

Textbook Alignment to the Utah Core – 9th Grade Earth Systems

This alignment has been completed using an “Independent Alignment Vendor” from the USOE approved list (www.schools.utah.gov/curr/imc/indvendor.html.) Yes No

Name of Company and Individual Conducting Alignment: Nanette Kalis

A “Credential Sheet” has been completed on the above company/evaluator and is (Please check one of the following):

On record with the USOE.

The “Credential Sheet” is attached to this alignment.

Instructional Materials Evaluation Criteria (name and grade of the core document used to align): 9th Grade Earth System Core Curriculum

Title: *Earth Science: Geology, the Environment, and the Universe* © 2008 *Ecology E* © 2008

ISBN#: 0078746361 0078778204

Publisher: Glencoe/McGraw-Hill

Overall percentage of coverage in the *Student Edition (SE) and Teacher Edition (TE)* of the Utah State Core Curriculum: _____%

Overall percentage of coverage in *ancillary materials* of the Utah Core Curriculum: _____%

STANDARD I: Students will understand the scientific evidence that supports theories that explain how the universe and solar system developed.

Percentage of coverage in the *student and teacher edition* for Standard I: _____%

Percentage of coverage not in student or teacher edition, but covered in the *ancillary material* for Standard I: _____%

OBJECTIVES & INDICATORS

Coverage in *Student Edition (SE) and Teacher Edition (TE)* (pg #'s, etc.)

Coverage in *Ancillary Material* (titles, pg #'s, etc.)

Not covered in TE, SE or ancillaries ✓

Objective 1.1: Describe the big bang theory and evidence supporting it.

a. Determine the motion of a star relative to Earth based on a red or blue shift in the wavelength of light from the star.

Student Edition:
840
Teacher Wraparound Edition:
UAA 840

b. Explain how evidence of red and blue shifts is used to determine whether the universe is expanding or contracting.

Student Edition:
873-874
MiniLab 873
Problem-Solving Lab 874
Teacher Wraparound Edition:
A 877; AC 326; IM 875

c. Describe the big bang theory and the red shift evidence that supports this theory.

Student Edition:
873-874, 878-881
Writing in Earth Science 881
Teacher Wraparound Edition:
DI 873, 878; IM 879; R 881

d. Investigate and report how science has changed the accepted ideas regarding the nature of the universe throughout history.

Student Edition:
779-803
Teacher Wraparound Edition:
AC 799; DI 878; IM 875; R 803, 881;
TCS 802

OBJECTIVES & INDICATORS		Coverage in Student Edition (SE) and Teacher Edition (TE) (pg #'s, etc.)	Coverage in Ancillary Material (titles, pg #'s, etc.)	Not covered in TE, SE or ancillaries ✓
e.	Provide an example of how technology has helped scientists investigate the universe.	Student Edition: 764-769, 770, 880 <i>Earth Science and the Environment</i> 124 <i>Earth Science and Technology</i> 638, 820, 852 <i>Reading For Comprehension</i> 793 <i>Launch Lab</i> 795 <i>National Geographic Expeditions</i> 934-939 Teacher Wraparound Edition: AC 621; CL 935; TCS 809, 814, 820, 934		
Objective 1.2: Relate the structure and composition of the solar system to the processes that exist in the universe.				
a.	Compare the elements formed in the big bang (hydrogen, helium) with elements formed through nuclear fusion in stars.	Student Edition: 834-836, 847-851 Teacher Wraparound Edition: AC 849; E 835; EC 716		
b.	Relate the life cycle of stars of various masses to the relative mass of elements produced.	Student Edition: 847-851 Teacher Wraparound Edition: AC 849; CFU 851; DI 848		
c.	Explain the origin of the heavy elements on Earth (i.e., heavy elements were formed by fusion in ancient stars).	Student Edition: 796-797, 836 Teacher Wraparound Edition: AC 849; MI 847; TPK 835		
d.	Present evidence that the process that formed Earth's heavy elements continues in stars today.	Student Edition: 834-836, 847-851 <i>Section Assessment</i> 836 <i>Concepts in Motion</i> 848 Teacher Wraparound Edition: AC 849; DI 848		

