Green Township School District

Grade 7 Science Curriculum

Approved: Aug. 23, 2017

Pacing: 4 weeks		**Unit 1: Classifying and Exploring Life**
Standards and Suggested Activities		**Skills and Knowledge**
MS-LS1-4. Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively. MS-LS1-8. Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories. MS-LS4-1. Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth under the assumption that natural laws operate today as in the past. MS-LS4-2. Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships. MS-LS4-3. Analyze displays of pictorial data to compare patterns of similarities in the embryological development across multiple species to identify relationships not evident in the fully formed anatomy	• Kinesthetic activities • Classroom demonstrations • Intro to Microscope lab • Pond water lab • "Living Candle" demo • Lab safety demo and activity	Students will be able to: • identify the steps of the scientific method. • use the scientific method to design an investigation for possible solutions to a problem. • properly use a compound microscope. • distinguish between a scientific theory and a law. • identify and describe the characteristics of living things. • compare and contrast the theories of Spontaneous Generation and Biogenesis. • describe how living things are classified and use classification models. • explain the purpose and use of binomial nomenclature. **Integration of Science & Engineering Practices, Disciplinary Core Ideas & Crosscutting Concepts expected in every unit.** Matrix of Science & Engineering Practices Matrix of Disciplinary Core Ideas Matrix of Crosscutting Concepts

Green Township School District Grade 7 Science Curriculum - Revised 2017 (cont.)

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

Interdisciplinary Connections throughout the K-12 Curriculum

See Appendix 1: Reading & Writing Companion Standards for Science

Mathematics

6.EE.C.9 *Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. (MS-LS1-1),(MS-LS1-2),(MS-LS1-3),(MS-LS1-6)*

6.SP.A.2 *Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape. (MSLS1-4)*

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-LS4-1),(MS-LS4-2)*

English-Language Arts:

RI.7.4. *Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of a specific word choice on meaning and tone.*

RI.7.8. *Trace and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient to support the claims.*

W.7.2*. 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 clearly, previewing what is to follow; 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 facts, definitions, concrete details, quotations, or other information and examples.

C. Use appropriate 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.

SL.7.1. *Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 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, track progress toward specific goals and deadlines, and define individual roles as needed.
C. Pose questions that elicit elaboration and respond to others' questions and comments with relevant observations and ideas that bring the discussion back on topic as needed.
D. Acknowledge new information expressed by others and, when warranted, modify their own views.
SL.7.2. *Analyze the main ideas and supporting details presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how the ideas clarify a topic, text, or issue under study.*
SL.7.3. *Delineate a speaker's argument and specific claims, evaluating the soundness of the reasoning and the relevance and sufficiency of the evidence.*
SL.7.4. *Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.*
SL.7.5. *Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.*
SL.7.6. *Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.*

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.** **Link to GHS Career Standards 9.2Crosswalk Doc**
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

See Appendix 3: Modifications

Pacing: 4 weeks	**Unit 2: Cells: Structure and Function**	
Standards and Suggested Activities		**Skills and Knowledge**
MS-LS1-1. Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells. MS-LS1-2. Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function. MS-LS1-7. Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism	• Kinesthetic activities • Classroom demonstrations • Cheek cell and plant cell lab • Cell model activity • Diffusion activity • active vs. passive transport activity	Students will be able to: • explain the tenets of cell theory • identify and describe the function of the macromolecules that make up cells. • distinguish between eukaryotic and prokaryotic cells. • explain differences between bacteria, plant, and animal cells. • diagram and describe the parts of a typical cell • describe the function of each type of organelle within a eukaryotic cell. • explain how material is processed, transported, and stored within a cell. • describe how a cell stores and releases energy to carry out cell functions. • detail the methods by which material moves across a cell membrane. • describe the reverse energy processes of cellular respiration and photosynthesis. **Integration of Science & Engineering Practices, Disciplinary Core Ideas & Crosscutting Concepts expected in every unit.** Matrix of Science & Engineering Practices Matrix of Disciplinary Core Ideas Matrix of Crosscutting Concepts

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Core Instructional Materials	**District/School Supplementary Resources**
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Interdisciplinary Connections throughout the K-12 Curriculum
See Appendix 1: Reading & Writing Companion Standards for Science ***Mathematics***

6.EE.C.9 Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. (MS-LS1-1),(MS-LS1-2)

English-Language Arts:

RI.7.4. *Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of a specific word choice on meaning and tone.*

RI.7.8. *Trace and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient to support the claims.*

W.7.2*. 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 clearly, previewing what is to follow; 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 facts, definitions, concrete details, quotations, or other information and examples.

