GRADE 8 QUARTERS 1 & 2

SUGGESTED PACING
SCIENCE INQUIRY AND APPLICATION Content Statements: During the years of grades 5-8, all students must use the following scientific processes, with appropriate laboratory safety techniques, to construct their knowledge and understanding in all science content areas: • Identify questions that can be answered through scientific investigations • Design and conduct a scientific investigation • Use appropriate mathematics, tools and techniques to gather data and information • Analyze and interpret data • Develop descriptions, models, explanations and predictions • Think critically and logically to connect evidence and explanations • Recognize and analyze alternative explanations and predictions • Communicate scientific procedures and explanations STRAND: EARTH AND SPACE SCIENCE (ESS) Topic: Physical Earth This topic focuses on the physical features of Earth and how they formed. This includes the interior of Earth, the rock record, plate tectonics and landforms. Content Statements: • The composition and properties of Earth's interior are identified by the behavior of seismic waves. • The refraction and reflection of seismic waves as they move through one type of material to another is used to differentiate the layers of Earth's interior. Earth has an inner and outer core, an upper and lower mantle, and a crust. • The formation of the planet generated heat from gravitational energy and the decay of radioactive elements, which are still present today. Heat released from Earth's core drives convection currents throughout the mantle and the crust. Content Statements: • Earth's crust consists of major and minor tectonic plates that move relative to each other. • Historical data and observations such as fossil distribution, paleomagnetism, continental drift and sea-floor spreading contributed to the theory of plate tectonics. The rigid tectonic plates move with the molten rock and magma beneath them in the upper mantle. • Convection currents in the crust and upper mantle cause the movement of the plates. The energy that forms convection currents comes from deep within the Earth. • There are three main types of plate boundaries: divergent, convergent and transform. Each type of boundary results in specific motion and causes events (such as earthquakes or volcanic activity) or features (such as mountains or trenches) that are indicative of the type of boundary Content Statements: • A combination of constructive and destructive geologic processes formed Earth's surface. • Earth's surface is formed from a variety of different geologic processes, including but not limited to plate tectonics. Content Statements: • Evidence of the dynamic changes of Earth's surface through time is found in the geologic record. • Earth is approximately 4.6 billion years old. • Earth history is based on observations of the geologic record and the understanding that processes observed at present day are similar to those that occurred in the past (uniformitarianism). • There are different methods to determine relative and absolute age of some rock layers in the geologic record. Within a sequence of undisturbed sedimentary rocks, the oldest rocks are at the bottom (superposition). The geologic record can help identify past environmental and climate conditions.

PRINT RESOURCES	DIGITAL RESOURCES
ScienceFusion • Ohio Test-Prep Grade 8 pages 1-15 • Unit 1, TE pages 1-116 • Unit 2, TE pages 117-192 • Unit 2, Lab Manual pages 84-150 • Unit 2, Assessment Guide pages 38-68 • Unit 3,TE pages 193-272 • Unit 3,Lab Manual pages 151-224 • Unit 3,Assessment Guide pages 69-99 • Unit 4, TE pages 273-346 • Unit 4, Lab Manual pages • Unit 4, Assessment Guide pages	*ScienceFusion* • Unit 2, Lesson 1 Digital Lesson & Virtual Lab • Unit 2, Lesson 2 Digital Lesson & Virtual Lab • Unit 2, Lesson 3 Digital Lesson & Virtual Lab • Unit 2, Lesson 4 Digital Lesson & Virtual Lab • Unit 3, Lesson 1 Digital Lesson • Unit 3, Lesson 2 Digital Lesson • Unit 3, Lesson 3 Digital Lesson & Virtual Lab • Unit 3, Lesson 4 Digital Lesson & Virtual Lab • Unit 4, Lesson 1 Digital Lesson • Unit 4, Lesson 2 Digital Lesson & Virtual Lab • Unit 4, Lesson 3 Digital Lesson • Unit 4, Lesson 4 Digital Lesson & Virtual Lab

GRADE 8 QUARTERS 1 & 2

SCIENCE AND ACADEMIC VOCABULARY

Unit 1: Data, Dependent Variable, Empirical Evidence, Engineering, Experiment, Hypothesis, Independent Variable, Law, Life Cycle Analysis, Materials Science, Model, Observation, Prototype, Pugh Chart, Risk-Benefit Analysis, Simulation, Technology, Theory, Trade-Off

