

Oxford Area School District Science Scope and Sequence – Quarter 1:

Grade 8

Chemistry:

Properties of Matter

- 3.2.6.A1. Distinguish the differences in properties of solids, liquids and gases. Differentiate between volume and mass. Investigate that equal volumes of different substances usually have different masses.
- 3.2.7.A1. Differentiate between elements, compounds and mixtures. Identify groups of elements that have similar properties. Explain how materials are characterized by having a specific amount of mass in each unit of volume (density).
- 3.2.8.A1. Differentiate between mass and weight.

Chemistry:

Structure of Matter

- 3.2.6.A2. Compare and contrast pure substances with mixtures.
- 3.2.7.A2. Identify atoms as the basic building blocks of matter and that elements are composed of one type of atom.
- 3.2.8.A2. Identify characteristics of elements derived from the periodic table.

Chemistry:

Matter & Energy

- 3.2.6.A3. Explain and give examples of how mass is conserved in a closed system.
- 3.2.7.A3. Explain how energy transfer can affect the chemical and physical properties of matter.
- 3.2.8.A3. Explain how changes in matter are accompanied by changes in

Chemistry:

Reactions

- 3.2.6.A4. Differentiate between physical changes and chemical changes.
- 3.2.7.A4. Describe how reactants change into products in simple chemical reactions.
- 3.2.8.A4. Compare and contrast physical and chemical changes in terms of products.

Chemistry:

Unifying Themes

- 3.2.6.A5. **CONSTANCY AND CHANGE** Identify characteristic properties of matter that can be used to separate one substance from the other.

Chemistry:

Science as Inquiry

- 3.2.8.A6. See Science as Inquiry in the Introduction for grade level indicators.

Oxford Area School District Science Scope and Sequence – Quarter 2:

Grade 8

*Physics:
Force & Motion
of Particles and
Rigid Bodies*

- 3.2.5.B1. Explain how mass of an object resists change to motion.
- 3.2.6.B1. Explain how changes in motion require a force.
- 3.2.7.B1. Describe how unbalanced forces acting on an object change its velocity. Analyze how observations of displacement, velocity and acceleration provide necessary and sufficient evidence for the existence of forces.
- 3.2.8.B1. Explain how inertia is a measure of an object's mass. Explain how momentum is related to the forces acting on an object.

*Physics:
Energy Storage
and
Transformations:
Conservation Laws*

- 3.2.5.B2. Examine how energy can be transferred from one form to another.
- 3.2.6.B2. Describe energy as a property of objects associated with heat, light, electricity, magnetism, mechanical motion and sound. Differentiate between potential and kinetic energy.
- 3.2.7.B2. Describe how energy can be changed from one form to another (transformed) as it moves through a system or transferred from one system to another system.
- 3.2.8.B2. Identify situations where kinetic energy is transformed into potential energy and vice versa.

*Physics:
Heat &
Heat Transfer*

- 3.2.8.B3. Explain how changes in temperature are accompanied by changes in kinetic energy.

*Physics:
Electrical and
Magnetic
Energy*

- 3.2.8.B4. Compare and contrast atomic properties of conductors and insulators.

*Physics:
Unifying
Themes*

- 3.2.8.B6. PATTERNS Explain how physics principals underlie everyday phenomena and important technologies.

Oxford Area School District Science Scope and Sequence – Quarter 3:

Grade 8

*Humans
and the
Environment:
Sustainability*

- 4.5.6.A. Examine how historical events have shaped the sustainable use of natural resources.
- 4.5.7.A. Describe how the development of civilization affects the use of natural resources. Compare and contrast how people use natural resources in sustainable and non-sustainable ways throughout the world.
- 4.5.8.A. Explain how Best Management Practices (BMP) can be used to mitigate environmental problems.

Oxford Area School District Science Scope and Sequence – Quarter 4:

Grade 8

*Origin and
Evolution of
the Universe:
Composition
and Structure*

- 3.3.7.B1. Explain how gravity is the major force in the formation of the planets, stars and the solar system. Describe gravity as a major force in determining the motions of the planets, stars and solar system. Compare and contrast properties and conditions of objects in the solar system to those on Earth.
- 3.3.8.B1. Explain how light, measured remotely, can be used to classify objects in the universe.

*Origin and
Evolution of
the Universe:
Unifying Themes*

- 3.3.8.B2. SCALE AND MEASUREMENT Explain measurements and evidence indicating the age of the universe.

Chemistry: Properties of Matter**Big Idea: Matter has observable physical properties and the potential to mix and form new materials.**

3.2.6.A1. Distinguish the differences in properties of solids, liquids, and gases. Differentiate between volume and mass. Investigate that equal volumes of different substances usually have different masses.

3.2.7.A1. Differentiate between elements, compounds, and mixtures. Identify groups of elements that have similar properties. Explain how materials are characterized by having a specific amount of mass in each unit of volume (density).

3.2.8.A1. Differentiate between mass and weight.

