

**GLENCOE CORRELATION**  
**BIOLOGY: AN EVERYDAY EXPERIENCE**  
**NEW JERSEY**  
 Core Curriculum Content Standards for Science  
 Grade 12

STANDARDS	PAGE REFERENCES
<b>STANDARD 5.1 (SCIENTIFIC PROCESSES) ALL STUDENTS WILL DEVELOP PROBLEM-SOLVING, DECISION-MAKING AND INQUIRY SKILLS, REFLECTED BY FORMULATING USABLE QUESTIONS AND HYPOTHESES, PLANNING EXPERIMENTS, CONDUCTING SYSTEMATIC OBSERVATIONS, INTERPRETING AND ANALYZING DATA, DRAWING CONCLUSIONS, AND COMMUNICATING RESULTS.</b>	
Building upon knowledge and skills gained in the preceding grades, by the end of Grade 12, students:	
<b>A. Habits of Mind</b>	
1. When making decisions, evaluate conclusions, weigh evidence, and recognize that arguments may not have equal merit.	SE: <i>Science and Society</i> 21, 175 <i>Applying Technology</i> 42-43, 152-153, 454-455 <i>Lab</i> 49 TWE: AC 600
2. Assess the risks and benefits associated with alternative solutions.	SE: <i>*Applying Technology</i> 42-43, 152-153, 454-455 <i>Science and Society</i> 21, 127 TWE: TS 21 CFU 600 CL 687 <i>*When designing and conducting experiments, students will assess different experimental designs to assess the risks and benefits of using a particular method.</i>
3. Engage in collaboration, peer review, and accurate reporting of findings.	SE: <i>Applying Technology</i> 326-327, 622-623 <i>Lab</i> 319, 355, 577 TWE: 22T-23T AS 455, 577
4. Explore cases that demonstrate the interdisciplinary nature of the scientific enterprise.	SE: <i>Biology in Your World</i> 66, 178, 304 <i>Lab</i> 618, 682 <i>Applying Technology</i> 622-623 <i>Technology</i> 680 TWE: GC 66
<b>B. Inquiry and Problem Solving</b>	
1. Select and use appropriate instrumentation to design and conduct investigations.	SE: <i>Mini Lab</i> 16 <i>Lab</i> 17, 290 <i>Applying Technology</i> 42-43, 198-199, 454-455 TWE: AS 271
2. Show that experimental results can lead to new questions and further investigations.	SE: <i>Lab</i> 319, 355, 415, 432 <i>Applying Technology</i> 454-455 TWE: AS 445

STANDARDS	PAGE REFERENCES
<b>C. Safety</b>	
1. Understand, evaluate and practice safe procedures for conducting science investigations.	SE: 702-703 <i>Mini Lab</i> 269, 287 <i>Lab</i> 373, 415, 682 TWE: 34T-35T, 48T
<b>STANDARD 5.2 (SCIENCE AND SOCIETY) ALL STUDENTS WILL DEVELOP AN UNDERSTANDING OF HOW PEOPLE OF VARIOUS CULTURES HAVE CONTRIBUTED TO THE ADVANCEMENT OF SCIENCE AND TECHNOLOGY, AND HOW MAJOR DISCOVERIES AND EVENTS HAVE ADVANCED SCIENCE AND TECHNOLOGY.</b>	
Building upon knowledge and skills gained in the preceding grades, by the end of Grade 12, students:	
<b>A. Cultural Contributions</b>	
1. Recognize the role of the scientific community in responding to changing social and political conditions and how scientific and technological achievement effect historical events.	SE: <i>Science and Society</i> 175, 413, 517, 569 TWE: BA 175
<b>B. Historical Perspectives</b>	
1. Examine the lives and contributions of important scientists who effected major breakthroughs in our understanding of the natural and designed world.	SE: 31, 51, 53, 82-83, 558-561, 615-616 TWE: CH 31 SJ 559 CDIV 693
2. Discuss significant technological achievements in which science has played an important part as well as technological advances that have contributed directly to the advancement of scientific knowledge.	SE: 7-8, 10, 31, 600-601 <i>Science and Society</i> 21 <i>Technology</i> 593, 680 TWE: PO 7
3. Describe the historical origin of important scientific developments such as atomic theory, genetics, plate tectonics, etc., showing how scientific theories develop, are tested, and can be replaced or modified in light of new information and improved investigative techniques.	SE: 31, 51, 53-55, 82-83, 558-561, 589-591, 615-617, 619-621 TWE: CD 53 SJ 590
<b>STANDARD 5.3 (MATHEMATICAL APPLICATIONS) ALL STUDENTS WILL INTEGRATE MATHEMATICS AS A TOOL FOR PROBLEM-SOLVING IN SCIENCE, AND AS A MEANS OF EXPRESSING AND/OR MODELING SCIENTIFIC THEORIES.</b>	
Building upon knowledge and skills gained in the preceding grades, by the end of Grade 12, students:	
<b>A. Numerical Operations</b>	
1. Reinforce indicators from previous grade level.	SE: 11-14 <i>Skill Check</i> 12 <i>Lab</i> 187, 224, 319, 477, 571 <i>Mini Lab</i> 191 <i>Skill Handbook</i> 718-719 TWE: CM 215, 255, 589