Units 2-4: Absolute Dating, Alluvial Fan, Asthenosphere, Barrier Island, Beach, Climate, Continental Drift, Contour Interval, Contour Line, Convection Current, Convergent Boundary, Core, Creep, Crust, Deformation, Delta, Deposition, Divergent Boundary, Dune, Earthquake, Elastic Rebound, Epicenter, Erosion, Fault, Floodplain, Focus, Fossil, Geographic Information System, Geologic Time Scale, Geological Column, Geology, Glacial Drift, Glacier, Global Positioning System, Groundwater, Half-Life, Ice Core, Index Contour, Landslide, Lithosphere, Loess, Magnetic Reversal, Mantle, Mesosphere, Mudflow, Plate Tectonics, Radioactive Decay, Radiometric Dating, Relative Dating, Relief, Remote Sensing, Rockfall, Sandbar, Scale, Sea-Floor Spreading, Seismic Wave, Shoreline, Slope, Subduction, Superposition, Tectonic Plat Boundary, Tectonic Plate, Theory, Topographic Map, Topography, Trace Fossil, Transform Boundary, Unconformity, Uniformitarianism

DIFFERENTIATION

Leveled Inquiry

- Unit 2 TE pages 120, 130, 148, 162, 176
- Unit 3 TE pages 196, 206, 222, 240, 258
- Unit 4 TE pages 276, 286, 302, 318, 332

Response to Intervention

- Unit 2 TE page 121
- Unit 3 TE page 197
- Unit 4 TE page 277

Differentiated Instruction (Basic, ELL, and Advanced)

- Unit 2 TE pages 133, 144, 151, 165, 179
- Unit 3 TE pages 209, 225, 236, 243, 255, 261
- Unit 4 TE pages 289, 305, 314, 321, 335

FIELD EXPERIENCE CONNECTIONS

INQUIRY SKILLS

- Applying Computer Skills
- Applying Concepts
- Collecting Data
- Compare and Contrast
- Comparing Models
- Comparing Results
- Creating Models
- Creating/Constructing Graphs
- Developing Hypotheses
- Developing Procedures
- Drawing Conclusions
- Evaluating Evidence
- Evaluating Models
- Implementing Investigations
- Interpreting Diagrams/Images
- Interpreting Maps
- Making Inferences
- Making Observations
- Measuring Length in SI
- Observing Patterns
- Performing Calculations
- Planning Investigations
- Researching
- Revising Hypotheses
- Sequencing
- Using Technology

HANDS-ON INQUIRY AND APPLICATION

- Unit 2, Lesson 1 Quick Lab 1: Wave Action on the Shoreline: LM pages 84-87
- Unit 2, Lesson 1 Quick Lab 2: Moving Sediment: LM pages 88-91
- Unit 2, Lesson 1 Quick Lab 3: Modeling Stalactites and Stalagmites: LM pages 92-95
- Unit 2, Lesson 1 Exploration Lab 1: Exploring Stream Erosion and Deposition: LM pages 96-104
- Unit 2, Lesson 2 Quick Lab 1: Modeling a Glacier: LM pages 105-107
- Unit 2, Lesson 2 Quick Lab 2: Modeling a Landslide: LM pages 108-111
- Unit 2, Lesson 3 Quick Lab 1: Interpreting a Local Topographic Map: LM pages 112-116
- Unit 2, Lesson 3 Quick Lab 2: Making a Topographic Map: LM pages 117-120
- Unit 2, Lesson 3 STEM Lab 1: Modeling a Landform from a Topographic Map: LM pages 121-129
- Unit 2, Lesson 4 Quick Lab 1: Analyzing Images of Earth: LM pages 130-134
- Unit 2, Lesson 4 Quick Lab 2: Identifying Locations in Satellite Images: LM pages 135-139
- Unit 2, Lesson 4 Field Lab 1: Finding Location by GPS: LM pages 140-150
- Unit 3, Lesson 1 Quick Lab 1: Using Seismic Waves to Study Earth's Interior: LM pages 151-154
- Unit 3, Lesson 1 Quick Lab 2: Modeling the Formation of Earth's Layers: LM pages 155-159
- Unit 3, Lesson 1 STEM Lab 1: Differentiation of Solid Materials: LM pages 160-171
- Unit 3, Lesson 2 Quick Lab 1: The History of Plate Tectonics: LM pages 172-175
- Unit 3, Lesson 2 Quick Lab 2: Magnetic Reversals and Plate Tectonics: LM pages 176-180
- Unit 3, Lesson 2 Exploration Lab 1: Modeling Geological Evidence: LM pages 181-192
- Unit 3, Lesson 3 Quick Lab 1: Causes of Landforms: LM pages 193-196
- Unit 3, Lesson 3 Quick Lab 2: Tectonic Plate Landforms: LM pages 197-200
- Unit 3, Lesson 3 Exploration Lab 1: Modeling Tectonic Plate Boundaries: LM pages 201-213