Essential Question: How do scientists identify and sort materials?

Concepts	Competencies	Resources	Assessments
<p>S6.C.1.1.1 Describe how characteristic physical properties of matter can be used to distinguish one substance from another (e.g., boiling point, freezing /melting points).</p> <p>S6.C.1.1.2 Explain that materials are characterized by having a specific amount of mass in each unit of volume (density).</p> <p>S6.C.1.2.1 Describe how water changes from one state to another.</p> <p>S6.C.1.2.2 Identify differences between chemical and physical changes of matter.</p> <p>S7.C.1.1.1 Use characteristic physical or chemical properties of matter to distinguish one substance from another (e.g., density, freezing/melting points, solubility, ability to rust).</p> <p>S7.C.1.1.2 Recognize that the atom is the basic building block for all matter.</p> <p>S7.C.1.1.3 Explain the differences between elements, compounds, and mixtures</p> <p>S7.C.1.1.4 Describe the relationship between mass and volume as density.</p> <p>S8.C.1.1.1 Explain the differences among</p>	<p>CC.3.5.6-8.A. Cite specific textual evidence to support analysis of science and technical texts.</p> <p>CC.3.5.6-8.B. Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.</p> <p>CC.3.5.6-8.C. Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.</p> <p>CC.3.5.6-8.D. Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics.</p> <p>CC.3.5.6-8.G. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).</p> <p>CC.3.5.6-8.H. Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.</p> <p>CC.3.5.6-8.I. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.</p>	<p>Textbook: Matter & Energy Holt McDougal Unit 1 – Matter Unit 2 – Energy Unit 3 – Atoms & Periodic Table Unit 4 – Interactions of matter</p> <p>Textbook Experiments</p>	

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<p>elements, compounds, and mixtures.</p> <p>S8.C.1.1.2 Use characteristic physical or chemical properties to distinguish one substance from another (e.g., density, thermal expansion/contraction, freezing/melting points, streak test</p> <p>S8.C.1.1.3 Identify and describe reactants and products of simple chemical reactions.</p>	<p>CC.3.5.6-8.J. By the end of grade 8, read and comprehend science/technical texts in the grades 6–8 text complexity band independently and proficiently.</p> <p>CC.3.6.6-8.A. Write arguments focused on discipline-specific content. • Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically. • Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources. • Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence. • Establish and maintain a formal style. • Provide a concluding statement or section that follows from and supports the argument presented.</p> <p>CC.3.6.6-8.B. * Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. • Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. • Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples. • Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts. • Use precise language and domain-specific vocabulary to inform about or explain the topic. • Establish and maintain a formal style and objective tone. • Provide a concluding statement or section that follows from and supports the information or explanation presented.</p> <p>CC.3.6.6-8.C. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p> <p>CC.3.6.6-8.D. With some guidance and support</p>		
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	<p>from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.</p> <p>CC.3.6.6-8.E. Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.</p> <p>CC.3.6.6-8.F. Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.</p> <p>CC.3.6.6-8.G. Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.</p> <p>CC.3.6.6-8.H. Draw evidence from informational texts to support analysis, reflection, and research</p> <p>CC.3.6.6-8.J.I. Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.</p>		
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Vocabulary
 Matter, Mass, Weight, Volume, Density, Physical Property, Chemical Property, Physical Change, Chemical Change, Law of Conservation of Mass, Atom, Element, Compound, Mixture, Pure Substance, Heterogeneous, Homogenous, Solid, Liquid, Gas, Freezing, Melting, Evaporation, Boiling, Condensation, Sublimation, Deposition, Electron, Neutron, Proton, Nucleus, Electron Cloud, Atomic Number, Mass Number, Periodic Table, Chemical Symbol, Average Atomic Mass, Metal, Nonmetal, Metalloid, Group, Period, Chemical Bond, Valence Electron

