

GLENCOE CORRELATION
SCIENCE: AN INTRODUCTION TO
THE LIFE, EARTH, AND PHYSICAL SCIENCES
KANSAS
Science Standards

STANDARDS	PAGE REFERENCES
STANDARD 1: SCIENCE AS INQUIRY As a result of activities in grades 5-8, all students will develop the abilities to do scientific inquiry, be able to demonstrate how scientific inquiry is applied, and develop understandings about scientific inquiry.	
Benchmark 1: The students will demonstrate abilities necessary to do the processes of scientific inquiry. Indicators: The students will:	
1. Identify questions that can be answered through scientific investigations.	SE: <i>Activity: Design Your Own Experiment</i> 24-25, 94-95, 160-161, 302-303 TWE: GF 41, 99
2. Design and conduct a scientific investigation.	SE: <i>Activity: Design Your Own Experiment</i> 24-25, 40-41, 78-79, 94-95, 126-127, 160-161, 188-189, 246-247, 280-281, 302-303, 330-331, 356-357, 390-391, 418-419, 450-451, 508-509
3. Use appropriate tools, mathematics, technology, and techniques to gather, analyze, and interpret data.	SE: <i>Activity: Design Your Own Experiment</i> 24-25, 40-41, 246-247, 302-303, 330-331 <i>Activity</i> 71, 271 <i>Using Math</i> 164
4. Think critically to identify the relationship between evidence and logical conclusions.	SE: <i>Activity: Design Your Own Experiment</i> 24-25, 40-41, 280-281, 302-303, 330-331 <i>Internet Project</i> 206-207 <i>Activity</i> 226, 326, 444
5. Apply mathematical reasoning to scientific inquiry.	SE: <i>Activity</i> 139, 271, 326 <i>Activity: Design Your Own Experiment</i> 330-331
6. Communicate scientific procedures and explanations.	SE: <i>Problem Solving</i> 76 <i>Activity: Design Your Own Experiment</i> 356-357 TWE: A 41, 95, 161, 257, 303, 391, 509
Benchmark 2: The students will apply different kinds of investigations to different kinds of questions. Indicators: The students will:	
1. Differentiate between a qualitative and a quantitative investigation.	SE: <i>Activity</i> 160-161, 246-247, 270-271, 330-331, 356-357 <i>Explore Activity</i> 3, 89, 147, 211, 319 (Note: Many of the <i>Explore Activities</i> are qualitative, and many of the <i>Activities</i> are quantitative in nature.)
2. Develop questions and adapt the inquiry process to guide an investigation.	SE: <i>Activity: Design Your Own Experiment</i> 24-25, 94-95, 160-161, 302-303 TWE: GF 41, 99

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Benchmark 3: The students will analyze how science advances through new ideas, scientific investigations, skepticism, and examining evidence of varied explanations.	
Indicators: The students will:	
1. After doing an investigation, generate alternative methods of investigation and/or further questions for inquiry.	TWE: GF 25, 41, 79, 95, 161, 357 A 79
2. Determine evidence which supports or contradicts a scientific breakthrough.	SE: 452-457, 106-109, 129-123 <i>Science & Society</i> 82-83, 100-101
3. Identify faulty reasoning or conclusions that go beyond evidence and/or are not supported by data.	SE: <i>Activity: Design Your Own Experiment</i> 24-25 <i>Science & Society</i> 83-84, 167-168, 284-285, 394-395, 488-489
STANDARD 2: PHYSICAL SCIENCE	
As a result of activities in grades 5-8, all students will apply process skills to develop an understanding of physical science including: properties, changes of properties of matter, motion and forces, and transfer of energy.	
Benchmark 1: The students will observe, compare, and classify properties of matter.	
Indicators: The students will:	
1. Identify and communicate properties of matter, including phases of matter, boiling point, solubility, and density.	SE: 238-242 <i>MiniLAB</i> 239 TWE: BS 240 SJ 240 Act 241
2. Using the characteristic properties of each original substance, distinguish components of various types of mixtures.	SE: 228-229 <i>Activity</i> 226 <i>MiniLAB</i> 228 <i>Problem Solving</i> 216
3. Categorize chemicals to develop an understanding of properties.	SE: 223-225, 227 <i>Activity</i> 226 <i>MiniLAB</i> 228 <i>Science & Society</i> 230-231 TWE: VL 227
Benchmark 2: The students will observe, measure, infer, and classify changes in properties of matter.	
Indicators: The students will:	
1. Measure and graph the effects of temperature on matter.	SE: <i>Activity</i> 330-331 (Note: <i>Explore Activity</i> on page 495 and <i>Activity 18-1</i> on page 501 also show the effects of temperature without graphing.)
2. Understand that total mass is conserved in chemical reactions.	SE: 214 <i>Using Math</i> 258 TWE: CB 213, 254
3. Understand the relationship of elements to compounds.	SE: 223-225, 227 TWE: TC 225
Benchmark 3: The students will investigate motion and forces.	
Indicators: The students will:	
1. Describe motion of an object (position, direction of motion, speed, potential, and kinetic energy).	SE: 269-270, 322-325 <i>Activity</i> 271 TWE: VL 270