HANDS-ON INQUIRY AND APPLICATION *cont.*

- Unit 3, Lesson 4 Quick Lab 1: Modeling Strike-Slip Faults: LM pages 214-216
- Unit 3, Lesson 4 Quick Lab 2: Earthquake Vibrations: LM pages 217-221
- Unit 3, Lesson 4 Quick Lab 3: Elastic Rebound: LM pages 222-224
- Unit 4, Lesson 1 Quick Lab 1: Modeling the Fossil Record: LM pages 225-228
- Unit 4, Lesson 1 Quick Lab 2: Fossil Flipbook: LM pages 229-231
- Unit 4, Lesson 1 STEM Lab 1: Exploring Landforms: LM pages 232-242
- Unit 4, Lesson 2 Quick Lab 1: Layers of Sedimentary Rock: LM pages: LM pages 243-246
- Unit 4, Lesson 2 Quick Lab 2: Ordering Rock Layers: LM pages 247-249
- Unit 4, Lesson 2 Exploration Lab 1: Earth's History: LM pages 250-258
- Unit 4, Lesson 3 Quick Lab 1: Index Fossils: LM pages 259-261
- Unit 4, Lesson 3 Quick Lab 2: Radioactive Decay: LM pages 262-265
- Unit 4, Lesson 4 Quick Lab 1: Timeline of Earth's History: LM pages 266-268
- Unit 4, Lesson 4 Quick Lab 2: Investigating Events in Earth's History: LM pages 269-271

ASSESSMENTS/PROGRESS MONITORING

- Formative and Summative Assessment
  - Unit 2, Lesson 1 - TE page 135
  - Unit 2, Lesson 2 - TE page 153
  - Unit 2, Lesson 3 - TE page 167
  - Unit 2, Lesson 4 - TE page 181
  - Unit 3, Lesson 1 - TE page 211
  - Unit 3, Lesson 2 - TE page 227
  - Unit 3, Lesson 3 - TE page 245
  - Unit 3, Lesson 4 - TE page 263
  - Unit 4, Lesson 1 - TE page 291
  - Unit 4, Lesson 2 - TE page 307
  - Unit 4, Lesson 3 - TE page 323
  - Unit 4, Lesson 4 - TE page 337
- Visual Summary and Lesson Review
  - Unit 2, Lesson 1 - TE page 142
  - Unit 2, Lesson 2 - TE page 159
  - Unit 2, Lesson 3 - TE page 173
  - Unit 2, Lesson 4 - TE page 188
  - Unit 3, Lesson 1 - TE page 218
  - Unit 3, Lesson 2 - TE page 234
  - Unit 3, Lesson 3 - TE page 251
  - Unit 3, Lesson 4 - TE page 268
  - Unit 4, Lesson 1 - TE page 298
  - Unit 4, Lesson 2 - TE page 313
  - Unit 4, Lesson 3 - TE page 329
  - Unit 4, Lesson 4 - TE page 343
- Unit 2 Review - TE pages 190-192
- Unit 3 Review - TE pages 270-272
- Unit 4 Review - TE pages 344-346

ASSESSMENT GUIDE

Unit 2

- Pretest: AG pages 38-39
- Lesson 1 Quiz: Erosion and Deposition by Water: AG page 40
- Lesson 1 Alt. Assessment: Erosion and Deposition by Water: AG page 41
- Lesson 2 Quiz: Erosion and Deposition by Wind, Ice, & Gravity: AG page 42
- Lesson 2 Alt. Assessment: Erosion and Deposition by Wind, Ice, and Gravity: AG page 43
- Lesson 3 Quiz: Topographic Maps: AG page 44
- Lesson 3 Alt. Assessment: Topographic Maps: AG page 45
- Lesson 4 Quiz: Images of Earth's Surface: AG page 46
- Lesson 4 Alt. Assessment: Images of Earth's Surface: AG page 47
- Performance-Based Assessment: TE: AG page 48
- Performance-Based Assessment: SE: AG page 49-50
- Review: AG pages 51-54
- Test A: AG pages 55-61
- Test B: AG pages 62-68

