KANSAS
Science Standards, Grade 8
Science Level Red, Science Level Green, Science Level Blue © 2005

OBJECTIVES	PAGE REFERENCES		
	Level Red	***Level Green***	***Level Blue***
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: *Lab* 32-33, 184-185, 278-279 *Design Your Own Lab* 60-61, 244-245, 488-489, 580-581 *Model and Invent Lab* 306-307	SE: 12-18 *Design Your Own Lab* 108-109, 236-237 TWE: ACT 15, 191 DI 15, 150, 319 ITI 204 AIL 266	SE: 6 *Design Your Own Lab* 82-83, 510-511 *Lab* 12, 140-141 *Science Skill Handbook* 724 *Try at Home Labs* 737 #4, 745 #20 *Use the Internet Lab* 28-29 TWE: DI 11
2. Design and conduct a scientific investigation.	SE: *Design Your Own Lab* 60-61, 88-89, 244-245, 332-333, 364-365, 464-465, 520-521, 580-581, 636-637, 668-669	SE: *Design Your Own Lab* 108-109, 324-325, 354-355, 390-391, 424-425, 458-459, 550-551, 610-611, 674-675, 706-707	SE: 13-19, 21-23 *Design Your Own Lab* 82-83, 112-113, 392-393, 424-425, 510-511, 570-571, 624-625 *Science Skill Handbook* 727-732

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3. Use appropriate tools, mathematics, technology, and techniques to gather, analyze, and interpret data.	SE: *MiniLAB* 44, 212, 628 *Lab* 215, 322, 379, 414 *Use the Internet Lab* 430-431 *Design Your Own Lab* 488-489 TWE: IL 211	SE: *Lab* 35, 48-49, 168-169, 231, 642-643 *Design Your Own Lab* 108-109 *Applying Math* 469, 695 *Use the Internet Lab* 522-523 *Model and Invent Lab* 582-583	SE: 16-18 *Applying Math* 47, 291 *Applying Science* 14, 469 *Launch Lab* 5 *National Geographic* 2-3, 675 *Science Skill Handbook* 728-732 *Technology Skill Handbook* 750
4. Think critically to identify the relationship between evidence and logical conclusions.	SE: *Lab* 32-33 118-119, 216-217, 379 *Launch Lab* 373 *MiniLAB* 457 *Design Your Own Lab* 636-637 TWE: A 119	SE: *MiniLAB* 14 *Lab* 66, 168-169, 260, 313, 424-425 *Design Your Own Lab* 108-109, 458-459, 610-611 *Model and Invent Lab* 138-139	SE: 8-10, 19 *Design Your Own Lab* 82-83, 510-511, 598-599 *Lab* 189, 256, 453, 655 *Science Skill Handbook* 732
5. Apply mathematical reasoning to scientific inquiry.	SE: *Lab* 55, 118-119 *Design Your Own Lab* 60-61 *MiniLAB* 138, 628 *Applying Math* 207, 353 TWE: R 135	SE: *Applying Math* 359, 493, 679 *MiniLAB* 415, 482, 596, 687 *Design Your Own Lab* 674-675 TWE: A 543 CFU 705	SE: 526, 530-531, 649 *Applying Math* 47, 77, 291, 346, 498, 589 *Lab* 189 *Math Skill Handbook* 752-766
6. Communicate scientific procedures and explanations.	SE: 17 *Use the Internet Lab* 152-153, 430-431, 606-607 *Communicating Your Data* 245, 307, 551 TWE: SJ 234	SE: *Communicating Your Data* 21, 109, 203, 267, 313, 521, 523, 583, 739 TWE: CC 293, 663	SE: 10-11 *National Geographic* 2-3, 20, 518-519, 565 *Science and History* 114 *Science and Society* 172, 572, 658 *Science Skill Handbook* 727-732