OBJECTIVES & INDICATORS		Coverage in Student Edition (SE) and Teacher Edition (TE) (pg #'s, etc.)	Coverage in Ancillary Material (titles, pg #'s, etc.)	Not covered in TE, SE or ancillaries ✓
e.	Compare the life cycle of the sun to the life cycle of other stars.	Student Edition: 834, 847-851, 857 #41-#43 Teacher Wraparound Edition: A 851; AC 849; DI 848; IM 849, 850; UST 849		
f.	Relate the structure of the solar system to the forces acting upon it.	Student Edition: 796-803 Teacher Wraparound Edition: A 803; AC 797; CFU 803; D 802; DI 796; TPK 797; UAA 798		
STANDARD II: Students will understand that the features of Earth's evolving environment affect living systems, and that life on Earth is unique in the solar system.				
Percentage of coverage in the student and teacher edition for Standard II: _____ %		Percentage of coverage not in student or teacher edition, but covered in the ancillary material for Standard II: _____ %		
Objective 2.1: Describe the unique physical features of Earth's environment that make life on Earth possible.				
a.	Compare Earth's atmosphere, solar energy, and water to those of other planets and moons in the solar system.	Student Edition: 804-810, 811-815, 816-819 Teacher Wraparound Edition: CON 807, 808; ESJ 806, 811; R 810; TCS 806; TPK 808, 812		
b.	Compare the conditions that currently support life on Earth to the conditions that exist on other planets in the solar system.	Student Edition: 632, 804-810 <i>Section Assessment</i> 815 <i>Earth Science and Technology</i> 820 Teacher Wraparound Edition: CON 807; DIS 409; TCS 9, 812; TS 820		

OBJECTIVES & INDICATORS		Coverage in Student Edition (SE) and Teacher Edition (TE) (pg #'s, etc.)	Coverage in Ancillary Material (titles, pg #'s, etc.)	Not covered in TE, SE or ancillaries ✓
c.	Evaluate evidence for existence of life in other star systems, planets, or moons, either now or in the past.	Teacher Wraparound Edition: AC 809; E 409; TCS 9, 809, 812; TS 820		
Objective 2.2: Analyze how ecosystems differ from each other due to abiotic and biotic factors.				
a.	Observe and list abiotic factors (e.g., temperature, water, nutrients, sunlight, pH, topography) in specific ecosystems.	Student Edition: <i>Reading for Comprehension</i> 463	Student Edition: (E) 36-42 <i>MiniLAB</i> 38 Teacher Wraparound Edition: (E) A 42; DI 39; IL 39; LD 38; R 11, 42; SCB 34E; TPK 36	
b.	Observe and list biotic factors (e.g., plants, animals, organic matter) that affect a specific ecosystem (e.g., wetlands, deserts, aquatic).	Teacher Wraparound Edition: AC 260; TCS 428	Student Edition: (E) 10, 12-19, 20-24, 36 <i>MiniLAB</i> 13 <i>Lab</i> 43 <i>Use the Internet</i> <i>Lab</i> 82-83 Teacher Wraparound Edition: (E) ACT 37; DI 22; IL 14, 82; QD 24; R 11, 19; SJ 23	

OBJECTIVES & INDICATORS		Coverage in Student Edition (SE) and Teacher Edition (TE) (pg #'s, etc.)	Coverage in Ancillary Material (titles, pg #'s, etc.)	Not covered in TE, SE or ancillaries ✓
c.	Predict how an ecosystem will change as a result of major changes in an abiotic and/or biotic factor.	Student Edition: 238-241, 690-692, 734-736 <i>Reading for Comprehension</i> 221 <i>Section Assessment</i> 412 <i>Data Analysis Lab</i> 688 <i>National Geographic Expeditions</i> 928-933 Teacher Wraparound Edition: ITF 388	Student Edition: (E) 12-19, 64-67, 68-75, 77-83, 130-136 <i>Science Online</i> 65 <i>National Geographic</i> 66 <i>Integrate Earth Science</i> 74 <i>Lab</i> 76 <i>MiniLAB</i> 135 Teacher Wraparound Edition: (E) A 76; CFU 24; IM 62F; V 18; VL 52	
d.	Explain that energy enters the vast majority of Earth's ecosystems through photosynthesis, and compare the path of energy through two different ecosystems.	Student Edition: 238, 629, 687, 708 Teacher Wraparound Edition: CL 629; TCS 687; TPK 658	Student Edition: (E) 20-21, 50-53 <i>Integrate Earth Science</i> 51 Teacher Wraparound Edition: (E) A 53; ACT 51; CFU 53; DI 51, 52; IM 62F; MM 22; QD 52; R 53; SCB 34F; TFYI 52; UAA 52; VL 52	