Unit 3

- Pretest: AG pages 69-70
- Lesson 1 Quiz: Earth's Interior: AG page 71
- Lesson 1 Alt. Assessment: Earth's Interior: AG page 72
- Lesson 2 Quiz: The Theory of Plate Tectonics: AG page 73
- Lesson 2 Alt. Assessment: The Theory of Plate Tectonics: AG page 74
- Lesson 3 Quiz: Plate Tectonics and Landforms: AG page 75
- Lesson 3 Alt. Assessment: Plate Tectonics & Landforms: AG page 76
- Lesson 4 Quiz: Earthquakes: AG page 77
- Lesson 4 Alt. Assessment: Earthquakes: AG page 78
- Performance-Based Assessment: TE: AG page 79
- Performance-Based Assessment: SE: AG pages 80-81
- Review: AG pages 82-85
- Test A: AG pages 86-92
- Test B: AG pages 93-99

Unit 4

- Pretest: AG pages 100-101
- Lesson 1 Quiz: Geologic Change over Time: AG page 102
- Lesson 1 Alt. Assessment: Geologic Change over Time: AG page 103
- Lesson 2 Quiz: Relative Dating: AG page 104
- Lesson 2 Alt. Assessment: Relative Dating- AG page 105
- Lesson 3 Quiz: Absolute Dating: AG page 106
- Lesson 3 Alt. Assessment: Absolute Dating: AG page 107
- Lesson 4 Quiz: The Geologic Time Scale: AG page 108
- Lesson 4 Alt. Assessment: The Geologic Time Scale: AG page 109
- Performance-Based Assessment: TE: AG page 110
- Performance-Based Assessment: SE: AG pages 111-112
- Review: AG pages 113-116
- Test A: AG pages 117-123
- Test B: AG pages 124-130

GRADE 8 QUARTERS 1 & 2

ACADEMIC CONNECTIONS TO OTHER DISCIPLINES:	
• Astrobiology Connection - TE page 336 • Do the Math - TE page 137 • Do the Math - TE page 170 • Do the Math - TE page 172 • Do the Math - TE page 326 • Engineering Connection - TE page 134 • Fine Arts Connection - TE page 262 • Geography Connection - TE page 262 • Health Connection - TE page 180 • Language Arts Connection - TE 336 • Language Arts Connection - TE page 210 • Language Arts Connection - TE page 226 • Language Arts Connection - TE page 244 • Language Arts Connection - TE page 290	• Life Science Connection - TE page 226 • Life Science Connection - TE page 244 • Life Science Connection - TE page 322 • Math Connection - TE page 166 • Math Connection - TE page 322 • Natural Resources Connection - TE page 306 • Physical Education Connection - TE page 166 • Real World Connection - TE page 134 • Real World Connection - TE page 152 • Real World Connection - TE page 180 • Social Studies Connection - TE page 152 • Social Studies Connection - TE page 290 • Social Studies Connection - TE page 306 • Technology Connection - TE page 210

GRADE 8 QUARTER 3

SUGGESTED PACING

STRAND: LIFE SCIENCE (LS)

Topic: Species and Reproduction

This topic focuses on continuation of the species.

Content Statements:

- Diversity of species occurs through gradual processes over many generations.
- Fossil records provide evidence that changes have occurred in number and types of species. Fossils provide important evidence of how life and environmental conditions have changed.
- Changes in environmental conditions can affect how beneficial a trait will be for the survival and reproductive success of an organism or an entire species.
- Throughout Earth's history, extinction of a species has occurred when the environment changes and the individual organisms of that species do not have the traits necessary to survive and reproduce in the changed environment. Most species (approximately 99 percent) that have lived on Earth are now extinct.