Chemistry: Structure of Matter			
Big Idea: Matter has observable physical properties and the potential to mix and form new materials.			
<p>3.2.6.A2. Compare and contrast pure substances with mixtures. 3.2.7.A2. Identify atoms as the basic building blocks of matter and that elements are composed of one type of atom. 3.2.8.A2. Identify characteristics of elements derived from the periodic table.</p>		<p>Essential Question: How do scientists identify and sort materials?</p>	
Concepts	Competencies	Resources	Assessments
<p>S6.C.1.1.1 Describe how characteristic physical properties of matter can be used to distinguish one substance from another (e.g., boiling point, freezing/melting points).</p> <p>S6.C.1.1.2 Explain that materials are characterized by having a specific amount of mass in each unit of volume (density).</p> <p>S6.C.1.2.1 Describe how water changes from one state to another.</p> <p>S6.C.1.2.2 Identify differences between chemical and physical changes of matter.</p> <p>S7.C.1.1.1 Use characteristic physical or chemical properties of matter to distinguish one substance from another (e.g., density, freezing/melting points, solubility, ability to rust).</p> <p>S7.C.1.1.2 Recognize that the atom is the basic building block for all matter.</p> <p>S7.C.1.1.3 Explain the differences between elements, compounds, and mixtures.</p> <p>S7.C.1.1.4 Describe the relationship between mass and volume as density.</p> <p>S7.C.1.2.1 Identify the reactants and products of simple chemical reactions (e.g., photosynthesis, cellular respiration).</p> <p>S7.C.1.2.2 Compare the behavior of particle motion in solids, liquids, and</p>	<p>CC.3.5.6-8.A. Cite specific textual evidence to support analysis of science and technical texts.</p> <p>CC.3.5.6-8.B. Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.</p> <p>CC.3.5.6-8.C. Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.</p> <p>CC.3.5.6-8.D. Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics.</p> <p>CC.3.5.6-8.G. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).</p> <p>CC.3.5.6-8.H. Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.</p> <p>CC.3.5.6-8.I. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.</p> <p>CC.3.5.6-8.J. By the end of grade 8, read and comprehend science/technical texts in the grades 6–8 text complexity band</p>	<p>Textbook: Matter & Energy Holt McDougal Unit 1 – Matter Unit 2 – Energy Unit 3 – Atoms & Periodic Table Unit 4 – Interactions of matter</p> <p>Textbook Experiments</p>	

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<p>gasses.</p> <p>S8.C.1.1.1 Explain the differences among elements, compounds, and mixtures.</p> <p>S8.C.1.1.2 Use characteristic physical or chemical properties to distinguish one substance from another (e.g., density, thermal expansion/contraction, freezing/melting points, streak test</p> <p>S8.C.1.1.3 Identify and describe reactants and products of simple chemical reactions.</p>	<p>independently and proficiently.</p> <p>CC.3.6.6-8.A. Write arguments focused on discipline-specific content. • Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically. • Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources. • Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence. • Establish and maintain a formal style. • Provide a concluding statement or section that follows from and supports the argument presented.</p> <p>CC.3.6.6-8.B. * Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. • Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. • Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples. • Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts. • Use precise language and domain-specific vocabulary to inform about or explain the topic. • Establish and maintain a formal style and objective tone. • Provide a concluding statement or section that follows from and supports the information or explanation presented.</p> <p>CC.3.6.6-8.C. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p> <p>CC.3.6.6-8.D. With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach,</p>		
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Chemistry: Matter & Energy**Big Idea: Matter has observable physical properties and the potential to mix and form new materials.**

3.2.6.A3. Explain and give examples of how mass is conserved in a closed system.

3.2.7.A3. Explain how energy transfer can affect the chemical and physical properties of matter.

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Essential Question: How do scientists identify and sort materials?

Concepts	Competencies	Resources	Assessments
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Chemistry: Reactions**Big Idea: Matter has observable physical properties and the potential to mix and form new materials.**

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3.2.6.A5. **CONSTANCY AND CHANGE** Identify characteristic properties of matter that can be used to separate one substance from the other.

Essential Question: How do scientists identify and sort materials?

Concepts	Competencies	Resources	Assessments
<p>S6.C.1.1.1 Describe how characteristic physical properties of matter can be used to distinguish one substance from another (e.g., boiling point, freezing/melting points).</p> <p>S6.C.1.1.2 Explain that materials are characterized by having a specific amount of mass in each unit of volume (density).</p> <p>S6.C.1.2.1 Describe how water changes from one state to another.</p> <p>S6.C.1.2.2 Identify differences between chemical and physical changes of matter.</p> <p>S7.C.1.1.1 Use characteristic physical or chemical properties of matter to distinguish one substance from another (e.g., density, freezing/melting points, solubility, ability to rust).</p> <p>S7.C.1.1.2 Recognize that the atom is the basic building block for all matter.</p> <p>S7.C.1.1.3 Explain the differences between elements, compounds, and mixtures.</p> <p>S7.C.1.1.4 Describe the relationship between mass and volume as density.</p> <p>S7.C.1.2.1 Identify the reactants and products of simple chemical reactions (e.g., photosynthesis, cellular respiration).</p>	<p>CC.3.5.6-8.A. Cite specific textual evidence to support analysis of science and technical texts.</p> <p>CC.3.5.6-8.B. Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.</p> <p>CC.3.5.6-8.C. Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.</p> <p>CC.3.5.6-8.D. Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics.</p> <p>CC.3.5.6-8.G. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).</p> <p>CC.3.5.6-8.H. Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.</p> <p>CC.3.5.6-8.I. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.</p> <p>CC.3.5.6-8.J. By the end of grade 8, read and comprehend science/technical texts in the</p>	<p>Textbook: Matter & Energy Holt McDougal Unit 1 – Matter Unit 2 – Energy Unit 3 – Atoms & Periodic Table Unit 4 – Interactions of matter</p> <p>Textbook Experiments</p>	