OBJECTIVES & INDICATORS		Coverage in Student Edition (SE) and Teacher Edition (TE) (pg #'s, etc.)	Coverage in Ancillary Material (titles, pg #'s, etc.)	Not covered in TE, SE or ancillaries ✓
e.	Analyze interactions within an ecosystem (e.g., water temperature and fish species, weathering and water pH).	<p>Student Edition: 167, 176-180, 239, 401 #36 <i>Reading for Comprehension</i> 463</p> <p>Teacher Wraparound Edition: AC 167, 238, 289, 425, 740; DI 180, 734; E 929; ESJ 746; TCS 739</p>	<p>Student Edition: (E) 12-19, 20-24, 68-75, 77-83 <i>Launch Lab</i> 35 <i>Science Online</i> 41 <i>MiniLAB</i> 78 <i>Use the Internet</i> <i>Lab</i> 84-85</p> <p>Teacher Wraparound Edition: (E) A 11; CFU 11, 83; DI 22; IL 39; IM 6F, 62F; R 10, 42; VL 23</p>	
f.	Plan and conduct an experiment to investigate how abiotic factors influence organisms and how organisms influence the physical environment.	<p>Student Edition: 734-736 <i>Reading for Comprehension</i> 403 <i>Earth Science and the Environment</i> 428</p> <p>Teacher Wraparound Edition: AC 286, 740; ACT 735; D 199; P 388, 747</p>	<p>Student Edition: (E) 13, 36-42 <i>Launch Lab</i> 13, 63 <i>Design Your Own</i> <i>Lab</i> 26-27 <i>Lab</i> 43, 76</p> <p>Teacher Wraparound Edition: (E) A 27, 43; CFU 42; DI 15; IL 39; IM 62F; R 19, 42</p>	

OBJECTIVES & INDICATORS		Coverage in Student Edition (SE) and Teacher Edition (TE) (pg #'s, etc.)	Coverage in Ancillary Material (titles, pg #'s, etc.)	Not covered in TE, SE or ancillaries ✓
Objective 2.3: Examine Earth's diversity of life as it changes over time.				
a.	Observe and chart the diversity in a specific area.	Teacher Wraparound Edition: DI 739	Student Edition: (E) 68-75, 77-83 <i>Launch Lab 7, 125</i> <i>Lab 76</i> <i>MiniLAB 78</i> <i>Use the Internet</i> <i>Lab 84-85</i> <i>Applying Math 129</i> Teacher Wraparound Edition: (E) LD 128	
b.	Compare the diversity of life in various biomes specific to number of species, biomass, and type of organisms.	Teacher Wraparound Edition: DI 739	Student Edition: (E) 68-75, 77-83, 126-136 <i>Section Review 75</i> <i>Science Online 81</i> <i>Use the Internet</i> <i>Lab 84-85</i> <i>Applying Math 129</i> Teacher Wraparound Edition: (E) R 75; SJ 80	
c.	Explain factors that contribute to the extinction of a species.	Student Edition: 653-654, 659 <i>MiniLab 653</i> <i>National Geographic Expeditions</i> 928-933 Teacher Wraparound Edition: A 654; DIS 594	Student Edition: (E) <i>MiniLAB 133, 135</i> Teacher Wraparound Edition: (E) CB 3; QD 131; SJ 131; TFYI 132	