Content Statements:

- Reproduction is necessary for the continuation of every species.
- Every organism alive today comes from a long line of ancestors who reproduced successfully every generation. Reproduction is the transfer of genetic information from one generation to the next. It can occur with mixing of genes from two individuals (sexual reproduction). It can occur with the transfer of genes from one individual to the next generation (asexual reproduction). The ability to reproduce defines living things.

Content Statements:

- The characteristics of an organism are a result of inherited traits received from parent(s).
- Expression of all traits is determined by genes and environmental factors to varying degrees. Many genes influence more than one trait, and many traits are influenced by more than one gene.
- During reproduction, genetic information (DNA) is transmitted between parent and offspring. In asexual reproduction, the lone parent contributes DNA to the offspring. In sexual reproduction, both parents contribute DNA to the offspring.

PRINT RESOURCES

ScienceFusion

- Ohio Test-Prep Grade 8 pages 16-27
- Unit 5, TE pages 347-436
- Unit 5, Lab Manual pages
- Unit 5, Assessment Guide pages
- Unit 6, TE pages 437-496
- Unit 6, Lab Manual pages
- Unit 6, Assessment Guide pages

DIGITAL RESOURCES

ScienceFusion

- Unit 5, Lesson 1 Digital Lesson
- Unit 5, Lesson 2 Digital Lesson
- Unit 5, Lesson 2 Virtual Lab
- Unit 5, Lesson 3 Digital Lesson
- Unit 5, Lesson 4 Digital Lesson
- Unit 5, Lesson 5 Digital Lesson
- Unit 5, Lesson 5 Virtual Lab
- Unit 6, Lesson 1 Digital Lesson
- Unit 6, Lesson 1 Virtual Lab
- Unit 6, Lesson 2 Digital Lesson
- Unit 6, Lesson 3 Digital Lesson

SCIENCE AND ACADEMIC VOCABULARY

Adaptation, Allele, Artificial Selection, Asexual Reproduction, Cell Cycle, Chromosomes, Codominance, Cytokinesis, DNA, Dominant, Evolution, Extinction, Extinction, Fertilization, Fossil, Fossil Record, Genes, Genotype, Geologic Time Scale, Heredity, Homologous Chromosome, Incomplete Dominance, Interphase, Meiosis, Mitosis, Mutation, Natural Selection, Pedigree, Phenotype, Probability, Punnett Square, Ratio, Recessive, Sexual Reproduction, Variation

DIFFERENTIATION

Leveled Inquiry

- Unit 5 TE pages 350, 362, 376, 392, 406, 422
- Unit 6 TE pages 440, 450, 466, 482

Response to Intervention

- Unit 5 TE page 351
- Unit 6 TE page 441

Differentiated Instruction (Basic, ELL, and Advanced)

- Unit 5 TE pages 365, 379, 388, 395, 409, 418, 525
- Unit 6 TE pages 453, 462, 469, 478, 485

FIELD EXPERIENCE CONNECTIONS

GRADE 8 QUARTER 3

INQUIRY SKILLS

- Analyzing Results/Data
- Applying Concepts
- Calculating Results
- Classifying Information
- Collecting Data
- Comparing Data
- Comparing Models
- Comparing Results
- Creating Models
- Creating/Constructing Graphs
- Developing Procedures
- Drawing Conclusions
- Evaluating Models
- Evaluating Procedures/Methods
- Evaluating Results
- Examining Evidence
- Graphing Data
- Identifying Patterns
- Interpreting Data
- Interpreting Results
- Making Inferences
- Making Observations
- Making Predictions
- Pooling Data
- Practicing Lab Techniques
- Recording Observations