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2. Measure motion and represent data in a graph.	SE: 270 <i>Activity</i> 330-331 <i>Skill Builder</i> 327 TWE: A 327
3. Demonstrate an understanding that an object not being subjected to a force will continue to move at a constant speed in a straight line (Law of Inertia).	SE: 276-277, 282-283 TWE: TPK 276 AC 276 CU 282
4. Demonstrate and mathematically communicate that unbalanced forces will cause changes in the speed or direction of an object's motion.	SE: 277-278, 282 <i>Activity</i> 280-281 <i>Science & Society</i> 284-285 TWE: Dem 278
5. Understand that a force (e.g., gravity and friction) is a push or a pull.	SE: 264-268, 282-283, 459-461 <i>MiniLab</i> 273 TWE: TC 278 TPK 385
6. Investigate force variables of simple machines.	SE: 296-301, 304-306 <i>Activity: Design Your Own Experiment</i> 302-303 TWE: GF 303
Benchmark 4: The students will understand and demonstrate the transfer of energy. Indicators: The students will:	
1. Understand that energy can be transferred from one form to another, including mechanical, heat, light, electrical, chemical, and nuclear energy.	SE: 320-325, 352 <i>Activity</i> 326, 330-331 <i>Using Technology</i> 335 <i>Science & Society</i> 338-339, 366-367 <i>Skill Builder</i> 365
2. Sequence the transmission of energy through various real life systems.	SE: 70, 72-73, 169, 321 TWE: SJ 321
3. Observe and communicate how light interacts with matter: transmitted, reflected, refracted, absorbed.	SE: 72-73 <i>Science & Society</i> 338-339 <i>Using Technology</i> 64 TWE: CU 336 TC 336 VL 77
4. Understand that heat energy can be transferred from hot to cold by radiation, convection, and conduction.	SE: 334-337, 379, 504 <i>Explore Activity</i> 319 <i>MiniLab</i> 329 <i>Using Technology</i> 335

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STANDARD 3: LIFE SCIENCE As a result of activities in grades 5-8, all students will apply process skills to explore and understand structure and function in living systems, reproduction and heredity, regulation and behavior, populations and ecosystems, and diversity and adaptations of organisms.	
Benchmark 1: The students will model structures of organisms and relate functions to the structures.	
Indicators: The students will:	
1. Relate the structure of cells, organs, tissues, organ systems, and whole organisms to their functions.	SE: 64-70, 72-77, 80-81 <i>MiniLAB</i> 69 <i>Activity: Design Your Own Experiment</i> 78-79 <i>Science Journal</i> 81 TWE: Dem 68 IS 68
2. Compare organisms composed of single cells with organisms that are multi-cellular.	SE: 38, 49, 63, 76, 92-93, 168 TWE: Act 93
3. Conclude that breakdowns in structure or function of an organism may be caused by disease, damage, heredity or aging.	SE: 111, 498 <i>Science & Society</i> 54-55, 312-313 TWE: CB 101, 107 CDiv 106
Benchmark 2: The students will understand the role of reproduction and heredity for all living things.	
Indicators: The students will:	
1. Conclude that reproduction is essential to the continuation of a species.	SE: 37, 89 <i>Science & Society</i> 134-135 <i>Using Technology</i> 98 TWE: CB 37, 96 TPK 119
2. Differentiate between asexual and sexual reproduction in plants and animals.	SE: 92-93, 96-99 <i>MiniLAB</i> 92 <i>Activity: Design Your Own Experiment</i> 94-95 <i>Think Critically</i> 99 TE: CU 98
3. Infer that the characteristics of an organism result from heredity and interactions with the environment.	SE: 110-111 <i>Science & Society</i> 100-101, 312-313 TWE: CB 107 CDiv 106
4. Understand that hereditary information contained in the genes (part of the chromosomes) of each cell is passed from one generation to the next.	SE: 92-93, 96, 102-103, 105-110 TWE: CB 107
Benchmark 3: The students will describe the effects of a changing external environment on the regulation/balance of internal conditions and processes of organisms.	
Indicators: The students will:	
1. Understand the effects of a change in environmental conditions on behavior of an organism by carrying out a full investigation.	SE: <i>Activity: Design Your Own Experiment</i> 40-41, 94-95, 160-161 TWE: GF 41, 95, 161
2. Identify behaviors of an organism that are responses made to internal or environmental stimuli.	SE: <i>Activity: Design Your Own Experiment</i> 40-41, 94-95, 160-161 TWE: GF 41, 95, 161

