

**Grade 3 - Science Curriculum Framework**

(NGSS in Parentheses)

<b>Physical Science</b>								
<b>Grade</b>	<b>Big Idea</b>	<b>Essential Questions</b>	<b>Concepts</b>	<b>Competencies</b>	<b>Vocabulary</b>	<b>2002 Standards</b>	<b>SAS Standards</b>	<b>Assessment Anchor Eligible Content</b>
<b>3</b>	Matter can be understood in terms of the types of atoms present and the interactions both between and within atoms.	How can one explain the structure, properties, and interactions of matter?	N/A	N/A	N/A	N/A	N/A	N/A
<b>3</b>	Interactions between any two objects can cause changes in one or both.	How can one explain and predict interactions between objects within systems?	Each force acts on one particular object and has both strength and a direction. (PS2.A)	Investigate the variables that may affect how objects move across a floor, down a ramp, etc. (3-PS2-1)	Acceleration Force Speed Velocity	3.2.4.C 3.4.4.C	3.2.3.B1 3.2.3.B2 3.2.4.B1 3.2.4.B2 3.2.3.B6	S4.C.3.1
<b>3</b>	Interactions between any two objects can cause changes in one or both.	How can one explain and predict interactions between objects within systems?	An object at rest typically has multiple forces acting on it, but they add to give zero net force on the object. (PS2.A)	Construct an explanation for why an object subjected to multiple pushes and pulls might stay in one place or move. (3-PS2-1)	Systems	3.4.4.C	3.2.4.B1	S4.C.3.1
<b>3</b>	Interactions between any two objects can cause changes in one or both.	How can one explain and predict interactions between objects within systems?	Forces that do not sum to zero can cause changes in the object's speed or direction of motion. (PS2.A)	Through the use of objects, design an investigation and demonstrate that forces can cause changes on an object's speed or direction of motion. (3-PS2-1)	Design Direction Investigation Motion Speed	3.4.4.C	3.2.3.B1	S4.A.2.1 S4.A.2.1.4 S4.A.2.2 S4.A.2.2.1 S4.C.3.1 S4.C3.1.1
<b>3</b>	Interactions between any two objects can cause changes in one or both.	How can one explain and predict interactions between objects within systems?	Patterns of an object's motion in various situations can be observed and measured. (PS2.A)	Take measurements of objects in motion and represent the movement of objects in multiple representations. (3-PS2-1)	Motion Net Zero Pattern Prediction	3.1.4.C 3.1.4.D 3.4.4.C	3.2.3.B1	S4.A.1.3 S4A.4. S4A.1.3.1 S4.C.3.1.3

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3	Interactions between any two objects can cause changes in one or both.	How can one explain and predict interactions between objects within systems?	When past motion exhibits a regular pattern, future motion can be predicted from it. (PS2.A)	Investigate the motion of objects to determine observable and measurable patterns to predict future motions. (3-PS2-2)	Force Gravity Net force Pattern Predict	3.4.4.C 3.4.4.D	3.2.3.B1 3.2.4.B1	S4.C.3.1
3	Interactions between any two objects can cause changes in one or both.	How can one explain and predict interactions between objects within systems?	When past motion exhibits a regular pattern, future motion can be predicted from it. (PS2.A)	Provide evidence that a pattern can be used to predict future motion. (3-PS2-2)	Force Pattern	3.4.4.C 3.4.4.D	3.2.3.B1 3.2.4.B1	S4.C.3.1
3	Interactions between any two objects can cause changes in one or both.	How can one explain and predict interactions between objects within systems?	Objects in contact exert forces on each other. (PS2.B)	Design and implement an investigation to demonstrate that objects in contact exert forces on each other. (3-PS2-1)		3.4.4.C	3.2.3.B1	S4.A.2.1 S4.A.2.1.4 S4.A.2.2 S4.A.2.2.1 S4.C.3.1 S4.C3.1.1
3	Interactions of objects or systems of objects can be predicted and explained using the concept of energy transfer and conservation.	How is energy transferred and conserved?	N/A	N/A	N/A	N/A	N/A	N/A
3	Waves are a repeating pattern of motion that transfers energy from place to place without overall displacement of matter.	How are waves used to transfer energy and information?	N/A	N/A	N/A	N/A	N/A	N/A

