Green Township School District Grade 8 Science Curriculum - Revised 2017

Pacing: 3 weeks		**Unit 1: Motion and Forces: Density and Motion**
Standards and Suggested Activities		**Skills and Knowledge**
MS-PS1-1. Develop models to describe the atomic composition of simple molecules and extended structures. 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.	• Kinesthetic activities • Classroom demonstrations • Velocity lab • Acceleration lab • Graphing activities	Students will be able to: • demonstrate the ability to accurately measure in metric linear, mass, and volume units following appropriate lab techniques. • measure and calculate the the density of various objects • compare the density of water to that of other materials. • differentiate between mass and weight. • describe an object's motion in terms of speed, velocity, and displacement. • define acceleration in terms of the rate of change of velocity of an object. • construct and interpret velocity and acceleration graphs.
District/School Formative Assessment Plan		**District/School Summative Assessment Plan**
• Class discussions in which student share prior knowledge		• Teacher-created quizzes • Teacher-created unit assessments • Labs
Core Instructional Materials		**District/School Supplementary Resources**
• *Glencoe iScience Physical Science Series* (Mcgraw-Hill Companies, Inc. 2012)		• Discovery Education videos • Glencoe ConnectEd online resources

Interdisciplinary Connections throughout the K-12 Curriculum

Mathematics
MP.2 *Reason abstractly and quantitatively. (MS-PS1-1)*

Green Township School District Grade 8 Science Curriculum - Revised 2017 (cont.)

MP.4 *Model with mathematics. (MS-PS1-1)*
7.G.B.6 *Solve real-world and mathematical problems involving area, volume and surface area of two and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.*
6.RP.A.3 *Use ratio and rate reasoning to solve real-world and mathematical problems. (MS-PS1-1)*
8.EE.A.3 *Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. (MS-PS1-1)*

English-Language Arts:
RI.8.4. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of specific word choices on meaning and tone, including analogies or allusions to other texts.
RI.8.5. Analyze the structure an author uses to organize a specific paragraph in a text, including the role of particular sentences, to develop and to refine a key concept.
RI.8.6. Determine an author's point of view or purpose in a text and analyze how the author acknowledges and responds to conflicting evidence or viewpoints.
RI.8.7. Evaluate the advantages and disadvantages of using different mediums (e.g., print or digital text, video, multimedia) to present a particular topic or idea.
W.8.2. Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
A. Introduce a topic and organize ideas, concepts, and information, using text structures (e.g., definition, classification, comparison/contrast, cause/effect, etc.) and text features (e.g., headings, graphics, and multimedia).
B. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.
C. Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts.
D. Use precise language and domain-specific vocabulary to inform about or explain the topic.
E. Establish and maintain a formal style/academic style, approach, and form.
F. Provide a concluding statement or section that follows from and supports the information or explanation presented.
W.8.4. Produce clear and coherent writing in which the development, organization, voice and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)
W.8.5. 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.
W.8.6. Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas efficiently as well as to interact and collaborate with others.
W.8.7. 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.
SL.8.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly.
A. Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion.
B. Follow rules for collegial discussions and decision-making, track progress toward specific goals and deadlines, and define individual roles as needed.
C. Pose questions that connect the ideas of several speakers and respond to others' questions and comments with relevant evidence, observations, and ideas.
D. Acknowledge new information expressed by others, and, when warranted, qualify or justify their own views in light of the evidence presented.
SL.8.2. Analyze the purpose of information presented in diverse media and formats (e.g., visually, quantitatively, orally) and evaluate the motives (e.g., social,

commercial, political) behind its presentation.
SL.8.3. Delineate a speaker's argument and specific claims, evaluating the soundness of the reasoning and relevance and sufficiency of the evidence and identifying when irrelevant evidence is introduced.
SL.8.5. Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest.

Integration of 21st Century Themes and Skills	
21st Century Skills/ Career Ready Practices:	**CRP1. Act as a responsible and contributing citizen and employee.** **CRP2. Apply appropriate academic and technical skills.** **CRP3. Attend to personal health and financial well-being.** **CRP4. Communicate clearly and effectively and with reason.** **CRP5. Consider the environmental, social and economic impacts of decisions.** **CRP6. Demonstrate creativity and innovation.** **CRP7. Employ valid and reliable research strategies.** **CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.** **CRP9. Model integrity, ethical leadership and effective management.** **CRP10. Plan education and career paths aligned to personal goals.** **CRP11. Use technology to enhance productivity.** **CRP12. Work productively in teams while using cultural global competence.**
2014 Technology Standards	
2014 NJ Technology Standards:	**8.1 Educational Technology** (Word | PDF) All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and create and communicate knowledge. **8.2 Technology Education, Engineering, Design and Computational Thinking - Programming** (Word | PDF) All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment. Please see relevant projects for technology standards 8.1 and 8.2:

Differentiation / Accommodations / Modifications

Gifted and Talented:

Extension Activities *(content, process, product and learning environment)*

- Conduct research and provide presentation of various topics.
- Design surveys to generate and analyze data to be used in discussion.
- Debate topics of interest / cultural importance.
- Authentic listening and reading sources that provide data and support for speaking and writing prompts.
- Exploration of art and/or artists to understand society and history.
- Implement RAFT Activities as they pertain to the types / modes of communication (role, audience, format, topic).