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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: *Science Skill Handbook* 682	SE: *Science Skill Handbook* 752	SE: 21-23 *Lab* 43, 189, 326-327, 341, 509, 672 *National Geographic* 20 *Science and History* 114 *Science Skill Handbook* 728
2. Develop questions and adapt the inquiry process to guide an investigation.	SE: *Design Your Own Lab* 60-61, 364-365, 464-465, 520-521, 580-581, 636-637, 668-669 TWE: IL 211, 232 AIL 521	SE: *Use the Internet Lab* 296-297, 738-739 *Design Your Own Lab* 390-391, 610-611 TWE: IL 128, 226, 390, 417, 453, 481	SE: 6-8, 13-15 *Design Your Own Lab* 82-83, 392-393, 510-511, 570-571, 624-625 *Use the Internet Lab* 28-29 TWE: DI 23 IL 25
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: A 176, 215, 245, 363, 489, 598 AIL 306, 430, 465, 636	TWE: A 59, 101, 199, 251, 436 AIL 168, 236, 296, 324, 354	SE: *Lab* 43, 162, 189, 287, 326-327, 379, 414, 481 *Science Skill Handbook* 732
2. Determine evidence which supports or contradicts a scientific breakthrough.	SE: *Accidents in Science* 552	SE: 306-312, 334-337, 690-693, 695-700, 702-705 *Science and History* 50, 238 *National Geographic* 383 *Design Your Own Lab* 706-707	SE: 50-53, 190-199, 388-391 *Accidents in Science* 716 *National Geographic* 2-3, 632-633 *Science and Society* 658
3. Identify faulty reasoning or conclusions that go beyond evidence and/or are not supported by data.	SE: 27-30 TWE: IM 96F, 128F, 192F, 314F, 372F, 438F, 588F, 616F, 644F	SE: *Lab* 19 TWE: IM 28F, 88F, 146F, 244F, 304F, 332F, 432F, 618F DI 691	SE: *MiniLAB* 9 TWE: DIN 274 IM 109, 131, 167, 284, 314, 416, 498 QD 26

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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: 70-79, 80-86, 93 #18 *Launch Lab* 69 *MiniLAB* 73 *Lab* 87 TWE: SCB 68E-F ACT 77, 78	SE: 36-40, 594-598, 626-632 *Lab* 48-49, 599 *MiniLAB* 596 TWE: DI 595 VL 595 SJ 597 QD 598	SE: 130-131, 410-413, 436-437, 441-447, 448-451, 468-469 *Integrate Health* 452 *Lab* 453 *National Geographic* 451, 478
2. Using the characteristic properties of each original substance, distinguish components of various types of mixtures.	SE: 115-117 *Science Online* 116 *Lab* 118-119 TWE: DI 115 QD 116 A 117	SE: 249, 620-622 *Lab* 78-79 *Science Online* 621 TWE: VL 249, 621 DI 249, 623	SE: 123, 637 *MiniLAB* 74, 164 TWE: IM 165
3. Categorize chemicals to develop an understanding of properties.	SE: 106-111, 113-117 *Science Online* 107 *Lab* 112 *MiniLAB* 114 TWE: SCB 96E ACT 108 VL 109 A 111	SE: 620-625, 634-641 *Lab* 599, 642-643 TWE: SJ 624 R 625 ACT 639 QD 640	SE: 441-447, 448-451, 468-469, 476-480 *Integrate Health* 452 *Lab* 453, 481 *Use the Internet Lab* 454-455 *Science and History* 512 TWE: FYI 475

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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: *MiniLAB* 176 *Lab* 184-185 TWE: IL 141 QD 171 A 176	SE: *Design Your Own Lab* 108-109 *MiniLAB* 120 *Lab* 167, 168-169, 577 *Model and Invent Lab* 202-203 *Launch Lab* 651 TWE: QD 154 A 583	SE: 125, 502-505, 608-609, 611-615 *Applying Math* 126 *Design Your Own Lab* 624-625 *Lab* 618 *Science and History* 512 *Science and Society* 626
2. Understand that total mass is conserved in chemical reactions.	SE: 84-86, 93 #16, 93 #25, 100 *Applying Science* 85 *Section Review* 105 TWE: IL 85 A 86 TFYI 100 LD 101	SE: 61, 548-549, 609 *Section Review* 61 TWE: SCB 592F	SE: 496-497, 499-501 *Applying Math* 498
3. Understand the relationship of elements to compounds.	SE: 106-111, 113-114 *Applying Skills* 117 TWE: SCB 96E ACT 116	SE: 246-253, 620-625 TWE: SCB 244E TPK 246 QD 622	SE: 473-476, 479-480 *Lab* 481
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: 130-135, 136-143 *Applying Math* 131, 132, 134, 140 *Lab* 151, 152-153 TWE: SCB 128E ACT 133 A 135	SE: 684-689, 690-693, 694-700, 702-705 *Applying Math* 688, 695 *Design Your Own Lab* 706-707 TWE: SCB 682E-F A 700 CFU 705	SE: 522, 524-525, 527, 553-555 *Design Your Own Lab* 540-541, 570-571 *Accidents in Science* 542 TWE: DIN 526