C. Use appropriate 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.

SL.7.1. *Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 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, track progress toward specific goals and deadlines, and define individual roles as needed.

C. Pose questions that elicit elaboration and respond to others' questions and comments with relevant observations and ideas that bring the discussion back on topic as needed.

D. Acknowledge new information expressed by others and, when warranted, modify their own views.

SL.7.2. *Analyze the main ideas and supporting details presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how the ideas clarify a topic, text, or issue under study.*

SL.7.3. *Delineate a speaker's argument and specific claims, evaluating the soundness of the reasoning and the relevance and sufficiency of the evidence.*

SL.7.4. *Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.*

SL.7.5. *Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.*

SL.7.6. *Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.*

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.** **Link to GHS Career Standards 9.2Crosswalk Doc**
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

See Appendix 3: Modifications

Pacing: 3 weeks		**Unit 3: From a Cell to an Organism**
Standards and Suggested Activities		**Skills and Knowledge**
MS-LS1-1. Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells. MS-LS1-2. Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function. MS-LS1-3. Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells MS-LS1-8. Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.	• Kinesthetic activities • Classroom demonstrations • steps of mitosis activity • mitosis group activity • nervous system -stimulus/ response memory storage lab	Students will be able to: • describe the cycle of growth, development, and division of a cell. • identify and describe the steps of the mitotic phase of the cell cycle. • explain the importance of cell division to an organism's survival. • identify the purpose of stem cells in the process of cell differentiation. • describe current stem cell research and use in medicine. • detail the organization of an organism from individual cells through body systems. • identify how the nervous system uses the five senses to enable stimulus and response and generate memories. **Integration of Science & Engineering Practices, Disciplinary Core Ideas & Crosscutting Concepts expected in every unit.** Matrix of Science & Engineering Practices Matrix of Disciplinary Core Ideas Matrix of Crosscutting Concepts
District/School Formative Assessment Plan		**District/School Summative Assessment Plan**
• Class discussions in which student share prior knowledge • Study Island assessments • Quizzes		• Teacher-created quizzes • Teacher-created unit assessments • Labs
Core Instructional Materials		**District/School Supplementary Resources**
• *Glencoe iScience Life Science Series* (Mcgraw-Hill Companies, Inc. 2012)		• Discovery Education videos • Glencoe ConnectEd online resources • Leveled texts/articles: Newsela

Interdisciplinary Connections throughout the K-12 Curriculum
See Appendix 1: Reading & Writing Companion Standards for Science ***Mathematics*** ***6.EE.C.9*** *Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. (MS-LS1-1),(MS-LS1-2)* ***English-Language Arts:*** ***RI.7.4.*** *Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of a specific word choice on meaning and tone.* ***RI.7.8.*** *Trace and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient to support the claims.* ***W.7.2****. 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 clearly, previewing what is to follow; 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 facts, definitions, concrete details, quotations, or other information and examples.* *C. Use appropriate 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.* ***SL.7.1.*** *Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 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, track progress toward specific goals and deadlines, and define individual roles as needed.* *C. Pose questions that elicit elaboration and respond to others' questions and comments with relevant observations and ideas that bring the discussion back on topic as needed.* *D. Acknowledge new information expressed by others and, when warranted, modify their own views.* ***SL.7.2.*** *Analyze the main ideas and supporting details presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how the ideas clarify a topic, text, or issue under study.* ***SL.7.3.*** *Delineate a speaker's argument and specific claims, evaluating the soundness of the reasoning and the relevance and sufficiency of the evidence.* ***SL.7.4.*** *Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.* ***SL.7.5.*** *Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.* ***SL.7.6.*** *Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.*

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.** Link to GHS Career Standards 9.2Crosswalk Doc
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Differentiation / Accommodations / Modifications