Anchor Activities

- Use of Higher Level Questioning Techniques
- Provide assessments at a higher level of thinking

English Language Learners:

Modifications for Classroom

- Pair visual prompts with verbal presentations
- Ask students to restate information, directions, and assignments.
- Repetition and practice
- Model skills / techniques to be mastered.
- Extended time to complete class work
- Provide copy of classnotes
- Student may request books on tape / CD / digital media, as available and appropriate.
- Assign a peer helper in the class setting

Modifications for Homework/Assignments

- Modified Assignments
- Native Language Translation (peer, online assistive technology, translation device, bilingual dictionary)
- Extended time for assignment completion as needed
- Highlight key vocabulary
- Use graphic organizers

Students with Disabilities:

Appropriate accommodations, instructional adaptations, and/or modifications as determined by the IEP or 504 team.

Modifications for Classroom

- Pair visual prompts with verbal presentations
- Ask students to restate information, directions, and assignments.
- Repetition and practice
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- Extended time to complete class work
- Provide copy of classnotes
- Preferential seating to be mutually determined by the student and teacher
- Student may request to use a computer to complete assignments.
- Establish expectations for correct spelling on assignments.
- Extra textbooks for home.
- Student may request books on tape / CD / digital media, as available and appropriate.
- Assign a peer helper in the class setting
- Provide oral reminders and check student work during independent work time
- Assist student with long and short term planning of assignments
- Encourage student to proofread assignments and tests
- Provide regular parent/ school communication
- Teachers will check/sign student agenda daily
- Student requires use of other assistive technology device

Modifications for Homework and Assignments

- Extended time to complete assignments.
- Student requires more complex assignments to be broken up and explained in smaller units, with work to be submitted in phases.
- Provide the student with clearly stated (written) expectations and grading criteria for assignments.
- Implement RAFT activities as they pertain to the types / modes of communication (role, audience, format, topic).

Modifications for Assessments

- Extended time on classroom tests and quizzes.
- Student may take/complete tests in an alternate setting as needed.
- Restate, reread, and clarify directions/questions

- Distribute study guide for classroom tests.
- Establish procedures for accommodations / modifications for assessments.

Students at Risk of School Failure:

Modifications for Classroom

- Pair visual prompts with verbal presentations
- Ask students to restate information, directions, and assignments.
- Repetition and practice
- Model skills / techniques to be mastered.
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Green Township School District Grade 8 Science Curriculum - Revised 2017 (cont.)

Pacing: 5 weeks		**Unit 2: Motion and Forces: Newton's Laws**
Standards and Suggested Activities		**Skills and Knowledge**
MS-PS2-1. Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects. 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. 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. MS-ETS1-1. Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions. MS-ETS1-2. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem. MS-ETS1-3. Analyze data from tests to determine similarities and differences among several design solutions to	● Kinesthetic activities ● Classroom demonstrations ● Egg Drop Design project ● Rocket Lab ● Marble collision demos ● balloon rocket demos	Students will be able to: ● Define and describe contact and non-contact forces. ● describe the Law of Universal Gravitation with respect to mass and distance. ● define friction as a force that resists motion. ● describe the motion of an object in terms of the net forces acting upon it. (Newton's First Law) ● identify and diagram the forces acting on an object at rest and in motion. ● explain how acceleration results from the net forces acting on an object. (Newton's Second Law) ● Use Newton's Second Law to describe the circular motion of satellites. ● describe the motion of a rocket in terms of action and reaction (Newton's Third Law) ● Apply Newton's Laws to calculate variables to define the motion of an object in a given situation. ● Use the Law of the Conservation of Momentum to predict the motion of objects after a collision. ● design and test a compartment that successfully absorbs force from a predetermined altitude and evaluate their design for further modifications. ● Construct and launch a model rocket and critique all aspects of its performance.

Green Township School District Grade 8 Science Curriculum - Revised 2017 (cont.)

identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success. MS-ETS1-4. Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.		

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Interdisciplinary Connections throughout the K-12 Curriculum

Mathematics

MP.2 Reason abstractly and quantitatively. (MS-PS2-1),(MS-PS2-2) (MS-ETS1-1),(MS-ETS1-2),(MS-ETS1-3),(MS-ETS1-4)
6.NS.C.5 Understand that positive and negative numbers are used together to describe quantities having opposite directions or values; use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation. (MS-PS2-1)
6.EE.A.2 Write, read, and evaluate expressions in which letters stand for numbers. (MS-PS2-1),(MS-PS2-2)
7.EE.B.3 Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form, using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. (MS-PS2-1),(MS-PS2-2)
7.EE.B.4 Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. (MS-PS2-1),(MS-PS2-2)
7.EE.3 Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. (MS-ETS1-1),(MS-ETS1-2),(MS-ETS1-3)
7.SP Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good,

explain possible sources of the discrepancy. (MS-ETS1-4)

English-Language Arts:

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Anchor Activities

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English Language Learners:

Modifications for Classroom

- Pair visual prompts with verbal presentations
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- Repetition and practice
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- Provide copy of classnotes
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- Provide oral reminders and check student work during independent work time
- Assist student with long and short term planning of assignments
- Encourage student to proofread assignments and tests
- Provide regular parent/ school communication
- Teachers will check/sign student agenda daily
- Student requires use of other assistive technology device

Modifications for Homework and Assignments

- Extended time to complete assignments.
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Green Township School District Grade 8 Science Curriculum - Revised 2017 (cont.)

