Orange Public Schools

Office of Curriculum & Instruction

2019-2020 Science Curriculum Guide

Grade 6

Module 3A: Growth, Development and Reproduction of Organisms

March 2, 2020 – April 3, 2020

Board Approved: 1.14.2020

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Grade 6 – Unit 3A - Life Science (LS) Growth, Development and Reproduction of Organisms

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GRADE 6 Yearlong Scope and Sequence by Instructional Weeks

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12

UNIT 1 – Physical Science (Sept 9th – Nov 27th)

TOPIC 1 FORCE AND MOTION (6 Weeks)
Students use systems, system models, stability, and change to understanding ideas related to why some objects will keep moving and why other objects fall to the ground.

TOPIC 2 TYPES OF INTERACTIONS (6 Weeks)
In this unit, students use the practices of analyzing and interpreting data, developing and using models, and engaging in argument from evidence to make sense of the relationship between energy and forces.

Week 13	Week 14	Week 15	Week 16	Week 17	Week 18	Week 19	Week 20	Week 21	Week 22	Week 23	Week 24

UNIT 2 – Earth Science (Dec 2nd – Feb 14th)

TOPIC 1 ASTRONOMY (5 Weeks)
This unit is broken down into three sub-ideas: the universe and its stars, Earth and the solar system, and the history of planet Earth. Students examine the Earth's place in relation to the solar system, the Milky Way galaxy, and the universe.

TOPIC 2 WEATHER AND CLIMATE (4 Weeks)
This unit is broken down into three sub-ideas: Earth's large-scale systems interactions, the roles of water in Earth's surface processes, and weather and climate.

Unit 3 – Life Science Feb 24th – Jun 12th

TOPIC 1 Growth Development and Reproduction of Organisms (5 Weeks)
Students use data and conceptual models to understand how the environment and genetic factors determine the growth of an individual

Week 25	Week 26	Week 27	Week 28	Week 29	Week 30	Week 31	Week 32	Week 33	Week 34	Week 35	Week 36

Unit 3 – Life Science (Feb 24th – Jun 12th)

TOPIC 1 Growth Dev and Rep of Organisms (5 Weeks)
Students use data and conceptual models to understand how the environment and genetic factors determine the growth of an individual organism

TOPIC 2 Matter and Energy in Organisms and Ecosystems (5 weeks)
Students analyze and interpret data, develop models, construct arguments, and demonstrate a deeper understanding of the cycling of matter, the flow of energy, and resources in ecosystems. They are able to study patterns of interactions among organisms within an ecosystem.

TOPIC 3 Interdependent Relationships in Ecosystems (5 Weeks)
Students build on their understanding of the transfer of matter and energy as they study patterns of interactions among organisms within an ecosystem. They consider biotic and abiotic factors in an ecosystem and the effects these factors have on a population.

Week 37	Week 38	Week 38	Week 40	Week 41	Week 42	Week 43					

UNIT 4 Engineering Design (June 15th – 26th)

TOPIC 1 ENGINEERING DESIGN PROCESS (2 Weeks)

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Grade/Course Overview: Grade 6 Unit 3A: Growth, Development, & Reproduction of Organisms

This is a hands-on course in which science concepts are taught to 6th grade students in a 3-dimensional manner guided by the NJSLS. We will focus on studying concepts related to life science, specifically the Growth, Development, and Reproduction of Organisms. The purpose of this course is to have students develop, model, and carry out investigations related to this topic by using strategies aligned with the New Jersey Student Learning Standards and the Next Generation Science Standards (MS-LS1-4 and MS-LS1-5).

Students will focus on the following concepts and ideas:

- 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.
    - Examples of behaviors that affect the probability of animal reproduction could include nest building to protect young from cold, herding of animals to protect young from predators, and vocalization of animals and colorful plumage to attract mates for breeding.
    - Examples of animal behaviors that affect the probability of plant reproduction could include transferring pollen or seeds, and creating conditions for seed germination and growth.
    - Examples of plant structures could include bright flowers attracting butterflies that transfer pollen, flower nectar and odors that attract insects that transfer pollen, and hard shells on nuts that squirrels bury.
- Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.
    - Examples of local environmental conditions could include availability of food, light, space, and water.
    - Examples of genetic factors could include large breed cattle and species of grass affecting growth of organisms.
    - Examples of evidence could include drought decreasing plant growth, fertilizer increasing plant growth, different varieties of plant seeds growing at different rates in different conditions, and fish growing larger in large ponds than they do in small ponds.