See Appendix 3: Modifications

Pacing: 4 weeks		**Unit 4: Reproduction of Organisms and Genetics**
Standards and Suggested Activities		**Skills and Knowledge**
MS-LS3-1. Develop and use a model to describe why structural changes to genes (mutations) located on chromosomes may affect proteins and may result in harmful, beneficial, or neutral effects to the structure and function of the organism. MS-LS3-2. Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation. MS-LS4-4. Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment MS-LS4-5. Gather and synthesize information about the technologies that have changed the way humans influence the inheritance of desired traits in organisms. MS-LS4-6. Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time. MS-LS1-5. Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of	• Kinesthetic activities • Classroom demonstrations • Mendel Pea-pod lab • Meiosis group activity • Critter lab	Students will be able to: • distinguish between sexual and asexual reproduction. • describe how haploid sex cells are formed. • identify and describe the steps of meiosis in the formation of sex cells. • explain the significance of sexual reproduction in the survival of a species. • describe the significance of Gregor Mendel's research regarding heredity and genetics. • explain how two or more alleles combine to determine the appearance of traits. • describe how environmental factors can affect the inheritance of traits. • use a Punnett Square to make predictions about simple inheritance of traits. • distinguish between chromosomes, genes, and alleles. • describe how DNA replicates. • detail how genes can mutate and their effect on organisms. • describe developments in the field of genetic engineering **Integration of Science & Engineering Practices, Disciplinary Core Ideas & Crosscutting Concepts expected in every unit.** Matrix of Science & Engineering Practices Matrix of Disciplinary Core Ideas Matrix of Crosscutting Concepts

organisms.		

District/School Formative Assessment Plan	District/School Summative Assessment Plan
• Class discussions in which student share prior knowledge • Study Island assessments • Quizzes	• 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

See Appendix 1: Reading & Writing Companion Standards for Science

Mathematics –
MP.4 *Model with mathematics. (MS-LS3-2) (MS-LS4-6)*
6.SP.B.5 *Summarize numerical data sets in relation to their context. (MS-LS3-2) (MS-LS4-4),(MS-LS4-6)(MS-LS1-5)*
6.RP.A.1 *Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. (MS-LS4-4),(MS-LS4-6)*
7.RP.A.2 *Recognize and represent proportional relationships between quantities. (MS-LS4-4),(MS-LS4-6)*
6.SP.A.2 *Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape. (MS-LS1-5)*

English-Language Arts:
RI.7.4. *Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of a specific word choice on meaning and tone.*
RI.7.8. *Trace and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient to support the claims.*
W.7.2*. 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 clearly, previewing what is to follow; 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 facts, definitions, concrete details, quotations, or other information and examples.
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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.
SL.7.1. *Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 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, track progress toward specific goals and deadlines, and define individual roles as needed.
C. Pose questions that elicit elaboration and respond to others' questions and comments with relevant observations and ideas that bring the discussion back on topic as needed.
D. Acknowledge new information expressed by others and, when warranted, modify their own views.
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	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

See Appendix 3: Modifications

Pacing: 5 weeks	**Unit 5: Animal Diversity**	
Standards and Suggested Activities		**Skills and Knowledge**
MS-LS1-1. Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells. MS-LS1-4. Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively. MS-LS4-2. Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships	• Kinesthetic activities • Classroom demonstrations • protist lab • cladogram activity • Hydra lab • planaria lab • earthworm dissection	Students will be able to: • describe how organisms are classified based on Linnaean taxonomy. • use a cladogram to describe evolutionary relationships among organisms. • identify various methods of asexual reproduction. • name and describe the characteristics of animal-like protists. • explain the characteristics of Kingdom Animalia. • identify and describe differences among the various animal phyla. • describe the different classes of chordates. **Integration of Science & Engineering Practices, Disciplinary Core Ideas & Crosscutting Concepts expected in every unit.** Matrix of Science & Engineering Practices Matrix of Disciplinary Core Ideas Matrix of Crosscutting Concepts
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Interdisciplinary Connections throughout the K-12 Curriculum
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Mathematics –

6.EE.C.9 *Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. (MS-LS1-1)*

6.SP.A.2 *Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape. (MS-LS1-4)*

6.SP.B.4 *Summarize numerical data sets in relation to their context. (MS-LS1-4)*

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-LS4-2)*

English-Language Arts:

RI.7.4. *Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of a specific word choice on meaning and tone.*

RI.7.8. *Trace and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient to support the claims.*

W.7.2*. 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 clearly, previewing what is to follow; 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 facts, definitions, concrete details, quotations, or other information and examples.