STANDARDS	PAGE REFERENCES
<b>B. Geometry and Measurement</b>	
1. When performing mathematical operations with measured quantities, express answers to reflect the degree of precision and accuracy of the input data.	SE: <i>Skill Check</i> 12 <i>Lab</i> 224, 319, 511 TWE: CM 273 *Locators involve measurement and calculation. Precision and accuracy can be incorporated into the discussion.
<b>C. Patterns and Algebra</b>	
1. Apply mathematical models that describe physical phenomena to predict real world events.	SE: <i>Lab</i> 554, 556, 571 <i>Technology</i> 680
<b>D. Data Analysis and Probability</b>	
1. Construct and interpret graphs of data to represent inverse and non-linear relationships, and statistical distributions.	SE: <i>Lab</i> 512, 637 <i>Skill Check</i> 634 <i>Skill Handbook</i> 716-717 TWE: AS 63
<b>STANDARD 5.4 (NATURE AND PROCESS OF TECHNOLOGY) ALL STUDENTS WILL UNDERSTAND THE INTERRELATIONSHIPS BETWEEN SCIENCE AND TECHNOLOGY AND DEVELOP A CONCEPTUAL UNDERSTANDING OF THE NATURE AND PROCESS OF TECHNOLOGY.</b>	
Building upon knowledge and skills gained in the preceding grades, by the end of Grade 12, students:	
<b>A. Science and Technology</b>	
1. Know that scientific inquiry is driven by the desire to understand the natural world and seeks to answer questions that may or may not directly influence humans, while technology is driven by the need to meet human needs and solve human problems.	SE: 15-16, 20 <i>Lab</i> 17 <i>Science and Society</i> 21 TWE: GP 20
<b>B. Nature of Technology</b>	
1. Assess the impacts of introducing a new technology in terms of alternative solutions, costs, tradeoffs, risks, benefits and environmental impact.	SE: 20, 600-601, 678-681 <i>Science and Society</i> 21 TWE: CFU 600 AC 600
<b>C. Technological Design</b>	
1. Plan, develop, and implement a proposal to solve an authentic, technological problem.	SE: <i>Science and Society</i> 21 <i>Applying Technology</i> 152-153, 498-499 <i>Mini Lab</i> 289, 372 TWE: CL 21 AS 153
<b>STANDARD 5.5 (CHARACTERISTICS OF LIFE) ALL STUDENTS WILL GAIN AN UNDERSTANDING OF THE STRUCTURE, CHARACTERISTICS, AND BASIC NEEDS OF ORGANISMS AND WILL INVESTIGATE THE DIVERSITY OF LIFE.</b>	
Building upon knowledge and skills gained in the preceding grades, by the end of Grade 12, students:	
<b>A. Matter, Energy and Organization in Living Systems</b>	
1. Relate the structure of molecules to their function in cellular structure and metabolism.	SE: 30, 185-186, 206, 264, 586, 589 <i>Skill Check</i> 30 <i>Lab</i> 588 TWE: CD 589

STANDARDS	PAGE REFERENCES
2. Explain how plants convert light energy to chemical energy.	SE: 114, 405-408 TWE: CD 406 SJ 406
3. Describe how plants produce substances high in energy content that become the primary source of energy for life.	SE: 114, 405-409, 410-411, 639, 641, 642 TWE: DQ 409
4. Relate disease in humans and other organisms to infections or intrinsic failures of system.	SE: 73-75, 81-83, 216-217, 236-237, 256-259, 323-324, 478-479 TWE: GP 257
<b>B. Diversity and Biological Evolution</b>	
1. Explain that through evolution the Earth's present species developed from earlier distinctly different species.	SE: 610-614, 615-616 TWE: BR 587 MI 605
2. Explain how the theory of natural selection accounts for extinction as well as an increase in the proportion of individuals with advantageous characteristics within a species.	SE: 605-607, 609-614, 615-616 <i>Lab 29-1</i> TWE: PO 607 CQ 621
<b>C. Reproduction and Heredity</b>	
1. Describe how information is encoded and transmitted in genetic material.	SE: 471-475, 546-551, 586-587, 589-594 <i>Lab 588</i> TWE: SB 546 AS 547 AC 548
2. Explain how genetic material can be altered by natural and/or artificial means; mutations and new gene combinations may have positive, negative, or no effect on organisms or species.	SE: 478-479, 595-596 <i>BioTip 478</i> <i>Mini Lab 596</i> TWE: SB 595 BR 596 CD 596
3. Assess the impact of current and emerging technologies on our understanding of inherited human characteristics.	SE: 580-581, 597, 600-601 <i>Science and Society 569</i>

### Codes Used for TWE Pages

AC	Activity	CQ	Convergent Question
AS	Assessment	DQ	Divergent Question
BA	Background	GC	Geography Connection
BR	Brainstorming	GP	Guided Practice
CD	Concept Development	MI	Misconception
CDIV	Cultural Diversity	PO	Portfolio
CFU	Check for Understanding	SB	Science Background
CH	Connection: History	SJ	Student Journal
CL	Cooperative Learning	TS	Teaching Suggestions
CM	Connection: Math		