Pacing: 2 weeks **Solar Car design project: 3 weeks**		**Unit 3: Motion and Forces: Work and Simple Machines** **and Solar Sprints solar car design project**
Standards and Suggested Activities		**Skills and Knowledge**
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. 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 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. MS-ETS1-1. Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions. MS-ETS1-2. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem. MS-ETS1-3. Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.	• Kinesthetic activities • Classroom demonstrations • work and power demos • simple machine activities • solar car project	Students will be able to: • define work in terms of force and distance and perform associated calculations. • explain the relationship between work and energy. • apply the Law of the Conservation of Energy to a closed system. • differentiate between kinetic and potential energy. • calculate power requirements from given work criteria. • describe how simple machines affect how work is done. • distinguish between mechanical advantage and efficiency. • calculate mechanical advantage and efficiency of a given system. • design and construct a solar car to meet established criteria • test and modify their solar car designs for maximized performance.

Green Township School District Grade 8 Science Curriculum - Revised 2017 (cont.)

MS-ETS1-4. Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.		

District/School Formative Assessment Plan	District/School Summative Assessment Plan
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Interdisciplinary Connections throughout the K-12 Curriculum

Mathematics:

MP.2 Reason abstractly and quantitatively. (MS-ETS1-1),(MS-ETS1-2),(MS-ETS1-3),(MS-ETS1-4) (MS-PS3-5) (MS-PS2-2)

6.EE.A.2 Write, read, and evaluate expressions in which letters stand for numbers. (MS-PS2-2)

7.EE.B.3 Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form, using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. (MS-PS2-2)

7.EE.B.4 Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. (MS-PS2-2)

7.EE.3 Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. (MS-ETS1-1),(MS-ETS1-2),(MS-ETS1-3)

6.RP.A.1 Understand the concept of ratio and use ratio language to describe a ratio relationship between two quantities. (MS-PS3-5)

7.SP Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy. (MS-ETS1-4)

7.RP.A.2 Recognize and represent proportional relationships between quantities. (MS-PS3-5)

8.F.A.3 Interpret the equation y = mx + b as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. (MSPS3-5)

English-Language Arts:

RI.8.4. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of specific word choices on meaning and tone, including analogies or allusions to other texts.

RI.8.5. Analyze the structure an author uses to organize a specific paragraph in a text, including the role of particular sentences, to develop and to refine a key

concept.
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W.8.2. Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
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SL.8.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly.
A. Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion.
B. Follow rules for collegial discussions and decision-making, track progress toward specific goals and deadlines, and define individual roles as needed.
C. Pose questions that connect the ideas of several speakers and respond to others' questions and comments with relevant evidence, observations, and ideas.
D. Acknowledge new information expressed by others, and, when warranted, qualify or justify their own views in light of the evidence presented.
SL.8.2. Analyze the purpose of information presented in diverse media and formats (e.g., visually, quantitatively, orally) and evaluate the motives (e.g., social, commercial, political) behind its presentation.
SL.8.3. Delineate a speaker's argument and specific claims, evaluating the soundness of the reasoning and relevance and sufficiency of the evidence and identifying when irrelevant evidence is introduced.
SL.8.5. Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest.

Integration of 21st Century Themes and Skills	
21st Century Skills/ Career Ready Practices:	**CRP1. Act as a responsible and contributing citizen and employee.** **CRP2. Apply appropriate academic and technical skills.** **CRP3. Attend to personal health and financial well-being.**

	CRP4. Communicate clearly and effectively and with reason. **CRP5. Consider the environmental, social and economic impacts of decisions.** **CRP6. Demonstrate creativity and innovation.** **CRP7. Employ valid and reliable research strategies.** **CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.** **CRP9. Model integrity, ethical leadership and effective management.** **CRP10. Plan education and career paths aligned to personal goals.** **CRP11. Use technology to enhance productivity.** **CRP12. Work productively in teams while using cultural global competence.**
2014 Technology Standards	
2014 NJ Technology Standards:	**8.1 Educational Technology** (Word | PDF) All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and create and communicate knowledge. **8.2 Technology Education, Engineering, Design and Computational Thinking - Programming** (Word | PDF) All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment. Please see relevant projects for technology standards 8.1 and 8.2:

Differentiation / Accommodations / Modifications

Gifted and Talented:

Extension Activities *(content, process, product and learning environment)*

- Conduct research and provide presentation of various topics.
- Design surveys to generate and analyze data to be used in discussion.
- Debate topics of interest / cultural importance.

- Authentic listening and reading sources that provide data and support for speaking and writing prompts.
- Exploration of art and/or artists to understand society and history.
- Implement RAFT Activities as they pertain to the types / modes of communication (role, audience, format, topic).