OBJECTIVES & INDICATORS		Coverage in Student Edition (SE) and Teacher Edition (TE) (pg #'s, etc.)	Coverage in Ancillary Material (titles, pg #'s, etc.)	Not covered in TE, SE or ancillaries ✓
d.	Compare evidence supporting various theories that explain the causes of large-scale extinctions in the past with factors causing the loss of species today.	Student Edition: 653-654, 659, 671 #37 <i>Math in Earth Science</i> 654 <i>Concepts in Motion</i> 659 <i>Section Assessment</i> 659 <i>Reading for Comprehension</i> 673 <i>National Geographic Expeditions</i> 928-933 Teacher Wraparound Edition: DIS 504, 594	Student Edition: (E) 126-136 <i>MiniLAB</i> 133 Teacher Wraparound Edition: (E) QD 140; SJ 131	
e.	Evaluate the biological, esthetic, ethical, social, or economic arguments with regard to maintaining biodiversity.	Teacher Wraparound Edition: CD 708	Student Edition: (E) 126-136, 138-143 <i>Lab</i> 144-145 <i>Science and Society</i> 146 Teacher Wraparound Edition: (E) A 143; ACT 128; DIS 130, 131; R 136; SJ 130; UAA 130	

OBJECTIVES & INDICATORS		Coverage in <i>Student Edition (SE) and Teacher Edition (TE)</i> (pg #'s, etc.)	Coverage in <i>Ancillary Material</i> (titles, pg #'s, etc.)	<i>Not covered in TE, SE or ancillaries</i> ✓
STANDARD III: Students will understand that gravity, density, and convection move Earth's plates and this movement causes the plates to impact other Earth systems.				
Percentage of coverage in the <i>student and teacher edition</i> for Standard III: _____ %		Percentage of coverage not in student or teacher edition, but covered in the <i>ancillary material</i> for Standard III: _____ %		
Objective 3.1: Explain the evidence that supports the theory of plate tectonics.				
a.	Define and describe the location of the major plates and plate boundaries.	Student Edition: 480-485, 495 #45-#46, 500-503, 543-544 <i>Launch Lab</i> 467 <i>MiniLab</i> 481 <i>Problem-Solving Lab</i> 484 <i>GeoLab</i> 490-491, 553 Teacher Wraparound Edition: AC 480; CFU 485; ITI 480, 501; MI 480; R 485; TCS 503		
b.	Compare the movement and results of movement along convergent, divergent, and transform plate boundaries.	Student Edition: 480-485 <i>Problem-Solving Lab</i> 484 <i>GeoLab</i> 490-491 Teacher Wraparound Edition: A 485; CFU 485; D 530; DI 481; M 531; R 485, 533; TCS 486, 502; TPK 501		

OBJECTIVES & INDICATORS		Coverage in Student Edition (SE) and Teacher Edition (TE) (pg #'s, etc.)	Coverage in Ancillary Material (titles, pg #'s, etc.)	Not covered in TE, SE or ancillaries ✓
c.	Relate the location of earthquakes and volcanoes to plate boundaries.	Student Edition: 480-485, 500-507, 522 #30, 543-544 <i>GeoLab</i> 553 Teacher Wraparound Edition: AC 480; CON 502, 503; ITI 500; MI 500; TCS 483, 502		
d.	Explain Alfred Wegener's continental drift hypothesis, his evidence, and why it was not accepted in his time.	Student Edition: 468-472, 494 #32 <i>Launch Lab</i> 465 <i>Concepts in Motion</i> 469 Teacher Wraparound Edition: A 472; AC 469; CFU 472; CL 470; DI 469; ESJ 471; IM 469; ITI 469; R 472; TCS 468, 470		
e.	Evaluate the evidence for the current theory of plate tectonics.	Student Edition: 468-472, 473-479, 480-485, 486-488, 494 #36 <i>National Geographic</i> 478 <i>MiniLab</i> 481 <i>Problem-Solving Lab</i> 484 <i>GeoLab</i> 490-491 Teacher Wraparound Edition: AC 478; DI 483; ESJ 486; ITI 477; M 473; TCS 478, 483, 486; TPK 480		

