

**GLENCOE CORRELATION**  
**SCIENCE LEVEL BLUE**  
**ILLINOIS**  
 Science State Goals: 11-13  
 Middle/Junior High School

OBJECTIVES	PAGE REFERENCES
<b>STATE GOAL 11: Understand the processes of scientific inquiry and technological design to investigate questions, conduct experiments and solve problems.</b>	
<b>A. Know and apply the concepts, principles and processes of scientific inquiry.</b>	
11.A.3a Formulate hypotheses that can be tested by collecting data.	SE: 12-15, 746 <i>Activity</i> 31, 32-33, 160-161, 248-249, 306-307, 366-367, 616-617, 648-649
11.A.3b Conduct scientific experiments that control all but one variable.	SE: 18, 747 <i>Activity</i> 32-33, 94-95, 212, 220-221, 425, 616-617, 648-649, 703
11.A.3c Collect and record data accurately using consistent measuring and recording techniques and media.	SE: 748-751 <i>Activity</i> 32-33, 64-65, 89, 94-95, 212, 220-221, 425, 616-617, 710-711
11.A.3d Explain the existence of unexpected results in a data set.	SE: 28-29, 753-755 <i>Activity</i> 31, 160-161, 616-617 <i>National Geographic</i> 2-3
11.A.3e Use data manipulation tools and quantitative (e.g., mean, mode, simple equations) and representational methods (e.g., simulations, image processing) to analyze measurements.	SE: 22-25, 753-755, 760-766 <i>Activity</i> 220-221, 678-679 <i>Math Skills Activity</i> 50, 177, 383, 455 <i>Problem Solving Activity</i> 17, 140
11.A.3f Interpret and represent results of analysis to produce findings.	SE: 16-17, 28-30, 753-755 <i>Activity</i> 31, 32-33, 192-193, 336-337, 560-561, 616-617, 710-711
11.A.3g Report and display the process and results of a scientific investigation.	SE: 17, 752, 756-759 <i>Activity</i> 31, 32-33, 160-161, 278-279, 398-399, 560-561, 616-617
<b>B. Know and apply the concepts, principles and processes of technological design.</b>	
11.B.3a Identify an actual design problem and establish criteria for determining the success of a solution.	SE: <i>Accidents in Science</i> 194-195 <i>Activity</i> 48, 430-431, 520 <i>MiniLab</i> 76 <i>Science and Society</i> 680-681
11.B.3b Sketch, propose and compare design solutions to the problem considering available materials, tools, cost effectiveness and safety.	SE: <i>Accidents in Science</i> 194-195 <i>Activity</i> 31, 48, 430-431, 520 <i>MiniLab</i> 76 <i>Science and Society</i> 680-681
11.B.3c Select the most appropriate design and build a prototype or simulation.	SE: <i>Activity</i> 31, 48, 430-431, 520 <i>MiniLab</i> 76
11.B.3d Test the prototype using available materials, instruments and technology and record the data.	SE: 751 <i>Activity</i> 48, 430-431, 520 <i>MiniLab</i> 76
11.B.3e Evaluate the test results based on established criteria, note sources of error and recommend improvements.	SE: 28-29, 754-755 <i>Activity</i> 48, 430-431, 520 <i>MiniLab</i> 76