Anchor Activities

- Use of Higher Level Questioning Techniques
- Provide assessments at a higher level of thinking

English Language Learners:

Modifications for Classroom

- Pair visual prompts with verbal presentations
- Ask students to restate information, directions, and assignments.
- Repetition and practice
- Model skills / techniques to be mastered.
- Extended time to complete class work
- Provide copy of classnotes
- Student may request books on tape / CD / digital media, as available and appropriate.
- Assign a peer helper in the class setting

Modifications for Homework/Assignments

- Modified Assignments
- Native Language Translation (peer, online assistive technology, translation device, bilingual dictionary)
- Extended time for assignment completion as needed
- Highlight key vocabulary
- Use graphic organizers

Students with Disabilities:

Appropriate accommodations, instructional adaptations, and/or modifications as determined by the IEP or 504 team.

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- Assist student with long and short term planning of assignments
- Encourage student to proofread assignments and tests
- Provide regular parent/ school communication
- Teachers will check/sign student agenda daily
- Student requires use of other assistive technology device

Modifications for Homework and Assignments

- Extended time to complete assignments.
- Student requires more complex assignments to be broken up and explained in smaller units, with work to be submitted in phases.
- Provide the student with clearly stated (written) expectations and grading criteria for assignments.
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Modifications for Assessments

- Extended time on classroom tests and quizzes.
- Student may take/complete tests in an alternate setting as needed.
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Students at Risk of School Failure:

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Pacing: 4 weeks		**Unit 4: Motion and Forces: Force and Fluids**
Standards and Suggested Activities		**Skills and Knowledge**
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. MS-PS3-1. Construct and interpret graphical displays of data to describe	• Kinesthetic activities • Classroom demonstrations • cartesian diver • barometer • bell jar demos • hydraulics lab	Students will be able to: • describe pressure as a relationship between force and area. • measure and complete pressure calculations from given criteria. • distinguish between a liquid and a fluid. • describe the relationship between a fluid's pressure and its height. • discuss variations in air pressure on Earth. • apply Archimede's Principle correctly. • use Pascal's Principle to explain how hydraulic systems work.

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the relationships of kinetic energy to the mass of an object and to the speed of an object.	• soda can activity	• demonstrate the relationship between fluid pressure and fluid velocity using Bernoulli's Principle. • identify and describe the four forces of flight.

District/School Formative Assessment Plan	District/School Summative Assessment Plan
• Class discussions in which student share prior knowledge	• Teacher-created quizzes • Teacher-created unit assessments • Labs
Core Instructional Materials	**District/School Supplementary Resources**
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Interdisciplinary Connections throughout the K-12 Curriculum

Mathematics –

MP.2 Reason abstractly and quantitatively. (MS-PS2-2) (MS-PS3-1)

6.RP.A.1 Understand the concept of ratio and use ratio language to describe a ratio relationship between two quantities. (MS-PS3-1)

6.RP.A.2 Understand the concept of a unit rate a/b associated with a ratio a:b with b ≠ 0, and use rate language in the context of a ratio relationship. (MS-PS3-1)

7.RP.A.2 Recognize and represent proportional relationships between quantities. (MS-PS3-1)

6.EE.A.2 Write, read, and evaluate expressions in which letters stand for numbers. (MS-PS2-2)

7.EE.B.3 Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form, using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. (MS-PS2-2)

7.EE.B.4 Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. (MS-PS2-2)

8.EE.A.1 Know and apply the properties of integer exponents to generate equivalent numerical expressions. (MS-PS3-1)

8.EE.A.2 Use square root and cube root symbols to represent solutions to equations of the form x2 = p and x3 = p, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that √2 is irrational. (MS-PS3-1)

8.F.A.3 Interpret the equation y = mx + b as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. (MS-PS3-1)

English-Language Arts:

RI.8.4. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of specific word choices on meaning and tone, including analogies or allusions to other texts.

RI.8.5. Analyze the structure an author uses to organize a specific paragraph in a text, including the role of particular sentences, to develop and to refine a key concept.

RI.8.6. Determine an author's point of view or purpose in a text and analyze how the author acknowledges and responds to conflicting evidence or viewpoints.
RI.8.7. Evaluate the advantages and disadvantages of using different mediums (e.g., print or digital text, video, multimedia) to present a particular topic or idea.
W.8.2. Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
A. Introduce a topic and organize ideas, concepts, and information, using text structures (e.g., definition, classification, comparison/contrast, cause/effect, etc.) and text features (e.g., headings, graphics, and multimedia).
B. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.
C. Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts.
D. Use precise language and domain-specific vocabulary to inform about or explain the topic.
E. Establish and maintain a formal style/academic style, approach, and form.
F. Provide a concluding statement or section that follows from and supports the information or explanation presented.
W.8.4. Produce clear and coherent writing in which the development, organization, voice and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)
W.8.5. 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.
W.8.6. Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas efficiently as well as to interact and collaborate with others.
W.8.7. 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.
SL.8.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly.
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Anchor Activities

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English Language Learners:

Modifications for Classroom

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- Provide copy of classnotes
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Pacing: 3 weeks	**Unit 5: Energy and Thermal Energy**	
Standards and Suggested Activities		**Skills and Knowledge**
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. 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.	● Kinesthetic activities ● Classroom demonstrations ● specific heat demo with sand and water ● thermal expansion demo	Students will be able to: ● differentiate between kinetic and potential energy. ● describe the various types of potential energy. ● identify and describe the main forms of energy: sound, thermal, electrical, radiant, nuclear, and mechanical. ● explain how the law of the conservation of energy applies to energy transformations within a system. ● distinguish between Kelvin, Fahrenheit, and Celsius temperature

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MS-PS3-3. Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer MS-PS3-4. Plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample 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 MS-ETS1-1. Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions. MS-ETS1-2. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem. MS-ETS1-3. Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success. MS-ETS1-4. Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.	● temperature conversion activity ● insulated container design project	scales. ● differentiate between thermal energy and temperature. ● describe the transfer of heat in terms of radiation, conduction, and convection. ● compare the specific heats of various materials and explain the reason for the differences. ● contrast thermal expansion and contraction. ● design an insulated container to meet established criteria and evaluate for further modifications.

