Curriculum Development Overview
Unit Planning for 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		
Inquiry Questions (Engaging-Debatable):	• 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)

Critical Content: **My students will Know…**	**Key Skills:** **My students will be able to (Do)…**
• 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) • What adaptation means and how it impacts survival and reproductive success. (SC09-GR.7-S.2-GLE.1-EO.b) • Reasons why biological evolution accounts for the unity and diversity of living organisms (SC09-GR.7-S.2-GLE.1-EO.d) • 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) • Specific adaptations that provide evidence about differential survival and reproductive success (SC09-GR.7-S.2-GLE.1-EO.a, b; IQ.2) • 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) • 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) • 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)	• 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) • Understand that organisms in a population vary • Define the term "biological evolution" • Explain how the process of natural selection allows some members of a species to adapt • Describe the genetic principle of segregation • Analyze and interpret data about specific adaptations (SC09-GR.7-S.2-GLE.1-EO.b) • Describe how adaptive traits depend on environment and population • Analyze data about what traits are more likely than others to survive in a specific environment • Interpret what adaptations increase the rate of reproductive success • 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) • Research information to draw a conclusion about the concept of natural selection • Chat with a geneticist to determine what traits are more likely to survive in a given environment • 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) • Use computer simulations to justify information about heredity • Use computer simulations to model natural selection • 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) • Describe how adaptive traits depend on environment and population • Analyze data about what traits are more likely than others to survive

	in a specific environment • Interpret what adaptations increase the rate of reproductive success • Use information and communication technology 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) • Research information to draw a conclusion about the concept of natural selection • Chat with a geneticist to determine what traits are more likely to survive in a given environment • 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) • Use computer simulations to justify information about heredity • Use computer simulations to model natural selection

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: *"Mark Twain exposes the hypocrisy of slavery through the use of satire."*	
A student in _____ can demonstrate the ability to apply and comprehend critical language through the following statement(s):	*Organisms interact with their environment and adapt to its changing conditions or become extinct, which has happened throughout the history of Earth.*
Academic Vocabulary:	interpret, survive, relationship, potential, environment, evidence, theory, claims, consequences, critique, analyze, interaction, diversity
Technical Vocabulary:	traits, adaptations, organisms, reproduction, evolution, extinction, survival, environment, resistance, genetic traits, populations, species.