

**Rangely RE-4 Curriculum Development
7th Grade Science**

Unit Title	Adaptations of Life Over Time		Length of Unit	5-6 weeks	
Focusing Lens(es)	Change/Context Environment	Standards and Grade Level Expectations Addressed in this Unit	SC09-GR.7-S.2-GLE.1		
CCSS Reading Standards for Literacy in Science & Technology 6-8	RST 6-8.1 RST 6-8.2 RST 6-8.5	RST 6-8.6 RST 6-8.9	CCSS Writing Standards for Literacy in Science & Technology 6-8	WHST 6-8.1 WHST 6-8.5	WHST 6-8.7 WHST 6-8.10
Inquiry Questions (Engaging-Debatable):	<ul style="list-style-type: none"> • Is there strength in diversity? How does diversity impact species survival? • Why can we find evidence of life on top of mountains? • Why is the relationship between nature and nurture important for survival of a species? • How would the world be different if organisms did not change over time? 				
Unit Strands	Life Science				
Concepts	change, evidence, time, extinction, traits, adaptation, interaction, survival, reproduction, environment, theory, biological evolution, diversity, organisms, differential survival, reproductive success, evolution, resistance, genetic traits, species				

Generalizations My students will Understand that...	Guiding Questions	
	Factual	Conceptual
Changes in environmental conditions often alter the reproductive success of individual organisms and entire species (SC.09-GR.7-S.2-GLE.5; RA.1)	What traits must an organism express to be successful? (SC09-GR.7-S.2-GLE.1-EO.a) What causes a species to go extinct? (SC09-GR.7-S.2-GLE.1-EO.a)	How is the use of the word “adaptation” different in everyday usage than in biology? (SC.09-GR.7-S.2-GLE.1; IQ.2)
Species that do not adapt become extinct (SC.09-GR.7-S.2-GLE.5; RA.1)	Why don’t organisms become extinct? (SC09-GR.7-S.2-GLE.1-EO.a)	Why do some species survive better than others? (SC09-GR.7-S.2-GLE.1-EO.a; IQ.1) What happens to the system when a species becomes extinct? (SC09-GR.7-S.2-GLE.1-EO.a; IQ.1)
Organisms with certain traits have a higher potential for survival and reproduction within specific environments where those traits are favorable (SC.09-GR.7-S.2-GLE.1-EO.a,b,d; IQ.1)	What determines which traits help an organism survive in its environment? (SC09-GR.7-S.2-GLE.1-EO.a; IQ.1) What positive or negative influence can humans have on a species’ ability to adapt to an environment? (SC09-GR.7-S.2-GLE.1-EO.a; IQ.1)	Why are some organisms more successful at reproducing than others? (SC09-GR.7-S.2-GLE.1-EO.a,b; IQ.1, 2) How does our knowledge of how organisms adapt to their environment help us modify organisms for human benefit (corn)? (SC09-GR.7-S.2-GLE.1-EO.a,b; IQ.1, 2; N.2)

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Critical Content: My students will Know...	Key Skills: My students will be able to (Do)...
<ul style="list-style-type: none"> • Examples of traits that are beneficial or detrimental to the survival of a species (natural Selection). (SC09-GR.7-S.2-GLE.1-EO.a) <ul style="list-style-type: none"> ○ Develop, communicate, and justify an evidence-based explanation for why a given organism with specific traits will or will not survive to have offspring in a given environment (DOK 1-3) • What adaptation means and how it impacts survival and reproductive success. (SC09-GR.7-S.2-GLE.1-EO.b) <ul style="list-style-type: none"> ○ Analyze and interpret data about specific adaptations to provide evidence and develop claims about differential survival and reproductive success (DOK 1-3) • Reasons why biological evolution accounts for the unity and diversity of living organisms (SC09-GR.7-S.2-GLE.1-EO.d) <ul style="list-style-type: none"> ○ Use computer simulations to model differential survival and reproductive success associated with specific traits in a given environment (DOK 1-2) • Why individual organisms with certain traits are more likely than others to survive and have offspring in a specific environment (SC09-GR.7-S.2-GLE.1-EO.a) <ul style="list-style-type: none"> ○ Develop, communicate, and justify an evidence-based explanation for why a given organism with specific traits will or will not survive to have offspring in a given environment (DOK 1-3) 	<ul style="list-style-type: none"> • Develop, communicate, and justify an evidence-based explanation for why a given organism with specific traits will or will not survive to have offspring in a given environment. SC.09-GR.7-S.2-GLE.1-EO.a) (DOK 1-3) • Use information and communication tools to gather information from credible sources, analyze findings, and draw conclusions to create and justify an evidence-based scientific explanation. (SC09-GR.7-S.2-GLE.1-EO.c) (DOK 1-2) • Use computer simulations to model differential survival and reproductive success associated with specific traits in a given environment. (SC09-GR.7-S.2-GLE.1-EO.d) (DOK 1-2) • Analyze and interpret data about specific adaptations to provide evidence and develop claims about differential survival and reproductive success (SC09-GR.7-S.2-GLE.1-EO.b) (DOK 1-3) • Cite specific textual evidence to support analysis of science and technical texts. (CCSS RST 6-8.1) PARCC • Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions. (CCSS RST 6-8.2) PARCC • Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic. (CCSS RST 6-8.5) PARCC • Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text. (CCSS RST 6-8.6) PARCC • Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic. (CCSS RST 6-8.9) PARCC • Write arguments focused on discipline-specific content. (CCSS WHST 6-8.1 a-e) PARCC <ul style="list-style-type: none"> ✓ Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically. (CCSS WHST 6-8.1A) ✓ Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources. ✓ Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence. ✓ Establish and maintain a formal style. ✓ Provide a concluding statement or section that follows from and supports the argument presented • With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed. (CCSS WHST 6-8.5) PARCC

