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| **SUGGESTED PACING** |
| **STRAND: PHYSICAL SCIENCE (PS)** **Topic:** **Light, Sound and Motion**This topic focuses on the forces that affect motion. This includes the relationship between the change in speed of an object, the amount of force applied and the mass\* of the object. Light and sound are explored as forms of energy that move in predictable ways, depending on the matter through which they move. **Content Statements:*** The amount of change in movement of an object is based on the mass\* of the object and the amount of force exerted.
* Movement can be measured by speed. The speed of an object is calculated by determining the distance (d) traveled in a period of time (t).
* Earth pulls down on all objects with a gravitational force. Weight is a measure of the gravitational force between an object and the Earth.
* Any change in speed or direction of an object requires a force and is affected by the mass\* of the object and the amount of force applied.
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| **PRINT RESOURCES** | **DIGITAL RESOURCES** |
| *ScienceFusion** Grade 5 Ohio Test Prep Book pages 20-28
* Unit 6, All Lessons
* Unit 6, TE pages 239A-282
* Unit 6, Inquiry Flip Chart pages 30-34
* Science and Engineering Leveled Readers:
	+ On-Level/Below Level: *How Do Forces Affect Motion?*
	+ Above Level: *International Space Station*
 | *ScienceFusion** Unit 6, Lesson 1 Digital Lesson
* Unit 6, Lesson 2 Digital Lesson
* Unit 6, Lesson 3 Digital Lesson with Virtual Lab
* Unit 6, Lesson 4 Digital Lesson with Virtual Lab
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| **SCIENCE AND ACADEMIC VOCABULARY** |
| Acceleration, Balanced Forces, Force, Friction, Gravity, Motion, Position, Speed, Unbalanced Forces, Velocity |
| **DIFFERENTIATION** | **FIELD EXPERIENCE CONNECTIONS** |
| Basic (Extra Support)* Unit 6 Response to Intervention - TE page 237K
* Unit 6 TE pages 243, 246, 255, 256, 259, 260, 264

Advanced (Enrichment)* Unit 6 TE pages 243, 246, 255, 256, 259, 260, 264
* Unit 6 STEM - Flipchart page 32, TE pages 237F, 271-272B

English Language Learners* Unit 6 TE pages 237L-237M, 240, 242, 254, 258, 262
 | Cleveland Metroparks Zoo: Connections to Africa Program. ***Program Details***: Students will explore African Elephant Crossing, focusing on how living things, including people, must share resources around them. The Zoo provides scientific tools that students can use during this inquiry-driven program. To prepare in advance please locate the Metroparks Zoo Trunk and Biomimicry Kits that are present in each CMSD K-8 building. Then attend the professional development session and complete teacher and student pre- and post-visit surveys. For information contact: Sandy Hadgis 216-635-3379 or email: sjh2@clevelandmetroparks.com |
| **INQUIRY SKILLS** |
| * Compare
* Draw Conclusions
* Experiment
* Gather, Record, Display, or Interpret Data
 | * Identify and Control Variables
* Measure
* Observe
 | * Plan and Conduct a Simple Investigation
* Predict
* Use Numbers
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| **HANDS-ON INQUIRY AND APPLICATION** |
| * “Fast Walk, Slow Walk” (Flipchart page 30, TE pages 237D, 239A)
* “Push or Pull” (Flipchart page 30, TE pages 237D, 239A)
* “On a Roll” (Flipchart page 31, TE pages 237E, 253A)
* “Make It Easier” (Flipchart page 31, TE pages 237E, 253A)
* “How Do Forces Affect Motion?” (Flipchart page 33, TE pages 237G, 273A-274A)
* “How Do Gravity and Friction Affect Motion?” (Flipchart page 34, TE pages 237H, 275A-278)
 | *Differentiated Inquiry** Unit 6, TE page 274A
	+ Identify Variables (Easy)
	+ Analyze Forces (Easy)
	+ Compare Data Displayed on Graphs (Average)
	+ Predict the Effect of Gravity (Challenging)
* Unit 6, TE page 276A
	+ Explore Forces (Easy)
	+ Predict Forces (Easy)
	+ Analyze Forces (Average)
	+ Experiment with Static & Sliding Friction (Challenging)
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| **ASSESSMENTS/PROGRESS MONITORING** | **ASSESSMENT GUIDE** |
| * Sum it Up
	+ Unit 6, Lesson 1 - SE page 248, TE page 248
	+ Unit 6, Lesson 2 - SE page 266, TE page 266
* Brain Check and Apply Concepts
	+ Unit 6, Lesson 1 - SE pages 249-252, TE pages249-252
	+ Unit 6, Lesson 2 - SE pages 267-270, TE pages 267-270
* Unit 6 Review - TE pages 279-282