OBJECTIVES & INDICATORS		Coverage in Student Edition (SE) and Teacher Edition (TE) (pg #'s, etc.)	Coverage in Ancillary Material (titles, pg #'s, etc.)	Not covered in TE, SE or ancillaries ✓
Objective 3.2: Describe the processes within Earth that result in plate motion and relate it to changes in other Earth systems.				
a.	Identify the energy sources that cause material to move within Earth.	Student Edition: 486-488, 621-622 <i>Section Assessment</i> 488 Teacher Wraparound Edition: CFU 488; D 487; MI 486; R 488; TCS 623		
b.	Model the movement of materials within Earth.	Student Edition: 486-488 <i>Launch Lab</i> 490, 527, 619 Teacher Wraparound Edition: D 487, 623; IM 487		
c.	Model the movement and interaction of plates.	Student Edition: 479, 480-485 <i>Launch Lab</i> 467 <i>MiniLab</i> 481 <i>Concepts in Motions</i> 483 <i>Problem-Solving Lab</i> 484 <i>GeoLab</i> 490-491 Teacher Wraparound Edition: A 481, 485; DI 469, 480; ESJ 482; R 485		
d.	Relate the movement and interaction of plates to volcanic eruptions, mountain building, and climate changes.	Student Edition: 480-485, 500-503, 567-573, 574-576, 660-664 Teacher Wraparound Edition: AC 480; CFU 573; CON 502, 570; ITI 500, 501, 568; MI 500, 567; P 569; R 654; TCS 483, 502, 568		

OBJECTIVES & INDICATORS		Coverage in Student Edition (SE) and Teacher Edition (TE) (pg #'s, etc.)	Coverage in Ancillary Material (titles, pg #'s, etc.)	Not covered in TE, SE or ancillaries ✓
e.	Predict the effects of plate movement on other Earth systems (e.g., volcanic eruptions affect weather, mountain building diverts waterways, uplift changes elevation that alters plant and animal diversity, upwelling from ocean vents results in changes in biomass).	Student Edition: 392, 512, 522 #33, 649-654, 655-659, 660-665 <i>MiniLab</i> 653 Teacher Wraparound Edition: A 392, 654; CON 512; R 659		
STANDARD IV: Students will understand that water cycles through and between reservoirs in the hydrosphere and affects the other spheres of the Earth system.				
Percentage of coverage in the student and teacher edition for Standard IV: _____ %		Percentage of coverage not in student or teacher edition, but covered in the ancillary material for Standard IV: _____ %		
Objective 4.1: Explain the water cycle in terms of its reservoirs, the movement between reservoirs, and the energy to move water. Evaluate the importance of freshwater to the biosphere.				
a.	Identify the reservoirs of Earth's water cycle (e.g., ocean, ice caps/glaciers, atmosphere, lakes, rivers, biosphere, groundwater) locally and globally, and graph or chart relative amounts in global reservoirs.	Student Edition: 207-212, 224-231, 232-237, 238-241, 252-258, 302-303, 409-412, 693-697 <i>Concepts in Motion</i> 207 Teacher Wraparound Edition: A 231; AC 253; DI 252, 254; ESJ 224; R 237; TCS 207, 294, 693; TPK 748	Student Edition: (E) 44-45	

OBJECTIVES & INDICATORS		Coverage in Student Edition (SE) and Teacher Edition (TE) (pg #'s, etc.)	Coverage in Ancillary Material (titles, pg #'s, etc.)	Not covered in TE, SE or ancillaries ✓
b.	Illustrate the movement of water on Earth and describe how the processes that move water (e.g., evaporation of water, melting of ice/snow, ocean currents, movement of water vapor by wind) use energy from the sun.	Student Edition: 224, 302-303, 421-427 <i>Reading for Comprehension</i> 221 <i>Concepts in Motion</i> 224 <i>Launch Lab</i> 251 <i>Writing in Earth Science</i> 303 Teacher Wraparound Edition: IM 224; TCS 207, 238, 255; TPK 225, 413	Student Edition: (E) 44-45 Teacher Wraparound Edition: (E) IL 39; SJ 45	
c.	Relate the physical and chemical properties of water to a water pollution issue.	Student Edition: 238-241, 265-268, 748-750 <i>Concepts in Motion</i> 267 Teacher Wraparound Edition: AC 229, 238, 265; EC 749; TCS 267	Student Edition: (E) 107-108 Teacher Wraparound Edition: (E) ACT 107; IL 108; QD 107	
d.	Make inferences about the quality and/or quantity of freshwater, using data collected from local water systems.	Student Edition: 263-268, 748-750 <i>GeoLab</i> 270-271, 752-753 <i>Writing In Earth Science</i> 697 Teacher Wraparound Edition: DI 240; E 239; EC 239, 749; ESJ 267; R 697	Student Edition: (E) <i>Use the Internet Lab</i> 84-85 Teacher Wraparound Edition: (E) SJ 108	
e.	Analyze how communities deal with water shortages, distribution, and quality in designing a long-term water use plan.	Student Edition: 263-268, 748-750 <i>Earth Science & Society</i> 242 <i>Earth Science and the Environment</i> 269 Teacher Wraparound Edition: A 750; CFU 697; ESJ 748; TCS 242, 267, 415, 694; TS 242	Student Edition: (E) <i>Science and Society</i> 86 Teacher Wraparound Edition: (E) DIS 86	