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<b>Life Science</b>								
<b>Grade</b>	<b>Big Idea</b>	<b>Essential Questions</b>	<b>Concepts</b>	<b>Competencies</b>	<b>Vocabulary</b>	<b>2002 Standards</b>	<b>SAS Standards</b>	<b>Assessment Anchor Eligible Content</b>
<b>3</b>	All organisms are made of cells and can be characterized by common aspects of their structure and functioning.	How do organisms live, grow, respond to their environment, and reproduce?	Reproduction is essential to the continued existence of every kind of organisms. (LS1.B)	Use models to explain how reproduction is essential for every kind of organism. (3-LS1-1)	Life cycle Offspring Parents Reproduce Survival	3.3.4.C 3.1.4.B	3.1.4.A 3.1.4.B 3.1.4.C 4.1.4.A 4.5.4.D 4.2.4.C	S4.A.3.2 S4.B.1.1.5
<b>3</b>	All organisms are made of cells and can be characterized by common aspects of their structure and functioning.	How do organisms live, grow, respond to their environment, and reproduce?	Plants and animals have unique and diverse life cycles that include birth, growth, reproduction, and death. (LS1.B)	Develop a model to describe the commonalities of life cycles of different organisms. (3-LS2-1)	Life cycle Offspring Parents Reproduce Survival	3.3.4.A 3.1.4.B	3.1.4.A 3.1.4.B 3.1.4.C 4.1.4.A 4.5.4.D 4.2.4.C	S4.A.3.2. S4.B.1.1.5
<b>3</b>	Organisms grow, reproduce, and perpetuate their species by obtaining necessary resources through interdependent relationships with other organisms and the physical environment.	How and why do organisms interact with their environment and what are the effects of these interactions?	Animals depend on each other and their surroundings to get what they need, including food, water, shelter, and a stable temperature. Groups serve different functions and vary in size. (LS2.D)	Based on observations, construct an argument that some animals form groups that help members survive. (3-LS2-1)	Basic needs Consumer Heterotroph Representation Stable	3.2.4.A 3.3.4.A 4.6.4.A	3.1.4.A 3.1.4.C 3.2.4.A 3.2.4.B 3.3.4.B 3.4.4.A 3.4.4.B 3.4.4.E 4.1.4.A 4.1.4.B 4.1.4.C 4.2.4.A 4.2.4.B 4.2.4.C 4.4.4.B 4.5.4.D	S4.A.3.1.2 S4.A.3.1.3 S4.B.2.1.1 S4.B.3.1.1
<b>3</b>	Organisms grow,	How and why do organisms	When the environment	Construct an argument with		3.3.4.D	3.1.4.A	S4.B.3.2.1

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	reproduce, and perpetuate their species by obtaining necessary resources through interdependent relationships with other organisms and the physical environment.	interact with their environment and what are the effects of these interactions?	changes in physical characteristics, temperature, availability of resources, some organisms survive, others move, yet others may die. (LS4.C)	evidence that within a specific habitat, some organisms survive well, some not so well, and others cannot survive at all. (3-LS4-3)			3.1.4.B 3.1.4.C 3.1.4.E 3.2.4.A 3.2.4.B 3.3.4.A 3.3.4.B 3.4.4.B 3.4.4.D 3.4.4.E 4.1.4.A 4.1.4.E 4.4.4.A 4.4.4.D 4.5.4.A 4.5.4.C	S4.B.3.2.2 S4.B.3.2.3 S4.A.1.1.1 S4.A.1.3.2 S4.A.1.3.4 S.4.A.3.2.1 S4.A.3.3.2
3	Heredity refers to specific mechanisms by which characteristics or traits are passed from one generation to the next via genes, and explains why offspring resemble, but are not identical to, their parents.	How are the characteristics of one generation passed to the next? How can individuals of the same species and even siblings have different characteristics?	Different organisms vary in how they look and function because they have different inherited information. (LS3.B)	Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms. (3-LS3-1; 3-LS3-2)	Inheritance Traits	3.3.4.C	3.1.3.B1	S4.A.2.1.3 S4.B.2.2.
3	Heredity refers to specific mechanisms by which characteristics or traits are passed from one generation to the next via genes, and explains why offspring resemble, but are not	How are the characteristics of one generation passed to the next? How can individuals of the same species and even siblings have different characteristics?	The environment also affects the traits that an organism develops. (LS3.B)	Use evidence to support an explanation that the environment can influence traits. (3-LS3-2)	Environment Evidence Influence	3.3.4.C	3.1.3.B1	S4.A.2.1.3 S4.B.2.2.

