

Niagara Falls City School District

630 66th Street, Niagara Falls, NY 14304

Science - Grade 7 - 30 Weeks

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NYS Performance Indicators	Objectives	Text Resources	Resources (Suggested Activities)	Cross-Curriculum Connections	Assessment Items
	<p>Essential Questions/Focus for: 2.2a-2.2c</p> <p>1. Explain inheritance of some traits in terms of dominant and recessive genes.</p> <p>2. Distinguish between genotype and phenotype.</p> <p>3. Use Punnett squares and</p>		<p>Mendel's Experiments</p>		

		pedigree charts to predict probability of inheritance of genetic traits.			
MST4.I. LE2B	Students describe simple mechanisms related to the inheritance of some physical traits in offspring.	2.2a In all organisms, genetic traits are passed on from generation to generation.	Life's Structure & Function 128-134	Sponge Bob-Genetics 1	2, 6, 14, 31
MST4.I. LE2B	Students describe simple mechanisms related to the inheritance of some physical traits in offspring.	2.2b Some genes are dominant and some are recessive. Some traits are inherited by mechanisms other than dominance and recessiveness.	Life's Structure & Function 128-134	Sponge Bob-Genetics 2	3, 4, 15

<p>Students describe simple mechanisms related to the inheritance of some physical traits in offspring.</p> <p>MST4.I. LE2B</p>	<p>2.2c The probability of traits being expressed can be determined using models of genetic inheritance. Some models of prediction are pedigree charts and Punnett squares.</p>	<p>Life's Structure & Function</p> <p>128-134</p>	<p>Sponge Bob-Incomplete Dominance</p>		<p>1, 13, 32, 65, 66, 67, 68</p>
	<p>LE Skill 5</p> <p>Design and use a Punnett square or a pedigree chart to predict the probability of certain traits.</p>	<p>Life's Structure & Function</p> <p>136-142</p>			
	<p>Essential Questions</p> <p>Focus for: 3.1a-3.1c</p> <p>1. How does variation occur and how does it relate to survival?</p> <p>2. What</p>		<p>Zork Genetics</p>		

contributes to survival of an organism in a changing environment?

3. Compare and contrast genetic engineering with selective breeding.

<p>MST4.I. LE3A</p> <p>Students describe sources of variation in organisms and their structures and relate the variations to survival.</p>	<p>3.1a The processes of sexual reproduction and mutation have given rise to a variety of traits within a species.</p>	<p>Life's Structure & Function 132-142</p>	<p>Bunny Babies Activity</p>		<p>27</p>
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<p>Students describe sources of variation in organisms and their structures and relate the variations to survival.</p> <p>MST4.I.</p> <p>LE3A</p>	<p>3.1b Changes in environmental conditions can affect the survival of individual organisms with a particular trait. Small differences between parents and offspring</p>	<p>Life's Structure & Function</p> <p>156-163</p>	<p>Guppy Simulation</p>	<p><i>Social Studies</i></p> <p>Darwin's Life</p> <p><i>ELA</i></p> <p>A Day in the Life of Darwin</p>	<p>8, 20, 44, 45, 61, 62, 72</p>
	<p>can accumulate in successive generations so that descendants are very different from their ancestors. Individual organisms with certain traits are more likely to survive and have offspring than individuals without those traits.</p>				

<p>Students describe sources of variation in organisms and their structures and relate the variations to survival.</p> <p>MST4.I.</p> <p>LE3A</p>	<p>3.1c Human activities such as selective breeding and advances in genetic engineering may affect the variations of species.</p>	<p>Life's Structure & Function</p> <p>143-145</p>		<p>10, 16, 33</p>
	<p>Essential Questions/Focus for: 3.2a-3.2d</p> <p>1. What is competition and what resources do organisms compete for?</p> <p>2. Define extinction and explain factors which may lead to extinction.</p> <p>3. Explain how fossils provide</p>		<p>Peppered Moth Lab</p>	

		<p>evidence for the history of changes in life forms.</p> <p>4. Explain evolution as it relates to Darwin's theory of natural selection.</p>			
<p>MST4.I.</p> <p>LE3B</p>	<p>Students describe factors responsible for competition within species and the significance of that competition.</p>	<p>3.2a In all environments, organisms with similar needs may compete with one another for resources.</p>	<p>Life's Structure & Function</p> <p>156-163</p>	<p>Build a fish activity</p>	
<p>MST4.I.</p> <p>LE3B</p>	<p>Students describe factors responsible for competition within species and the significance of that competition.</p>	<p>3.2b Extinction of a species occurs when the environment changes and the adaptive characteristics of a species are insufficient to permit</p>	<p>Life's Structure & Function</p> <p>165-171</p>	<p>Exploring Evolution</p>	<p>5, 11, 17</p>

	its survival. Extinction of species is common. Fossils are evidence that a great variety of species existed in the past.				
MST4.I. LE3B	Students describe factors responsible for competition within species and the significance of that competition.	3.2c Many thousands of layers of sedimentary rock provide evidence for the long history of Earth and for the long history of changing life forms whose remains are found in the rocks. Recently deposited rock layers are more likely to contain fossils resembling existing species.	Life's Structure & Function 165-171		7, 18, 69