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2. Measure motion and represent data in a graph.	SE: *Lab* 151 TWE: R 135 IL 141 LD 141	SE: *MiniLAB* 687 *Lab* 701 TWE: DI 688	SE: 526, 532 *Design Your Own Lab* 570-571 TWE: D 527
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: 138-139 *Section Review* 143 TWE: SCB 128E IM 128F IL 141 A 151	SE: 690-693 *Launch Lab* 683 TWE: SCB 682E A 683 VL 691 QD 692 DI 692 R 693	SE: 552, 560-561 *National Geographic* 565 TWE: A 553
4. Demonstrate and mathematically communicate that unbalanced forces will cause changes in the speed or direction of an object's motion.	SE: 136-143, 157 #26 *Section Review* 143 *Lab* 151 TWE: SCB 128E QD 137 LD 141	SE: 692-693, 694-700, 702-703 *MiniLAB* 704 *Design Your Own Lab* 706-707 TWE: R 693 A 693	SE: 551, 556, 560-561 *Design Your Own Lab* 570-571 TWE: DI 555 IM 558
5. Understand that a force (e.g., gravity and friction) is a push or a pull.	SE: 136-143 TWE: TPK 136 ACT 137 V 142 DI 148	SE: 666-667, 670-673, 690-691 TWE: SCB 682E DI 691 A 693 VL 695 TPK 702	SE: 550, 552-555, 557, 560-561, 563-564, 567 TWE: DI 562 IM 590 VL 558
6. Investigate force variables of simple machines**.**	SE: 144-150 *MiniLAB* 147 TWE: D 146 MM 147 DI 147, 148 ACT 148 VL 148 QD 149	SE: 440 *National Geographic* 441 TWE: ACT 440, 441 V 441 DI 441 QD 442	SE: 586-588, 591-597 *Design Your Own Lab* 598-599 *Lab* 585 *Launch Lab* 579

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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: 162-169, 177-182 TWE: SCB 160E TFYI 163, 167 QD 179	SE: 716-720, 721-727, 729-737 *Design Your Own Lab* 108-109 *Lab* 167, 577 TWE: LD 722 DI 734 D 736	SE: 646-647, 676-679 *Lab* 326-327, 684-685 *National Geographic* 632-633 *Science and History* 234 *Science and Society* 572
2. Sequence the transmission of energy through various real life systems.	SE: 162-169 *Launch Lab* 161 *Section Review* 169, 182 *Lab* 183 TWE: A 161	SE: 716-720, 721-727 *Science Online* 722 TWE: SJ 719 VL 723 QD 723 CFU 727 A 727 TPK 729	SE: 195, 231, 612-616, 619-623 *Design Your Own Lab* 598-599, 624-625 *Lab* 232-233 *Use the Internet Lab* 200-201 TWE: TPK 612
3. Observe and communicate how light interacts with matter: transmitted, reflected, refracted, absorbed.	SE: 231-235, 237-243 *MiniLAB* 238 TWE: SCB 224F TFYI 239 VL 239 QD 239, 241 LD 240 A 243	SE: 99, 719 *MiniLAB* 733 TWE: ACT 223 IM 432F	SE: 699-700, 708, 711 *Lab* 714-715 *MiniLAB* 710
4. Understand that heat energy can be transferred from hot to cold by radiation, convection, and conduction.	SE: 173-175, 189 #19 *Section Review* 177 *Lab* 184-185 TWE: QD 175 R 177 A 177 AIL 184	SE: 99-101 *MiniLAB* 101 *Lab* 167 TWE: D 100 UAA 100 CFU 101	SE: 612-614, 616, 619-620, 622-623 *Design Your Own Lab* 624-625 *Lab* 618 *MiniLAB* 615 TWE: DI 617

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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: 476-481, 483-487 *MiniLAB* 484 TWE: SCB 474E-F DI 478, 485 UAA 479 IL 486 R 487 A 487	SE: 221-230, 254-258 *MiniLAB* 225 *National Geographic* 259 *Lab* 260 TWE: IL 226 DI 227 MM 228	SE: 68, 70-71, 73-81, 704, 711-713 *Design Your Own Lab* 82-83 *Lab* 72 *Launch Lab* 63 *National Geographic* 69 TWE: TPK 64
2. Compare organisms composed of single cells with organisms that are multi-cellular.	SE: 483-487 *Science Online* 487	SE: 221-230 *Section Review* 230 TWE: QD 224	SE: 70 *Lab* 111
3. Conclude that breakdowns in structure or function of an organism may be caused by disease, damage, heredity or aging.	SE: 570, 587 #14 *Integrate Health* 595 TWE: A 559 TFYI 561, 566 DI 564 ACT 565	SE: 232-235, 289, 370, 374-375, 381-388 *Lab* 389 TWE: CC 225 SCB 304E, 364F	SE: *Integrate History* 75 *National Geographic* 712 *Science and Society* 600 TWE: DIN 76 FYI 78 SJ 77
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: 590-597 *Section Review* 597	SE: 216, 281-282, 284-289 TWE: DI 216	SE: 53, 102 TWE: DIN 101 TPK 98
2. Differentiate between asexual and sexual reproduction in plants and animals.	SE: 501-505, 574-579, 590-597 *MiniLAB* 593 TWE: VL 503 SCB 588E LD 594 DI 595 R 597	SE: 281-282, 284-289 TWE: SCB 274E LD 280 IL 282 DI 286 QD 287	SE: 44, 46-48

