

GREEN TOWNSHIP SCHOOL DISTRICT



Content Area: Science
Course/Grade Level: 7th Grade

Curriculum Committee Members:

Principal:
Jon Paul Bollette

Board Approval Date:
10/21/26



7th Grade

Mission:

All students will develop an understanding of scientific concepts and processes essential for informed decision-making, meaningful participation in civic life, and readiness for postsecondary opportunities, including careers in STEM fields.

Vision:

Prepare students to become scientifically literate individuals who can effectively:

- Apply scientific thinking, skills, and understanding to real-world phenomena and problems;
- Engage in systems thinking and modeling to explain phenomena and to give a context for the ideas to be learned;
- Conduct investigations, solve problems, and engage in discussions;
- Discuss open-ended questions that focus on the strength of the evidence used to generate claims;
- Read and evaluate multiple sources, including science-related magazine and journal articles and web-based resources to gain knowledge about current and past science problems and solutions and develop well-reasoned claims; and
- Communicate ideas through journal articles, reports, posters, and media presentations that explain and argue.



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Key Performance and Benchmark Tasks/Assessments

Formative assessments:

- Used to gauge student understanding and progress throughout the unit.
- Not necessarily graded
- Provide feedback for students to use to reflect, revise and refine their work.

Summative Assessments:

- Final projects or assessments to determine what students have learned over the course of the project or unit.

Benchmark Assessments:

- Teacher-created benchmark assessments to be given periodically during the year.

Alternative Assessments:

- Teacher modifies assignments and activities based on student needs.
- Oral assessments administered in place of written when necessary.
- Accommodation and modification ideas may be found here:
 - [Modifications & Accommodations Menu](#)
 - *Assessments other than paper & pencil tests See link for more info:*
http://education.qmu.edu/assets/docs/forms/mirs/assessment_brochure.pdf

Integrated Accommodations & Modifications

Please utilize the link below for ideas and strategies to use with ***ELL, Students with IEPs & 504s, At-Risk Students and Gifted & Talented Students***.

The attached worksheets can be printed ahead of each unit during the planning phase to help the teacher plan for the needs of particular students in each class, allowing for differentiation per unit and per year. The worksheets contain suggested accommodations and modifications for Content & Material, Student



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Organization, Instructional Strategies, Assessments, Attention/Focus, Written Language, and Social/Behavioral.

[Modifications & Accommodations Menu](#)



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Unit 1

Classifying and Exploring Life	Pacing: 4 weeks
Unit Summary: In this unit, students develop foundational science skills by exploring scientific inquiry, laboratory tools, and the process scientists use to investigate questions and solve problems. Students examine the characteristics and classification of living organisms while exploring how scientific theories have changed over time through evidence and experimentation.	
Essential Questions: - How do scientists investigate questions and develop solutions to problems? - How does scientific evidence shape our understanding of the natural world? - How do scientists classify and organize the diversity of living things?	Enduring Understandings: - Scientific inquiry provides a structured process for investigating questions, solving problems, and developing evidence-based explanations about the natural world. - Living organisms share common characteristics and can be organized into systems of classification based on their similarities and relationships. - Scientific ideas develop over time as evidence is collected, tested, and used to support or revise explanations of natural phenomena.

New Jersey Student Learning Standards	Student Learning Objectives	Practices
- 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.	- 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	- Planning and Carrying Out Investigations - Developing and Using Models - Constructing Explanations and Designing Solutions - Obtaining, Evaluating, and Communicating Information



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|---|---|---|
| <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> classification models. explain the purpose and use of binomial nomenclature. | <ul style="list-style-type: none"> Analyzing and Interpreting Data Engaging in Argument from Evidence |
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Interdisciplinary Connections

2020 Career Readiness, Life Literacies, and Key Skills

- 9.4.8.CT.1 – Evaluate diverse solutions proposed by a variety of individuals, organizations, and/or agencies to solve a problem.
- 9.4.8.IML.1 – Critically curate multiple resources to assess the credibility of sources when selecting information to answer questions.
- 9.4.8.TL.3 – Select appropriate tools to organize and present information.
- 9.4.8.TL.4 – Describe how technologies can be used to create, modify, and display digital artifacts.
- 9.4.8.TL.6 – Collaborate to develop and refine a digital artifact.