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	identical to, their parents.							
<b>3</b>	Heredity refers to specific mechanisms by which characteristics or traits are passed from one generation to the next via genes, and explains why offspring resemble, but are not identical to, their parents.	How are the characteristics of one generation passed to the next? How can individuals of the same species and even siblings have different characteristics?	Many characteristics involve both inherited traits and environmental factors. (LS3.B)	Use evidence to compare characteristics inherited from parents, characteristics caused by the environment, and those resulting from both. (3-LS3-1; 3-LS3-2)	Characteristics Environmental factors Generation Inherited Siblings Traits Variation	3.3.4.C	3.1.4.A 3.1.4.B 3.1.4.C 4.5.4.D 4.2.4.C	S4.B.2.1.1 S4.B.2.2.1
<b>3</b>	Biological evolution explains both the unity and diversity of species and provides a unifying principle for the history and diversity of life on Earth.	How can there be so many similarities among organisms yet so many different kinds of plants, animals, and microorganisms?	Some plants and animals that once lived on earth are no longer found anywhere. (LS4.A)	Analyze and interpret data from fossils to provide evidence of the organisms and environments in which they lived long ago.(3-LS4-1)	Extinct Fossils	4.7.4.C		S.4.A.2.1.4
<b>3</b>	Biological evolution explains both the unity and diversity of species and provides a unifying principle for the history and diversity of life on Earth.	How can there be so many similarities among organisms yet so many different kinds of plants, animals, and microorganisms?	Fossils provide evidence about types of organisms that lived long ago as well as about the nature of the environment. (LS4.A)	Analyze and interpret data from fossils to provide evidence of the organisms and environments in which they lived long ago. (3-LS4-1)	Extinct Fossils	4.7.4.C	3.1.2.C3 3.1.3.C3	S.4.A.2.1.4
<b>3</b>	Biological evolution explains both the unity and diversity of species and provides a unifying principle for the history and diversity of life on	How can there be so many similarities among organisms yet so many different kinds of plants, animals, and microorganisms?	Changes in an organism's habitat can be beneficial or harmful to the organism. (LS4.D)	Use evidence to argue that when the environment changes in ways that affect a place's physical characteristics, organisms may survive, move to new locations, or die.	Adapt Endangered Habitat	3.3.4.D 4.7.4.A 4.7.4.B	3.1.4.A 3.1.4.B 3.1.4.C 3.1.4.E 3.2.4.A 3.2.4.B	S4.B.3.2.1 S4.B.3.2.2 S4.B.3.2.3 S4.A.1.1.1 S4.A.1.3.2 S4.A.1.3.4