* Unit 6 Short Option Performance Assessment - TE page 281
 | * Lesson Quiz
	+ Unit 6, Lesson 1 - page AG 56
	+ Unit 6, Lesson 2 - page AG 57
	+ Unit 6, Lesson 3 - page AG 58
	+ Unit 6, Lesson 4 - page AG 59
* Unit 6 Test and Performance Task with Long Option Rubric - pages AG 60-AG 66
 |
| **ACADEMIC CONNECTIONS TO OTHER DISCIPLINES**  |
| ELA: Journeys* Writing Connection - TE page 247
* Make Connections - TE page 252A
	+ Writing Connection - Write a Story (Average)
* Writing Connection - TE page 257
* Writing Connection - TE page 263
* Make Connections - TE page 270A
	+ Writing Connection - Write an Explanation (Challenging)
* Writing Connection - TE page 277
 | *Journeys Connections** Lesson 1
	+ Whole Group: Anchor Text: Package for Mrs. Jewls (T29)
	+ Whole Group: Reader’s Theater: Questioning Gravity (T39)
	+ Small Group: Vocabulary Reader: Sports & Motion (T63)
 |
| MATH: Math Expressions* Math Connection - TE page 244
* *Math Expressions Connections:*
	+ Unit 7 Lesson 6: Graph Ordered Pairs MX TE pages 594-596
* Make Connections - TE page 252A
* Math Connection - Find Average Speed (Easy)
* *Math Expressions Connections:*
	+ Unit 7 Lesson 6: Graph Ordered Pairs MX TE pages 594-596
* Math Connection - TE page 261
* *Math Expressions Connections:*
	+ Unit 1 Lesson 12: Real World Problems MX TE pages 88-90
	+ Unit 3 Lesson 8: Solve Real World Problems MX TE page 246
	+ Unit 3 Lesson 11: Solve Division Problems MX TE pages 265-266
	+ Unit 3 Lesson 12: Distinguish Multiplication from Division MX TE pages 270, 273
	+ Unit 4 Lesson 8: Multiply with Decimals Greater Than 1 MX TE page 349
	+ Unit 4 Lesson 11: Multiplication Practice MX TE pages 371-372
	+ Unit 5 Lesson 4: Interpret Remainders MX TE pages 410-412
	+ Unit 5 Lesson 5: Division Practice MX TE pages 419-420
	+ Unit 6 Lesson 1: Situation and Solution Equations for Addition and Subtraction MX TE pages 474-477
	+ Unit 6 Lesson 2: Situation and Solution Equations for Multiplication and Division MX TE pages 482-486
	+ Unit 6 Lesson 5: Language of Comparison Problems MX TE pages 504-508
	+ Unit 6 Lesson 6: Multiplicative Comparison Problems MX TE pages 512-516
	+ Unit 6 Lesson 7: Types of Comparison Problems MX TE pages 520-524
 |
| **ACADEMIC CONNECTIONS TO OTHER DISCIPLINES *cont.*** |
| MATH: Math Expressions *cont.** *Math Expressions Connections cont.:*
	+ Unit 8 Lesson 1: Convert Metric Units of Length MX TE pages 612-614
	+ Unit 8 Lesson 2: Metric Units of Liquid Volume MX TE pages 619-620
	+ Unit 8 Lesson 3: Metric Units of Mass MX TE pages 625-626
	+ Unit 8 Lesson 4: Customary Units of Length MX TE page 632
	+ Unit 8 Lesson 5: Customary Measures of Liquid Volume MX TE page 638
	+ Unit 8 Lesson 6: Customary Units of Weight MX TE page 644
* Math Connection - TE page 265
* *Math Expressions Connections:*
	+ Unit 6 Lesson 11: Focus on Mathematical Practices MX TE page 552
	+ Unit 8 Lesson 7: Read and Make Line Plots MX TE pages 648-650
* Make Connections - TE page 270A
* Math Connection - Solve Problems (Average)
* *Math Expressions Connections:*
	+ Unit 1 Lesson 12: Real World Problems MX TE pages 88-90
	+ Unit 3 Lesson 8: Solve Real World Problems MX TE page 246
	+ Unit 3 Lesson 11: Solve Division Problems MX TE pages 265-266
	+ Unit 3 Lesson 12: Distinguish Multiplication from Division MX TE pages 270, 273
	+ Unit 4 Lesson 8: Multiply with Decimals Greater Than 1 MX TE page 349
	+ Unit 4 Lesson 11: Multiplication Practice MX TE pages 371-372
	+ Unit 5 Lesson 4: Interpret Remainders MX TE pages 410-412
	+ Unit 5 Lesson 5: Division Practice MX TE pages 419-420
	+ Unit 6 Lesson 1: Situation and Solution Equations for Addition and Subtraction MX TE pages 474-477
	+ Unit 6 Lesson 2: Situation and Solution Equations for Multiplication and Division MX TE pages 482-486
	+ Unit 6 Lesson 5: Language of Comparison Problems MX TE pages 504-508
	+ Unit 6 Lesson 6: Multiplicative Comparison Problems MX TE pages 512-516
	+ Unit 6 Lesson 7: Types of Comparison Problems MX TE pages 520-524
	+ Unit 8 Lesson 1: Convert Metric Units of Length MX TE pages 612-614
	+ Unit 8 Lesson 2: Metric Units of Liquid Volume MX TE pages 619-620
	+ Unit 8 Lesson 3: Metric Units of Mass MX TE pages 625-626
	+ Unit 8 Lesson 4: Customary Units of Length MX TE page 632
	+ Unit 8 Lesson 5: Customary Measures of Liquid Volume MX TE page 638
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