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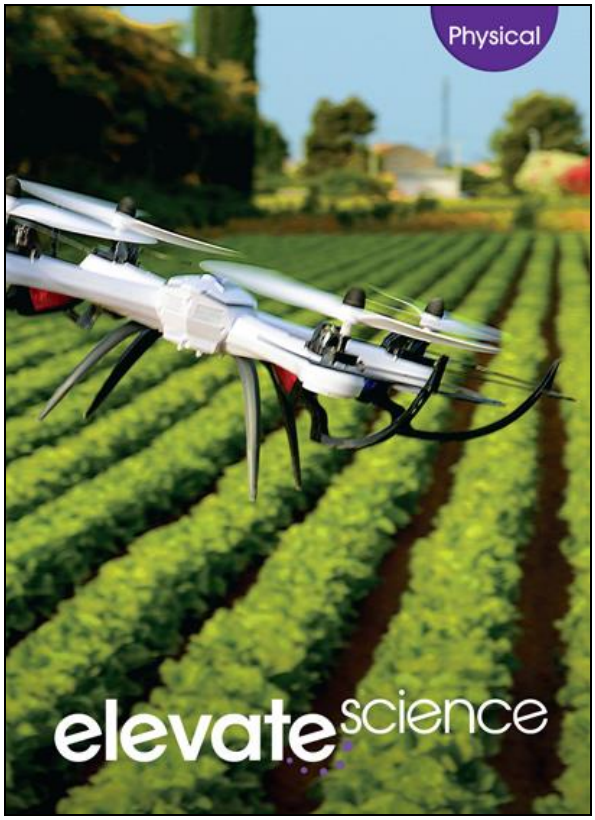

To the

Georgia
Standards of Excellence for Science
Grade 8

Pearson

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to the
Georgia Standards of Excellence for Science, Grade 8

Introduction

This document demonstrates how ***Elevate Science: Physical ©2019*** supports the Georgia Standards of Excellence for Science. Correlation page references are to the Student and Teacher's Editions and cited at the page level.

Pearson is proud to introduce ***Elevate Science*** Middle Grades – where exploration is the heart of science! Designed to address the rigors of new science standards, students will experience science up close and personal, using real-world, relevant phenomena to solve project-based problems. Our newest program prepares students for the challenges of tomorrow, building strong reasoning skills and critical thinking strategies as they engage in explorations, formulate claims, and gather and analyze data that promote evidence-based arguments. The blended print and digital curriculum covers all Next Generation Science Standards at every grade level.

Elevate Science helps teachers transform learning, promote innovation, and manage their classroom.

Transform science classrooms by immersing students in active, three-dimensional learning.
Elevate Science engages students with real-world tasks, open-ended Quests, uDemonstrate performance-based labs, and in the engineering/design process with uEngineer It! investigations.

- A new 3-D learning model enhances best practices.
- Engineering-focused features infuse STEM learning.
- Phenomena-based activities put students at the heart of a Quest for knowledge.

Innovate learning by focusing on 21st century skills.
Students are encouraged to think, collaborate, and innovate! With ***Elevate Science***, students explore STEM careers, experience engineering activities, and discover our scientific and technological world. The content, strategies, and resources of Elevate Science equip the science classroom for scientific inquiry and science and engineering practices.

- Problem-based learning Quests put students on a journey of discovery.
- STEM connections help integrate curriculum.
- Coding and innovation engage students and build 21st century skills.

Manage the classroom with confidence.
Teachers will lead their class in asking questions and engaging in argumentation. Evidence-based assessments provide new options for monitoring student understanding.

- Professional development offers practical point-of-use support.
- Embedded standards in the program allow for easy integration.
- ELL and differentiated instruction strategies help instructors reach every learner.
- Interdisciplinary connections relate science to other subjects.

Designed for today's classroom, preparing students for tomorrow's world. ***Elevate Science*** promises to:

- Elevate thinking.
- Elevate learning.
- Elevate teaching.

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Georgia Standards of Excellence for Science Grade 8	Elevate Science Physical ©2019
(S8P) Physical Science	
(S8P1) Obtain, evaluate, and communicate information about the structure and properties of matter.	
(S8P1.a) Develop and use a model to compare and contrast pure substances (elements and compounds) and mixtures.	**SE/TE:** Compounds, 10 Types of Mixtures, 11 Lesson 1 Check, 12 Using Density, 20 Types of Mixtures, 399 Solutions, 402 Lesson 1 Check, 406 Synthetic Materials, 429–432 Lesson 4 Check, 435 Evidence-Based Assessment, 440–441
(S8P1.b) Develop and use models to describe the movement of particles in solids, liquids, gases, and plasma states when thermal energy is added or removed.	**SE/TE:** Thermal Energy and Temperature, 57 Changes of State Between Solid and Liquid, 58–59 Changes of State Between Liquid and Gas, 60–62 Changing State from Solid to Gas, 63 Lesson 2 Check, 64 Pressure and Temperature of a Gas, 67–68 Temperature and Volume, 69–70 Pressure and Volume, 71–73 Model It, 71 Graphing Boyle's Law, 72 How Pistons Work, 74 Lesson 3 Check, 75 Case Study: Rising to the Occasion: Charles's Law in the Oven, 76–77 Evidence-Based Assessment, 80–81 uDemonstrate Lab: Melting Ice, 82–85 Temperature and Melting, 143 Model It, 144 Figure 8, 145 It's All Connected, 147 Types of Heat Transfer, 149-151 Lesson 2 Check, 154 uDemonstrate Lab, Testing Thermal Conductivity, 170-173