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Unit 3A: Growth, Development, & Reproduction of Organisms

Unit Summary:

Students use data and conceptual models to understand how the environment and genetic factors determine the growth of an individual organism. They connect this idea to the role of animal behaviors in animal reproduction and to the dependence of some plants on animal behaviors for their reproduction. Students provide evidence to support their understanding of the structures and behaviors that increase the likelihood of successful reproduction by organisms. The crosscutting concepts of *cause and effect* and *structure and function* provide a framework for understanding the disciplinary core ideas. Students demonstrate grade-appropriate proficiency in *analyzing and interpreting data, using models, conducting investigations,* and *communicating information.* Students are also expected to use these practices to demonstrate an understanding of the core ideas.

This unit is based on MS-LS1-4 and MS-LS1-5.

Related Phenomena: The following links can be referenced for Life Science related phenomena:

NGSS Based Phenomena - https://thewonderofscience.com/phenomenal

#ProjectPhenomena - https://sites.google.com/site/sciencephenomena/

Phenomena for NGSS - https://www.ngssphenomena.com/how-to-use-phenomena

Sunrise Science (a collection of free websites) - http://sunrisescience.blog/free-websites-ngss-anchoring-phenomena/

Teaching Channel Phenomena - https://www.teachingchannel.org/video/using-phenomena-achieve

STEMscopes (Develop Student Inquiry with Phenomena) - https://www.stemscopes.com/phenomena

Essential Questions:	**Enduring Understandings:**
Part 1:	
What influences the growth and development of an organism?	Plants reproduce in a variety of ways, sometimes depending on animal behavior and specialized features for reproduction.
How do characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants, respectively?	There are a variety of ways that plants reproduce.
How do organisms live, grow, respond to their environment, and reproduce?	Specialized structures for plants affect their probability of successful reproduction.

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How do the structures of organisms enable life's functions? How do organisms obtain and use matter and energy they need to live and grow? How are cells important to subsystems in multicellular organisms? How do multicellular organisms function? How do sense receptors and signals inform immediate behaviors and memories? How do plants and animals transfer genetic information to offspring? What are the genetic differences between the results of asexual reproduction vs. sexual reproduction? How do variations in traits arise between parent and offspring? What factors contribute to plant and animal growth? What factors determine differences in traits between parent and offspring? Where are genes located and how do genes determine traits? How do mutations affect traits? When and how can certain traits be chosen? **Part 2:** How do environmental and genetic factors influence the growth of organisms? How do organisms reproduce? What is the difference between sexual and asexual reproduction?	Some characteristic animal behaviors affect the probability of successful reproduction in plants. Animals engage in characteristic behaviors that affect the probability of successful reproduction. There are a variety of characteristic animal behaviors that affect their probability of successful reproduction. There are a variety of animal behaviors that attract a mate. Successful reproduction of animals and plants may have more than one cause, and some cause and effect relationships in systems can only be described using probability. Genetic factors as well as local conditions affect the growth of organisms (plant and animal). A variety of local environmental conditions affect the growth of organisms. The factors that influence the growth of organisms may have more than one cause.

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How can an organism's behavior increase its chances of survival and reproduction? What structures or mechanisms aid in plant reproduction? How does the environment contribute to successful reproduction or growth of organisms? How do genetic factors influence the growth of organisms? How do natural differences in organisms increase survival and reproduction?	

Possible Student Misconceptions:

Students may not believe food is a scarce resource in ecosystems, thinking that organisms can change their food at will according to the availability of particular sources. Students of all ages think that some populations of organisms are numerous in order to fulfill a demand for food by another population.

Students may believe that organisms are able to effect changes in bodily structure to exploit particular habitats or that they respond to a changed environment by seeking a more favorable environment. It has been suggested that the language about adaptation used by teachers or textbooks to make biology more accessible to students may cause or reinforce these beliefs.

