	P. Physical Sciences			
Students w	ho demonstrate understanding can:			
P-PS1-1.	Ask questions and use observa	ations to test the claim that different kinds of matter	exist as either solid or	
	liquid. [Clarification Statement: Emphasis should be on observing and describing similarities and differences between solids and liquids based on their			
	physical properties. Solids and liquids can be compared and categorized (sorted) based on those properties.]			
P-PS2-1.	Use tools and materials to des	ign and build a device that causes an object to move	faster with a push or a	
	pull.* [Clarification Statement: Emphasis	should be on developing an interest in investigating forces (pushes or pulls).	Examples of forces could include a	
	string attached to an object being pulled or speed (slower_faster)]	a ramp to increase the speed of an object.] [Assessment Boundary: Assessm	ent is limited to relative measures of	
P-PS4-1.	Plan and conduct investigation	ns to provide evidence that sound is produced by vib	rating materials.	
	[Clarification Statement: Examples of vibrati	ng materials could include percussion instruments (e.g. drum, triangle), string	instruments (e.g. guitar, piano),	
	wind instruments (e.g. recorder, whistle), ar	id audio speakers.]		
	The performance expectations above were d	eveloped using the following elements from the NRC document A Framework.	for K-12 Science Education	
Science	e and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts	
Asking Questi Asking question on prior experie questions that d Ask question information Planning and Planning and ca or test solution experiences and design solutions With guidar collaboratio Analyzing data progresses to c Record info (P-PS1-1) Analyze data if it works Ca Scientific Invo Scientists u 1), (P-PS4-1	ons and Defining Problems is and defining problems in grades PK-2 builds ences and progresses to simple descriptive an be tested. Ins based on observations to find more about the designed world. (P-PS1-1) Carrying Out Investigations mrying out investigations to answer questions is to problems in PK-2 builds on prior d progresses to simple investigations, based hich provide data to support explanations or s. ce, plan and conduct an investigation in n with peers. (P-PS2-1), (P-PS4-1) H Interpreting Data in PK-2 builds on prior experiences and oblecting, recording, and sharing observations. rmation (observations, thoughts, and ideas). a from tests of an object or tool to determine as intended. (P-PS2-1) connections to Nature of Science estigations Use a Variety of Methods se different ways to study the world. (P-PS2-)	 PS1.A: Structure and Properties of Matter (NYSED) Different kinds of matter exist and many of them can be either solid or liquid. Matter can be described, categorized, and sorted by its observable properties. (P-PS1-1) PS2.A: Forces and Motion Pushes and pulls can have different strengths and directions. (P-PS2-1) Pushing or pulling on an object can change the speed or direction of its motion and can start or stop it. (P-PS2-1) PS3.C: Relationship Between Energy and Forces (NYSED) A push or a pull may cause stationary objects to move, and a stronger push or pull in the same or opposite direction makes an object in motion speed up or slow down more quickly. (secondary to P-PS2-1) PS4.A: Wave Properties A situation that people want to change or create can be approached as a problem to be solved through engineering. Such problems may have many acceptable solutions. (P-PS2-1) 	 Patterns Patterns in the natural and human designed world can be observed and used as evidence. (P-PS1-1),(P-PS4-1) Cause and Effect Simple tests can be designed to gather evidence to support or refute student ideas about causes. (P-PS2-1),(P-PS4-1) 	
Connections to	other DCIs in prekindergarten: P.LS1.A (P-P	52-1); P.LS1.D (P-PS4-1) (PS2 A (P PS2 1); K PS2 P (P PS2 1); K PS2 C (P PS2 1); 1 PS4 A (P PS4	1)	
New York Stat	e Next Generation Learning Standards Connec	NF32.A (F-F32-1); N.F32.D (F-F32-1); N.F33.U (F-F32-1); 1.F34.A (F-P34- tions:	· 1)	
PKR1	Participate in discussions about a text. (P-PS	(1-1),(P-PS2-1),(P-PS4-1)		
PKR4	Exhibit an interest in learning new vocabular	y. (P-PS1-1), (P-PS2-1), (P-PS4-1)		
PKW2	Use a combination of drawing, dictating, ora	I expression, and/or emergent writing to name a familiar topic and supply in	formation in child-centered, authentic,	
PKW3	pray-prased rearning. (P-PS1-1),(P-PS2-1),(P-PS4-1) V3 Use a combination of drawing, dictating, oral expression, and/or emergent writing to narrate an event or events in a sequence. (P-PS1-1).(P-PS2-1).(P-PS4-1)			
PKW7	Engage in a discussion using gathered information from experiences or provided resources. (P-PS1-1), (P-PS2-1), (P-PS4-1)			
PKSL2	Interact with diverse formats and texts. (P-PS1-1), (P-PS2-1), (P-PS4-1)			
PKSL3 PKSL5	Identify the speaker. (P-PS1-1),(P-PS2-1),(P-PS4-1) Create a visual display. (P-PS1-1). (P-PS4-1).			