District/School Formative Assessment Plan	District/School Summative Assessment Plan
● Class discussions in which student share prior knowledge	● Teacher-created quizzes ● Teacher-created unit assessments ● Labs

Green Township School District Grade 8 Science Curriculum - Revised 2017 (cont.)

Core Instructional Materials	District/School Supplementary Resources
• *Glencoe iScience Physical Science Series* (Mcgraw-Hill Companies, Inc. 2012)	• Discovery Education videos • Glencoe ConnectEd online resources

Interdisciplinary Connections throughout the K-12 Curriculum

Mathematics

MP.2 Reason abstractly and quantitatively. (MS-PS3-1),(MS-PS3-4),(MS-PS3-5) (MS-ETS1-1),(MS-ETS1-2),(MS-ETS1-3) (MS-ETS1-4)
6.RP.A.1 Understand the concept of ratio and use ratio language to describe a ratio relationship between two quantities. (MS-PS3-1),(MS-PS3-5)
6.RP.A.2 Understand the concept of a unit rate a/b associated with a ratio a:b with $b \neq 0$, and use rate language in the context of a ratio relationship. (MS-PS3-1)
7.RP.A.2 Recognize and represent proportional relationships between quantities. (MS-PS3-1),(MS-PS3-5)
8.EE.A.1 Know and apply the properties of integer exponents to generate equivalent numerical expressions. (MS-PS3-1)
8.EE.A.2 Use square root and cube root symbols to represent solutions to equations of the form x2 = p and x3 = p, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that √2 is irrational. (MS-PS3-1)
8.F.A.3 Interpret the equation y = mx + b as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. (MS-PS3-1),(MSPS3-5)
6.SP.B.5 Summarize numerical data sets in relation to their context. (MS-PS3-4)
7.EE.3 Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. (MS-ETS1-1),(MS-ETS1-2),(MS-ETS1-3)
7.SP Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy. (MS-ETS1-4)

English-Language Arts:

RI.8.4. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of specific word choices on meaning and tone, including analogies or allusions to other texts.
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- Establish procedures for accommodations / modifications for assessments.

Students at Risk of School Failure:

Modifications for Classroom

- Pair visual prompts with verbal presentations
- Ask students to restate information, directions, and assignments.
- Repetition and practice
- Model skills / techniques to be mastered.
- Provide copy of classnotes
- Preferential seating to be mutually determined by the student and teacher
- Student may request to use a computer to complete assignments.
- Establish expectations for correct spelling on assignments.
- Extra textbooks for home.
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- Assign a peer helper in the class setting
- Provide oral reminders and check student work during independent work time
- Assist student with long and short term planning of assignments
- Encourage student to proofread assignments and tests
- Provide regular parent/ school communication
- Teachers will check/sign student agenda daily
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Modifications for Homework and Assignments

- Extended time to complete assignments.
- Student requires more complex assignments to be broken up and explained in smaller units, with work to be submitted in phases.
- Provide the student with clearly stated (written) expectations and grading criteria for assignments.
- Implement RAFT activities as they pertain to the types / modes of communication (role, audience, format, topic).

Modifications for Assessments

- Extended time on classroom tests and quizzes.
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- Restate, reread, and clarify directions/questions
- Distribute study guide for classroom tests.
- Establish procedures for accommodations / modifications for assessments.

Pacing: 3 weeks	**Unit 6: Foundations of Chemistry**	
Standards and Suggested Activities		**Skills and Knowledge**
MS-PS1-1. Develop models to describe the atomic composition of simple molecules and extended structures. MS-PS1-2. Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred. MS-PS1-3. Gather and make sense of information to describe that synthetic materials come from natural resources and impact society. MS-PS1-4. Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed.	● Kinesthetic activities ● Classroom demonstrations ● mystery mixture lab ● Zn and HCl lab ● pH lab ● Na and Mg demos ● Alka-Seltzer demo ● Mentos activity	Students will be able to: ● classify matter as elements, compounds or mixtures ● define the characteristics of elements, compounds, and mixtures ● describe the structure of an atom. ● make distinctions between heterogeneous and homogeneous mixtures. ● describe the organization of the Periodic Table of the Elements. ● identify the structure of an element's atom based on the Periodic Table. ● define the characteristics of metals, metalloids, and non-metals. ● describe matter in terms of its physical properties. ● distinguish between size-dependent and size-independent physical properties. ● describe the state of matter of a substance in terms of the thermal energy of its particles.