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11.B.3f Using available technology, report the relative success of the design based on the test results and criteria.	SE: 756-759 <i>Accidents in Science</i> 194-195 <i>Activity 48</i> , 430-431, 520 <i>MiniLab 76</i> <i>Science and Society</i> 680-681
<b>STATE GOAL 12: Understand the fundamental concepts, principles and interconnections of the life, physical and earth/space sciences.</b>	
<b>A. Know and apply concepts that explain how living things function, adapt and change.</b>	
12.A.3a Explain how cells function as “building blocks” of organisms and describe the requirements for cells to live.	SE: 174-176, 186-187, 209-210, 218, 241, 289-291, 299, 324-327 TWE: FYI 203, 233
12.A.3b Compare characteristics of organisms produced from a single parent with those of organisms produced by two parents.	SE: 323-325, 327, 332-335 <i>Activity 336-337</i> <i>National Geographic</i> 326
12.A.3c Compare and contrast how different forms and structures reflect different functions (e.g., similarities and differences among animals that fly, walk or swim; structures of plant cells and animal cells).	SE: 348, 350-351, 360 <i>Activity 192-193</i> , 354 <i>Earth Science Integration</i> 359 <i>Explore Activity 345</i> <i>MiniLab 363</i>
<b>B. Know and apply concepts that describe how living things interact with each other and with their environment.</b>	
12.B.3a Identify and classify biotic and abiotic factors in an environment that affect population density, habitat and placement of organisms in an energy pyramid.	SE: 387, 389-390, 418-419, 421-424 <i>Activity 398-399</i> <i>Science and Society</i> 400-401 TWE: FYI 386, 395 SJ 384
12.B.3b Compare and assess features of organisms for their adaptive, competitive and survival potential (e.g., appendages, reproductive rates, camouflage, defensive structures).	SE: 348, 350, 360, 382, 396, 481-483 <i>Activity 192-193</i> , 354 <i>Explore Activity 345</i> TWE: DI 385, 397
<b>C. Know and apply concepts that describe properties of matter and energy and the interactions between them.</b>	
12.C.3a Explain interactions of energy with matter including changes of state and conservation of mass and energy.	SE: 410-414, 449, 598, 602-603 <i>Explore Activity 443</i> <i>National Geographic</i> 448, 599 <i>Science and History</i> 618-619 TWE: DI 606 SJ 604
12.C.3b Model and describe the chemical and physical characteristics of matter (e.g., atoms, molecules, elements, compounds, mixtures).	SE: 516-522, 541-544, 547-558, 574-575, 604-605 <i>Activity 559</i> , 560-561, 587, 615, 616-617
<b>D. Know and apply concepts that describe force and motion and the principles that explain them.</b>	
12.D.3a Explain and demonstrate how forces affect motion (e.g., action/reaction, equilibrium conditions, free-falling objects).	SE: 658, 660, 664-666, 668-670, 674 <i>Activity 678-679</i> <i>Life Science Integration</i> 659, 672 <i>Math Skills Activity 667</i> TWE: TC 656