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(S8P1.c) Plan and carry out investigations to compare and contrast chemical (i.e., reactivity, combustibility) and physical (i.e., density, melting point, boiling point) properties of matter.	**SE/TE:** uDemonstrate Lab: Melting Ice, 82-85 uDemonstrate Lab: Testing Thermal Conductivity, 170-173 uEngineer it!, Making Water Safe to Drink, 407 uDemonstrate Lab: Evidence of Chemical Change, 442
(S8P1.d) Construct an argument based on observational evidence to support the claim that when a change in a substance occurs, it can be classified as either chemical or physical.	**SE/TE:** Connect It!, 24 Physical Changes in Matter, 25–26 Video, 26 Chemical Changes in Matter, 27–29 Hands-on Lab, 29 Lesson 3 Check, 32 Physical Change, 409 Chemical Change, 410 Evidence of Chemical Reactions, 412–413 Changes in Energy, 414 Lesson 2 Check, 418 Evidence-Based Assessment, 440–441 Evidence of Chemical Change, 442–445
(S8P1.e) Develop models (e.g., atomic-level models, including drawings, and computer representations) by analyzing patterns within the periodic table that illustrate the structure, composition, and characteristics of atoms (protons, neutrons, and electrons) and simple molecules.	**SE/TE:** Bonding, 360–361 Video, 360 Bonding and Periodic Properties, 362–365 Lesson 3 Check, 366 Ionic Bonding, 370–371 Covalent Bonding, 372–374 Lesson 4 Check, 377 Evidence-Based Assessment, 388–389
(S8P1.f) Construct an explanation based on evidence to describe conservation of matter in a chemical reaction including the resulting differences between products and reactants.	**SE/TE:** Model It!, 422 Chemical Reactions and Equations, 423 Law of Conservation of Mass. 424–425 Types of Chemical Reactions, 426 Lesson 3 Check, 427

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(S8P2) Obtain, evaluate, and communicate information about the law of conservation of energy to develop arguments that energy can transform from one form to another within a system.	
(S8P2.a) Analyze and interpret data to create graphical displays that illustrate the relationships of kinetic energy to mass and speed, and potential energy to mass and height of an object.	**SE/TE:** Mass, Speed, and Kinetic Energy, 102 Elastic Potential Energy, 105 Kinetic and Potential Energy, 120 Energy Transformation and Transfer, 121 Model It, 121 Evidence-Based Assessment, 130–131
(S8P2.b) Plan and carry out an investigation to explain the transformation between kinetic and potential energy within a system (e.g., roller coasters, pendulums, rubber bands, etc.).	**SE/TE:** Kinetic and Potential Energy, 120 Energy Transformation and Transfer, 121 Model It, 121 Energy Changes and the Law of Conservation, 122–124 3, 2, 1. . . Liftoff, 132–135
(S8P2.c) Construct an argument to support a claim about the type of energy transformations within a system [e.g., lighting a match (light to heat), turning on a light (electrical to light)].	**SE/TE:** Energy Conservation, 152 Question It!, 153 Lesson 3 Check, 165 Evidence-Based Assessment, 168–169
(S8P2.d) Plan and carry out investigations on the effects of heat transfer on molecular motion as it relates to the collision of atoms (conduction), through space (radiation), or in currents in a liquid or a gas (convection).	**SE/TE:** Graphing Changes in Temperature, 151 Question It, 153 Testing Thermal Conductivity, 170–173 Types of Heat Transfer, 149