OBJECTIVES & INDICATORS		Coverage in Student Edition (SE) and Teacher Edition (TE) (pg #'s, etc.)	Coverage in Ancillary Material (titles, pg #'s, etc.)	Not covered in TE, SE or ancillaries ✓
Objective 4.2: Analyze the physical and biological dynamics of the oceans.				
a.	Describe the physical dynamics of the oceans (e.g., wave action, ocean currents, El Nino, tides).	Student Edition: 388-389, 421-427 <i>Concepts in Motion</i> 421 <i>Data Analysis Lab</i> 423 Teacher Wraparound Edition: A 427; AC 423; CON 424; D 422; DI 389; ESJ 426; MI 421; R 427; TCS 421, 422; TPK 421		
b.	Determine how physical properties of oceans affect organisms (e.g., salinity, depth, tides, temperature).	Student Edition: 417 <i>Earth Science and the Environment</i> 428 <i>Reading For Comprehension</i> 463 Teacher Wraparound Edition: AC 425; ITF 388; ITI 417; P 388	Student Edition: (E) 80-83 <i>Section Review</i> 83 Teacher Wraparound Edition: (E) DIS 81; VL 82	
c.	Model energy flow in ocean ecosystems.	Teacher Wraparound Edition: P 388; TPK 658	Student Edition: (E) <i>Integrate Earth Science</i> 51 Teacher Wraparound Edition: (E) ACT 51	
d.	Research and report on changing ocean levels over geologic time, and relate changes in ocean level to changes in the water cycle.	Student Edition: 410, 649-651, 656 Teacher Wraparound Edition: D 651; ESJ 656; IM 656		
e.	Describe how changing sea levels could affect life on Earth.	Student Edition: 394, 654 <i>MiniLab</i> 563 Teacher Wraparound Edition: A 654		

OBJECTIVES & INDICATORS		Coverage in Student Edition (SE) and Teacher Edition (TE) (pg #'s, etc.)	Coverage in Ancillary Material (titles, pg #'s, etc.)	Not covered in TE, SE or ancillaries ✓
STANDARD V: Students will understand that Earth's atmosphere interacts with and is altered by the lithosphere, hydrosphere, and biosphere.				
Percentage of coverage in the student and teacher edition for Standard V: _____ %		Percentage of coverage not in student or teacher edition, but covered in the ancillary material for Standard V: _____ %		
Objective 5.1: Describe how matter in the atmosphere cycles through other Earth systems.				
a.	Trace movement of a carbon atom from the atmosphere through a plant, animal, and decomposer, and back into the atmosphere.	Student Edition: 688 <i>National Geographic</i> 689 <i>Section Assessment</i> 692 Teacher Wraparound Edition: AC 629	Student Edition: (E) 49, 61 #15 <i>National Geographic</i> 49 Teacher Wraparound Edition: (E) ACT 48; DI 48; R 49; V 48	
b.	Diagram the nitrogen cycle and provide examples of human actions that affect this cycle (e.g., fertilizers, crop rotation, fossil fuel combustion).	Student Edition: 688, 701 #15 <i>National Geographic</i> 689 <i>Section Assessment</i> 692 Teacher Wraparound Edition: AC 740	Student Edition: (E) 46-47, 61 #21 Teacher Wraparound Edition: (E) A 49; DI 46; R 49	