Mathematics –	mathematics –			
MP.4	Model with mathematics. (P-PS2-1)			
MP.5	Use appropriate tools strategically. (P-PS1-1), Attend to precision (P-PS2-1)	(++>2-1),(++>3+1)		
NY-PK.MD.1	Identify measurable attributes of objects, suc	h as length or weight, and describe them using appropriate vocabulary. (P-PS	2-1)	
NY-PK.MD.2	Sort objects and shapes into categories; cour	t the objects in each category. 1 (limit category counts to be less than or equ	al to 10) (P-PS1-1)	
NY-PK.G.3	Explore two- and three-dimensional objects a	Ind use informal language to describe their similarities, differences, and other a sticks and clay halls) (P-PS2-1)	attributes. (P-PS1-1)	
*Connection box	tes updated as of September 2018	.g., store and day bails). (i = 32-1)		

Page **L**

 Students who demonstrate understanding can: P-LS1-1. Observe familiar plants and animals (including humans) and describe what they need to survive. [Clarification Statement: Emphasis should be on determining what a variety of living organisms need to live and grow.] P-LS1-2. Plan and conduct an investigation to determine how familiar plants and/or animals use their extern parts to help them survive in the environment. [Clarification Statement: Emphasis should be on the relationships between physical and living environment. Examples of external parts could include roots, stems, leaves for plants and eves, ears, mouth, arms, leas for 	al the		
Students who demonstrate understanding can: P-LS1-1. Observe familiar plants and animals (including humans) and describe what they need to survive. [Clarification Statement: Emphasis should be on determining what a variety of living organisms need to live and grow.] P-LS1-2. Plan and conduct an investigation to determine how familiar plants and/or animals use their external parts to help them survive in the environment. [Clarification Statement: Emphasis should be on the relationships between the physical and living environment. Examples of external parts could include roots, stems, leaves for plants and eyes, ears, mouth, arms, legs for animals.] P-LS3-1. Develop a model to describe that some young plants and animals are similar to, but not exactly like, their parents. [Clarification Statement: Emphasis is on observation and pictorial representations of familiar plants and animals.]			
