



Biology

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STANDARDS

PAGE REFERENCES

Content Standard 1—Students design, conduct, evaluate, and communicate processes and results of scientific investigations, and demonstrate thinking skills associated with this procedural knowledge.

1. generate a question, identify dependent and independent variables, formulate testable, multiple hypotheses, plan an investigation, predict its outcome, safely conduct the scientific investigations, and collect and analyze data.
2. select and accurately use appropriate tools including technology to make measurements (in metric units), gather, process and analyze data from scientific investigations using appropriate mathematical analysis, error analysis, and graphical representation.

Student Edition:

16, 18-21

BioLab: Design Your Own 83, 173, 235, 533, 593, 925

Investigation and Experimentation xxvii-xxxii

MiniLab 19

National Geographic 17

Teacher Wraparound Edition:

CT 18; DC 21

Student Edition:

BioLab: Design Your Own 51, 83, 173, 235, 593, 653, 783

Investigation and Experimentation xxxiii-xli

Skillbuilder Handbook 1114-1118

Teacher Wraparound Edition:

DC 20; DE 14

STANDARDS	PAGE REFERENCES
<p>3. critically review evidence, communicate and defend results, and recognize that the results of a scientific investigation are always open to revision by further investigations.</p>	<p>Student Edition: 11-14, 401-407 <i>BioDiscoveries</i> 350, 842 <i>BioLab: Design Your Own</i> 23, 173, 567, 593, 925 <i>In the Field</i> 408 Teacher Wraparound Edition: WS 12</p>
<p>4. compare observations of the real world to a mental model resulting from hypothetical, unobservable entities. (e.g., atom, expanding universe)</p>	<p>Student Edition: 148, 402-404 Teacher Wraparound Edition: DC 149; DE 151, 153</p>
<p>5. identify strengths, weaknesses, and assess the validity of the experimental design of an investigation through analysis and evaluation.</p>	<p>Student Edition: <i>BioLab: Design Your Own</i> 23, 83, 173, 235, 533, 567, 593 <i>MiniLab</i> 19 Teacher Wraparound Edition: CT 18; WS 435</p>
<p>Content Standard 3—Students demonstrate knowledge of characteristics, structures and function of living things, the process and diversity of life, and how living organisms interact with each other and their environment, and demonstrate thinking skills associated with this knowledge.</p>	
<p>1. investigate and use appropriate technology to demonstrate that cells have common features as well as differences that determine function and that they are composed of common building blocks (e.g., proteins, carbohydrates, nucleic acids, lipids).</p>	<p>Student Edition: 6, 166-171, 183-186, 187-190, 191, 193-200 <i>Investigation and Experimentation</i> xxxvi-xl <i>Launch Lab</i> 181 <i>MiniLab</i> 184, 223 <i>National Geographic</i> 192 Teacher Wraparound Edition: AC 192; DC 195; SP 166, 167, 185</p>
<p>2. describe and explain the complex processes involved in energy use in cell maintenance, growth, repair and development.</p>	<p>Student Edition: 218-221, 222-224, 226-227, 228-233 <i>MiniLab</i> 220 <i>National Geographic</i> 225 Teacher Wraparound Edition: CT 221; DC 225; EV 233</p>