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MS-PS1-5. Develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved. MS-PS1-6. Undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes		• explain the difference between physical and chemical properties. • differentiate between physical and chemical changes. • identify the signs of a chemical change. • demonstrate how chemical equations are used to detail the conservation of mass during a chemical reaction. • indicate how to speed up and slow down a chemical reaction.

District/School Formative Assessment Plan	**District/School Summative Assessment Plan**
• Class discussions in which student share prior knowledge	• Teacher-created quizzes • Teacher-created unit assessments • Labs
Core Instructional Materials	**District/School Supplementary Resources**
• *Glencoe iScience Physical Science Series* (Mcgraw-Hill Companies, Inc. 2012)	• Discovery Education videos • Glencoe ConnectEd online resources

Interdisciplinary Connections throughout the K-12 Curriculum

Mathematics

MP.2 Reason abstractly and quantitatively. (MS-PS1-1),(MS-PS1-2),(MS-PS1-5) MP.4 Model with mathematics. (MS-PS1-1),(MS-PS1-5)

6.RP.A.3 Use ratio and rate reasoning to solve real-world and mathematical problems. (MS-PS1-1),(MS-PS1-2),(MS-PS1-5) 6.NS.C.5 Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation. (MS-PS1-4)

8.EE.A.3 Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. (MS-PS1-1)

6.SP.B.4 Display numerical data in plots on a number line, including dot plots, histograms, and box plots. (MS-PS1-2) 6.SP.B.5 Summarize numerical data sets in relation to their context (MS-PS1-2)

English-Language Arts:

RI.8.4. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of specific word choices on meaning and tone, including analogies or allusions to other texts.

RI.8.5. Analyze the structure an author uses to organize a specific paragraph in a text, including the role of particular sentences, to develop and to refine a key concept.

RI.8.6. Determine an author's point of view or purpose in a text and analyze how the author acknowledges and responds to conflicting evidence or viewpoints.

RI.8.7. Evaluate the advantages and disadvantages of using different mediums (e.g., print or digital text, video, multimedia) to present a particular topic or idea.

W.8.2. Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.

A. Introduce a topic and organize ideas, concepts, and information, using text structures (e.g., definition, classification, comparison/contrast, cause/effect, etc.) and text features (e.g., headings, graphics, and multimedia).
B. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.
C. Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts.
D. Use precise language and domain-specific vocabulary to inform about or explain the topic.
E. Establish and maintain a formal style/academic style, approach, and form.
F. Provide a concluding statement or section that follows from and supports the information or explanation presented.
W.8.4. Produce clear and coherent writing in which the development, organization, voice and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)
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W.8.6. Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas efficiently as well as to interact and collaborate with others.
W.8.7. 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.
SL.8.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly.
A. Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion.
B. Follow rules for collegial discussions and decision-making, track progress toward specific goals and deadlines, and define individual roles as needed.
C. Pose questions that connect the ideas of several speakers and respond to others' questions and comments with relevant evidence, observations, and ideas.
D. Acknowledge new information expressed by others, and, when warranted, qualify or justify their own views in light of the evidence presented.
SL.8.2. Analyze the purpose of information presented in diverse media and formats (e.g., visually, quantitatively, orally) and evaluate the motives (e.g., social, commercial, political) behind its presentation.
SL.8.3. Delineate a speaker's argument and specific claims, evaluating the soundness of the reasoning and relevance and sufficiency of the evidence and identifying when irrelevant evidence is introduced.
SL.8.5. Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest.

Integration of 21st Century Themes and Skills	
21st Century Skills/ Career Ready Practices:	**CRP1. Act as a responsible and contributing citizen and employee.** **CRP2. Apply appropriate academic and technical skills.** **CRP3. Attend to personal health and financial well-being.** **CRP4. Communicate clearly and effectively and with reason.** **CRP5. Consider the environmental, social and economic impacts of decisions.** **CRP6. Demonstrate creativity and innovation.** **CRP7. Employ valid and reliable research strategies.** **CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.**

	CRP9. Model integrity, ethical leadership and effective management. **CRP10. Plan education and career paths aligned to personal goals.** **CRP11. Use technology to enhance productivity.** **CRP12. Work productively in teams while using cultural global competence.**
2014 Technology Standards	
2014 NJ Technology Standards:	**8.1 Educational Technology** (Word | PDF) All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and create and communicate knowledge. **8.2 Technology Education, Engineering, Design and Computational Thinking - Programming** (Word | PDF) All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment. Please see relevant projects for technology standards 8.1 and 8.2:

Differentiation / Accommodations / Modifications

Gifted and Talented:

Extension Activities *(content, process, product and learning environment)*

- Conduct research and provide presentation of various topics.
- Design surveys to generate and analyze data to be used in discussion.
- Debate topics of interest / cultural importance.
- Authentic listening and reading sources that provide data and support for speaking and writing prompts.
- Exploration of art and/or artists to understand society and history.
- Implement RAFT Activities as they pertain to the types / modes of communication (role, audience, format, topic).