Instructional Materials & Resources

- Glencoe iScience Life Science Series*
(Mcgraw-Hill Companies, Inc. 2012)
- Discovery Education videos



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- Glencoe ConnectEd online resources

Unit 1: Assessments

Formative assessments:

- Class discussions in which student share prior knowledge
- Classifying and Dichotomous Key Assignment
- Classifying Life & Dichotomous Key Stations
- Task Cards

Summative Assessments:

- Microscope and Scientific Method Quiz
- Pond Water Lab
- Characteristics of Living Things Quiz
- Unit 1 Test Classifying and Exploring Life

Alternative Assessments:

- Is my Teacher a Zombie CER- Characteristics of Living Things Activity

Unit 1: Accommodations & Modifications

Please utilize the link below for ideas and strategies to use with ELL, Students with IEPs & 504s, At-Risk Students and Gifted & Talented Students. Note possible accommodations or modifications for this unit below.

[Modifications & Accommodations Menu](#)



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Unit 2

Cells: Structure and Function	Pacing: 4 weeks
Unit Summary: In this unit, students explore the structure and function of cells by examining cell theory, cellular components, and the differences between prokaryotic and eukaryotic organisms. Students investigate how cells process materials, transport substances, and transform energy through photosynthesis and cellular respiration to maintain life.	
Essential Questions: - How do cell structures contribute to the functions necessary for life? - How do cells obtain, process, transport, and use materials and energy? - How are photosynthesis and cellular respiration connected in the cycling of energy through living systems?	Enduring Understandings: - Cells are the fundamental units of life, and their structures allow organisms to carry out essential life processes. - The organization and function of cellular structures determine how cells obtain, use, transport, and store materials and energy. - Cells transform matter and energy through processes that support life, including photosynthesis and cellular respiration.

New Jersey Student Learning Standards	Student Learning Objectives	Practices
- 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	- 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.	- Developing and Using Models - Obtaining, Evaluating, and Communicating Information - Constructing Explanations and Designing Solutions - Planning and Carrying Out Investigations - Analyzing and Interpreting Data - Using Mathematics and Computational Thinking - Engaging in Argument



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- describe the reverse energy processes of cellular respiration and photosynthesis.

from Evidence

Interdisciplinary Connections

2020 Career Readiness, Life Literacies, and Key Skills

- 9.4.8.IML.1 – Critically curate multiple resources to assess the credibility of sources when selecting information to answer questions.
9.4.8.TL.3 – Select appropriate tools to organize and present information.
9.4.8.TL.4 – Describe how technologies can be used to create, modify, and display digital artifacts.
9.4.8.TL.6 – Collaborate to develop and refine a digital artifact.

Instructional Materials & Resources

- *Glencoe iScience Life Science Series*
(Mcgraw-Hill Companies, Inc. 2012)
- Discovery Education videos
- Glencoe ConnectEd online resources

Unit 2: Assessments

Formative assessments:

- Class discussions in which student share prior knowledge
- Cell Parts and Function Paper Diagram/Model
- Cell Energy Stations
- Task Cards

Summative Assessments:

- 3D Cell Model Project



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- Diffusion Lab
- Osmosis Gummy Bear Lab
- Moving of Material in Cells Quiz
- Unit 2 Test- Cells

Alternative Assessments:

- Cell Model Board Game

Unit 2: Accommodations & Modifications

Please utilize the link below for ideas and strategies to use with ELL, Students with IEPs & 504s, At-Risk Students and Gifted & Talented Students. Note possible accommodations or modifications for this unit below.

[Modifications & Accommodations Menu](#)



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Unit 3

From a Cell to an Organism	Pacing: 3 weeks
Unit Summary: In this unit, students investigate the cell cycle, mitosis, and differentiation to understand how organisms grow, repair tissues, and maintain life. Students explore the organization of multicellular organisms and examine how the nervous system uses sensory information to produce responses, learning, and memories.	
Essential Questions: - How do cells grow, divide, and specialize to support life? - How does the organization of cells create complex living systems? - How does the nervous system allow organisms to sense, respond, and adapt to their environment?	Enduring Understandings: - Cell growth, division, and differentiation allow organisms to develop, maintain tissues, and survive. - Cells become specialized through organization and differentiation, allowing multicellular organisms to perform complex life functions. - The nervous system allows organisms to detect, process, and respond to information from their environment.