C. Use appropriate 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.

SL.7.1. *Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 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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D. Acknowledge new information expressed by others and, when warranted, modify their own views.

SL.7.2. *Analyze the main ideas and supporting details presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how the ideas clarify a topic, text, or issue under study.*

SL.7.3. *Delineate a speaker's argument and specific claims, evaluating the soundness of the reasoning and the relevance and sufficiency of the evidence.*

SL.7.4. *Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.*

SL.7.5. *Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.*

SL.7.6. *Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.*

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.** Link to GHS Career Standards 9.2Crosswalk Doc
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

See Appendix 3: Modifications

Pacing: 5 weeks	Unit 6: Animal Structure and Function	
Standards and Suggested Activities		**Skills and Knowledge**
MS-LS1-8. Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories. MS-LS4-3. Analyze displays of pictorial data to compare patterns of similarities in the embryological development across multiple species to identify relationships not evident in the fully formed anatomy	• Kinesthetic activities • Classroom demonstrations • Squid virtual dissection lab • Fish dissection lab • Frog dissection lab • reproduction chart activity	Students will be able to: • describe the various methods of support, control, and movement used by animals. • distinguish between open and closed circulatory systems. • identify and describe the function of the three types of hearts. • identify and describe the various methods used by different classes of animals for gas exchange. • differentiate between digestion and absorption of nutrients. • identify and describe the purpose of structures for digestion of various classes of animals. • explain the various processes for waste removal from an organism. • describe the interdependence of the circulatory and respiratory systems. • describe the structure and function of the amniotic egg • trace the ramifications of the increasing embryological complexity across classes of vertebrates. **Integration of Science & Engineering Practices, Disciplinary Core Ideas & Crosscutting Concepts expected in every unit.** Matrix of Science & Engineering Practices Matrix of Disciplinary Core Ideas Matrix of Crosscutting Concepts

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

Interdisciplinary Connections throughout the K-12 Curriculum
See Appendix 1: Reading & Writing Companion Standards for Science ***English-Language Arts:*** ***RI.7.4.*** *Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of a specific word choice on meaning and tone.*

RI.7.8. *Trace and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient to support the claims.*
W.7.2*. 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 clearly, previewing what is to follow; 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 facts, definitions, concrete details, quotations, or other information and examples.
C. Use appropriate 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.
SL.7.1. *Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 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, track progress toward specific goals and deadlines, and define individual roles as needed.
C. Pose questions that elicit elaboration and respond to others' questions and comments with relevant observations and ideas that bring the discussion back on topic as needed.
D. Acknowledge new information expressed by others and, when warranted, modify their own views.
SL.7.2. *Analyze the main ideas and supporting details presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how the ideas clarify a topic, text, or issue under study.*
SL.7.3. *Delineate a speaker's argument and specific claims, evaluating the soundness of the reasoning and the relevance and sufficiency of the evidence.*
SL.7.4. *Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.*
SL.7.5. *Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.*
SL.7.6. *Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.*

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.** **Link to GHS Career Standards 9.2Crosswalk Doc**

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

See Appendix 3: Modifications

Pacing: 3 weeks

Unit 7: Bacteria and Viruses

Standards and Suggested Activities		Skills and Knowledge
MS-LS1-1. Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells. MS-LS1-2. Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function. MS-LS1-5. Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms. MS-LS3-2. Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation. MS-LS4-4. Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment.	• Kinesthetic activities • Classroom demonstrations • Bacteria culture lab • Controlling bacteria lab	Students will be able to: • identify the characteristics of bacteria explain how it is classified • explain positive and negative environmental impacts of bacteria • describe beneficial applications of bacteria in industry • describe the development and use of antibiotics • identify the characteristics and structure of viruses. • explain how viruses replicate. • describe how an organism's immune system forms antibodies to protects that organism from future harm from the virus. • name medical advances in the treatment of viruses. **Integration of Science & Engineering Practices, Disciplinary Core Ideas & Crosscutting Concepts expected in every unit.** Matrix of Science & Engineering Practices Matrix of Disciplinary Core Ideas Matrix of Crosscutting Concepts