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3. Explain that all organisms must be able to maintain and regulate stable internal conditions to survive in a constantly changing external environment.	SE: 35, 44 <i>Activity</i> 40-41 <i>MiniLab</i> 36 TWE: TC 38
Benchmark 4: The students will identify and relate interactions of populations of organisms within an ecosystem.	
Indicators: The students will:	
1. Recognize that all populations living together and the physical factors with which they interact compose an ecosystem.	SE: 148-158 <i>Activity</i> 150 TWE: Act 149 En 152 SJ 152
2. Classify organisms in a system by the function they serve (producers, consumers, decomposers).	SE: 168-169 TWE: VL 169 Re 169
3. Trace the energy flow from the sun (source) to producers (chemical energy) to other organisms in food webs.	SE: 168-170 <i>Using Computers</i> 170 TWE: CU 169 Re 169
4. Relate the limiting factors of biotic and abiotic resources with a species' population growth, decline, and survival.	SE: 159 <i>Activity: Design Your Own Experiment</i> 160-161 <i>Problem Solving</i> 163 <i>Science & Society</i> 134-135, 166-167 TWE: Dis 162 SJ 159 TC 159 STQ 159
Benchmark 5: The students will observe the diversity of living things and relate their adaptations to their survival or extinction.	
Indicators: The students will:	
1. Conclude that millions of species of animals, plants, and microorganisms may look dissimilar on the outside but have similarities in internal structures, developmental characteristics, and chemical processes.	SE: 36-39, 42-46 <i>MiniLAB</i> 46 TWE: En 38
2. Understand that adaptations of organisms – changes in structure, function, or behavior – contribute to biological diversity.	SE: 118-122, 124-125, 128-129 <i>MiniLAB</i> 122 TWE: TPK 119 CB 120
3. Associate extinction of a species with environmental changes and insufficient adaptive characteristics.	SE: 140-142 TWE: RP 140 USW 141 Dis 141

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STANDARD 4: EARTH and SPACE SCIENCE As a result of activities in grades 5-8, all students will apply process skills to explore and develop an understanding of the structure of the earth system, earth's history, and earth in the solar system.	
Benchmark 1: The students will understand that the structure of the earth system is constantly changing due to the earth's physical and chemical processes.	
Indicators: The students will:	
1. Predict patterns from data collected.	SE: 438-439, 445, 486 <i>Activity 418-419, 472-473</i> <i>Internet Project 522-523</i> <i>Science & Society 446-447</i>
2. Identify properties of the solid earth, the oceans and fresh water, and the atmosphere.	SE: 415-431, 438-449, 452-461, 468-471, 474-477, 479-487, 496-507, 510-511, 514-517 <i>Activity: Design Your Own Experiment 472-473</i>
3. Model earth's cycles.	SE: 430-431, 468-469 <i>Think Critically 431</i> <i>Using Computers 474</i>
4. Model earth's plate movements that result in major geologic events and landform development.	SE: 438-441, 452-455, 456-461 TWE: En 439 Dem 459 CU 460
5. Understand water's major role in changing the solid surface of the earth, such as the effect of oceans on climates and water as an erosion force.	SE: 469-471, 474-477, 479-480 <i>MiniLAB 477</i> <i>Activity 478</i> TEW: GF 473 Act 476 Dem 476
Benchmark 2: The students will understand that past and present earth processes are similar.	
Indicators: The students will:	
1. Understand the dynamics of earth's constructive and destructive forces over time.	SE: 438-443, 452-453, 456-461, 475-477
2. Model geologic time to scale.	SE: 138, 516 <i>Using Math 142</i> TWE: UA 138
3. Relate geologic evidence to a record of earth's history.	SE: 130, 136-137, 453 TWE: CC 130 VL 138
4. Compare the current arrangement of the continents with the arrangement of continents throughout the earth's history.	SE: 452-459 TWE: Dem 452 SJ 454
Benchmark 3: The students will identify and classify planets and other solar system components.	
Indicators: The students will:	
1. Compare and contrast the characteristics of the planets.	SE: 387-389, 392 <i>Activity: Design Your Own Experiment 390-391</i> <i>Skill Builder 392</i> TWE: VL 387, 388 CU 389