OBJECTIVES & INDICATORS		Coverage in Student Edition (SE) and Teacher Edition (TE) (pg #'s, etc.)	Coverage in Ancillary Material (titles, pg #'s, etc.)	Not covered in TE, SE or ancillaries ✓
c.	Interpret evidence suggesting that humans are influencing the carbon cycle.	Student Edition: 393-395, 401 #42-#44, 688, 743-744 <i>Writing in Earth Science</i> 395 <i>Earth Science & Society</i> 396 <i>Reading for Comprehension</i> 403 <i>Data Analysis Lab</i> 688 <i>Earth Science and Technology</i> 751 Teacher Wraparound Edition: EC 395, 745; ITI 743; TCS 396	Student Edition: (E) 49, 104, 136, 151 #19 <i>Section Review</i> 49 <i>Science Online</i> 104	
d.	Research ways the biosphere, hydrosphere, and lithosphere interact with the atmosphere (e.g., volcanic eruptions putting ash and gases into the atmosphere, hurricanes, changes in vegetation).	Student Edition: 355-360, 378-380, 388-392, 412, 690-692 <i>National Geographic</i> 357 Teacher Wraparound Edition: A 392; AES 379; CON 389; MI 355; P 356; TPK 357	Student Edition: (E) 44-49, 102-104, 121 #26, 135 <i>MiniLAB</i> 135 Teacher Wraparound Edition: (E) CFU 49	
Objective 5.2: Trace ways in which the atmosphere has been altered by living systems and has itself strongly affected living systems over the course of Earth's history.				
a.	Define ozone and compare its effects in the lower and upper atmosphere.	Student Edition: 283-284, 745 <i>Earth Science and the Environment</i> 304 <i>Concepts in Motion</i> 745 Teacher Wraparound Edition: AC 287; EC 283; TCS 282, 745	Student Edition: (E) 105, 136 Teacher Wraparound Edition: (E) DI 105; QD 105	

OBJECTIVES & INDICATORS		Coverage in Student Edition (SE) and Teacher Edition (TE) (pg #'s, etc.)	Coverage in Ancillary Material (titles, pg #'s, etc.)	Not covered in TE, SE or ancillaries ✓
b.	Describe the role of living organisms in producing the ozone layer and how the ozone layer affected the development of life on Earth.	Student Edition: 629-631, 643 #44, 687 <i>Section Assessment</i> 632 Teacher Wraparound Edition: A 632; CL 629; R 632; TCS 284		
c.	Compare the rate at which CO ₂ is put into the atmosphere to the rate at which it is removed through the carbon cycle.	Student Edition: 394-395 <i>Earth Science and Technology</i> 751	Student Edition: (E) 49	
d.	Analyze data relating to the concentration of atmospheric CO ₂ over the past 100 years.	Student Edition: 394-395, 743 <i>Earth Science and Technology</i> 751 Teacher Wraparound Edition: EC 395; ITI 743	Student Edition: (E) <i>Applying Math</i> 121	
e.	Research, evaluate, and report on international efforts to protect the atmosphere.	Student Edition: 720-723, 747 <i>Earth Science and the Environment</i> 304 <i>Reading for Comprehension</i> 311 <i>Data Analysis Lab</i> 746 <i>Writing in Earth Science</i> 751 Teacher Wraparound Edition: CFU 747; EC 722; R 395; TCS 396; TS 304	Student Edition: (E) 103, 149 #18 Teacher Wraparound Edition: (E) TFYI 105	

OBJECTIVES & INDICATORS	Coverage in <i>Student Edition (SE) and Teacher Edition (TE)</i> (pg #'s, etc.)	Coverage in <i>Ancillary Material</i> (titles, pg #'s, etc.)	<i>Not covered in TE, SE or ancillaries</i> ✓	
STANDARD VI: Students will understand the source and distribution of energy on Earth and its effects on Earth systems.				
Percentage of coverage in the <i>student and teacher edition</i> for Standard VI: _____ %	Percentage of coverage not in student or teacher edition, but covered in the <i>ancillary material</i> for Standard VI: _____ %			
Objective 6.1: Describe the transformation of solar energy into heat and chemical energy on Earth and eventually the radiation of energy to space.				
a.	Illustrate the distribution of energy coming from the sun that is reflected, changed into heat, or stored by plants.	Student Edition: 286-288 <i>Concepts in Motion</i> 288 <i>Section Assessment</i> 288 Teacher Wraparound Edition: A 288; ACT 293; CFU 288; D 290, 714; TCS 286		
b.	Describe the pathways for converting and storing light energy as chemical energy (e.g., light energy converted to chemical energy stored in plants, plants become fossil fuel).	Student Edition: 708-713, 714-719 <i>Section Assessment</i> 713 Teacher Wraparound Edition: ESJ 711; TCS 687	Student Edition: (E) 20, 37-38, 50 <i>Science Online</i> 49 Teacher Wraparound Edition: (E) FF 22	
c.	Investigate the conversion of light energy from the sun into heat energy by various Earth materials.	Student Edition: 286-288 <i>MiniLab</i> 12 Teacher Wraparound Edition: CFU 288; CON 314; D 290, 714; DI 318; TPK 289		
d.	Demonstrate how absorbed solar energy eventually leaves the Earth system as heat radiating to space.	Student Edition: 286-287 Teacher Wraparound Edition: ACT 293; ITI 387		