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

Interdisciplinary Connections throughout the K-12 Curriculum

See Appendix 1: Reading & Writing Companion Standards for Science

Mathematics

MP.4 *Model with mathematics. (MS-LS3-2)*

6.SP.B.5 *Summarize numerical data sets in relation to their context. (MS-LS3-2) (MS-LS4-4)*

6.EE.C.9 *Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. (MS-LS1-1),(MS-LS1-2)*

6.SP.A.2 *Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape. (MS-LS1-5)*

6.SP.B.4 *Summarize numerical data sets in relation to their context. (MS-LS1-5)*

7.RP.A.2 *Recognize and represent proportional relationships between quantities. (MS-LS4-4)*

English-Language Arts:

RI.7.4. *Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of a specific word choice on meaning and tone.*

RI.7.8. *Trace and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient to support the claims.*

W.7.2*. 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 clearly, previewing what is to follow; 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 facts, definitions, concrete details, quotations, or other information and examples.

C. Use appropriate 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.

SL.7.1. *Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 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, track progress toward specific goals and deadlines, and define individual roles as needed.

C. Pose questions that elicit elaboration and respond to others' questions and comments with relevant observations and ideas that bring the discussion back on topic as needed.

D. Acknowledge new information expressed by others and, when warranted, modify their own views.

SL.7.2. *Analyze the main ideas and supporting details presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how the ideas clarify a topic, text, or issue under study.*

SL.7.3. *Delineate a speaker's argument and specific claims, evaluating the soundness of the reasoning and the relevance and sufficiency of the evidence.*

SL.7.4. *Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.*

SL.7.5. *Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.*

SL.7.6. *Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.*

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.** Link to GHS Career Standards 9.2Crosswalk Doc
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

See Appendix 3: Modifications

Pacing: 2 weeks	Unit 8: Protists and Fungi	
Standards and Suggested Activities		**Skills and Knowledge**
MS-LS1-1. Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells. MS-LS1-2. Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function. MS-LS1-4. Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively. MS-LS1-5. Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms. MS-LS1-6. Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms. MS-LS2-3. Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem. MS-LS2-4. Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations MS-LS3-2. Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation. 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	• Kinesthetic activities • Classroom demonstrations • protist lab • Fungi and lichen lab • Environmental pest control project	Students will be able to: • identify the characteristics and types of protists and explain how they are classified. • detail the positive and negative environmental impacts of various types of protists. • describe the effect of protists on human life. • identify the characteristics and types of fungi and explain how they are classified. • explain the impact fungi have on the environment. • discuss Alexander Fleming's discovery of penicillin and its importance as an antibiotic. . • describe the importance of fungi to health and medicine. • demonstrate an understanding of the symbiotic relationship in lichen and its environmental importance. • conduct an investigation to mitigate the negative impact of a pest to humans.. **Integration of Science & Engineering Practices, Disciplinary Core Ideas & Crosscutting Concepts expected in every unit.** Matrix of Science & Engineering Practices Matrix of Disciplinary Core Ideas Matrix of Crosscutting Concepts

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.		

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

Interdisciplinary Connections throughout the K-12 Curriculum

See Appendix 1: Reading & Writing Companion Standards for Science

Mathematics
MP.2 *Reason abstractly and quantitatively. (MS-ETS1-1),(MS-ETS1-2),(MS-ETS1-3),(MS-ETS1-4)*
MP.4 *Model with mathematics. (MS-LS3-2)*
6.EE.C.9 *Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. (MS-LS1-1),(MS-LS1-2),(MS-LS1-6)*
6.SP.A.2 *Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape. (MS-LS1-4),(MS-LS1-5)*
6.SP.B.4 *Summarize numerical data sets in relation to their context. (MS-LS1-4),(MS-LS1-5)(MS-LS3-2)*