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	Earth.			(3-LS4-3)			3.3.4.A 3.3.4.B 3.4.4.B 3.4.4.D 3.4.4.E 4.1.4.A 4.1.4.E 4.4.4.A 4.4.4.D 4.5.4.A 4.5.4.C	S.4.A.3.2.1 S4.A.3.3.2
3	Biological evolution explains both the unity and diversity of species and provides a unifying principle for the history and diversity of life on Earth.	How can there be so many similarities among organisms yet so many different kinds of plants, animals, and microorganisms?	Populations live in a variety of habitats and changes in those habitats impacts the organisms living there. (LS4.D)	Using evidence, make a claim about merits of solutions to problems caused when the environment changes and types of animals and plants that live there may change. (3-LS4-4)	Habitats Populations	3.3.4.D 4.8.4.C 3.3.4.D 4.7.4.A 4.7.4.B	3.1.4.A 3.1.4.B 3.1.4.C 3.1.4.E 3.2.4.A 3.2.4.B 3.3.4.A 3.3.4.B 3.4.4.B 3.4.4.D 3.4.4.E 4.1.4.A 4.1.4.E 4.4.4.A 4.4.4.D 4.5.4.A 4.5.4.C	S4.B.3.2.1 S4.B.3.2.2 S4.B.3.2.3 S4.A.1.1.1 S4.A.1.3.2 S4.A.1.3.4 S.4.A.3.2.1 S4.A.3.3.2
3	Biological evolution explains both the unity and diversity of species and provides a unifying principle for the history and diversity of life on	How can there be so many similarities among organisms yet so many different kinds of plants, animals, and microorganisms?	Sometimes differences in characteristics between individuals of the same species provide advantages in surviving, finding mates, and reproducing.	Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing.		4.7.4.A 4.7.4.B		S4.A.1.3.4

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	Earth.		(LS4.B)	(3-LS4-S)				
3	Biological evolution explains both the unity and diversity of species and provides a unifying principle for the history and diversity of life on Earth.	How can there be so many similarities among organisms yet so many different kinds of plants, animals, and microorganisms?	Fossils provide evidence about the types of organisms (both visible and microscopic) that lived long ago and also about the nature of their environments. (LS4.A)	Use evidence to construct an explanation that some rocks and minerals record the remains of organisms. (3-LS4-1)	Fossils Microscopic	3.5.4.A 4.7.4.B	3.1.4.A 3.1.4.C 4.5.4.D 4.2.4.C	S4.B.2.1.2
3	Biological evolution explains both the unity and diversity of species and provides a unifying principle for the history and diversity of life on Earth.	How can there be so many similarities among organisms yet so many different kinds of plants, animals, and microorganisms?	Fossils provide evidence about the types of organisms (both visible and microscopic) that lived long ago and also about the nature of their environments. (LS4.A)	Obtain and communicate information that some organisms that once lived on earth are no longer found anywhere, although other organisms now may resemble them. (3-LS4-1)	Microscopic organism Organism Visible organism	3.5.4.A 3.3.4.D	3.1.4.A 3.1.4.C 4.5.4.D 4.2.4.C	S4.B.2.1.2
3	Biological evolution explains both the unity and diversity of species and provides a unifying principle for the history and diversity of life on Earth.	How can there be so many similarities among organisms yet so many different kinds of plants, animals, and microorganisms?	Fossils can be compared with one another and to living organisms according to their similarities and differences. (LS4.A)	Use evidence from fossil records to construct an explanation of the relationship between types of organisms living today and types of organisms that lived in the past. (3-LS4-4)	Explanation Fossil record	3.5.4.A 3.1.3C3	3.1.4.A 3.1.4.C 4.5.4.D 4.2.4.C	S4.B.2.1.2
3	Biological evolution explains both the unity and diversity of species and provides a unifying principle for the history and diversity of life on Earth.	How can there be so many similarities among organisms yet so many different kinds of plants, animals, and microorganisms?	Fossils can be compared with one another and to living organisms according to their similarities and differences. (LS4.B)	Use evidence to construct explanations for how environments today may be different from past environments in which fossilized organisms once lived. (3-LS4-4)	Fossil	3.5.4.A	3.1.4.A 3.1.4.C 4.5.4.D 4.2.4.C	S4.B.2.1.2
3	Biological evolution explains both the unity	How can there be so many similarities among organisms	Sometimes the differences in characteristics between	Use evidence to explain how some characteristics that vary among	Reproduce Survive	3.3.4.A	3.1.3.C1 3.1.4.A	S4.B.2.1.2