NGSS Performance Expectations: ***Students who demonstrate understanding can…***

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-LS1-4**)

Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms. (**MS-LS1-5**)

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts

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Engaging in Argument from Evidence Use an oral and written argument supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon or a solution to a problem. (MS-LS1-4) **Constructing Explanations and Designing Solutions** Construct a scientific explanation based on valid and reliable evidence obtained from sources (including the students' own experiments) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future. (MS-LS1-5)	**LS1.B: Growth and Development of Organisms** Animals engage in characteristic behaviors that increase the odds of reproduction. (MS-LS1-4) Plants reproduce in a variety of ways, sometimes depending on animal behavior and specialized features for reproduction. (MS-LS1-4) Genetic factors as well as local conditions affect the growth of the adult plant. (MS-LS1-5)	**Cause and Effect** Phenomena may have more than one cause, and some cause and effect relationships in systems can only be described using probability. (MS-LS1-4 and MS-LS1-5)

Primary CCSS ELA/Literacy Connections: **RST.6-8.1** Cite specific textual evidence to support analysis of science and technical texts. (MS-LS1-4 & MS-LS1-5) **RI.6.8** Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not. (MS-LS1-4) **WHST.6-8.1** Write arguments focused on discipline content. (MS-LS1-4) **RST.6-8.2** Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions. (MS-LS1-5) **WHST.6-8.2** Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content. (MS-LS1-5)	**Primary CCSS Mathematics Connections:** **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)

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WHST.6-8.9 Draw evidence from informational texts to support analysis, reflection, and research. (MS-LS1-5)	

Unit Performance Task:

Students use data and conceptual models to understand how the environment and genetic factors determine the growth of an individual organism. They connect this idea to the role of animal behaviors in animal reproduction and to the dependence of some plants on animal behaviors for their reproduction. Students provide evidence to support their understanding of the structures and behaviors that increase the likelihood of successful reproduction by organisms. The crosscutting concepts of cause and effect and structure and function provide a framework for understanding the disciplinary core ideas. Students demonstrate grade-appropriate proficiency in analyzing and interpreting data, using models, conducting investigations, and communicating information. Students are also expected to use these practices to demonstrate understanding of the core ideas.

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Instructional Resources:

- https://ngss.nsta.org/DisplayStandard.aspx?view=pe&id=179 (MS-LS1-4)
  - This link will take you to the National Science Teaching Association webpage. It provides information about the particular standard and offers many resources and activities to use in the classroom (new resources are added each week).

- https://ngss.nsta.org/DisplayStandard.aspx?view=pe&id=180 (MS-LS1-5)
  - This link will take you to the National Science Teaching Association webpage. It provides information about the particular standard and offers many resources and activities to use in the classroom (new resources are added each week).

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Lesson Scope and Sequence			
Unit Pacing and Duration	**Focus Standards with CCSS Connections**	**Primary Resources & Supplements**	**Assessment**

# of Minutes (345 mins)	NGSS: 	
	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-LS1-4.2.1 Phenomena may have more than one cause, and some cause and effect relationships in systems can only be described using probability.
	
	MS-LS1-4.7.1 Use an oral and written argument supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon or a solution to a problem.
	
	MS-LS1-4.LS1.B.1 Animals engage in characteristic behaviors that increase the odds of reproduction.
	
	MS-LS1-4.LS1.B.2 Plants reproduce in a variety of ways, sometimes depending on animal behavior and specialized features for reproduction.
	
	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-LS3-2.2.1 Cause and effect relationships may be used to predict phenomena in natural systems.
	