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(S8P3) Obtain, evaluate, and communicate information about cause and effect relationships between force, mass, and the motion of objects.	
(S8P3.a) Analyze and interpret data to identify patterns in the relationships between speed and distance, and velocity and acceleration.	**SE/TE:** Calculating Speed, 459-461 Math Toolbox, 461 Calculating Speed From a Graph, 461 Determining Acceleration, 463–464 Figure 6, 464-465 Calculating Acceleration, 465 Graphing Acceleration, 466 Lesson 2 Check, 467 uDemonstrate Lab: Stopping on a Dime, 494-497
(S8P3.b) Construct an explanation using Newton's Laws of Motion to describe the effects of balanced and unbalanced forces on the motion of an object.	**SE/TE:** Using Newton's Second Law, 474 Question It, 477 Newton's Laws Together, 477 Lesson 3 Check, 478 Model It, 487 Evidence-Based Assessment, 492–493 How Forces Affect Motion, 453-455 Effects of Net Force, 456 Lesson 1 Check, 457 Newton's First Law of Motion, 471 Newton's Second Law of Motion, 472–474 Newton's Third Law of Motion, 475 Newton's Laws Together, 477 Lesson 3 check, 478 Evidence-Based Assessment, 492-493
(S8P3.c) Construct an argument from evidence to support the claim that the amount of force needed to accelerate an object is proportional to its mass (inertia).	**SE/TE:** Newton's Second Law of Motion, 472–474 Newton's Laws Together, 477 Quest Check-in, 478

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(S8P4) Obtain, evaluate, and communicate information to support the claim that electromagnetic (light) waves behave differently than mechanical (sound) waves.	
(S8P4.a) Ask questions to develop explanations about the similarities and differences between electromagnetic and mechanical waves.	**SE/TE:** Types of Waves, 179–181 Properties of Waves, 182–183 Case Study: Sound and Light at the Ballpark, 186–187 The Behavior of Sound, 199–201 Lesson 3 Check, 207 Characteristics of Electromagnetic Waves, 209 Wavelength and Frequency, 212
(S8P4.b) Construct an explanation using data to illustrate the relationship between the electromagnetic spectrum and energy.	**SE/TE:** Wavelength and Frequency, 212 The Electromagnetic Spectrum, 213–215 Lesson 4 Check, 216
(S8P4.c) Design a device to illustrate practical applications of the electromagnetic spectrum (e.g., communication, medical, military).	**SE/TE:** Say Cheese, 197 Electromagnetic Signals, 303 uDemonstrate Lab: Over and Out, 326-329
(S8P4.d) Develop and use a model to compare and contrast how light and sound waves are reflected, refracted, absorbed, diffracted or transmitted through various materials.	**SE/TE:** Types of Waves, 179–181 Reflection, Refraction, and Absorption ,189–191 Wave Interference, 192–193 Lesson 2 Check, 196 The Behavior of Sound, 199–201 Factors Affecting the Speed of Sound, 202 Lesson 3 Check, 207 Models of Electromagnetic Wave Behavior, 210–211 Reflecting Light, 222–224 Lenses, 225–226 Evidence-Based Assessment, 230–231
(S8P4.e) Analyze and interpret data to predict patterns in the relationship between density of media and wave behavior (i.e., speed).	**SE/TE:** Factors Affecting the Speed of Sound, 202 Loudness and Pitch, 203–205 Lesson 3 Check, 207 Making Waves, 232–233

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(S8P4.f) Develop and use a model (e.g., simulations, graphs, illustrations) to predict and describe the relationships between wave properties (e.g., frequency, amplitude, and wavelength) and energy.	**SE/TE:** Figure 2, 180 Hands-on Lab, 182 Lesson 1 Check, 185 Connect It!, 198 Model It!, 201 Figure 4, 203 The Doppler Effect, 206 Lesson 2 Check, 207 Making Waves, 232–235
(S8P4.g) Develop and use models to demonstrate the effects that lenses have on light (i.e., formation an image) and their possible technological applications.	**SE/TE:** Quest Kick-Off, 176 Lenses, 225–226 Figure 8, 225 Figure 9, 226 Lesson 5 Check, 227 Quest Check-In, 227 Quest Findings, 231
(S8P5) Obtain, evaluate, and communicate information about gravity, electricity, and magnetism as major forces acting in nature.	
(S8P5.a) Construct an argument using evidence to support the claim that fields (i.e., magnetic fields, gravitational fields, and electric fields) exist between objects exerting forces on each other even when the objects are not in contact.	**SE/TE:** Quest Kick-Off, 238 Question It, 243 Lesson 2 Check, 257 Evidence-Based Assessment, 280–281 Electric Force, Fields, and Energy, 241–243 Magnetic Fields, 253–255 Quest Check-In, 257
(S8P5.b) Plan and carry out investigations to demonstrate the distribution of charge in conductors and insulators.	**SE/TE:** For supporting content, please see: Parts of a Circuit, 291–293 Ohm's Law, 294
(S8P5.c) Plan and carry out investigations to identify the factors (e.g., distance between objects, magnetic force produced by an electromagnet with varying number of wire turns, varying number or size of dry cells, and varying size of iron core) that affect the strength of electric and magnetic forces.	**SE/TE:** Planetary Detective, 282–285 Magnetic Fields and Current, 260–261 Magnetic Force on Moving Charges, 267-269 Hands-on Lab, 269 Interactivity, 273 uDemonstrate Lab, 282-285