New Jersey Student Learning Standards	Student Learning Objectives	Practices
- 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	- 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	- Developing and Using Models - Obtaining, Evaluating, and Communicating Information - Constructing Explanations and Designing Solutions - Analyzing and Interpreting Data - Planning and Carrying Out Investigations - Engaging in Argument



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brain for immediate behavior or storage as memories.

generate memories.

- from Evidence
- Using Mathematics and Computational Thinking

Interdisciplinary Connections

2020 Career Readiness, Life Literacies, and Key Skills

- 9.4.8.IML.1 – Critically curate multiple resources to assess the credibility of sources when selecting information to answer questions.
9.4.8.IML.4 – Ask questions to evaluate the credibility of sources and identify potential bias.
9.4.8.TL.3 – Select appropriate tools to organize and present information.
9.4.8.TL.4 – Describe how technologies can be used to create, modify, and display digital artifacts.
9.4.8.TL.6 – Collaborate to develop and refine a digital artifact.

Instructional Materials & Resources

- *Glencoe iScience Life Science Series*
(Mcgraw-Hill Companies, Inc. 2012)
- Discovery Education videos
- Glencoe ConnectEd online resources

Unit 3: Assessments

Formative assessments:

- Class discussions in which student share prior knowledge
- Quiz
- Mitosis Cookie or Playdough Model
- Knee Model- Cellular Organization



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- Station Activity
- Task Cards

Summative Assessments:

- Cell Organelle Virtual Lab
- Types of Cell Virtual Lab-Prokaryote/Eukaryote
- Mitosis Onion Root Tip Microscope Lab
- Unit 3 Test
- Types of Tissue Microscope Lab

Alternative Assessments:

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Unit 3: Accommodations & Modifications

Please utilize the link below for ideas and strategies to use with ELL, Students with IEPs & 504s, At-Risk Students and Gifted & Talented Students. Note possible accommodations or modifications for this unit below.

[Modifications & Accommodations Menu](#)

Unit 4

Reproduction of Organisms and Genetics

Pacing:4 weeks

Unit Summary: In this unit, students explore reproduction, heredity, and genetics by examining how organisms produce offspring and pass genetic information through DNA. Students investigate meiosis, Mendelian genetics, mutations, and genetic engineering to understand how traits are inherited, expressed, and modified.

Essential Questions:

Enduring Understandings:



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| <ul style="list-style-type: none"> • How do organisms pass genetic information from one generation to the next? • How do genes and environmental factors influence the traits of organisms? • How has the study of genetics changed our understanding of life and the development of new technologies? | <ul style="list-style-type: none"> • Genetic information is passed from parents to offspring through reproductive processes and determines inherited traits. • Variations in DNA, genes, and alleles contribute to differences among organisms and influence survival within changing environments. • Advances in genetics allow scientists to understand, predict, and modify biological traits and processes. |
|---|--|

New Jersey Student Learning Standards	Student Learning Objectives	Practices
• 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	• 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	• Developing and Using Models • Constructing Explanations and Designing Solutions • Obtaining, Evaluating, and Communicating Information • Analyzing and Interpreting Data • Planning and Carrying Out Investigations • Using Mathematics and Computational Thinking • Engaging in Argument from Evidence



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influence the growth of organisms.

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2020 Career Readiness, Life Literacies, and Key Skills

9.4.8.IML.1 – Critically curate multiple resources to assess the credibility of sources when selecting information to answer questions.

9.4.8.IML.4 – Ask questions to evaluate the credibility of sources and identify potential bias.

9.4.8.TL.3 – Select appropriate tools to organize and present information.

9.4.8.TL.4 – Describe how technologies can be used to create, modify, and display digital artifacts.

9.4.8.TL.6 – Collaborate to develop and refine a digital artifact.

Instructional Materials & Resources

- *Glencoe iScience Life Science Series*
(Mcgraw-Hill Companies, Inc. 2012)
- Discovery Education videos
- Glencoe ConnectEd online resources

Unit 4: Assessments

Formative assessments:

- Class discussions in which student share prior knowledge
- Task Cards
- Stations
- Meiosis Model



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- DNA Model

Summative Assessments:

- Unit Test
- Genetic Mutation Research Project
- Alien Genetic Project

Alternative Assessments:

- Build a Critter Genetic Project

Unit 4: Accommodations & Modifications

Please utilize the link below for ideas and strategies to use with ELL, Students with IEPs & 504s, At-Risk Students and Gifted & Talented Students. Note possible accommodations or modifications for this unit below.