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<p>S7.C.1.2.2 Compare the behavior of particle motion in solids, liquids, and gasses.</p> <p>S8.C.1.1.1 Explain the differences among elements, compounds, and mixtures.</p> <p>S8.C.1.1.2 Use characteristic physical or chemical properties to distinguish one substance from another (e.g., density, thermal expansion/contraction, freezing/melting points, streak test)</p> <p>S8.C.1.1.3 Identify and describe reactants and products of simple chemical reactions.</p>	<p>grades 6–8 text complexity band independently and proficiently.</p> <p>CC.3.6-8.A. Write arguments focused on discipline-specific content. • Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically. • Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources. • Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence. • Establish and maintain a formal style. • Provide a concluding statement or section that follows from and supports the argument presented.</p> <p>CC.3.6-8.B. * Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. • Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. • Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples. • Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts. • Use precise language and domain-specific vocabulary to inform about or explain the topic. • Establish and maintain a formal style and objective tone. • Provide a concluding statement or section that follows from and supports the information or explanation presented.</p> <p>CC.3.6-8.C. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p> <p>CC.3.6-8.D. With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising,</p>		
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	<p>editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.</p> <p>CC.3.6.6-8.E. Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.</p> <p>CC.3.6.6-8.F. Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.</p> <p>CC.3.6.6-8.G. Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.</p> <p>CC.3.6.6-8.H. Draw evidence from informational texts to support analysis reflection, and research</p> <p>CC.3.6.6-8.J.I. Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.</p>		
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Vocabulary
Matter, Mass, Weight, Volume, Density, Physical Property, Chemical Property, Physical Change, Chemical Change, Law of Conservation of Mass, Atom, Element, Compound, Mixture, Pure Substance, Heterogeneous, Homogenous, Solid, Liquid, Gas, Freezing, Melting, Evaporation, Boiling, Condensation, Sublimation, Deposition, Electron, Neutron, Proton, Nucleus, Electron Cloud, Atomic Number, Mass Number, Periodic Table, Chemical Symbol, Average Atomic Mass, Metal, Nonmetal, Metalloid, Group, Period, Chemical Bond, Valence Electron

Physics: Force & Motion of Particles and Rigid Bodies

Big Idea: An object’s motion is the result of all forces acting on it.

3.2.5.B1. Explain how mass of an object resists change to motion.
3.2.6.B1. Explain how changes in motion require a force.
3.2.7.B1. Describe how unbalanced forces acting on an object change its velocity. Analyze how observations of displacement, velocity, and acceleration provide necessary and sufficient evidence for the existence of forces
3.2.8.B1. Explain how inertia is a measure of an object’s mass. Explain how momentum is related to the forces acting on an object.

Essential Question: What causes objects to move?

Concepts	Competencies	Resources	Assessments
<p>S5.C.2.1.1 Describe how energy exists in many forms (e.g., electrical, mechanical, chemical, heat, light, sound) and can be transformed within a system.</p> <p>S5.C.2.1.2 Describe how heat energy is usually a byproduct of an energy transformation.</p> <p>S5.C.2.1.3 Distinguish between kinetic and potential energy.</p> <p>S5.C.2.1.4 Explain how energy is conserved.</p> <p>S5.C.3.1.1 Differentiate between the mass and weight of an object.</p> <p>S5.C.3.1.2 Explain how the mass of an object resists change to motion (inertia).</p> <p>S5.C.3.2.1 Recognize that moving electric charges produce magnetic forces and moving magnets produce electric forces (electromagnetism).</p> <p>S5.C.3.2.2 Identify the variables within an electric current (i.e., voltage, current, and resistance).</p> <p>S6.C.2.1.1 Describe how heat moves in predictable ways from warmer objects to cooler ones until they reach the same</p>	<p>CC.3.5.6-8.A. Cite specific textual evidence to support analysis of science and technical texts.</p> <p>CC.3.5.6-8.B. Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.</p> <p>CC.3.5.6-8.C. Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.</p> <p>CC.3.5.6-8.D. Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics.</p> <p>CC.3.5.6-8.G. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).</p> <p>CC.3.5.6-8.H. Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.</p> <p>CC.3.5.6-8.I. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.</p> <p>CC.3.5.6-8.J. By the end of grade 8, read and comprehend science/technical texts in the</p>	<p>Textbook: Motion, Forces & Energy Holt McDougal Unit 1 – Motion & Forces Unit 2 – Work, Energy & machines Unit 3 – Electricity & Machines Unit 4 – Interactions of matter</p> <p>Textbook Experiments</p>	