	MS-LS3-2.2.1 Develop and use a model to describe phenomena.
		Primary Resources:
		- STC-Ecosystems and Their Interactions Kit
		  - Lesson 1: Pre-Assessment: Ecosystems and Their Interactions
		  - Lesson 11: Assessment: Ecosystems and Their Interactions
		
		- Discovery Education - Life Science
		  - Unit 2: Genetic Traits and Reproduction
		  - Concept 2.3 Asexual
		
		Supplements:
		
		- Hands-on Activities: (Discovery Education)
		  - Watching Yeast Grow
		  - Watching Bacteria Reproduce
		
		- BrainPOP Modules:
		  - Cellular Life & Genetics Unit
		  - Ecology and Behavior Unit
		
		- Readorium:
		  - Life Science
		  - Mitosis and Meiosis- The Formation and Growth of Human Life
		  - Genetics: Why We Look the Way We Do
			STC-Ecosystems and Their Interactions Kit
			- Lesson 1: Pre-Assessment: Ecosystems and Their Interactions
			- Lesson 11: Assessment: Ecosystems and Their Interactions
			
			Discovery Education: (Test/Authentic Assessment)
			- Asexual Assessment - Constructed Response
			- Asexual Summative Assessment - Multiple Choice (Online/Printed Version)
			- Exploration: One is Not the Loneliest Number
			- Hands-on Activities
			
			BrainPOP: (Formative - Classwork/Quiz Grade)
			- Offers video and lesson quizzes for each lesson/module
			
			Readorium: (Classwork/Quiz Grade, Extension/Lesson Closer, Homework):
			- PDF versions of multiple choice book quizzes

	MS-LS3-2.LS1.B.1 Organisms reproduce, either sexually or asexually, and transfer their genetic information to their offspring. **MS-LS3-2.LS3.A.1** Variations of inherited traits between parent and offspring arise from genetic differences that result from the subset of chromosomes (and therefore genes) inherited. **MS-LS3-2.LS3.B.1** In sexually reproducing organisms, each parent contributes half of the genes acquired (at random) by the offspring. Individuals have two of each chromosome and hence two alleles of each gene, one acquired from each parent. These versions may be identical or may differ from each other. CCSS for ELA: **RST.6-8.1** Cite specific textual evidence to support analysis of science and technical texts. **RST.6-8.4** Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6-8 texts and topics. **RST.6-8.7** Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table). **RI.6.8** Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not. **WHST.6-8.1** Write arguments focused on discipline content. **SL.8.5** Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points. CCSS for Math:		

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	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. **6.SP.B.4** Summarize numerical data sets in relation to their context. **6.SP.B.5** Summarize numerical data sets in relation to their context. **MP.4** Model with mathematics.		

# of Minutes (255 mins)	NGSS: 	
	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-LS1-4.2.1 Phenomena may have more than one cause, and some cause and effect relationships in systems can only be described using probability.
	
	MS-LS1-4.7.1 Use an oral and written argument supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon or a solution to a problem.
	
	MS-LS1-4.LS1.B.1 Animals engage in characteristic behaviors that increase the odds of reproduction.
	
	MS-LS1-4.LS1.B.2 Plants reproduce in a variety of ways, sometimes depending on animal behavior and specialized features for reproduction.
	
	CCSS for ELA:
		Primary Resources:
		- STC-Ecosystems and Their Interactions Kit
		  - Lesson 1: Pre-Assessment: Ecosystems and Their Interactions
		  - Lesson 11: Assessment: Ecosystems and Their Interactions
		
		- Discovery Education - Life Science
		  - Unit 2: Genetic Traits and Reproduction
		  - Concept 2.4 Sexual
		Supplements:
		
		- Hands-on Activities: (Discovery Education)
		  - Finding the Odds
		  - Pathway to Pollination
		
		- BrainPOP Modules:
		  - Cellular Life and Genetics Unit
		  - Ecology and Behavior Unit
		
		- Readorium:
		  - Life Science
		  - Mitosis and Meiosis- The Formation and Growth of Human Life
			STC-Ecosystems and Their Interactions Kit
			- Lesson 1: Pre-Assessment: Ecosystems and Their Interactions
			- Lesson 11: Assessment: Ecosystems and Their Interactions
			
			Discovery Education: (Test/Authentic Assessment)
			- Sexual Reproduction Assessment - Constructed Response
			- Sexual Reproduction Summative Assessment - Multiple Choice (Online/Printed Version)
			- Hands-on Activities
			- Board Builder
			
			BrainPOP: (Formative - Classwork/Quiz Grade)
			- Offers video and lesson quizzes for each lesson/module
			
			Readorium: (Classwork/Quiz Grade, Extension/Lesson Closer, Homework):
			- PDF versions of multiple choice book quizzes

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	RST.6-8.1 Cite specific textual evidence to support analysis of science and technical texts. **RI.6.8** Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not. **WHST.6-8.1** Write arguments focused on discipline content. <u>CCSS for Math:</u> **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. **6.SP.B.4** Summarize numerical data sets in relation to their context.		