HANDS-ON INQUIRY AND APPLICATION

- Unit 5, Lesson 1 Quick Lab 1: Modeling Mitosis: LM pages 272-274
- Unit 5, Lesson 1 Quick Lab 2: Mitosis Flipbooks: LM pages 275-278
- Unit 5, Lesson 1 Quick Lab 3: DNA, Chromosomes, and Cell Division: LM pages 279-282
- Unit 5, Lesson 1 Exploration Lab 1: The Stages of the Cell Cycle: LM pages 283-292
- Unit 5, Lesson 2 Quick Lab 1: Meiosis Flipbooks: LM pages 293-295
- Unit 5, Lesson 2 Quick Lab 2: Crossover and Meiosis: LM pages 296-298
- Unit 5, Lesson 3 Quick Lab 1: Reproduction and Diversity: LM pages 299-302
- Unit 5, Lesson 3 Quick Lab 2: Egg vs. Sperm: LM pages 303-305
- Unit 5, Lesson 3 Quick Lab 3: Create a Classification System: LM pages 306-308
- Unit 5, Lesson 3 Field Lab 1: Investigate Asexual Reproduction: LM pages 309-315
- Unit 5, Lesson 3 Field Lab 2: Predict Impact of Variation: Plant Survival and Reproduction: LM pages 316-324
- Unit 5, Lesson 4 Quick Lab 1: Dominant Alleles: LM pages 325-327
- Unit 5, Lesson 4 Quick Lab 2: What's the Difference Between a Dominant Trait and a Recessive Trait?: LM pages 328-331
- Unit 5, Lesson 5 Quick Lab 1: Gender Determination: LM pages 332-334
- Unit 5, Lesson 5 Quick Lab 2: Interpreting Pedigree Charts: LM pages 335-338
- Unit 5, Lesson 5 Quick Lab 3: Completing a Punnett Square: LM pages 339-341
- Unit 5, Lesson 5 S.T.E.M. Lab 1: Matching Punnett Square Predictions: LM pages 342-353
- Unit 6, Lesson 1 Quick Lab 1: Model Natural Selection: LM pages 354-357
- Unit 6, Lesson 1 Quick Lab 2: Analyzing Survival Adaptations: LM pages 358-360
- Unit 6, Lesson 1 Quick Lab 3: The Opposable Thumb: LM pages 361-364
- Unit 6, Lesson 1 Exploration Lab 1: Environmental Change and Evolution: LM pages 365-375
- Unit 6, Lesson 2 Quick Lab 1: Comparing Anatomy: LM pages 376-378
- Unit 6, Lesson 2 Quick Lab 2: Genetic Evidence for Evolution: LM pages 379-382
- Unit 6, Lesson 2 Field Lab 1: Mystery Footprints: LM pages 383-393
- Unit 6, Lesson 3 Quick Lab 1: How Do We Know What Happened When?: LM pages 394-397
- Unit 6, Lesson 3 Quick Lab 2: Investigate Relative and Absolute Age: LM pages 398-401
- STEM: TE pages

ASSESSMENTS/PROGRESS MONITORING

- Formative and Summative Assessment
  - Unit 5, Lesson 1 – TE page 367
  - Unit 5, Lesson 2 – TE page 381
  - Unit 5, Lesson 3 – TE page 397
  - Unit 5, Lesson 4 – TE page 411
  - Unit 5, Lesson 5 – TE page 427
  - Unit 6, Lesson 1 – TE page 455
  - Unit 6, Lesson 2 – TE page 471
  - Unit 6, Lesson 3 – TE page 487
- Visual Summary and Lesson Review
  - Unit 5, Lesson 1 – TE page 372
  - Unit 5, Lesson 2 – TE page 386
  - Unit 5, Lesson 3 – TE page 402
  - Unit 5, Lesson 4 – TE page 417
  - Unit 5, Lesson 5 – TE page 432
  - Unit 6, Lesson 1 – TE page 461
  - Unit 6, Lesson 2 – TE page 476
  - Unit 6, Lesson 3 – TE page 493
- Unit 5 Review – TE page 434-436
- Unit 6 Review – TE page 494-496

GRADE 8 QUARTER 3

ASSESSMENT GUIDE

Unit 5

- Unit 5 Pretest: AG pages 131-132
- Lesson 1 Quiz: Mitosis: AG page 133
- Lesson 1 Alternative Assessment: Mitosis: AG page 134
- Lesson 2 Quiz: Meiosis: AG page 135
- Lesson 2 Alternative Assessment: Meiosis: AG page 136
- Lesson 3 Quiz: Sexual and Asexual Reproduction: AG page 137
- Lesson 3 Alternative Assessment: Sexual and Asexual Reproduction: AG page 138
- Lesson 4 Quiz: Heredity: AG page 139
- Lesson 4 Alternative Assessment: Heredity: AG page 140
- Lesson 5 Quiz: Punnett Squares and Pedigrees: AG page 141
- Lesson 5 Alternative Assessment: Punnett Squares and Pedigrees: AG page 142
- Performance-Based Assessment: Teacher Edition: AG page 143
- Performance-Based Assessment: Student Edition: AG pages 144-145
- Unit 5 Review: AG pages 146-149
- Unit 5 Test A: AG pages 150-156
- Unit 5 Test B: AG pages 157-163