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<p>temperature.</p> <p>S6.C.2.1.2 Describe the effect of heat on particle motion during phase changes.</p> <p>S6.C.2.1.3 Compare various energy sources (i.e., oil, coal, natural gas, solar, wind, and moving water) and describe how these energy sources are transformed into useful forms of energy.</p> <p>S6.C.3.1.1 Compare speed and velocity.</p> <p>S6.C.3.1.2 Explain why gravitational force depends on how much mass the objects have and the distance between them.</p> <p>S6.C.3.2.3 Distinguish between gravity and electromagnetism.</p> <p>S7.C.2.1.1 Describe how energy is obtained and used by organisms throughout their lives.</p> <p>S7.C.2.1.2 Describe how energy is transferred and conserved in a closed system.</p> <p>S8.A.3.3.1 Identify and describe patterns as repeated processes or recurring elements in human-made systems (e.g., trusses, hub-and-spoke system in communications and transportation systems, feedback controls in regulated systems).</p> <p>S8.A.3.3.2 Describe repeating structure patterns in nature (e.g., veins in a leaf, tree rings, crystals, water waves) or periodic patterns (e.g., daily, monthly, annually).</p> <p>S8.C.2.1.1 Distinguish among forms of energy (e.g., electrical, mechanical, chemical, light, sound, nuclear) and sources of energy (i.e., renewable and nonrenewable energy)</p> <p>S8.C.2.1.2 Explain how energy is transferred from one place to another</p>	<p>grades 6–8 text complexity band independently and proficiently.</p> <p>CC.3.6.6-8.A. Write arguments focused on discipline-specific content. • Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically. • Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources. • Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence. • Establish and maintain a formal style. • Provide a concluding statement or section that follows from and supports the argument presented.</p> <p>CC.3.6.6-8.B. * Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. • Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. • Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples. • Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts. • Use precise language and domain-specific vocabulary to inform about or explain the topic. • Establish and maintain a formal style and objective tone. • Provide a concluding statement or section that follows from and supports the information or explanation presented.</p> <p>CC.3.6.6-8.C. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p> <p>CC.3.6.6-8.D. With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising,</p>		
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<p>through convection, conduction, or radiation.</p> <p>S8.C.2.1.3 Describe how one form of energy (e.g., electrical, mechanical, chemical, light, sound, nuclear) can be converted into a different form of energy.</p> <p>S8.C.3.1.1 Describe forces acting on objects (e.g., friction, gravity, balanced versus unbalanced).</p> <p>S8.C.3.1.2 Distinguish between kinetic and potential energy.</p> <p>S8.C.3.1.3 Explain that mechanical advantage helps to do work (physics) by either changing a force or changing the direction of the applied force (e.g., simple machines, hydraulic systems).</p>	<p>editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.</p> <p>CC.3.6.6-8.E. Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.</p> <p>CC.3.6.6-8.F. Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.</p> <p>CC.3.6.6-8.G. Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.</p> <p>CC.3.6.6-8.H. Draw evidence from informational texts to support analysis reflection, and research</p> <p>CC.3.6.6-8.J.I. Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.</p>		
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Vocabulary
 Position, Reference Point, Motion, Speed, Vector, Velocity, Acceleration, Centripetal Acceleration, Force, Net Force, Inertia, Gravity, Free Fall, Orbit, Fluid, Pressure, Pascal, Atmospheric Pressure, Buoyant Force, Archimedes' Principle, Work, Energy, Power, Kinetic Energy, Potential Energy, Mechanical Energy

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Physics: Energy Storage and Transformations: Conservation laws

Big Idea: An object’s motion is the result of all forces acting on it.

3.2.5.B2. Examine how energy can be transferred from one form to another.

3.2.6.B2. Describe energy as a property of objects associated with heat, light, electricity, magnetism, mechanical motion, and sound. Differentiate between potential and kinetic energy.

3.2.7.B2. Describe how energy can be changed from one form to another (transformed) as it moves through a system or transferred from one system to another system.

3.2.8.B2. Identify situations where kinetic energy is transformed into potential energy, and vice versa.

Essential Question: What causes objects to move?

Concepts	Competencies	Resources	Assessments
<p>S5.C.2.1.1 Describe how energy exists in many forms (e.g., electrical, mechanical, chemical, heat, light, sound) and can be transformed within a system.</p> <p>S5.C.2.1.2 Describe how heat energy is usually a byproduct of an energy transformation.</p> <p>S5.C.2.1.3 Distinguish between kinetic and potential energy.</p> <p>S5.C.2.1.4 Explain how energy is conserved.</p> <p>S5.C.3.1.1 Differentiate between the mass and weight of an object.</p> <p>S5.C.3.1.2 Explain how the mass of an object resists change to motion (inertia).</p> <p>S5.C.3.2.1 Recognize that moving electric charges produce magnetic forces and moving magnets produce electric forces (electromagnetism).</p> <p>S5.C.3.2.2 Identify the variables within an electric current (i.e., voltage, current, and</p>	<p>CC.3.5.6-8.A. Cite specific textual evidence to support analysis of science and technical texts.</p> <p>CC.3.5.6-8.B. Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.</p> <p>CC.3.5.6-8.C. Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.</p> <p>CC.3.5.6-8.D. Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics.</p> <p>CC.3.5.6-8.G. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).</p> <p>CC.3.5.6-8.H. Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.</p> <p>CC.3.5.6-8.I. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with</p>	<p>Textbook: Matter & Energy Holt McDougal Unit 2 – Energy</p> <p>Textbook: Motion, Forces & Energy Holt McDougal Unit 2 – Work, Energy & machines</p> <p>Textbook Experiments</p>	

