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| **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.
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| **PRINT RESOURCES** | **DIGITAL 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
 | *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
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| **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** | **FIELD EXPERIENCE CONNECTIONS** |
| 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
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| **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
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| **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
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| **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
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| **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
* Lesson 5 Alternative Assessment: Electromagnetism: AG pages 204
* Lesson 6 Quiz: Kinetic and Potential Energy: AG pages 205
* Lesson 6 Alternative Assessment: Kinetic and Potential Energy: AG pages 206
* Performance-Based Assessment: Teacher Edition: AG pages 207
* Performance-Based Assessment: Student Edition: AG pages 208-209
* Unit 7 Review: AG pages 210-215
* Unit 7 Test A: AG pages 216-222
* Unit 7 Test B: AG pages 223-229
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| **ACADEMIC CONNECTIONS TO OTHER DISCIPLINES:**  |
| * Environmental Science Connection: TE page 518
* Real World Connection: TE page 518
* Do the Math: TE page 525
* Engineering Connection: TE page 534
* Physical Education Connection: TE page 534
* Health Connection: TE page 550
* Physics Connection: TE page 550
* Social Studies Connection: TE page 564
* Biology Connection: TE page 564
 | * Life Science Connection: TE page 426
* Life Science Connection: TE page 578
* Earth Science Connection: TE page 578
* Do the Math: TE page 584
* Physical Education Connection: TE page 598
* Real World Connection: TE page 598
* Do the Math: TE page 601
* Do the Math: TE page 602
* Do the Math: TE page 603
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