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3. Infer that the characteristics of an organism result from heredity and interactions with the environment.	SE: 590-597, 599-605 *Science and Society* 608 TWE: TPK 599 DI 602 VL 604 ACT 608	SE: 294-295, 314-320, 321-323 TWE: IM 294	SE: 39-42, 44-46, 49-53 *Applying Math* 47 *Lab* 43, 54-55 TWE: DI 48 TPK 38
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: 590-597, 599-605 *MiniLAB* 601 *Use the Internet Lab* 606-607 TWE: SCB 588E IM 588F, 602 MM 591 CD 601 TFYI 603	SE: 284-289, 290-295, 306-312, 314-320, 321-323 *Applying Science* 287 *Use the Internet Lab* 296-297 *MiniLAB* 308 Lab 313 TWE: D 286	SE: 45-46, 50-52 *Applying Math* 47 *Integrate Chemistry* 39 TWE: DI 48 TPK 44
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: *Design Your Own Lab* 636-637 TWE: A 623, 637 AIL 636	SE: *Lab* 538 *Design Your Own Lab* 550-551	SE: 40-42, 49-52, 102-105 *Design Your Own Lab* 82-83 *Lab* 54-55, 111
2. Identify behaviors of an organism that are responses made to internal or environmental stimuli.	SE: 531, 535 TWE: SCB 528E-F DI 531	SE: 216, 449-457 *Design Your Own Lab* 458-459 TWE: QD 216 TPK 449 SJ 450 DI 451	SE: 40-42, 49-52, 102-105 *Design Your Own Lab* 82-83 *Lab* 54-55, 111

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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: 531 TWE: DI 531	SE: 216, 450, 463 #20, 465 #15 *Science Online* 216 TWE: UAA 216	SE: 79-81 *Design Your Own Lab* 82-83
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: 618-625, 627-632 *Launch Lab* 617 *Lab* 626 TWE: SCB 616E VL 621 QD 624 DI 624 CFU 625 A 625	SE: 536, 539-543 *MiniLAB* 542 TWE: SJ 542 DI 542 UAA 543 CFU 543 R 543	SE: 108-110, 122-128, 132-135, 155-161, 163-169 *Design Your Own Lab* 112-113 *Lab* 111, 162 *Launch Lab* 121 *Use the Internet Lab* 170-171
2. Classify organisms in a system by the function they serve (producers, consumers, decomposers).	SE: 391-395, 633-635 TWE: VL 634 R 635	SE: 262, 544 *Section Review* 549 TWE: LD 546 QD 547 CD 547 CFU 549 A 549	SE: 106-107, 124 *Lab* 111 TWE: AS 110 DIN 137 FYI 131
3. Trace the energy flow from the sun (source) to producers (chemical energy) to other organisms in food webs.	SE: 391-395, 633-635 *Science Online* 392 TWE: MM 391 V 393 ACT 393, 634 TFYI 633 VL 634 CFU 635	SE: 544-549 TWE: SCB 530F ACT 544, 545 V 545 VL 545 IL 546 DI 547	SE: 106-107, 124-125, 132-133, 136-139 *National Geographic* 134 TWE: DIN 137

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4. Relate the limiting factors of biotic and abiotic resources with a species' population growth, decline, and survival.	SE: 618-625, 627-632, 641 #21 *MiniLAB* 628 *Design Your Own Lab* 636-637 TWE: SJ 629 DI 631 AIL 636	SE: 532-537, 539-543 *Launch Lab* 531 *Design Your Own Lab* 550-551 TWE: SCB 530E-F DI 541 ACT 541 QD 541	SE: 49-50, 98-105, 122-127 TWE: AS 128 DI 110 VL 138
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: 498-500, 506-511 *Launch Lab* 497 TWE: SCB 496E-F DI 504	SE: 214-217, 261-265, 347-349, 350-353, 361 #15, 500-505 *Science Stats* 490 TWE: CFU 217 VL 348 D 348	SE: 39, 125, 274, 276-278 *Lab* 111 TWE: CB 84 FF 108
2. Understand that adaptations of organisms -- changes in structure, function, or behavior -- contribute to biological diversity.	SE: 535-539, 541-544, 545-549 TWE: DI 533 TPK 535 QD 536 VL 537, 541 ACT 538, 547	SE: 152-155, 334-341, 502-503 *Launch Lab* 333 *Lab* 342 TWE: ACT 336 QD 336 LD 338	SE: 49-50, 52, 125 *Accidents in Science* 264 *National Geographic* 51 TWE: CD 126
3. Associate extinction of a species with environmental changes and insufficient adaptive characteristics.	SE: *Accidents in Science* 552 TWE: D 552	This objective can be met when discussing species adaptation. SE: 332	SE: 49-50, 53, 279, 286, 291 *Lab* 54-55 TWE: AS 105 SJ 284 TPK 288