Unit 6

- Unit 6 Pretest: AG pages 164-165
- Lesson 1 Quiz: Theory of Evolution by Natural Selection: AG page 166
- Lesson 1 Alternative Assessment: Theory of Evolution by Natural Selection: AG page 167
- Lesson 2 Quiz: Evidence of Evolution: AG page 168
- Lesson 2 Alternative Assessment: Evidence of Evolution: AG page 169
- Lesson 3 Quiz: The History of Life on Earth: AG page 170
- Lesson 3 Alternative Assessment: The History of Life on Earth: AG page171
- Performance-Based Assessment: Teacher Edition: AG page 172
- Performance-Based Assessment: Student Edition: AG pages 173-174
- Unit 6 Review: AG pages 175-178
- Unit 6 Test A: AG pages 179-185
- Unit 6 Test B: AG pages 186-192

ACADEMIC CONNECTIONS TO OTHER DISCIPLINES:

- Language Arts Connection: TE page 366
- Math Connection: TE page 366
- Life Science Connection: TE page 380
- Music Connection: TE page 380
- Technology Connection: TE page 396
- Social Studies Connection: TE page 396
- Life Science Connection: TE page 410
- Language Arts Connection: TE page 410
- Do the Math: TE pages 318-319
- Life Science Connection: TE page 426
- Math Connection: TE page 426
- Do the Math: TE page 430
- Social Studies Connection: TE page 454
- Earth Science Connection: TE page 454
- Fine Arts Connection: TE page 470
- Earth Science Connection: TE page 470
- Real World Connection: TE page 486
- Earth Science Connection: TE page 486

GRADE 8 QUARTER 4

SUGGESTED PACING

STRAND: PHYSICAL SCIENCE (PS)

Topic: Forces and Motion

This topic focuses on forces and motion within, on and around the Earth and within the universe.

Content Statements:

- Forces between objects act when the objects are in direct contact or when they are not touching.
- Magnetic, electrical and gravitational forces can act at a distance.

Content Statements:

- Forces have magnitude and direction. The motion of an object is always measured with respect to a reference point.
- Forces can be added. The net force on an object is the sum of all of the forces acting on the object. The net force acting on an object can change the object's direction and/or speed.
- When the net force is greater than zero, the object's speed and/or direction will change.
- When the net force is zero, the object remains at rest or continues to move at a constant speed in a straight line.

Content Statements:

- There are different types of potential energy.
- Gravitational potential energy changes in a system as the masses or relative positions of objects are changed. Objects can have elastic potential energy due to their compression or chemical potential energy due to the nature and arrangement of the atoms that make up the object.

PRINT RESOURCES

ScienceFusion

- Ohio Test-Prep Grade 8 pages 28-39
- Unit 7, TE pages 497-609
- Unit 7, Lab Manual pages 402-491
- Unit 7, Assessment Guide pages 193-229

DIGITAL RESOURCES

ScienceFusion

- Unit 7, Lesson 1 Digital Lesson
- Unit 7, Lesson 2 Digital Lesson
- Unit 7, Lesson 2 Virtual Lab
- Unit 7, Lesson 3 Digital Lesson
- Unit 7, Lesson 3 Virtual Lab
- Unit 7, Lesson 4 Digital Lesson
- Unit 7, Lesson 5 Digital Lesson
- Unit 7, Lesson 6 Digital Lesson
- Unit 7, Lesson 6 Virtual Lab

SCIENCE AND ACADEMIC VOCABULARY

Drag, Electric Charge, Electric Generator, Electric Motor, Electrical Conductor, Electrical Insulator, Electromagnet, Electromagnetic Induction, Electromagnetism, Field, Force, Free Fall, Gravity, Inertia, Kinetic Energy, Kinetic Friction, Magnet, Magnetic Field, Magnetic Force, Magnetic Pole, Mechanical Energy, Net Force, Orbit, Potential Energy, Semiconductor, Solenoid, Static Electricity, Static Friction, Transformer