# of Minutes 	
(300 mins)
	<u>NGSS:</u>
	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-LS3-1.2.1 Develop and use a model to describe phenomena.
	
	MS-LS3-1.6.1 Complex and microscopic structures and systems can be visualized, modeled, and used to describe how their function depends on the shapes, composition, and relationships among its parts, therefore complex natural structures/systems can be analyzed to determine how they function.
	
	MS-LS3-1.LS3.A.1 Genes are located in the chromosomes of cells, with each chromosome pair containing two variants of each of many distinct genes. Each distinct gene chiefly controls the production of specific proteins, which in turn affects the traits of the individual. Changes (mutations) to genes can result in changes to proteins, which can affect the structures and functions of the organism and thereby change traits.
		- STC-Ecosystems and Their Interactions Kit
		  - Lesson 10: Human Impact
		
		- Discovery Education - Life Science
		  - Unit 2: Genetic Traits and Reproduction
		  - Concept 2.6 Factors that Influence Human Growth and Development
		<u>Supplements:</u>
		
		- Hands-on Activities: (Discovery Education)
		  - Healthy Living Campaign
		
		- BrainPOP Modules:
		  - Ecology and Behavior Unit
		  - Our Fragile Environment Unit
		  - Humans and the Environment
		
		- Readorium:
		  - Life Science
		  - Our Bodies: The Most Marvelous Machines
		  - Becoming and Staying Healthy
			<u>STC-Ecosystems and Their Interactions Kit</u>
			- Lesson 10: Human Impact
			
			<u>Discovery Education: (Test/Authentic Assessment)</u>
			- Factors that Influence Human Growth - Constructed Response
			- Factors that Influence Human Growth - Summative Assessment - Multiple Choice (Online/Printed Version)
			- Hands-on Activities
			- Board Builder
			
			BrainPOP: (Formative - Classwork/Quiz Grade)
			- Offers video and lesson quizzes for each lesson/module
			
			Readorium: (Classwork/Quiz Grade, <u>Extension/Lesson Closer, Homework):</u>
			- PDF versions of multiple choice book quizzes

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	MS-LS3-1.LS3.B.1 In addition to variations that arise from sexual reproduction, genetic information can be altered because of mutations. Though rare, mutations may result in changes to the structure and function of proteins. Some changes are beneficial, others harmful, and some neutral to the organism. CCCS for ELA: **RST.6-8.1** Cite specific textual evidence to support analysis of science and technical texts. **RST.6-8.4** Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6-8 texts and topics. **RST.6-8.7** Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table). **SL.8.5** Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points. CCCS for MATH: N/A		

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Modifications	
Special Education/ 504:	**English Language Learners:**
• Adhere to all modifications and health concerns stated in each IEP. • Give students a MENU of options, allowing them to choose assignments from different levels based on difficulty. • Accommodate Instructional Strategies: use of post-its, reading aloud text, graphic organizers, one-on-one instruction, class website (Google Classroom), handouts, definition list with visuals, extended time • Allow extra time to complete assignments or tests • Allow students to demonstrate understanding of a problem by drawing a functional model of the answer and then explaining the reasoning orally and/or writing. • Provide breaks between tasks, use positive reinforcement, use proximity • Work in a small group • Use large print books, Braille, or digital texts Strategies for students with 504 plans	• Simplify written and verbal instructions • Use manipulatives to promote conceptual understanding and enhance vocabulary usage • Allow for alternate forms of responses- drawing or speaking instead of writing to demonstrate knowledge when you are not specifically assessing writing • Allow the use of an online dictionary to look up the definition and hear the pronunciation of unknown words • Provide graphic representations, gestures, drawings, equations, and pictures during all segments of instruction • Utilize program translations tools such as Snap and Read (if available) • Utilize graphic organizers which are concrete, pictorial ways of constructing knowledge and organizing information • Use sentence frames and questioning strategies so that students will explain their thinking/ process of how to solve real life problems. • Reword questions in simpler language • Provide class notes ahead of time to allow students to preview material and increase comprehension • Provide extended time