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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: *Lab* 112, 184-185, 447, 573, 654 *Design Your Own Lab* 332-333, 364-365 *MiniLAB* 601 *Use the Internet Lab* 606-607 TWE: AIL 606	SE: *Design Your Own Lab* 108-109, 354-355 *Lab* 168-169, 193, 313, 488-489 *Applying Math* 311 *Applying Science* 337, 508, 732	SE: 182-185, 187-188, 195-197, 226-231, 391 *Applying Science* 192, 439 *Design Your Own Lab* 112-113 *Integrate Physics* 340, 382 *Lab* 189, 321
2. Identify properties of the solid earth, the oceans and fresh water, and the atmosphere.	SE: 288-297, 320-321, 342-347, 374-378 *Model and Invent Lab* 306-307 *Launch Lab* 373 *Science Online* 377 TWE: DI 291, 345 QD 375	SE: 34, 62-65, 90-97, 102 *Science Online* 92 *Science Stats* 644 TWE: R 34 VL 91 ACT 644	SE: 182-185, 190-191, 195-199, 308 *Applying Science* 192, 669 *MiniLAB* 164 *National Geographic* 193 *Use the Internet Lab* 170-171, 200-201
3. Model earth's cycles.	SE: 275-276, 346-347, 394-395 *Lab* 277 *MiniLAB* 347, 441 TWE: R 276 ACT 346 CFU 347, 395	SE: *MiniLAB* 59, 157, 548 *Lab* 167, 577 TWE: A 59 QD 75 MM 77 R 102 CFU 183	SE: 130-133, 135, 309-310, 312-316 *National Geographic* 134

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4. Model earth's plate movements that result in major geologic events and landform development.	SE: 288-297 *MiniLAB* 295 *Lab* 298 TWE: TPK 288 IL 289 DI 289, 295 QD 292 ACT 293, 294	See Glencoe's *Science Level Blue* © 2005.	SE: 182-185, 187-188, 190-192, 195-197 *Integrate Physics* 198 *Lab* 189 *Launch Lab* 181 *National Geographic* 193 *Use the Internet Lab* 200-201
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: 323-331, 380-382 *Launch Lab* 315 *Applying Science* 329 *Science Online* 330 TWE: MM 329 SJ 329 ACT 329 A 331 DI 361	SE: 149-150, 157 *Launch Lab* 147 *National Geographic* 158-159 TWE: CC 149 TFYI 150 V 158 ACT 158 CC 158 DI 158	SE: 123, 127-128, 130-131 TWE: D 285
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: 288-297, 299-305, 316-321, 323-331 *MiniLAB* 301 *Model and Invent Lab* 306-307 *Science Online* 326 TWE: V 324 DI 324 MM 327	SE: 33, 58-61, 62-65, 67-68, 71-77 *Integrate Physics* 33 TWE: VL 59 V 60 D 60	SE: 182-188, 190-192, 194-197, 210-218, 219-224, 226-231, 279, 285, 292 *Lab* 189 TWE: FYI 198
2. Model geologic time to scale.	See Glencoe's *Science Level Green* © 2005.	SE: *National Geographic* 346 TWE: CC 346 UAA 347	SE: 250-252, 254-255, 257-260, 272-273, 279, 280-286, 288-291, 292-293 *Lab* 256 TWE: AIL 294

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3. Relate geologic evidence to a record of earth's history.	See Glencoe's *Science Level Green* © 2005.	SE: 343-349 *Applying Math* 359 TWE: MM 345 QD 345 DI 345	SE: 242-249, 250-255, 257-260, 273, 279, 280-286, 288-291, 292-293 *Lab* 256 *Use the Internet Lab* 294-295
4. Compare the current arrangement of the continents with the arrangement of continents throughout the earth's history.	TWE: IL 289	TWE: WQ 2	SE: 182-185, 279, 288 *Applying Science* 192 TWE: FYI 198 SJ 180 VL 248
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: 450-455, 469 #19, 471 #25 *Applying Skills* 455 TWE: SCB 438E ACT 450 QD 451 VL 451 R 455	SE: 194-201, 207 #24 *Science Online* 198 *MiniLAB* 199 *Applying Math* 207 TWE: SCB 176F CC 196 SJ 196 TFYI 197 R 201	SE: 306-311, 336-337, 342-346, 348-355 *Integrate Physics* 340 *Lab* 341 *Model and Invent Lab* 360-361
2. Develop understanding of spatial relationships via models of the earth/moon/planets/sun system to scale.	SE: 448-449 *MiniLAB* 441, 450 *Lab* 447 *Applying Science* 453 TWE: IM 438F R 446 LD 450	SE: 178-183 TWE: R 192 ACT 197 IL 197 CFU 201	SE: 336-337 *Applying Math* 346 *Model and Invent Lab* 360-361 TWE: SJ 338