[Modifications & Accommodations Menu](#)

Unit 5

Animal Diversity

Pacing: 5 weeks

Unit Summary: In this unit, students explore biological classification by examining Linnaean taxonomy, evolutionary relationships, and classification models such as cladograms. Students investigate the diversity of animal-like protists and members of Kingdom Animalia by comparing characteristics, adaptations, and evolutionary relationships among major groups.

Essential Questions:

- How do scientists classify and organize the diversity of living organisms?
- How do characteristics and evolutionary relationships help us understand connections among organisms?
- How do organisms' structures and adaptations contribute to their survival?

Enduring Understandings:

- Classification systems organize the diversity of life and reflect relationships among organisms based on shared characteristics and evolutionary history.
- Organisms have adaptations and characteristics that allow



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them to survive, reproduce, and occupy specific roles within ecosystems.

- The diversity of living things is the result of millions of years of evolution and can be studied through patterns of similarities and differences among organisms.

New Jersey Student Learning Standards	Student Learning Objectives	Practices
• 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	• 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.	• Developing and Using Models • Obtaining, Evaluating, and Communicating Information • Constructing Explanations and Designing Solutions • Analyzing and Interpreting Data • Engaging in Argument from Evidence • Planning and Carrying Out Investigations • Using Mathematics and Computational Thinking

Interdisciplinary Connections

2020 Career Readiness, Life Literacies, and Key Skills

- 9.4.8.IML.1 – Critically curate multiple resources to assess the credibility of sources when selecting information to answer questions.
- 9.4.8.TL.3 – Select appropriate tools to organize and present information.
- 9.4.8.TL.4 – Describe how technologies can be used to create, modify, and display digital artifacts.
- 9.4.8.TL.6 – Collaborate to develop and refine a digital artifact.



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Instructional Materials & Resources

- *Glencoe iScience Life Science Series*
(Mcgraw-Hill Companies, Inc. 2012)
- Discovery Education videos
- Glencoe ConnectEd online resources

Unit 5: Assessments

Formative assessments:

- Class discussions in which student share prior knowledge
- Quizzes
- Task Cards
- Stations

Summative Assessments:

- Darwin Simulation Lab
- Unit Test
- Student research project- choice between different phyla

Alternative Assessments:

Unit 5: Accommodations & Modifications

Please utilize the link below for ideas and strategies to use with ELL, Students with IEPs & 504s, At-Risk Students and Gifted & Talented Students. Note possible accommodations or modifications for this unit below.



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[Modifications & Accommodations Menu](#)

Unit 6

Animal Structure and Function	Pacing: 5 weeks
Unit Summary: Students will explore the specialized structures and body systems of animals, examining how adaptations support movement, circulation, respiration, digestion, waste removal, and survival. Students will compare the increasing complexity of animal systems across different groups and investigate how these structures allow organisms to maintain life and adapt to their environments.	
Essential Questions: - How do specialized structures and body systems help animals meet their basic needs and survive? - How do animal body systems work together to maintain life and respond to environmental challenges? - How does the complexity of animal structures and functions reflect adaptation and evolutionary change?	Enduring Understandings: - Animals have specialized structures and body systems that work together to support survival, growth, reproduction, and adaptation within their environments. - The complexity of animal structures and systems has increased over evolutionary time, allowing organisms to perform essential life functions more efficiently and adapt to diverse habitats. - The interactions among body systems, including movement, circulation, respiration, digestion, and waste removal, maintain homeostasis and support an organism's survival.

New Jersey Student Learning Standards	Student Learning Objectives	Practices
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	- 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.	- Developing and Using Models - Obtaining, Evaluating, and Communicating Information - Constructing Explanations and Designing Solutions



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anatomy

- 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.
- Analyzing and Interpreting Data
 - Planning and Carrying Out Investigations
 - Engaging in Argument from Evidence
 - Using Mathematics and Computational Thinking

Interdisciplinary Connections

2020 Career Readiness, Life Literacies, and Key Skills

- 9.4.8.IML.1 – Critically curate multiple resources to assess the credibility of sources when selecting information to answer questions.
- 9.4.8.TL.3 – Select appropriate tools to organize and present information.
- 9.4.8.TL.4 – Describe how technologies can be used to create, modify, and display digital artifacts.
- 9.4.8.TL.6 – Collaborate to develop and refine a digital artifact.