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<p>resistance).</p> <p>S6.C.2.1.1 Describe how heat moves in predictable ways from warmer objects to cooler ones until they reach the same temperature.</p> <p>S6.C.2.1.2 Describe the effect of heat on particle motion during phase changes.</p> <p>S6.C.2.1.3 Compare various energy sources (i.e., oil, coal, natural gas, solar, wind, and moving water) and describe how these energy sources are transformed into useful forms of energy.</p> <p>S6.C.3.1.1 Compare speed and velocity.</p> <p>S6.C.3.1.2 Explain why gravitational force depends on how much mass the objects have and the distance between them.</p> <p>S6.C.3.2.1 Describe how moving electric charges produce magnetic forces and moving magnets produce electric forces.</p> <p>S6.C.3.2.2 Describe the relationships between voltage, current, and resistance (Ohm's Law).</p> <p>S6.C.3.2.3 Distinguish between gravity and electromagnetism.</p> <p>S7.C.2.1.1 Describe how energy is obtained and used by organisms throughout their lives.</p> <p>S7.C.2.1.2 Describe how energy is transferred and conserved in a closed system.</p> <p>S7.C.2.1.3 Describe energy transformations within an ecosystem.</p> <p>S7.C.3.1.1 Describe how unbalanced forces acting on an object change its velocity.</p>	<p>that gained from reading a text on the same topic.</p> <p>CC.3.5.6-8.J. By the end of grade 8, read and comprehend science/technical texts in the grades 6–8 text complexity band independently and proficiently.</p> <p>CC.3.6.6-8.A. Write arguments focused on discipline-specific content. • Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically. • Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources. • Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence. • Establish and maintain a formal style. • Provide a concluding statement or section that follows from and supports the argument presented.</p> <p>CC.3.6.6-8.B. * Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. • Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. • Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples. • Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts. • Use precise language and domain-specific vocabulary to inform about or explain the topic. • Establish and maintain a formal style and objective tone. • Provide a concluding statement or section that follows from and supports the information or explanation presented.</p> <p>CC.3.6.6-8.C. Produce clear and coherent writing in which the development, organization, and style are appropriate to task,</p>		
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<p>S7.C.3.1.2 Describe forces acting on an object (e.g., friction, gravity, balanced verses unbalanced).</p> <p>S7.C.3.1.3 Explain the mechanical advantages of simple machines.</p> <p>S8.A.3.3.1 Identify and describe patterns as repeated processes or recurring elements in human-made systems (e.g., trusses, hub-and-spoke system in communications and transportation systems, feedback controls in regulated systems).</p> <p>S8.A.3.3.2 Describe repeating structure patterns in nature (e.g., veins in a leaf, tree rings, crystals, water waves) or periodic patterns (e.g., daily, monthly, annually).</p> <p>S8.C.2.1.1 Distinguish among forms of energy (e.g., electrical, mechanical, chemical, light, sound, nuclear) and sources of energy (i.e., renewable and nonrenewable energy)</p> <p>S8.C.2.1.2 Explain how energy is transferred from one place to another through convection, conduction, or radiation.</p> <p>S8.C.2.1.3 Describe how one form of energy (e.g., electrical, mechanical, chemical, light, sound, nuclear) can be converted into a different form of energy.</p> <p>S8.C.3.1.1 Describe forces acting on objects (e.g., friction, gravity, balanced versus unbalanced).</p> <p>S8.C.3.1.2 Distinguish between kinetic and potential energy.</p> <p>S8.C.3.1.3 Explain that mechanical advantage helps to do work (physics) by either changing a force or changing the direction of the applied force (e.g., simple machines, hydraulic systems).</p>	<p>purpose, and audience.</p> <p>CC.3.6.6-8.D. With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.</p> <p>CC.3.6.6-8.E. Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.</p> <p>CC.3.6.6-8.F. Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.</p> <p>CC.3.6.6-8.G. Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.</p> <p>CC.3.6.6-8.H. Draw evidence from informational texts to support analysis reflection, and research</p> <p>CC.3.6.6-8.J.I. Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.</p>		
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Vocabulary