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<p>3. model the structure of DNA and protein synthesis, discuss the molecular basis of heredity, and explain how it contributes to the diversity of life.</p>	<p>Student Edition: 330-331, 336-338, 340-341 <i>MiniLab</i> 331 <i>National Geographic</i> 339 <i>Section Assessment</i> 341 (#1) Teacher Wraparound Edition: DC 330, 338; DE 330; WS 336</p>
<p>4. predict and model the interaction of biotic and abiotic factors, which affect populations (natural selection) that contribute to the change in a species over time (evolution).</p>	<p>Student Edition: 418-420, 422, 428-430, 431-441 <i>BioLab</i> 443 <i>Data Analysis Lab</i> 420, 435 <i>MiniLab</i> 429 <i>National Geographic</i> 421 Teacher Wraparound Edition: AC 421; CT 439; DE 429</p>
<p>5. recognize, generate and apply biological classification schemes to infer and discuss the degree of divergence using ecosystems.</p>	<p>Student Edition: 487-488, 490-496, 498, 499-503 <i>BioLab</i> 505 <i>Data Analysis Lab</i> 494 <i>Launch Lab</i> 483 <i>MiniLab</i> 488, 500 <i>National Geographic</i> 497 <i>Section Assessment</i> 489 (#4) Teacher Wraparound Edition: DC 503</p>
<p>6. utilize correlational (e.g., prey and predator relationships) and probabilistic (e.g., genetic sampling) thinking skills in multiple contexts of increasing complexity.</p>	<p>Student Edition: <i>BioLab</i> 381, 443, 505, 1097 <i>Data Analysis Lab</i> 63, 98, 420, 494, 970 <i>MiniLab</i> 66, 101 Teacher Wraparound Edition: SP 104; WS 96</p>
<p>Content Standard 5—Students understand how scientific knowledge and technological developments impact today’s societies and cultures.</p>	
<p>1. predict how key factors (e.g., technology, competitiveness, world events) affect the development and acceptance of scientific thought.</p>	<p>Student Edition: 5-6, 11-15, 182-185, 256-257, 376-378 <i>Biology & Society</i> 258, 1096 <i>Cutting-Edge Biology</i> 106, 532, 808, 952, 982 <i>In the Field</i> 136, 1038 Teacher Wraparound Edition: DC 375</p>

STANDARDS	PAGE REFERENCES
2. give examples of scientific innovation challenging commonly held perceptions.	Student Edition: <i>BioDiscoveries</i> 716, 752 <i>Cutting-Edge Biology</i> 234, 982 <i>In the Field</i> 408
3. evaluate the ongoing, collaborative scientific process by gathering and critiquing information from the popular media.	Student Edition: <i>BioLab</i> 1011 <i>Apply the Skill</i> 1111 <i>Problem-Solving Skills</i> 1111 Teacher Wraparound Edition: CT 11, 18; DC 15
4. analyze benefits, limitations, costs, consequences, and ethics involved in using scientific and technological innovations. (e.g., biotechnology, environmental issues)	Student Edition: 5-6, 256-257, 363, 370-371, 376, 378-379 <i>Biology & Society</i> 258, 680, 1096 <i>Cutting-Edge Biology</i> 106, 208, 982 Teacher Wraparound Edition: AG 106, 680; DC 363; DIB 680; RS 370
Content Standard 6—Students understand historical developments in science and technology.	
1. give examples of scientific discoveries and describe the interrelationship between technological advances and scientific understanding.	Student Edition: 5-6, 182-185, 326-331, 375-376, 378-379 <i>BioDiscoveries</i> 350 <i>Cutting-Edge Biology</i> 106, 208, 504, 982 <i>National Geographic</i> 377 <i>Section Assessment</i> 186 (#1) Teacher Wraparound Edition: CB 20, 184; RS 5; SP 182
2. analyze and illustrate the historical impact of scientific and technological advances.	Student Edition: 11-14, 182-185, 277, 326-331, 363-371, 375-376, 401-402, 418-420, 489, 1076-1077, 1082 <i>Biology & Society</i> 680 <i>Cutting-Edge Biology</i> 234, 532 Teacher Wraparound Edition: CB 363, 401, 1073; DC 363

STANDARDS	PAGE REFERENCES
<p>3. describe, explain, and predict science as a human endeavor.</p>	<p>Student Edition: 4-6, 11-15, 21 <i>BioDiscoveries</i> 22, 350, 474 <i>Biology & Society</i> 898, 1066 <i>In the Field</i> 136, 172, 408, 566</p> <p>Teacher Wraparound Edition: DC 15; WS 4</p>