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3. Research smaller components of the solar system such as asteroids and comets.	SE: 451, 454-455 TWE: MM 452 TFYI 454	SE: 200-201 *Applying Math* 201 TWE: SCB 176F DI 197 D 198 A 201	SE: 353, 356-359 *Accidents in Science* 362 TWE: DIN 352 FYI 291, 349
4. Identify the sun as a star and compare its characteristics to those of other stars.	SE: 456-459, 471 #26 *Section Review* 463 TWE: TFYI 458 SJ 458	SE: 195	SE: 375-378, 380-381, 386-387 *Integrate Physics* 382
5. Trace cultural as well as scientific influences on the study of astronomy.	SE: 456 *Science and Language Arts* 466 TWE: CD 444 A 447 USW 453 DI 457	TWE: CD 182, 188 DI 187 CC 187, 189, 696 MM 195	SE: 306-307, 320, 322, 336-337 *Science and History* 328 TWE: CD 307, 317, 350 FF 319, 351 FYI 324
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: 440-441 *MiniLAB* 441 *Section Review* 446 TWE: SCB 438E IM 441 CFU 446 R 446	SE: 178-183 *Science Online* 187 TWE: LD 180 DI 181 CFU 183 R 183	SE: 307, 309 *Launch Lab* 305 *Science and History* 328 TWE: D 310 DI 311 TC 304
2. Model earth/moon positions that create phases of the moon and eclipses.	SE: 442-446, 469 #20, 469 #22 *Science Online* 444 *Lab* 447 TWE: VL 442, 443 ACT 443 MM 444 A 446	SE: 185-190 *Science Online* 188 TWE: QD 187, 189 ACT 187 CFU 192 R 192	SE: 313-316, 320 *Lab* 321 TWE: TC 304

OBJECTIVES	PAGE REFERENCES		
	Level Red	***Level Green***	***Level Blue***
3. Apply principles of force and motion to understand the solar system.	SE: 142, 448 *MiniLAB* 450 TWE: V 142 ACT 142 DI 142 LD 450 A 450	SE: 179, 696, 704 *National Geographic* 191 TWE: DI 703 TFYI 704	SE: 336, 338, 557, 561 TWE: D 560
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: 441 *MiniLA*B 441 *Section Review* 446 TWE: LD 354 A 441 IM 441	SE: 103, 148 *MiniLAB* 149 *Model and Invent Lab* 202-203 TWE: QD 148 A 149, 203 LD 180	SE: 125, 309-310 *Lab* 326-327 TWE: DI 311 QD 310
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: *Use the Internet Lab* 152-153, 430-431 *Design Your Own Lab* 332-333, 364-365, 464-465 *Lab* 363, 379, 414 *Model and Invent Lab* 550-551 TWE: CC 661	SE: *Model and Invent Lab* 138-139, 582-583 *Invent* 460 *Use the Internet Lab* 738-739 TWE: QD 9 IL 69 ITI 204 DI 636, 732 MM 736	SE: *Design Your Own Lab* 112-113, 392-393, 598-599, 624-625 *Lab* 189, 672, 706 *Model and Invent Lab* 360-361 *Use the Internet Lab* 200-201, 454-455

OBJECTIVES	PAGE REFERENCES		
	Level Red	***Level Green***	***Level Blue***
2. Design a solution or product, implement the proposed design, evaluate the product .	SE: *Use the Internet Lab* 152-153, 430-431 *Design Your Own Lab* 364-365, 464-465, 668-669 *Lab* 379, 414 *Model and Invent Lab* 550-551	SE: *Model and Invent Lab* 138-139, 582-583 *Invent* 460 TWE: IL 69 ITI 204 DI 732 MM 736	SE: *Applying Science* 14, 372, 669 *Design Your Own Lab* 392-393, 598-599, 624-625 *Lab* 189, 706 *Use the Internet Lab* 200-201, 454-455
3. Communicate the process of technological design.	SE: *Use the Internet Lab* 152-153, 430-431 *Lab* 379, 414 *Design Your Own Lab* 464-465, 668-669 *Model and Invent Lab* 550-551	SE: *Model and Invent Lab* 138-139, 582-583 *Invent* 460 TWE: IL 69 ITI 204 DI 636, 732 MM 736	SE: *Applying Science* 14 *Design Your Own Lab* 598-599, 624-625 *Lab* 189, 672, 706 *Model and Invent Lab* 262-263, 360-361 *Use the Internet Lab* 200-201, 454-455
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: 11 TWE: DI 24	SE: 6-11, 25 #18, #24 *Research* 50 TWE: NG 87 ATE 460	SE: 26 *Accidents in Science* 716 *Integrate Social Studies* 7 *Science and History* 426 *Science and Society* 572, 600 TWE: A 8 FF 25
2. Evaluate limitations and trade-offs of technological solutions.	SE: 646-653, 655-662 TWE: A 379 DI 387 QD 442, 661 IL 659	SE: 560-566, 729-737 TWE: D 204, 563 SJ 281, 735 AIL 738	SE: *National Geographic* 90-91, 400-401, 621, 632-633 *Science and Society* 572, 600 TWE: FF 21, 25