OBJECTIVES & INDICATORS		Coverage in Student Edition (SE) and Teacher Edition (TE) (pg #'s, etc.)	Coverage in Ancillary Material (titles, pg #'s, etc.)	Not covered in TE, SE or ancillaries ✓
e.	Construct a model that demonstrates the reduction of heat loss due to a greenhouse effect.	Student Edition: 393 <i>Concepts in Motion</i> 393 <i>MiniLab</i> 394 Teacher Wraparound Edition: A 394		
f.	Research global changes and relate them to Earth systems (e.g., global warming, solar fluctuations).	Student Edition: 387-392, 393-395 <i>Earth Science & Society</i> 396 <i>Reading for Comprehension</i> 403 Teacher Wraparound Edition: A 392, 395; CON 389; D 393; DI 394; E 388; ESJ 391; IM 387, 390; ITI 393; P 391; TCS 391	Student Edition: (E) 104-105	
Objective 6.2: Relate energy sources and transformation to the effects on Earth systems.				
a.	Describe the difference between climate and weather, and how technology is used to monitor changes in each.	Student Edition: 314, 324-328, 329-332, 376 <i>Earth Science & Society</i> 333 <i>Earth Science and Technology</i> 751 Teacher Wraparound Edition: A 328; ACT 326; CFU 328; CL 327; D 327; ESJ 325; P 326; R 328; TCS 324, 333; UAA 327	Teacher Wraparound Edition: (E) DIS 41	
b.	Describe the effect of solar energy on the determination of climate and weather (e.g., El Nino, solar intensity).	Student Edition: 286-288, 303, 314-317, 378, 388-391, 776-778 <i>MiniLab</i> 315, 776 Teacher Wraparound Edition: A 296; CON 389; E 388; ESJ 314; R 380; TCS 391		

OBJECTIVES & INDICATORS		Coverage in <i>Student Edition (SE)</i> and <i>Teacher Edition (TE)</i> (pg #'s, etc.)	Coverage in <i>Ancillary Material</i> (titles, pg #'s, etc.)	<i>Not covered in TE, SE or ancillaries</i> ✓
c.	Explain how uneven heating at the equator and polar regions creates atmospheric and oceanic convection currents that move heat energy around Earth.	Student Edition: 314-317, 318-321, 425-427 <i>Writing in Earth Science</i> 323 Teacher Wraparound Edition: AC 315; CFU 427; ESJ 426; ITI 318; R 427	Student Edition: (E) 41 Teacher Wraparound Edition: (E) DI 41	
d.	Describe the Coriolis effect and its role in global wind and ocean current patterns.	Student Edition: 318-321, 425-426 <i>Concepts in Motion</i> 319 <i>National Geographic</i> 319 <i>Section Assessment</i> 323 Teacher Wraparound Edition: A 427; R 427; TCS 319		
e.	Relate how weather patterns are the result of interactions among ocean currents, air currents, and topography.	Student Edition: 314-317, 318-323, 344-349, 350-354, 355-360, 361-365, 378-380, 412 <i>Concepts in Motion</i> 316 Teacher Wraparound Edition: CL 317; CON 318; ESJ 314; IM 316; ITI 378; R 323; TCS 320	Student Edition: (E) 41-42 Teacher Wraparound Edition: (E) QD 41	