understand the basic cell structures and functions of living cells.</b>	
<ul style="list-style-type: none"> <li>Describe the basic similarities and differences found in the structures of plant, animal and bacterial cells.</li> </ul>	SE: 173-174, 179-180, 183, 184 <i>Inside Story</i> 186 <i>Investigate BioLab</i> 188-189 <i>MiniLab</i> 209 <i>BioDigest</i> 245, 246 TWE: AL 182-183
<ul style="list-style-type: none"> <li>Describe the structure and explain the main functions of skin, nerve, muscle and blood cells.</li> </ul>	SE: 893, 895, 905-907, 943-946, 975-976 <i>MiniLab</i> 907 TWE: RE 945 IS 977
<ul style="list-style-type: none"> <li>Explain how the cell membrane helps the cell to maintain its unique internal composition.</li> </ul>	SE: 175-178, 195-200 <i>Problem-Solving Lab</i> 176 <i>MiniLab</i> 198 TWE: AS 176 DIV 178, 200 EX 178
<b>Students understand that cells divide for growth of the organism, repair and reproduction.</b>	
<ul style="list-style-type: none"> <li>Describe the process of mitotic cell division and explain how this process is important in growth of the organism and repair of tissues.</li> </ul>	SE: 203-204, 206-210 <i>Investigate BioLab</i> 214-215 TWE: EN 206 UM 206 RE 208

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<ul style="list-style-type: none"> <li>Describe the process producing reproductive cells (meiosis) in females (egg cells) and males (sperm cells).</li> </ul>	SE: 263-266, 996, 1000 <i>Inside Story</i> 1001 TWE: UM 269 EX 273 TTPK 996
<b>Human Biology</b> As a result of studying the structure and function of the human body:	
<b>Students understand the healthy functioning of the human body and how environmental conditions, nutrition, physical activity and pathogens affect its functioning.</b>	
<ul style="list-style-type: none"> <li>Describe the structure and function of the major human organ systems (e.g., circulatory, respiratory, digestive, reproductive and nervous systems).</li> </ul>	SE: 917-923, 943-950, 971-974, 975-984, 995-1004 <i>BioDigest</i> 1048-1055 TWE: DIV 923, 950, 984 DS 1049
<ul style="list-style-type: none"> <li>Explain the role of nutrients and physical activity in the functioning of the human body.</li> </ul>	SE: 924-928 TWE: EN 925 BJ 925 AS 927
<ul style="list-style-type: none"> <li>Explain the human body's defense system against infectious diseases and the role of antibiotics and vaccinations.</li> </ul>	SE: 1031-1033, 1035-1040 <i>Inside Story</i> 1034 <i>Problem-Solving Lab</i> 1040 <i>BioDigest</i> 1055 TWE: RE 1033, 1038 VL 1037 CA 1038

### Codes Used for TWE Pages

AC	Activity
AL	Additional Lab
AS	Assessment
BJ	Biology Journal
CA	Challenge Activity
CD	Concept Development
DIV	Daily Intervention
DS	Display
EN	Enrichment
EX	Extension
IN	Inquiry
IS	Inclusion Strategy
PR	Project
QD	Quick Demo
RE	Reinforcement
TTPK	Tying to Prior Knowledge
UM	Using Models
VL	Visual Learning