OBJECTIVES	PAGE REFERENCES		
	Level Red	***Level Green***	***Level Blue***
3. Identify contributions to science and technology by many people and many cultures.	SE: *Science and History* 34, 90, 120, 218 TWE: CC 15, 47 CD 75, 166, 176, 416	SE: *Science and History* 356 TWE: SCB 56F, 176E CD 74, 188 CC 130 D 192 MM 195 R 230 DI 294	SE: 26, 45, 50, 261 *Accidents in Science* 716 *Integrate Physics* 340 *Science and History* 328 TWE: CD 10, 65 DIN 39
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: 564-566 TWE: CC 564	SE: 374-375, 405-410 *Science Online* 406 TWE: CC 225, 251 ACT 375 SJ 407, 408 WQ 496	SE: 65-67, 73-77 *Try at Home Labs* 737 #3
2. Use a systemic approach to thinking critically about personal health risks and benefits.	SE: 19-20 TWE: VL 19 SJ 562 DI 564 CC 564 ACT 565 IH 595	SE: *Lab* 98 *Science Online* 417 TWE: SJ 131 IM 388 CFU 388	SE: *Integrate Environment* 15 *Integrate History* 75 *National Geographic* 712 *Science and Society* 572 *Use the Internet Lab* 454-455 TWE: DIN 76 FYI 80, 126 SJ 77

OBJECTIVES	PAGE REFERENCES		
	Level Red	***Level Green***	***Level Blue***
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: 655-662, 663-667 *Science and Society* 670 TWE: UP 615 SCB 644E SJ 656 IM 657 CD 658 ACT 660 R 662	SE: 96-97, 164-166, 568-576 *Science and Society* 80 *National Geographic* 636 TWE: D 165 SJ 250 ACT 573 IL 574	SE: 131-133, 135, 159, 164 *National Geographic* 90-91, 518-519 *Science and Society* 172, 658 *Use the Internet Lab* 454-455
2. Base decisions on perceptions of benefits and risks.	SE: *Applying Science* 392 *Science and Society* 432 *Design Your Own Lab* 464-465 TWE: D 638	SE: *Use the Internet Lab* 522-523 TWE: D 80 SJ 564, 735 V 567	SE: 159, 164-165, 423 *Integrate Life Science* 654 *National Geographic* 422 *Science and Society* 172 *Use the Internet Lab* 200-201
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: 323-325, 359-362, 369 #26 TWE: DI 138 IL 232 ACT 324 CC 360 QD 361 D 362	SE: 129-133, 161 *Science and History* 170 TWE: TFYI 91 DI 129, 158 V 131 ACT 158 CC 158 D 160	SE: 217-218, 219-221 *National Geographic* 216 *Science and History* 234 *Science and Society* 658 *Use the Internet Lab* 200 TWE: SJ 215

OBJECTIVES	PAGE REFERENCES		
	Level Red	***Level Green***	***Level Blue***
2. Recognize patterns of internal and external earth processes that may result in natural hazards.	SE: 293-297, 323-325 *Science Online* 168, 302 *MiniLAB* 295 *Lab* 298 TWE: D 296 TFYI 296 VL 302 DI 303	SE: 129-133 *MiniLAB* 157 *National Geographic* 158-159 TWE: TFYI 129 ACT 131 R 133 CB 159, 170	SE: 221-224, 230-231 *Lab* 225 *National Geographic* 216 *Use the Internet Lab* 200-201 TWE: SJ 215 TPK 190, 210
3. Communicate human activities that can cause/contribute to natural hazards.	TWE: CC 332	See Glencoe's *Science Level Blue* © 2005.	SE: 165, 654 *Integrate Life Science* 617 *National Geographic* 90-91 *Use the Internet Lab* 454-455 TWE: CD 506
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: 27-30 *Lab* 31 *Design Your Own Lab* 60-61, 88-89, 332-333, 364-365, 464-465 *Model and Invent Lab* 396-397 TWE: D 15 A 30	SE: *Design Your Own Lab* 108-109, 236-237, 324-325, 390-391, 458-459, 610-611, 674-675, 706-707 *Lab* 438	SE: *Integrate Social Studies* 7 TWE: A 15 FYI 10, 53
2. Demonstrate skepticism appropriately.	SE: 27-30, 39 #20 TWE: D 28 VL 28 QD 29 CFU 30	SE: *Lab* 19, 98 TWE: D 37 DI 319	SE: 286, 435 *Accidents in Science* 716 *Science and Society* 56 TWE: DIN 289