Instructional Materials & Resources

- *Glencoe iScience Life Science Series*
(Mcgraw-Hill Companies, Inc. 2012)
- Discovery Education videos
- Glencoe ConnectEd online resources

Unit 6: Assessments



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Formative assessments:

- Class discussions in which student share prior knowledge
- Quizzes
- Task Cards
- Stations
- Diagram of systems

Summative Assessments:

- Teacher-created quizzes
- Unit Test
- Worm Dissection
- Fish Dissection
- Frog Dissection

Alternative Assessments:

Unit 6: Accommodations & Modifications

Please utilize the link below for ideas and strategies to use with ELL, Students with IEPs & 504s, At-Risk Students and Gifted & Talented Students. Note possible accommodations or modifications for this unit below.

[Modifications & Accommodations Menu](#)

Unit 7

Bacteria and Viruses**Pacing: 3 weeks**

Unit Summary: In this unit, students investigate the characteristics, classification, and roles of bacteria and viruses in the environment, industry, and human health. Students explore how viruses reproduce, how the immune system responds to infection, and how medical advances have improved the prevention and



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treatment of viral diseases.

Essential Questions:

- How are bacteria and viruses classified and studied?
- How can microorganisms have both positive and negative effects on living systems?
- How do scientific discoveries help humans prevent and treat infectious diseases?

Enduring Understandings:

- Microorganisms have diverse structures, characteristics, and roles that influence ecosystems, human health, and industry.
- Scientific understanding of bacteria and viruses has led to advances in medicine, disease prevention, and biotechnology.
- Living organisms have defense systems and adaptations that help them survive interactions with pathogens and their environment.

New Jersey Student Learning Standards	Student Learning Objectives	Practices
• 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.	• 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 protect that organism from future harm from the virus. • name medical advances in the treatment of viruses.	• Obtaining, Evaluating, and Communicating Information • Developing and Using Models • Constructing Explanations and Designing Solutions • Analyzing and Interpreting Data • Planning and Carrying Out Investigations • Engaging in Argument from Evidence • Using Mathematics and Computational Thinking



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Interdisciplinary Connections

2020 Career Readiness, Life Literacies, and Key Skills

- 9.4.8.IML.1 – Critically curate multiple resources to assess the credibility of sources when selecting information to answer questions.
- 9.4.8.IML.4 – Ask questions to evaluate the credibility of sources and identify potential bias.
- 9.4.8.TL.3 – Select appropriate tools to organize and present information.
- 9.4.8.TL.4 – Describe how technologies can be used to create, modify, and display digital artifacts.
- 9.4.8.TL.6 – Collaborate to develop and refine a digital artifact.

Instructional Materials & Resources

- *Glencoe iScience Life Science Series*
(Mcgraw-Hill Companies, Inc. 2012)
- Discovery Education videos
- Glencoe ConnectEd online resources

Unit 7: Assessments

Formative assessments:

- Class discussions in which student share prior knowledge
- Quizzes
- Task Cards
- Stations
- Virus Diagram/ Model

Summative Assessments:

- Teacher-created quizzes
- Unit Test
- Labs



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- Research Project

Alternative Assessments:

Unit 7: Accommodations & Modifications

Please utilize the link below for ideas and strategies to use with ELL, Students with IEPs & 504s, At-Risk Students and Gifted & Talented Students. Note possible accommodations or modifications for this unit below.

[Modifications & Accommodations Menu](#)

Unit 8

Protists and Fungi

Pacing: 2 weeks

Unit Summary: In this unit, students investigate the characteristics, classification, and ecological roles of protists and fungi while examining their effects on ecosystems and human life. Students explore the importance of fungi in medicine, including the discovery of penicillin, analyze symbiotic relationships such as lichen, and apply scientific investigation skills to address problems caused by pests.

Essential Questions:

- Protists and fungi are diverse groups of organisms that play important roles in ecosystems, human health, and industry.
- Organisms interact with their environments in complex ways, creating both beneficial and harmful impacts on other living things.
- Scientific discoveries involving microorganisms have contributed to advances in medicine, agriculture, and environmental problem-solving.

Enduring Understandings:

- Protists and fungi are diverse groups of organisms that play important roles in ecosystems, human health, and industry.
- Organisms interact with their environments in complex ways, creating both beneficial and harmful impacts on other living things.
- Scientific discoveries involving microorganisms have contributed to advances in medicine, agriculture, and



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environmental problem-solving.