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Physics: Heat/Heat Transfer			
Big Idea: Elements have specific properties organized on the Periodic Table			
<p>3.2.6.A2. Compare and contrast pure substances with mixtures.</p> <p>3.2.7.A2. Identify atoms as the basic building blocks of matter and that elements are composed of one type of atom.</p> <p>3.2.8.A2. Identify characteristics of elements derived from the periodic table.</p>		Essential Question: How do scientists identify and sort materials?	
Concepts	Competencies	Resources	Assessments
<p>S6.C.1.1.1 Describe how characteristic physical properties of matter can be used to distinguish one substance from another (e.g., boiling point, freezing/melting points).</p> <p>S6.C.1.1.2 Explain that materials are characterized by having a specific amount of mass in each unit of volume (density).</p> <p>S6.C.1.2.1 Describe how water changes from one state to another.</p> <p>S6.C.1.2.2 Identify differences between chemical and physical changes of matter.</p> <p>S7.C.1.1.1 Use characteristic physical or chemical properties of matter to distinguish one substance from another (e.g., density, freezing/melting points, solubility, ability to rust).</p> <p>S7.C.1.1.2 Recognize that the atom is the basic building block for all matter.</p> <p>S7.C.1.1.3 Explain the differences between elements, compounds, and mixtures.</p> <p>S7.C.1.1.4 Describe the relationship between mass and volume as density.</p> <p>S7.C.1.2.1 Identify the reactants and products of simple chemical reactions (e.g., photosynthesis, cellular respiration).</p> <p>S7.C.1.2.2 Compare the behavior of particle motion in solids, liquids, and gasses.</p> <p>S8.C.1.1.1 Explain the differences among</p>	<p>CC.3.5.6-8.A. Cite specific textual evidence to support analysis of science and technical texts.</p> <p>CC.3.5.6-8.B. Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.</p> <p>CC.3.5.6-8.C. Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.</p> <p>CC.3.5.6-8.D. Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics.</p> <p>CC.3.5.6-8.G. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).</p> <p>CC.3.5.6-8.H. Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.</p> <p>CC.3.5.6-8.I. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.</p> <p>CC.3.5.6-8.J. By the end of grade 8, read and comprehend science/technical texts in the grades 6–8 text complexity band independently and proficiently.</p> <p>CC.3.6.6-8.A. Write arguments focused on</p>	<p>Textbook: Matter & Energy Holt McDougal Unit 1 – Matter Unit 2 – Energy Unit 3 – Atoms & Periodic Table Unit 4 – Interactions of matter</p> <p>Textbook Experiments</p>	

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<p>elements, compounds, and mixtures.</p> <p>S8.C.1.1.2 Use characteristic physical or chemical properties to distinguish one substance from another (e.g., density, thermal expansion/contraction, freezing/melting points, streak test</p> <p>S8.C.1.1.3 Identify and describe reactants and products of simple chemical reactions.</p>	<p>discipline-specific content. • Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically. • Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources. • Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence. • Establish and maintain a formal style. • Provide a concluding statement or section that follows from and supports the argument presented.</p> <p>CC.3.6.6-8.B. * Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. • Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. • Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples. • Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts. • Use precise language and domain-specific vocabulary to inform about or explain the topic. • Establish and maintain a formal style and objective tone. • Provide a concluding statement or section that follows from and supports the information or explanation presented.</p> <p>CC.3.6.6-8.C. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p> <p>CC.3.6.6-8.D. With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.</p>		
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Grade 8 Science

	<p>CC.3.6.6-8.E. Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.</p> <p>CC.3.6.6-8.F. Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.</p> <p>CC.3.6.6-8.G. Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.</p> <p>CC.3.6.6-8.H. Draw evidence from informational texts to support analysis reflection, and research</p> <p>CC.3.6.6-8.I. Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.</p>		
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Vocabulary
Position, Reference Point, Motion, Speed, Vector, Velocity, Acceleration, Centripetal Acceleration, Force, Net Force, Inertia, Gravity, Free Fall, Orbit, Fluid, Pressure, Pascal, Atmospheric Pressure, Buoyant Force, Archimedes' Principle, Work, Energy, Power, Kinetic Energy, Potential Energy, Mechanical Energy

Humans & Environment: Impact on Natural Resources			
Big Idea: Human activities have impacted our natural resources			
		Essential Question: How have humans impacted our natural resources?	
Concepts	Competencies	Resources	Assessments
<p>S6.B.3.2.1 Compare the usage of fossil fuels and alternative energy resources (e.g., oil, natural gas, coal, wind, solar, water).</p> <p>S7.B.3.3.1 Explain how renewable and/or nonrenewable resources provide for human needs (i.e., energy, food, water, clothing, and shelter).</p> <p>S7.B.3.3.2 Explain how the use of renewable and/or nonrenewable resources affects the environment.</p> <p>S8.A.1.2.2 Identify environmental issues and explain their potential long-term health effects (e.g., pollution, pest controls, vaccinations).</p> <p>S8.A.1.2.3 Describe fundamental scientific or technological concepts that could solve practical problems (e.g., Newton’s laws of motion, Mendelian genetics).</p> <p>S8.A.1.2.4 Explain society’s standard of living in terms of technological advancements and how these advancements impact on agriculture (e.g., transportation, processing, production, storage).</p>	<p>CC.3.5.6-8.A. Cite specific textual evidence to support analysis of science and technical texts.</p> <p>CC.3.5.6-8.B. Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.</p> <p>CC.3.5.6-8.C. Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.</p> <p>CC.3.5.6-8.D. Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics.</p> <p>CC.3.5.6-8.G. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).</p> <p>CC.3.5.6-8.H. Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.</p> <p>CC.3.5.6-8.I. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.</p> <p>CC.3.5.6-8.J. By the end of grade 8, read and comprehend science/technical texts in the grades 6–8 text complexity band independently and proficiently.</p> <p>CC.3.6-8.A. Write arguments focused on discipline-specific content. • Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and</p>	<p>Textbook: Matter & Energy Holt McDougal</p> <p>Unit 2 – Energy</p> <p>Textbook Experiments</p>	