OBJECTIVES	PAGE REFERENCES		
	Level Red	***Level Green***	***Level Blue***
3. Display open-mindedness to new ideas.	SE: *Science and Society* 432 TWE: IM 96F, 128F, 192F, 314F, 372F, 438F ACT 432, 608 D 603	SE: *Debate* 140 *Science and Society* 426 *Accidents in Science* 460 *Use the Internet Lab* 522-523 TWE: CD 322 CC 339 CFU 349	SE: 286 *Integrate Life Science* 445 *Science and Society* 658 TWE: D 289
4. Base decisions on evidence.	SE: *Lab* 31, 32-33, 183, 184-185, 216-217, 379 *Applying Science* 85, 115 *Use the Internet Lab* 152-153 TWE: ACT 432	SE: *Launch Lab* 213 *Lab* 266-267, 342, 424-425, 480-481, 538 *Use the Internet Lab* 298-299 *Design Your Own Lab* 354-355 TWE: DI 319	SE: *Applying Science* 192, 260 *Design Your Own Lab* 82-83, 510-511 *Integrate History* 681 *Lab* 189, 585 *Use the Internet Lab* 200-201
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: 6-7, 26, 98-105 *Science and History* 90, 120, 218 TWE: CC 15, 99 D 90 DI 110	SE: 190-192, 321-323, 334-341 *Science and History* 238, 392 TWE: D 238 HS 238	SE: 410-413, 434-435, 552-555 *Accidents in Science* 716 *National Geographic* 632-633 *Science and Society* 172, 658
2. Replicate historic experiments to understand principles of science.	SE: *Launch Lab* 5, 439 *Lab* 278-279, 414 *Use the Internet Lab* 430 *MiniLAB* 450 TWE: IL 289, 462	TWE: ACT 222, 309 QD 224, 696 IL 307 CC 696	SE: 499, 567-568, 650-651 *Lab* 189, 321, 585, 656-657, 672, 684-685

OBJECTIVES	PAGE REFERENCES		
	Level Red	***Level Green***	***Level Blue***
3. Relate contributions of men and women to the fields of science.	SE: 100-105, 138-143 *Science and History* 34, 582 *Integrate Career* 442 TWE: TFYI 9 DI 104, 205 CD 292, 360	SE: 218-219, 221, 307-312, 334-341 *Science and History* 50 *Accidents in Science* 298 TWE: CB 223 CD 226 SJ 228	SE: 26, 45, 50, 261, 389, 408-411 *Accidents in Science* 716 *Integrate Physics* 340 TWE: CD 10 DIN 39

Codes Used for TWE Codes

Level Red

A	Assessment
ACT	Activity
AIL	Alternative Inquiry Lab
CC	Curriculum Connection
CD	Cultural Diversity
CFU	Check for Understanding
D	Discussion
DI	Differentiated Instruction
IH	Integrate Health
IL	Inquiry Lab
IM	Identifying Misconceptions
IQ	**CHECK FOR THIS**
LD	Lab Demonstration
MM	Make a Model
QD	Quick Demo
R	Reteach
SCB	Science Content Background
SJ	Science Journal
TFYI	Teacher FYI
TPK	Tie to Prior Knowledge
UAA	Use an Analogy
UP	Unit Projects
USW	Use Science Words
V	Visualizing
VL	Visual Learning

Level Green

A	Assessment
ACT	Activity
AIL	Alternative Inquiry Lab
ATE	Analyze the Event
CB	Content Background
CC	Curriculum Connection
CD	Cultural Diversity
CFU	Check for Understanding
D	Discussion
DI	Differentiated Instruction
HS	Historical Significance
IL	Inquiry Lab
IM	Identifying Misconceptions
ITI	Investigate the Issue
LD	Lab Demonstration
MM	Make a Model
NG	National Geographic
QD	Quick Demo
R	Reteach
SCB	Science Content Background
SJ	Science Journal
TFYI	Teacher FYI
TPK	Tie to Prior Knowledge
UAA	Use an Analogy
V	Visualizing
VL	Visual Learning
WQ	Web Quest

Level Blue

A	Activity
AIL	Alternative Inquiry Lab
AS	Assessment
CB	Content Background
CD	Cultural Diversity
D	Discussion
DI	Daily Intervention
DIN	Differentiated Instruction
FF	Fun Fact
FYI	Teacher FYI
IL	Inquiry Lab
IM	Identifying Misconceptions
QD	Quick Demo
SJ	Science Journal
TC	Theme Connection
TPK	Tie to Prior Knowledge
VL	Visual Learning