New Jersey Student Learning Standards	Student Learning Objectives	Practices
- 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	- 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..	- Obtaining, Evaluating, and Communicating Information - Planning and Carrying Out Investigations - Developing and Using Models - Constructing Explanations and Designing Solutions - Analyzing and Interpreting Data - Engaging in Argument from Evidence - Using Mathematics and Computational Thinking



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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 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.

Interdisciplinary Connections

2020 Career Readiness, Life Literacies, and Key Skills

- 9.4.8.IML.1 – Critically curate multiple resources to assess the credibility of sources when selecting information to answer questions.
- 9.4.8.CT.1 – Evaluate diverse solutions proposed by a variety of individuals, organizations, and/or agencies to solve a problem.
- 9.4.8.CT.2 – Develop criteria and constraints for a solution to a problem.
- 9.4.8.TL.3 – Select appropriate tools to organize and present information.
- 9.4.8.TL.6 – Collaborate to develop and refine a digital artifact.



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Instructional Materials & Resources

- *Glencoe iScience Life Science Series*
(Mcgraw-Hill Companies, Inc. 2012)
- Discovery Education videos
- Glencoe ConnectEd online resources

Unit 8: Assessments

Formative assessments:

- Class discussions in which student share prior knowledge
- Quizzes

Summative Assessments:

- Teacher-created quizzes
- Unit Test
- Protist Labs
- Research Project

Alternative Assessments:

- Fungi Dissection

Unit 8: Accommodations & Modifications

Please utilize the link below for ideas and strategies to use with ELL, Students with IEPs & 504s, At-Risk Students and Gifted & Talented Students. Note possible accommodations or modifications for this unit below.

[Modifications & Accommodations Menu](#)



7th Grade

Unit 9

Plant Diversity	Pacing: 3 weeks
Unit Summary: In this unit, students investigate plant structures, classification, reproduction, and the process of photosynthesis that allows plants to produce energy. Students also explore genetic technologies used to modify plants and evaluate the benefits and potential concerns associated with genetically modified organisms.	
Essential Questions: - How do plant structures and processes allow plants to survive and reproduce? - How are plants classified based on their characteristics and life cycles? - How can technology be used to improve plants, and what are the potential benefits and impacts?	Enduring Understandings: - Plant structures are specialized to support survival, reproduction, and energy production. - Plants are classified based on shared structural characteristics and reproductive strategies that reflect their evolutionary relationships. - Advances in technology allow humans to modify plant traits and influence agriculture, ecosystems, and food production.

New Jersey Student Learning Standards	Student Learning Objectives	Practices
- 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	- 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.	- Developing and Using Models - Obtaining, Evaluating, and Communicating Information - Constructing Explanations and Designing Solutions - Planning and Carrying Out Investigations - Analyzing and Interpreting Data - Engaging in Argument



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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.		from Evidence • Using Mathematics and Computational Thinking
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Interdisciplinary Connections

2020 Career Readiness, Life Literacies, and Key Skills

- 9.4.8.IML.1 – Critically curate multiple resources to assess the credibility of sources when selecting information to answer questions.
- 9.4.8.CT.1 – Evaluate diverse solutions proposed by a variety of individuals, organizations, and/or agencies to solve a problem.
- 9.4.8.CT.2 – Develop criteria and constraints for a solution to a problem.
- 9.4.8.TL.3 – Select appropriate tools to organize and present information.
- 9.4.8.TL.4 – Describe how technologies can be used to create, modify, and display digital artifacts.

Instructional Materials & Resources



7th Grade

- *Glencoe iScience Life Science Series*
(Mcgraw-Hill Companies, Inc. 2012)
- Discovery Education videos
- Glencoe ConnectEd online resources

Unit 9: Assessments

Formative assessments:

- Class discussions in which student share prior knowledge
- Quizzes
- Photosynthesis Diagram
- Photosynthesis Virtual Lab
- Task Cards
- Stations

Summative Assessments:

- Teacher-created quizzes
- Unit Test
- Photosynthesis Lab

Alternative Assessments:

- Chlorophyll Lab

Unit 9: Accommodations & Modifications

Please utilize the link below for ideas and strategies to use with ELL, Students with IEPs & 504s, At-Risk Students and Gifted & Talented Students. Note possible accommodations or modifications for this unit below.

[Modifications & Accommodations Menu](#)



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