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Gifted and Talented:	Students at Risk for Failure:

• Organize and offer flexible small group learning opportunities / activities.
• Utilize elevated contextual complexity
• Inquiry based or open ended assignments, performance tasks and projects
• Allow more time to study concepts with greater depth
• Provide options, alternatives and choices to differentiate and broaden the curriculum.
• Promote the synthesis of concepts and making real world connections
• Provide students with enrichment practice that are imbedded in the curriculum
  ○ allowing students to design problems to be addressed by the class
  ○ allowing students to modify the lesson by introducing a related phenomena
  ○ allow for interest-based extension activities
• Utilize an enhanced set of introductory activities (e.g. phenomena, organizers, concept maps etc)
• Provide whole group enrichment explorations.
• Teach cognitive and methodological skills
• Allow for the use of stations
• Organize integrated problem-solving simulations.
	• Assure students have experiences that are on the Concrete- Pictorial- Abstract spectrum
	• Modify Instructional Strategies; extended time, reading aloud text, graphic organizers, flexible grouping, one-on-one instruction, class website (Google Classroom), inclusion of more visuals and manipulatives, Utilize Scaffolded Questioning, Field Trips, Google Expeditions, Peer Support, Modified Assignments, Chunking of Information, Peer Buddies
	• Assure constant parental/ guardian contact throughout the year with successes/ challenges
	• Provide academic contracts to students and guardians
	• Create an interactive notebook with samples, key vocabulary words, student goals/ objectives.
	• Always plan to address students at risk in the designing of learning tasks, instructions, and directions.
	• Try to anticipate where the needs will be and then address them prior to lessons.
	• Teacher should allow for preferential seating
	• Include Visual Cues/Modeling
	• Allow for technology Integration, especially Assistive Technology

Grade 6 – Unit 3A - Life Science (LS) Growth, Development and Reproduction of Organisms

21st Century Life and Career Skills:

Career Ready Practices describe the career-ready skills that all educators in all content areas should seek to develop in their students. They are practices that have been linked to increase college, career, and life success. These skills enable students to make informed decisions that prepare them to engage as active citizens in a dynamic global society and to successfully meet the challenges and opportunities of the 21st century workplace. As such, they should be taught and reinforced in all career exploration and preparation programs, with increasingly higher levels of complexity and expectation as a student advances through a program of study.

https://www.state.nj.us/education/cccs/2014/career/9.pdf

- **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.

Students are provided with an equitable opportunity to communicate with peers effectively, clearly, and with the use of technical language. They are also encouraged to reason through experiences and exposure to phenomena that promote critical thinking and emphasize the importance of perseverance. Students are exposed to various mediums of technology, such as digital learning, and educational websites.

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Technology Standards:

All students will be prepared to meet the challenge of a dynamic global society in which they participate, contribute, achieve, and flourish through universal access to people, information, and ideas.
https://www.state.nj.us/education/cccs/2014/tech/

8.1 Educational Technology:

All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.

A. **Technology Operations and Concepts:** Students demonstrate a sound understanding of technology concepts, systems and operations.
B. **Creativity and Innovation:** Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.
C. **Communication and Collaboration:** Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.
D. **Digital Citizenship:** Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.
E. **Research and Information Fluency:** Students apply digital tools to gather, evaluate, and use of information.
F. **Critical thinking, problem solving, and decision making:** Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

8.2 Technology Education, Engineering, Design, and Computational Thinking - Programming:

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.

A. **The Nature of Technology: Creativity and Innovation-** Technology systems impact every aspect of the world in which we live.
B. **Technology and Society:** Knowledge and understanding of human, cultural, and societal values are fundamental when designing technological systems and products in the global society.
C. **Design:** The design process is a systematic approach to solving problems.
D. **Abilities in a Technological World:** The designed world in a product of a design process that provides the means to convert resources into products and systems.
E. **Computational Thinking: Programming-** Computational thinking builds and enhances problem solving, allowing students to move beyond using knowledge to creating knowledge.