STANDARDS	PAGE REFERENCES
2. Develop understanding of spatial relationships via models of the earth/moon/planets/sun system to scale.	SE: <i>MiniLAB</i> 382 <i>Problem Solving</i> 386 TWE: UA 379 TC 386
3. Research smaller components of the solar system such as asteroids and comets.	SE: 141, 386, 388 TWE: RP 140 SB 384
4. Identify the sun as a star and compare its characteristics to those of other stars.	SE: 396-398
5. Trace cultural as well as scientific influences on the study of astronomy.	TWE: USW 380 A 381 SJ 386 CB 389
Benchmark 4: The students will model motions and identify forces that explain earth phenomena. Indicators: The students will:	
1. Demonstrate object/space/time relationships that explain phenomena such as the day, the month, the year, and the seasons.	SE: 378-380, 382-383, 486-487 <i>Activity</i> 381 TWE: AC 379 RP 379
2. Model earth/moon positions that create phases of the moon and eclipses.	SE: 380, 382-283 <i>Activity</i> 381 <i>Skill Builder</i> 383 TWE: Act 378
3. Apply principles of force and motion to understand the solar system.	SE: 265-268 TWE: TPK 385
4. Understand the effect of the angle of incidence of solar energy striking the earth's surface on the amount of heat energy absorbed at the earth's surface.	SE: 379 TWE: CU 382 Re 383
STANDARD 5: SCIENCE AND TECHNOLOGY As a result of activities in grades 5-8, all students will demonstrate abilities of technological design and understandings about science and technology.	
Benchmark 1: The students will demonstrate abilities of technological design. Indicators: The students will:	
1. Identify appropriate problems for technological design.	SE: <i>Activity: Design Your Own Experiment</i> 24-25, 280-281
2. Design a solution or product, implement the proposed design, evaluate the product.	SE: <i>Activity: Design Your Own Experiment</i> 24-25, 280-281, 450-451, 508-509 <i>Internet Project</i> 372-373 TWE: GF 281
3. Communicate the process of technological design.	SE: 177-180 <i>Activity: Design Your Own Experiment</i> 508-509 <i>Internet Project</i> 372-373 TWE: A 25 SJ 179