<p>Students describe factors responsible for competition within species and the significance of that competition.</p> <p>MST4.I. LE3B</p>	<p>3.2d Although the time needed for change in a species is usually great, some species of insects and bacteria have undergone significant change in just a few years.</p>	<p>Life's Structure & Function 156-163</p>	<p>Natural Selection Activity</p>		21
	<p>Essential Questions/Focus for: 4.3a-d, 4.3f, 5.1a</p> <p>1. Describe reproduction and development in insects, frogs and humans.</p> <p>2. Describe the life cycles of incomplete metamorphosis and complete metamorphosis.</p>		<p>Metamorphosis activity</p>		

<p>MST4.I. LE4C</p> <p>Students observe and describe developmental patterns in selected plants and animals (e.g., insects, frogs, humans, seed-bearing plants).</p>	<p>4.3a Multicellular organisms exhibit complex changes in development, which begin after fertilization. The fertilized egg undergoes numerous cellular divisions that will result in a</p>	<p>For Performance Indicators 4.3a-4.3f please refer to teacher edition of the Animal Diversity textbook and teacher materials</p>	<p>Diagram of Complete and Incomplete Metamorphosis</p>		
<p>MST4.I. LE4C</p> <p>Students observe and describe developmental patterns in selected plants and animals (e.g., insects, frogs, humans, seed-bearing plants).</p>	<p>4.3b In humans, the fertilized egg grows into tissue which develops into organs and organ systems before birth.</p>				

<p>MST4.I. LE4C</p> <p>Students observe and describe developmental patterns in selected plants and animals (e.g., insects, frogs, humans, seed-bearing plants).</p>	<p>4.3c Various body structures and functions change as an organism goes through its life cycle.</p>				<p>34, 64</p>
<p>MST4.I. LE4C</p> <p>Students observe and describe developmental patterns in selected plants and animals (e.g., insects, frogs, humans, seed-bearing plants).</p>	<p>4.3d Patterns of development vary among animals. In some species the young resemble the adult, while in others they do not. Some insects and amphibians undergo metamorphosis as they mature.</p>		<p>Metamorphosis videos</p>		<p>35</p>

<p>MST4.I. LE4C</p> <p>Students observe and describe developmental patterns in selected plants and animals (e.g., insects, frogs, humans, seed-bearing plants).</p>	<p>4.3f As an individual organism ages, various body structures and functions change.</p>				
<p>MST4.I. LE5A</p> <p>Students compare the way a variety of living specimens carry out basic life functions and maintain dynamic equilibrium.</p>	<p>5.1a Animals and plants have a great variety of body plans and internal structures that contribute to their ability to maintain a balanced condition.</p>	<p>Life's Structure & Function 17-20</p>			

*Please
see
individual
matrix for
"Science
-
Grade 7
-
Standard
1,
Analysis,
Inquiry
and
Design -
Scientific
Inquiry
Skills
Matrix"*

Heredity/Genetics	Evolution	Metamorphosis	Objectives

Alleles	Adaptive Characteristics	Adult	<p><u>Heredity</u></p> <ol style="list-style-type: none"> 1. Explain inheritance of some traits in terms of dominant and recessive genes. 2. Distinguish between genotype and phenotype. 3. Use Punnett squares and pedigree charts to predict probability of inheritance of genetic traits. 4. How does variation occur and how does it relate to survival? 5. What contributes to survival of an organism in a changing environment? 6. Compare and contrast genetic engineering with selective breeding. <p><u>Evolution</u></p> <ol style="list-style-type: none"> 7. What is competition and what resources do organisms compete for? 8. Define extinction and explain factors which may lead to extinction. 9. Explain how fossils provide evidence for the history of changes in life forms. 10. Explain evolution as it relates to Darwin's theory of natural selection. <p><u>Metamorphosis</u></p> <ol style="list-style-type: none"> 11. Describe reproduction and development in insects and frogs.
Cancer	Ancestor	Amphibian	
Chromosomes	Biological Adaptation	Body Plan	
Dominant	Competition	Body Structures	
Egg	Competition within a Species	Complete Metamorphosis	
Fertilization	Descendent	Development Patterns	
Generation	Development	Egg	
Genes	Diversity	Exoskeleton	
Genetically Identical	Environment	Homeostasis	
Genetic Traits	Evolution	Incomplete Metamorphosis	
Genetic Engineering	Extinction	Larva	
Genotype	Fossil	Life Processes	
Heredity	Genetic Engineering	Molt	
Homozygous	Multi-cellular Organisms	Nymph	
Hybrid	Mutation	Organism	
Heterozygous	Natural Selection	Pupa	
Inheritance	Variances		
Offspring	Offspring		
Parent	Population		
Pedigree Chart	Physiology		
Phenotype	Resources		
Punnett Squares	Selective Breeding		
Recessive	Shared Characteristics		
Species	Species		
Sperm	Speciation		
	Survival		
	Traits		
	Variations		

Last updated: 9/8/2010