

8th Grade Science Curriculum 2022

Pacing Guide	Standard Code & Indicator	Sample Learning Activities	Assessment	Additional Standards
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<p>August-October</p> <p>Unit 1: Nature of Science and Scientific Inquiry</p> <p>Unit 2: Forces</p> <p>Unit 3: Waves</p>	<p>MS-PS2-1 Apply Newton’s Third Law to design a solution to a problem involving the motion of two colliding objects.</p> <p>MS-PS2-2 Plan an investigation to provide evidence that the change in an object’s motion depends on the sum of the forces on the object and the mass of the object.</p> <p>MS-PS4-1 Use mathematical representations to describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave.</p> <p>MS-PS4-2 Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials.</p> <p>MS-PS4-3 Integrate qualitative scientific and technical information to support the claim that digitized signals are a more reliable way to encode and transmit information than analog signals.</p>	<p>Lab Safety</p> <p>Science Practices</p> <p>Describe motion</p> <p>Explore Newton’s three laws</p> <p>Explain how forces interact & their effects</p> <p>Define the different types of waves & their properties</p> <p>Measure energy carried by waves</p> <p>Describe what happens when waves move from one medium to another</p> <p>Instructional Resources: <i>TCI NGSS Integrated Science</i></p> <p>Teacher Technology: Activ-Panel Activ-View Kahoot! Plickers</p> <p>Student Technology: Google Classroom Chromebooks</p>	<p>Formative Assessments: Quizzes Homework/Classwork Teacher Observation Student Participation Exit tickets</p> <p>Summative Assessments: Completed Labs Projects</p> <p>Benchmark Assessment: BOY Benchmark</p> <p>Accommodations and Modifications</p>	<p>Interdisciplinary Standard: W 8.1 Students will construct claims and support claims with specific supporting evidence.</p> <p>Technology Standard: 8.1.8.DA.1: Organize and transform data collected using computational tools to make it usable for a specific purpose.</p>
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<p>November-February</p> <p>Unit 4: Earth-Sun-Moon System</p> <p>Unit 5: Light Waves</p> <p>Unit 6: Gravity</p> <p>Unit 7: The Solar System</p>	<p>MS-ESS1-1 Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons.</p> <p>MS-PS4-2 Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials.</p> <p>MS-PS2-3 Ask questions about data to determine the factors that affect the strength of electric and magnetic forces.</p> <p>MS-PS2-4 Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects.</p> <p>MS-PS2-5 Conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact.</p> <p>MS-ESS1-2 Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.</p> <p>MS-ESS1-3 Analyze and interpret data to determine scale properties</p>	<p>Define Earth’s rotation and revolution</p> <p>Investigate how Earth’s tilted axis affects the seasons</p> <p>Identify the phases of the moon</p> <p>Explain eclipses</p> <p>Model light waves & their properties</p> <p>Explain non contact forces such as gravity, electricity, magnetism, & electromagnetism</p> <p>Determine factors that influence gravitational forces</p> <p>Identify characteristics of the inner and outer solar system</p> <p>Instructional Resources: <i>TCI NGSS Integrated Science</i></p> <p>Teacher Technology:</p>	<p>Formative Assessments: Quizzes Homework/Classwork Teacher Observation Student Participation Exit tickets</p> <p>Summative Assessments: Completed Labs Projects</p> <p>Accommodations and Modifications</p>	<p>Interdisciplinary Standard: W 8.1 Students will construct claims and support claims with specific supporting evidence.</p> <p>Technology Standard: 8.1.8.DA.1: Organize and transform data collected using computational tools to make it usable for a specific purpose.</p>
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<p>March - April</p> <p>Unit 8: Formation of the Solar System</p> <p>Unit 9: History of Life on Earth</p> <p>Unit 10: The Evolution of Life</p>	<p>MS-ESS1-2 Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.</p> <p>MS-ESS1-4 Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth’s 4.6-billion-year-old history.</p> <p>MS-LS4-1 Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth under the assumption that natural laws operate today as in the past.</p> <p>MS-LS4-2 Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships.</p> <p>MS-LS4-3 Analyze displays of pictorial data to compare patterns of similarities in the embryological development across multiple species to identify relationships not evident in the fully formed anatomy.</p> <p>MS-LS4-4 Construct an</p>	<p>Determine how the solar system formed Explain the relationships of celestial objects outside of the solar system</p> <p>Identify major events in Earth’s history</p> <p>Define mass extinctions and what fossils reveal about the history of life on Earth</p> <p>Interpret Darwin’s Theory of Natural Selection</p> <p>Explain how natural selection leads to traits that increase survival</p> <p>Determine how genes are related to traits</p> <p>Describe evolutionary relationships</p> <p>Instructional Resources: <i>TCI NGSS Integrated Science</i></p> <p>Teacher Technology: Activ-Panel Activ-View Kahoot! Google Earth</p> <p>Student Technology:</p>	<p>Formative Assessments: Quizzes Homework/Classwork Teacher Observation Student Participation Exit tickets</p> <p>Summative Assessments: Completed Labs Projects</p> <p>Accommodations and Modifications</p>	<p>Interdisciplinary Standard: Math EE B.5. Students will graph and analyze data collected/researched.</p> <p>Technology Standard: 8.1.8.DA.1: Organize and transform data collected using computational tools to make it usable for a specific purpose.</p>
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<p>April - June</p> <p>Unit 11: Kinetic and Potential Energy</p> <p>Unit 12: Human Impacts on Evolution</p> <p>Unit 13: Thermal Energy</p>	<p>MS-PS3-1 Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object.</p> <p>MS-PS3-2 Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system.</p> <p>MS-PS3-5 Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.</p> <p>MS-LS4-5 Gather and synthesize information about the technologies that have changed the way humans influence the inheritance of desired traits in organisms.</p> <p>MS-ESS3-4 Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.</p> <p>MS-PS3-3 Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer.</p> <p>MS-PS3-4 Plan an investigation to</p>	<p>Classify the forms of energy</p> <p>Measure kinetic energy</p> <p>Discover potential energy in systems</p> <p>Determine the difference between natural and artificial selection</p> <p>Explain how the human population is changing</p> <p>Relate thermal energy to heat & describe the thermal properties of matter</p> <p>Determine the advantages and disadvantages of sending messages with waves</p> <p>Analog vs. digital information</p> <p>Instructional Resources: <i>TCI NGSS Integrated Science</i></p> <p>Teacher Technology: Activ-Panel Activ-View Kahoot!</p> <p>Student Technology: Google Classroom</p>	<p>Formative Assessments: Quizzes Homework/Classwork Teacher Observation Student Participation Exit tickets</p> <p>Summative Assessments: Completed Labs Projects</p> <p>Benchmark Assessment: EOY Benchmark</p> <p>Accommodations and Modifications</p>	<p>Interdisciplinary Standard: RI.8.1 Students will read information on natural hazards to gather information and provide text based evidence of scientific findings</p> <p>Technology Standard: 8.1.8.DA.1: Organize and transform data collected using computational tools to make it usable for a specific purpose.</p>
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Alternate Assessments: Completed Labs and presentations, Worksheets/Activities

21st Century Standards: 9.2.8.B.3 and 9.1.8.A.3

21st Century Skills: Critical Thinking, Media Literacy, and Creativity

Career Ready Practices: CRP4, CRP5, CRP6, CRP7 AND CRP 12