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:
RI.7.4. *Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of a specific word choice on meaning and tone.*
RI.7.8. *Trace and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient to support the claims.*
W.7.2*. 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 clearly, previewing what is to follow; 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 facts, definitions, concrete details, quotations, or other information and examples.
C. Use appropriate 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.
SL.7.1. *Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 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, track progress toward specific goals and deadlines, and define individual roles as needed.
C. Pose questions that elicit elaboration and respond to others' questions and comments with relevant observations and ideas that bring the discussion back on topic as needed.
D. Acknowledge new information expressed by others and, when warranted, modify their own views.
SL.7.2. *Analyze the main ideas and supporting details presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how the ideas clarify a topic, text, or issue under study.*
SL.7.3. *Delineate a speaker's argument and specific claims, evaluating the soundness of the reasoning and the relevance and sufficiency of the evidence.*
SL.7.4. *Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.*
SL.7.5. *Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.*
SL.7.6. *Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.*

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.** **Link to GHS Career Standards 9.2Crosswalk Doc**
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

See Appendix 3: Modifications

Pacing: 3 weeks	**Unit 9: Plant Diversity**	
Standards and Suggested Activities		**Skills and Knowledge**
MS-LS1-1. Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells. MS-LS1-2. Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function. MS-LS1-3. Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells MS-LS1-4. Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively. MS-LS1-6. Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms. MS-LS3-2. Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation. MS-LS4-4. Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment. MS-LS4-5. Gather and synthesize information about the technologies that have changed the way humans influence the inheritance of desired traits in organisms.	• Kinesthetic activities • Classroom demonstrations • plant classification lab • stomata lab	Students will be able to: • diagram and identify the parts of a plant cell. • describe how plants are classified according to their structure. • detail how various types of plants reproduce. • explain and diagram how photosynthesis occurs in a typical leaf of a plant. • compare and contrast the use of technology in genetically modified plants. **Integration of Science & Engineering Practices, Disciplinary Core Ideas & Crosscutting Concepts expected in every unit.** Matrix of Science & Engineering Practices Matrix of Disciplinary Core Ideas Matrix of Crosscutting Concepts
District/School Formative Assessment Plan		**District/School Summative Assessment Plan**
• Class discussions in which student share prior knowledge • Study Island assessments • Quizzes		• Teacher-created quizzes • Teacher-created unit assessments • Labs
Core Instructional Materials		**District/School Supplementary Resources**

• *Glencoe iScience Life Science Series* (Mcgraw-Hill Companies, Inc. 2012)	• Discovery Education videos • Glencoe ConnectEd online resources • Leveled texts/articles: Newsela

Interdisciplinary Connections throughout the K-12 Curriculum

See Appendix 1: Reading & Writing Companion Standards for Science

Mathematics
MP.4 *Model with mathematics. (MS-LS3-2)*
6.SP.B.5 *Summarize numerical data sets in relation to their context. (MS-LS3-2)*
6.EE.C.9 *Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. (MS-LS1-1),(MS-LS1-2),(MS-LS1-3),(MS-LS1-6)*
6.SP.A.2 *Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape. (MS-LS1-4)*
6.SP.B.4 *Summarize numerical data sets in relation to their context. (MS-LS1-4)(MS-LS4-4)*
6.RP.A.1 *Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. (MS-LS4-4)*
7.RP.A.2 *Recognize and represent proportional relationships between quantities. (MS-LS4-4)*

English-Language Arts:
RI.7.4. *Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of a specific word choice on meaning and tone.*
RI.7.8. *Trace and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient to support the claims.*
W.7.2*. 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 clearly, previewing what is to follow; 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 facts, definitions, concrete details, quotations, or other information and examples.
C. Use appropriate 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.
SL.7.1. *Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 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, track progress toward specific goals and deadlines, and define individual roles as needed.
C. Pose questions that elicit elaboration and respond to others' questions and comments with relevant observations and ideas that bring the discussion back on topic as needed.

D. Acknowledge new information expressed by others and, when warranted, modify their own views. ***SL.7.2.*** *Analyze the main ideas and supporting details presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how the ideas clarify a topic, text, or issue under study.* ***SL.7.3.*** *Delineate a speaker's argument and specific claims, evaluating the soundness of the reasoning and the relevance and sufficiency of the evidence.* ***SL.7.4.*** *Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.* ***SL.7.5.*** *Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.* ***SL.7.6.*** *Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.*

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.** **Link to GHS Career Standards 9.2Crosswalk Doc**
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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
See Appendix 3: Modifications