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	and diversity of species and provides a unifying principle for the history and diversity of life on Earth.	yet so many different kinds of plants, animals, and microorganisms?	individuals of the same species provide advantages in surviving, finding mates, and reproducing. (LS4.B)	individuals of the same kind of organism can provide advantages to survive, find mates, and reproduce. (3-LS4-2)			3.1.4.C 4.5.4.D 4.2.4.C	
3	Biological evolution explains both the unity and diversity of species and provides a unifying principle for the history and diversity of life on Earth.	How can there be so many similarities among organisms yet so many different kinds of plants, animals, and microorganisms?	Humans, like all other organisms, obtain living and nonliving resources from their environments.	Use evidence to demonstrate how humans, like all other organisms, obtain living and non-living resources from their environment.	Living Non-Living	3.3.4.A	3.1.4.A 3.1.4.C 3.1.4.E 3.2.4.A 3.2.4.B 3.3.4.B 3.4.4.A 3.4.4.B 3.4.4.E 3.4.4.D 4.1.4.A 4.1.4.B 4.1.4.E 4.2.4.A 4.3.4.A 4.4.4.A 4.4.4.B 4.4.4.D 4.5.4.A 4.5.4.C	S4.B.3.3.1 S4.B.3.3.2 S4.B.3.3.3 S4.B.3.3.4 S4.B.3.3.5 S4.A.1.1.2 S4.A.1.3.5 S4.A.3.1.4
<b>Earth and Space Science</b>								
<b>Grade</b>	<b>Big Idea</b>	<b>Essential Question</b>	<b>Concepts</b>	<b>Competencies</b>	<b>Vocabulary</b>	<b>2002 Standards</b>	<b>SAS Standards</b>	<b>Assessment Anchor Eligible Content</b>
3	The universe is composed of a variety of different objects, which are organized into	What is the universe, and what is Earth's place in it?	N/A	N/A	N/A		N/A	N/A



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	systems each of, which develops according to accepted physical processes and laws.							
<b>3</b>	The Earth is a complex and dynamic set of interconnected systems (e.g. geosphere, hydrosphere, atmosphere, biosphere) that interact over a wide range of temporal and spatial scales.	How and why is Earth constantly changing?	Scientists record patterns of the weather across different times and areas of the weather so that they can make predictions about what kind of weather might happen next. (ESS2.D)	Organize simple weather data sets to record local weather data and identify day-to-day variations, as well as, long-term patterns of weather. (3-ESS2-1)	Atmosphere Data Weather	3.1.4.E 3.5.4.C	3.3.3.A4 3.3.3.A5	S4.A.1.1 S4.A.1.3 S.4.A.1.3.1  S4.A.2.1 S4.A.2.2 S4.A.3.1 S4.A.3.2 S4.A.3.3
<b>3</b>	The Earth is a complex and dynamic set of interconnected systems (e.g. geosphere, hydrosphere, atmosphere, biosphere) that interact over a wide range of temporal and spatial scales.	How and why is Earth constantly changing?	Climate describes a range of an area's typical weather conditions and the extent to which those conditions vary over a period of many years. (ESS2.D)	Record and communicate information to describe climates in different regions of the world. (3-ESS2-2)	Climate Conditions Weather	3.5.4.C	3.3.3.A4 3.3.3.A5	S4.A.1.1 S4.A.1.3 S4.A.2.1 S4.A.2.2 S4.A.3.1 S.4.A.1.3.1 S4.A.3.2 S4.A.3.3
<b>3</b>	The Earth is a complex and dynamic set of interconnected systems (e.g. geosphere, hydrosphere, atmosphere, biosphere) that interact over a wide range of temporal and spatial scales.	How and why is Earth constantly changing?	Climate describes a range of an area's typical weather conditions and the extent to which those conditions vary over a period of many years. (ESS2.D)	Display simple data sets in tables and graphs to display previous weather conditions to make predictions for future seasons. (3-ESS2-2)	Climate Weather	3.1.4.C 3.5.4.C	3.3.3.A4 3.3.3.A5	S4.A.1.1 S4.A.1.3 S4.A.2.1 S4.A.2.2 S4.A.3.1 S4.A.3.2 S4.A.3.3
<b>3</b>	The Earth's processes	How do Earth's processes	Note: ESS3.B is addressed	Note: 3-ESS3-1 is addressed by	N/A	N/A	N/A	N/A

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	affect and are affected by human activities.	and human activities affect each other?	by 4-ESS3-2	4-ESS3-2				
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