Anchor Activities

- Use of Higher Level Questioning Techniques
- Provide assessments at a higher level of thinking

English Language Learners:

Modifications for Classroom

- Pair visual prompts with verbal presentations
- Ask students to restate information, directions, and assignments.
- Repetition and practice
- Model skills / techniques to be mastered.
- Extended time to complete class work
- Provide copy of classnotes
- Student may request books on tape / CD / digital media, as available and appropriate.
- Assign a peer helper in the class setting

Modifications for Homework/Assignments

- Modified Assignments
- Native Language Translation (peer, online assistive technology, translation device, bilingual dictionary)
- Extended time for assignment completion as needed
- Highlight key vocabulary
- Use graphic organizers

Students with Disabilities:

Appropriate accommodations, instructional adaptations, and/or modifications as determined by the IEP or 504 team.

Modifications for Classroom

- Pair visual prompts with verbal presentations
- Ask students to restate information, directions, and assignments.
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- Establish expectations for correct spelling on assignments.

- Extra textbooks for home.
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- Provide oral reminders and check student work during independent work time
- Assist student with long and short term planning of assignments
- Encourage student to proofread assignments and tests
- Provide regular parent/ school communication
- Teachers will check/sign student agenda daily
- Student requires use of other assistive technology device

Modifications for Homework and Assignments

- Extended time to complete assignments.
- Student requires more complex assignments to be broken up and explained in smaller units, with work to be submitted in phases.
- Provide the student with clearly stated (written) expectations and grading criteria for assignments.
- Implement RAFT activities as they pertain to the types / modes of communication (role, audience, format, topic).

Modifications for Assessments

- Extended time on classroom tests and quizzes.
- Student may take/complete tests in an alternate setting as needed.
- Restate, reread, and clarify directions/questions
- Distribute study guide for classroom tests.
- Establish procedures for accommodations / modifications for assessments.

Students at Risk of School Failure:

Modifications for Classroom

- Pair visual prompts with verbal presentations
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Pacing: 2 weeks	**Unit 7: Elements and Chemical Bonds**	
Standards and Suggested Activities		**Skills and Knowledge**
MS-PS1-1. Develop models to describe the atomic composition of simple molecules and extended structures. MS-PS1-2. Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred. MS-PS1-4. Develop a model that	● Kinesthetic activities ● Classroom demonstrations ● Ionic bonding lab ● Covalent bonding lab ● Chemistry demos	Students will be able to: ● differentiate between the electron energy levels within an atom. ● use the Periodic Table to determine the configuration of an atom's valence electrons and construct an electron-dot diagram. ● describe the characteristics of noble gases, halogens, and alkali metal groups. ● explain that atoms bond to form molecules. ● describe how energy is transferred when bonds are formed or broken. ● explain how covalent bonds form between two nonmetals. ● distinguish between polar and nonpolar covalent bonding. ● describe how ionic bonds form between a metal and a nonmetal.

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predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed. MS-PS1-5. Develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved.		• explain how metallic bonds form between two metals.

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Mathematics

MP.2 Reason abstractly and quantitatively. (MS-PS1-1),(MS-PS1-2),(MS-PS1-5)
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6.NS.C.5 Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation. (MS-PS1-4)
8.EE.A.3 Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. (MS-PS1-1)
6.SP.B.4 Display numerical data in plots on a number line, including dot plots, histograms, and box plots. (MS-PS1-2)
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Green Township School District Grade 8 Science Curriculum - Revised 2017 (cont.)

English-Language Arts:

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Students at Risk of School Failure:

Modifications for Classroom

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Pacing: 3 weeks	**Unit 8: Atmosphere**	
Standards and Suggested Activities		**Skills and Knowledge**
MS-ESS2-1. Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process. MS-ESS2-4. Develop a model to	• Kinesthetic activities • Classroom demonstrations • layers of the atmosphere activity • convection tank demo	Students will be able to: • identify components of Earth's atmosphere. • detail the layers of Earth's atmosphere and their characteristics. • describe how energy transfer in the atmosphere occurs. • distinguish between radiation, conduction, and convection.

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describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity. MS-ESS2-6. Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates. MS-ESS3-5. Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.	• heating and cooling of water lab • greenhouse effect activity	• evaluate and graph the role of latent heat in energy storage • explain how the Greenhouse Effect occurs and its importance • identify and appraise current arguments related to climate change. • name and describe the four major global air currents • relate the Coriolis Effect to global wind systems. • distinguish between local and global winds.

District/School Formative Assessment Plan	**District/School Summative Assessment Plan**
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Core Instructional Materials	**District/School Supplementary Resources**
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Interdisciplinary Connections throughout the K-12 Curriculum

Mathematics

MP.2 Reason abstractly and quantitatively. (MS-ESS3-5)

6.EE.B.6 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set. (MS-ESS3-5)

7.EE.B.4 Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. (MS-ESS3-5)

English-Language Arts:

Green Township School District Grade 8 Science Curriculum - Revised 2017 (cont.)