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12.D.3b Explain the factors that affect the gravitational forces on objects (e.g., changes in mass, distance).	SE: 152, 665-666, 669, 696-699 <i>Activity</i> 703 <i>MiniLab</i> 113 <i>Physics Integration</i> 106
<b>E. Know and apply concepts that describe the features and processes of the Earth and its resources.</b>	
12.E.3a Analyze and explain large-scale dynamic forces, events and processes that affect the Earth's land, water and atmospheric systems (e.g., jetstream, hurricanes, plate tectonics).	SE: 445, 455-457, 462-463, 490 <i>Earth Science Integration</i> 394 <i>National Geographic</i> 440-441, 486-487 <i>Physics Integration</i> 85 <i>Science and History</i> 498-499
12.E.3b Describe interactions between solid earth, oceans, atmosphere and organisms that have resulted in ongoing changes of Earth (e.g., erosion, El Nino).	SE: 410, 418-419, 423-424, 485 <i>Earth Science Integration</i> 356 <i>Explore Activity</i> 407 <i>National Geographic</i> 486-488 <i>Science and History</i> 498-499
12.E.3c Evaluate the biodegradability of renewable and nonrenewable natural resources.	SE: 408-409, 423-424, 426-429 <i>Field Guide</i> 734-737
<b>F. Know and apply concepts that explain the composition and structure of the universe and Earth's place in it.</b>	
12.F.3a Simulate, analyze and explain the effects of gravitational force in the solar system (e.g., orbital shape and speed, tides, spherical shape of the planets and moons).	SE: 87, 106, 110-111, 116-118, 152 <i>Activity</i> 109 <i>MiniLab</i> 113 <i>National Geographic</i> 107 <i>Physics Integration</i> 108 TWE: LD 122
12.F.3b Describe the organization and physical characteristics of the solar system (e.g., sun, planets, satellites, asteroids, comets).	SE: 26, 80-88, 104-105, 108, 110-121, 124-127, 143-146 <i>Accidents in Science</i> 130-131 <i>Activity</i> 109, 128-129
12.F.3c Compare and contrast the sun as a star with other objects in the Milky Way Galaxy (e.g., nebulae, dust clouds, stars, black holes).	SE: 143-146, 148-153, 155 <i>Activity</i> 64-65 <i>Field Guide</i> 722-725 TWE: FF 140
<b>STATE GOAL 13: Understand the relationships among science, technology and society in historical and contemporary contexts.</b>	
<b>A. Know and apply the accepted practices of science.</b>	
13.A.3a Identify and reduce potential hazards in science activities (e.g., ventilation, handling chemicals).	SE: 19-20, 767 <i>Activity</i> 212, 248-249, 271, 328, 559, 560-561, 616-617 <i>Field Guide</i> 726-729
13.A.3b Analyze historical and contemporary cases in which the work of science has been affected by both valid and biased scientific practices.	SE: 26-30, 156, 346-349, 515, 755 <i>Physics Integration</i> 108 <i>Science and History</i> 250-251 <i>Science and Society</i> 532-533 TWE: SJ 106

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13.A.3c Explain what is similar and different about observational and experimental investigations.	SE: 14-15, 18, 44-47, 60-61, 347-348 <i>Activity</i> 31, 89 <i>Life Science Integration</i> 13 <i>Physics Integration</i> 108 TWE: FYI 16
<b>B. Know and apply concepts that describe the interaction between science, technology and society.</b>	
13.B.3a Identify and explain ways that scientific knowledge and economics drive technological development.	SE: 11, 51, 63, 335, 411-414, 704-709 <i>National Geographic</i> 2-3, 170-171, 376-377 <i>Science and History</i> 618-619
13.B.3b Identify important contributions to science and technology that have been made by individuals and groups from various cultures.	SE: 157, 510-519, 540-541 <i>National Geographic</i> 170-171, 265 <i>Physics Integration</i> 106, 108 <i>Science and History</i> 34-35, 96-97, 250-251, 368-369
13.B.3c Describe how occupations use scientific and technological knowledge and skills.	SE: 11, 392 <i>Career Connection</i> 309, 433, 563, 591, 713 <i>Science and History</i> 34-35, 250-251, 368-369
13.B.3d Analyze the interaction of resource acquisition, technological development and ecosystem impact (e.g., diamond, coal or gold mining; deforestation).	SE: 389-390, 417-418 <i>Activity</i> 391 <i>Earth Science Integration</i> 209 <i>Explore Activity</i> 407 <i>MiniLab</i> 411 <i>National Geographic</i> 448, 626-627 <i>Science and Society</i> 66-67, 400-401
13.B.3e Identify advantages and disadvantages of natural resource conservation and management programs.	SE: 393-394, 426-429 <i>Science and Society</i> 400-401 TWE: CC 395 DI 385, 397 FYI 418
13.B.3f Apply classroom-developed criteria to determine the effects of policies on local science and technology issues (e.g., energy consumption, landfills, water quality).	SE: 389-390, 408-414, 417-424 <i>Activity</i> 425, 560-561 <i>Explore Activity</i> 407 <i>Science and History</i> 34-35 <i>Science and Society</i> 400-401, 680-681 TWE: SJ 604

### Codes Used for TWE Pages

CC	Curriculum Connection
DI	Discussion
FF	Fun Fact
FYI	Teacher FYI
LD	Lab Demo
SJ	Science Journal
TC	Theme Connection