DIFFERENTIATION

Leveled Inquiry

- Unit 7 TE pages 502, 514, 530, 546, 560, 574, 594

Response to Intervention

- Unit 7 TE page 503

Differentiated Instruction (Basic, ELL, and Advanced)

- Unit 7 TE pages 517, 533, 542, 549, 563, 577, 591, 597

FIELD EXPERIENCE CONNECTIONS

INQUIRY SKILLS

- Analyzing Results/Data
- Applying Concepts
- Creating/Constructing Graphs
- Designing Technology
- Developing Hypotheses
- Developing Procedures
- Drawing Conclusions
- Explaining Concepts
- Explaining Results
- Identifying Variables
- Illustrating Results
- Interpreting Data
- Making Observations
- Performing Calculations
- Practicing Lab Techniques
- Taking Measurements

GRADE 8 QUARTER 4

HANDS-ON INQUIRY AND APPLICATION

- Unit 7, Lesson 1 Quick Lab 1: Net Force: LM pages 402-405
- Unit 7, Lesson 1 Quick Lab 2: First Law of Skateboarding: LM pages 406-408
- Unit 7, Lesson 1 Quick Lab 3: Gravitational Field Model: LM pages 409-412
- Unit 7, Lesson 1 S.T.E.M. Lab 1: Newton's Laws of Motion: LM pages 413-424
- Unit 7, Lesson 2 Quick Lab 1: Falling Water: LM pages 425-428
- Unit 7, Lesson 2 Quick Lab 2: Gravity and Distance: LM pages 429-432
- Unit 7, Lesson 2 Quick Lab 3: Free-Fall Distances: LM pages 433-436
- Unit 7, Lesson 3 Quick Lab 1: Making a Static Detector: LM pages 437-440
- Unit 7, Lesson 3 Quick Lab 2: Investigate Conductors and Insulators: LM pages : LM pages 441-444
- Unit 7, Lesson 4 Quick Lab 1: Making Magnets: LM pages 445-448
- Unit 7, Lesson 4 Quick Lab 2: Studying Magnetism: LM pages 449-452
- Unit 7, Lesson 5 Quick Lab 1: Building an Electromagnet: LM pages 453-456
- Unit 7, Lesson 5 Quick Lab 2: Making an Electric Generator: LM pages 457-460
- Unit 7, Lesson 5 STEM Lab 1: Building a Speaker: LM pages : LM pages 461-472
- Unit 7, Lesson 6 Quick Lab 1: Investigate Potential Energy: LM pages 473-476
- Unit 7, Lesson 6 Quick Lab 2: Identify Potential and Kinetic Energy: LM pages 477-480
- Unit 7, Lesson 6 Exploration Lab 1: Mechanical Energy : LM pages 481-491
- STEM: TE pages 588-591

ASSESSMENTS/PROGRESS MONITORING

- Formative and Summative Assessment
  - Unit 7, Lesson 1 - TE page 519
  - Unit 7, Lesson 2 - TE page 535
  - Unit 7, Lesson 3 - TE page 551
  - Unit 7, Lesson 4 - TE page 565
  - Unit 7, Lesson 5 - TE page 579
  - Unit 7, Lesson 6 - TE page 599
- Visual Summary and Lesson Review
  - Unit 7, Lesson 1 - TE page 527
  - Unit 7, Lesson 2 - TE page 540
  - Unit 7, Lesson 3 - TE page 556
  - Unit 7, Lesson 4 - TE page 570
  - Unit 7, Lesson 5 - TE page 586
  - Unit 7, Lesson 6 - TE page 604
- Unit 7 Review – TE page 606-609

ASSESSMENT GUIDE

Unit 7

- Unit 7 Pretest: AG pages 193-194
- Lesson 1 Quiz: Forces: AG pages 195
- Lesson 1 Alternative Assessment: Forces: AG pages 196
- Lesson 2 Quiz: Gravity and Motion: AG pages 197
- Lesson 2 Alternative Assessment: Gravity and Motion: AG pages 198
- Lesson 3 Quiz: Electric Charge and Static Electricity: AG pages 199
- Lesson 3 Alternative Assessment: Electric Charge and Static Electricity: AG pages 200
- Lesson 4 Quiz: Magnets and Magnetism: AG pages 201
- Lesson 4 Alternative Assessment: Magnets and Magnetism: AG pages 202
- Lesson 5 Quiz: Electromagnetism: AG pages 203
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