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<ul style="list-style-type: none"> • Specific adaptations that provide evidence about differential survival and reproductive success (SC09-GR.7-S.2-GLE.1-EO.a, b; IQ.2) <ul style="list-style-type: none"> ○ Develop, communicate, and justify an evidence-based explanation for why a given organism with specific traits will or will not survive to have offspring in a given environment (DOK 1-3) ○ Analyze and interpret data about specific adaptations to provide evidence and develop claims about differential survival and reproductive success (DOK 1-3) • How is the use of the word "adaptation" different in everyday usage than in biology? • The relationship between an organism's traits and its potential for survival and reproduction (SC09-GR.7-S.2-GLE.1-EO.a; IQ.1) <ul style="list-style-type: none"> ○ Develop, communicate, and justify an evidence-based explanation for why a given organism with specific traits will or will not survive to have offspring in a given environment (DOK 1-3) ? What is the relationship between an organism's traits and its potential for survival and reproduction? • The evolution of bacteria related to survival in the presence of the environmental pressure of antibiotics - giving rise to antibiotic resistance (SC09-GR.7-S.2-GLE.1; RA.1) <ul style="list-style-type: none"> R Bacteria have evolved to survive in the presence of the environmental pressure of antibiotics - giving rise to antibiotic resistance. • Reasons why species that live with humans -such as rats and pigeons - are more common around towns and cities (SC09-GR.7-S.2-GLE.1; RA.2) <ul style="list-style-type: none"> R Species that can live with humans –such as rats and pigeons – are more common around towns and cities. 	<ul style="list-style-type: none"> • Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration. (CCSS WHST 6-8.7) PARCC • Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences. (CCSS WHST 6-8.10) PARCC <p>PARCC Evidences Written Expression:</p> <p>Development of Ideas The student response addresses the prompt and provides effective and comprehensive development of the claim, topic and/or narrative elements¹ by using clear and convincing reasoning, details, text-based evidence, and/or description; the development is consistently appropriate to the task, purpose, and audience.</p> <p>Organization The student response demonstrates purposeful coherence, clarity, and cohesion² and includes a strong introduction, conclusion, and a logical, well-executed progression of ideas, making it easy to follow the writer’s progression of ideas.</p> <p>Clarity of Language The student response establishes and maintains an effective style, while attending to the norms and conventions of the discipline. The response uses precise language consistently, including descriptive words and phrases, sensory details, linking and transitional words, words to indicate tone³, and/or domain-specific vocabulary.</p> <p>Knowledge of Language and Conventions The student response demonstrates command of the conventions of standard English consistent with effectively edited writing. Though there may be a few minor errors in grammar and usage, meaning is clear throughout the response.</p>
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<p>Critical Language: includes the Academic and Technical vocabulary, semantics, and discourse which are particular to and necessary for accessing a given discipline. EXAMPLE: A student in Language Arts can demonstrate the ability to apply and comprehend critical language through the following statement: <i>“Mark Twain exposes the hypocrisy of slavery through the use of satire.”</i></p>	
<p>A student in _____ can demonstrate the ability to apply and comprehend critical language through the following statement(s):</p>	<p><i>Organisms interact with their environment and adapt to its changing conditions or become extinct, which has happened throughout the history of Earth.</i></p>
<p>Academic Vocabulary:</p>	<p>interpret, survive, relationship, potential, environment, evidence, theory, claims, consequences, critique, analyze, interaction, diversity</p>
<p>Technical Vocabulary:</p>	<p>traits, adaptations, organisms, reproduction, evolution, extinction, survival, environment, resistance, genetic traits, populations, species.</p>