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Benchmark 2: The students will develop understandings of the similarities, differences, and relationships in science and technology.	
Indicators: The students will:	
1. Compare the work of scientists with that of applied scientists and technologists.	SE: <i>People & Science</i> 84, 165, 490 <i>Problem Solving</i> 105, 163, 441 <i>Science and Society</i> 230-231, 446-447 <i>Using Technology</i> 9, 137
2. Evaluate limitations and trade-offs of technological solutions.	SE: <i>Activity: Design Your Own Experiment</i> 24-25 <i>Science & Society</i> 284-285, 366-367 TWE: A 255
3. Identify contributions to science and technology by many people and many cultures.	SE: 452 TWE: AC 76, 324 Dis 106, 109, 452 CB 125 TC 453
STANDARD 6: SCIENCE IN PERSONAL AND ENVIRONMENTAL PERSPECTIVES	
As a result of activities in grades 5-8, all students will apply process skills to explore and develop an understanding of issues of personal health, population, resources and environment, and natural hazards.	
Benchmark 1: The students will make decisions based on scientific understanding of personal health.	
Indicators: The students will:	
1. Identify individual nutrition, exercise, and rest needs based on science.	SE: 42-44 <i>People & Science</i> 286 <i>Using Technology</i> 308 TWE: A 36 Re 169
2. Use a systemic approach to thinking critically about personal health risks and benefits.	SE: <i>People & Science</i> 84 <i>Science & Language Arts</i> 56, 340 <i>Using Technology</i> 244, 308 TWE: A 36
Benchmark 2: The students will understand the impact of human activity on resources and environment.	
Indicators: The students will:	
1. Investigate the effects of human activities on the environment.	SE: 185-187, 190-194 <i>Science & Society</i> 366-367, 424-425, 488-489 <i>Science & the Arts</i> 202 TWE: RP 187 CDiv 190 TF 192 Act 192 Re 193
2. Base decisions on perceptions of benefits and risks.	SE: <i>Problem Solving</i> 441, 479 <i>Science & Society</i> 338-339, 366-367, 424-425, 446-447, 488-489 <i>Using Technology</i> 413, 516 TWE: BS 108

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Benchmark 3: The students will understand that natural hazards are dynamic examples of earth processes which cause us to evaluate risks.	
Indicators: The students will:	
1. Evaluate risks and define appropriate actions associated with natural hazards.	SE: 439-442, 507-511 <i>Problem Solving</i> 479 <i>Science & Society</i> 446-447, 512-513 TWE: CB 443 RP 140
2. Recognize patterns of internal and external earth processes that may result in natural hazards.	SE: 438-443, 445, 448-449, 507-511 TWE: CB 447 RP 140
3. Communicate human activities that can cause/contribute to natural hazards.	SE: 176-180, 185-187, 190-194, 497 <i>MiniLab</i> 498 <i>Science & Society</i> 488-489 <i>Using Technology</i> 516 TWE: SJ 141
STANDARD 7: HISTORY AND NATURE OF SCIENCE	
As a result of activities in grades 5-8, all students will examine and develop an understanding of science as a historical human endeavor.	
Benchmark 1: The students will develop scientific habits of mind.	
Indicators: The students will:	
1. Practice intellectual honesty.	SE: <i>Activity</i> 11 <i>Science & Society</i> 284-285, 424-425 <i>Internet Project</i> 522-523
2. Demonstrate skepticism appropriately.	SE: <i>Activity</i> 11 <i>Science & Society</i> 82-83, 166-167, 284-285, 394-395 <i>Science & the Arts</i> 314
3. Display open-mindedness to new ideas.	SE: <i>Activity</i> 11 <i>Science & Society</i> 82-83 <i>Science & the Arts</i> 202 TWE: Dis 452
4. Base decisions on evidence.	SE: <i>Activity</i> 11, 24-25, 280-281 <i>Science & Society</i> 250-251, 284-285 TWE: A 326
Benchmark 2: The students will research contributions to science throughout history.	
Indicators: The students will:	
1. Recognize that new knowledge leads to new questions and new discoveries.	SE: <i>Science & Society</i> 54-55, 82-83, 100-101 <i>Using Technology</i> 64, 335, 454 TWE: Dis 106, 109, 452
2. Replicate historic experiments to understand principles of science.	SE: <i>Activity</i> 71, 104, 126-127, 302-303, 361 <i>Problem Solving</i> 105, 349
3. Relate contributions of men and women to the fields of science.	SE: 212-216, 264-265, 452-455 SB 3 TWE: AC 76, 324 Dis 106, 109 CB 125, 224

Codes Used for TWE Pages

A	Assessment
AC	Across the Curriculum
Act	Activity
BS	Brainstorming
CB	Content Background
CC	Community Connection
CDiv	Cultural Diversity
CU	Check for Understanding
Dem	Demonstration
Dis	Discussion
En	Enrichment
GF	Go Further
IS	Inclusion Strategies
Re	Reteach
RP	Revealing Preconceptions
SB	Section Background
SJ	Science Journal
STQ	Student Text Question
TC	Theme Connection
TF	Teacher F.Y.I.
TPK	Tying to Previous Knowledge
UA	Using an Analogy
USW	Using Science Words
VL	Visual Learning