	<p>evidence logically. • Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources. • Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence. • Establish and maintain a formal style. • Provide a concluding statement or section that follows from and supports the argument presented.</p> <p>CC.3.6.6-8.B. * Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. • Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. • Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples. • Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts. • Use precise language and domain-specific vocabulary to inform about or explain the topic. • Establish and maintain a formal style and objective tone. • Provide a concluding statement or section that follows from and supports the information or explanation presented.</p> <p>CC.3.6.6-8.C. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p> <p>CC.3.6.6-8.D. With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.</p> <p>CC.3.6.6-8.E. Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.</p>		
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Grade 8 Science

	<p>CC.3.6.6-8.F. Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.</p> <p>CC.3.6.6-8.G. Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.</p> <p>CC.3.6.6-8.H. Draw evidence from informational texts to support analysis reflection, and research</p> <p>CC.3.6.6-8.J.I. Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.</p>		
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Astronomy: Origin and Evolution of The Universe			
Big Idea: Composition and Structure of the Universe			
<p>3.3.7.B1 Explain how gravity is the major force in the formation of planets, stars, and the solar system. Describe gravity as a major force in determining the motion of the planets, stars and the solar system. Compare and contrast properties and conditions of objects in the solar system to those on Earth.</p> <p>3.3.8.B1 Explain how Light, measured remotely, can be used to classify objects in the universe.</p>		<p>Essential Question: How is the Solar System organized?</p>	
Concepts	Competencies	Resources	Assessments
<p>S8.D.3.1.1 Describe patterns of earth’s movements (i.e., rotation and revolution) in relation to the moon and sun (i.e., phases, eclipses, and tides)</p> <p>S8.D.3.1.2 Describe the role of gravity as the force that governs the movement of the solar system and universe.</p> <p>S8.D.3.1.3 Compare and contrast characteristics of celestial bodies found in the solar system (e.g., moons, asteroids, comets, meteors, inner and outer planets).</p>	<p>CC.3.5.6-8.A. Cite specific textual evidence to support analysis of science and technical texts.</p> <p>CC.3.5.6-8.B. Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.</p> <p>CC.3.5.6-8.C. Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.</p> <p>CC.3.5.6-8.D. Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics.</p> <p>CC.3.5.6-8.G. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).</p> <p>CC.3.5.6-8.H. Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.</p> <p>CC.3.5.6-8.I. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.</p> <p>CC.3.5.6-8.J. By the end of grade 8, read and</p>	<p>Textbook: Motion, Forces & Energy Holt McDougal Unit 1 – Motion & Forces</p> <p>Textbook: Astronomy (Classroom Set) Pearson</p> <p>Textbook Experiments</p>	

	<p>comprehend science/technical texts in the grades 6–8 text complexity band independently and proficiently.</p> <p>CC.3.6-8.A. Write arguments focused on discipline-specific content. • Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically. • Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources. • Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence. • Establish and maintain a formal style. • Provide a concluding statement or section that follows from and supports the argument presented.</p> <p>CC.3.6-8.B. * Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. • Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. • Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples. • Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts. • Use precise language and domain-specific vocabulary to inform about or explain the topic. • Establish and maintain a formal style and objective tone. • Provide a concluding statement or section that follows from and supports the information or explanation presented.</p> <p>CC.3.6-8.C. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p> <p>CC.3.6-8.D. With some guidance and support from peers and adults, develop and strengthen</p>		
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Grade 8 Science

	<p>writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.</p> <p>CC.3.6.6-8.E. Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.</p> <p>CC.3.6.6-8.F. Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.</p> <p>CC.3.6.6-8.G. Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.</p> <p>CC.3.6.6-8.H. Draw evidence from informational texts to support analysis reflection, and research</p> <p>CC.3.6.6-8.J.I. Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.</p>		
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Vocabulary

Satellite, Comet, Meteor, Planet, Star, Axis, Rotation, Revolution, Orbit, Calendar, Solstice, Equinox, Satellite, Space Shuttle, Space Station, Space Probe, Rover, Geocentric, Heliocentric, Ellipse, Solar System, Planet, Dwarf Planet, Planetesimal, Terrestrial Planet, Greenhouse Effect, Gas Giant, Ring, Parallax, Universe, Light-Year, Scientific Notation, Spectrograph, Apparent Brightness, Absolute Brightness, Hertzsprung-Russell Diagram, Main Sequence, Nebular, Protostar, White Dwarf, Supernova, Neutron Star, Pulsar, Black Hole