RI.8.4. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of specific word choices on meaning and tone, including analogies or allusions to other texts.
RI.8.5. Analyze the structure an author uses to organize a specific paragraph in a text, including the role of particular sentences, to develop and to refine a key concept.
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C. Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts.
D. Use precise language and domain-specific vocabulary to inform about or explain the topic.
E. Establish and maintain a formal style/academic style, approach, and form.
F. Provide a concluding statement or section that follows from and supports the information or explanation presented.
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Integration of 21st Century Themes and Skills

21st Century Skills/ Career Ready Practices:	**CRP1. Act as a responsible and contributing citizen and employee.** **CRP2. Apply appropriate academic and technical skills.** **CRP3. Attend to personal health and financial well-being.** **CRP4. Communicate clearly and effectively and with reason.** **CRP5. Consider the environmental, social and economic impacts of decisions.** **CRP6. Demonstrate creativity and innovation.** **CRP7. Employ valid and reliable research strategies.** **CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.** **CRP9. Model integrity, ethical leadership and effective management.** **CRP10. Plan education and career paths aligned to personal goals.** **CRP11. Use technology to enhance productivity.** **CRP12. Work productively in teams while using cultural global competence.**
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Differentiation / Accommodations / Modifications

Gifted and Talented:

Extension Activities *(content, process, product and learning environment)*

- Conduct research and provide presentation of various topics.

- Design surveys to generate and analyze data to be used in discussion.
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Anchor Activities

- Use of Higher Level Questioning Techniques
- Provide assessments at a higher level of thinking

English Language Learners:

Modifications for Classroom

- Pair visual prompts with verbal presentations
- Ask students to restate information, directions, and assignments.
- Repetition and practice
- Model skills / techniques to be mastered.
- Extended time to complete class work
- Provide copy of classnotes
- Student may request books on tape / CD / digital media, as available and appropriate.
- Assign a peer helper in the class setting

Modifications for Homework/Assignments

- Modified Assignments
- Native Language Translation (peer, online assistive technology, translation device, bilingual dictionary)
- Extended time for assignment completion as needed
- Highlight key vocabulary
- Use graphic organizers

Students with Disabilities:

Appropriate accommodations, instructional adaptations, and/or modifications as determined by the IEP or 504 team.

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- Encourage student to proofread assignments and tests
- Provide regular parent/ school communication
- Teachers will check/sign student agenda daily
- Student requires use of other assistive technology device

Modifications for Homework and Assignments

- Extended time to complete assignments.
- Student requires more complex assignments to be broken up and explained in smaller units, with work to be submitted in phases.
- Provide the student with clearly stated (written) expectations and grading criteria for assignments.
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Modifications for Assessments

- Extended time on classroom tests and quizzes.
- Student may take/complete tests in an alternate setting as needed.
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- Distribute study guide for classroom tests.
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Students at Risk of School Failure:

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Pacing: 3 weeks	**Unit 9: Weather**	
Standards and Suggested Activities		**Skills and Knowledge**
MS-ESS2-1. Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process. MS-ESS2-4. Develop a model to describe	• Kinesthetic activities • Classroom demonstrations • weekly weather variables tracking activity • cloud formation demo • relative humidity and dew	Students will be able to: • identify and explain the variables used to describe the weather. • differentiate the various cloud types and identify the weather associated with each. • demonstrate an understanding of high and low pressure systems.

Green Township School District Grade 8 Science Curriculum - Revised 2017 (cont.)

the cycling of water through Earth's systems driven by energy from the sun and the force of gravity. MS-ESS2-5. Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions MS-ESS2-6. Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.	point chart activity	• identify characteristics of the major air masses that affect weather patterns in North America. • identify and describe the various types of fronts that occur at air mass boundaries and the weather patterns associated with each. • summarize the effect of oceanic circulation on weather and climate. • describe various instruments used for measuring weather. • graph and interpret data gathered from weather instruments. • interpret weather maps and predict future outcomes.

District/School Formative Assessment Plan	**District/School Summative Assessment Plan**
• Class discussions in which student share prior knowledge	• Teacher-created quizzes • Teacher-created unit assessments • Labs
Core Instructional Materials	**District/School Supplementary Resources**
• *Glencoe iScience Earth and Space Science Series* (Mcgraw-Hill Companies, Inc. 2012)	• Discovery Education videos • Glencoe ConnectEd online resources

Interdisciplinary Connections throughout the K-12 Curriculum

Mathematics

MP.2 Reason abstractly and quantitatively. (MS-ESS2-5)

6.NS.C.5 Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation. (MS-ESS2-5)

English-Language Arts:

RI.8.4. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of specific word choices on meaning and tone, including analogies or allusions to other texts.

RI.8.5. Analyze the structure an author uses to organize a specific paragraph in a text, including the role of particular sentences, to develop and to refine a key concept.
RI.8.6. Determine an author's point of view or purpose in a text and analyze how the author acknowledges and responds to conflicting evidence or viewpoints.
RI.8.7. Evaluate the advantages and disadvantages of using different mediums (e.g., print or digital text, video, multimedia) to present a particular topic or idea.
W.8.2. Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
A. Introduce a topic and organize ideas, concepts, and information, using text structures (e.g., definition, classification, comparison/contrast, cause/effect, etc.) and text features (e.g., headings, graphics, and multimedia).
B. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.
C. Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts.
D. Use precise language and domain-specific vocabulary to inform about or explain the topic.
E. Establish and maintain a formal style/academic style, approach, and form.
F. Provide a concluding statement or section that follows from and supports the information or explanation presented.
W.8.4. Produce clear and coherent writing in which the development, organization, voice and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)
W.8.5. 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.
W.8.6. Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas efficiently as well as to interact and collaborate with others.
W.8.7. 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.
SL.8.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly.
A. Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion.
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