The performance expectations above were developed using the following elements from the NRC document A Framework for K-12 Science Educat	ion:		
Science and Engineering Practices Disciplinary Core Ideas Crosscutting Cor	ncepts		
 Developing and Using Models Modeling in PK-2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, or storyboard) that represent concrete events or design solutions. Compare models to identify common features and differences. (P-LS3-1) Patterns in the nature proposed object or tool. (P-LS3-1) Planning and Carrying Out Investigations to answer questions or test solutions to problems in PK-2 builds on prior experiences and progresses to solmpe investigations, based on fair tests, which provide data to support explanations or design solutions. With guidance, plan and conduct an investigation in collaboration with peers. (P-LS1-2) Analyzing and Interpreting Data Analyzing and Interpreting Data Analyzing tain INK-2 builds on prior experiences and progresses to collecting, recording, and sharing observations. With guidance, (P-PS2-1) Obtaining, evaluating, and Communicating information nPK-2 builds on prior experiences and uses observations and texts to communicate new information. Communicate solutions with oters in oral and/or written forms using models and/or drawings that provide detail about scientific ideas. (P-LS1-1) Liston or provide detail about scientific ideas. (P-LS1-1) 	al and ld can d as P-LS3-1) hat lodels al and parts P-LS1- h ty of and related P-LS1-		
Connections to Nature of Science Scientific Investigations Use a Variety of Methods			
Scientists use different ways to study the world. (P-LS1-2)			
Articulation of DCIs across grades K-1: K.LS1.C (P-LS1-1); K.ESS3.C (P-LS1-1); 1.LS1.A (P-LS1-1); 1.LS1.D (P-LS1-2); 1.LS3.A (P-LS3-1); 1.LS3.B (P-LS3-1)			
New York State Next Generation Learning Standards Connections: ELA/Literacy – PKR1 Participate in discussions about a text. (P-LS1-1),(P-LS2-1),(P-LS3-1)			
PKR4 Exhibit an interest in learning new vocabulary. (P-LS1-1), (P-LS1-2), (P-LS3-1) PKW1 Use a combination of drawing, dictating, oral expression, and/or emergent writing to state an opinion about a familiar topic in child-centered, author play-based learning. (P-LS1-1), (P-LS3-1) PKW2 Use a combination of drawing, dictating, oral expression, and/or emergent writing to name a familiar topic and supply information in child-centered PKW2 Use a combination of drawing, dictating, oral expression, and/or emergent writing to name a familiar topic and supply information in child-centered	Exhibit an interest in learning new vocabulary. (P-LS1-1),(P-LS1-2),(P-LS3-1) Use a combination of drawing, dictating, oral expression, and/or emergent writing to state an opinion about a familiar topic in child-centered, authentic, play-based learning. (P-LS1-1),(P-LS1-2),(P-LS3-1) Use a combination of drawing, dictating, oral expression, and/or emergent writing to name a familiar topic and supply information in child-centered.		
authentic, play-based learning. (P-LS1-1), (P-LS1-2), (P-LS3-1) Use a combination of drawing, dictating, oral expression, and/or emergent writing to narrate an event or events in a sequence. (P-PS1-1), (P-PS2-1 PS4-1) PS4-1	authentic, play-based learning. (P-LS1-1),(P-LS1-2),(P-LS3-1) Use a combination of drawing, dictating, oral expression, and/or emergent writing to narrate an event or events in a sequence. (P-PS1-1),(P-PS2-1),(P-PS4-1) PS4-1)		
'KW7 Engage in a discussion using gathered information from experiences or provided resources. (P-LS1-1),(P-LS1-2),(P-LS3-1) 'KSL2 Interact with diverse formats and texts. (P-LS1-1),(P-LS1-2),(P-LS3-1) 'KSL3 Identify the speaker. (P-LS1-1),(P-LS1-2),(P-LS3-1) 'KSL5 Create a visual display. (P-LS1-1),(P-LS1-2),(P-LS3-1) 'Athematics - WAke sense of problems and persevere in solving them. (P-LS1-1),(P-LS3-1)			
 MAR-1 Make sense of problems and persevere in solving them. (P-LS1-1),(P-LS3-1) MP.1 Use appropriate tools strategically. (P-LS1-1),(P-LS3-1) MY-PK.OA.2 Duplicate and extend (eg., What comes next?) simple patterns using concrete objects. (P-LS1-2),(P-LS3-1) NY-PK.MD.1 Identify measurable attributes of objects, such as length, and weight. Describe them using correct vocabulary (e.g., small, big, short, tall, empty, full, heavy, and light). (P-LS1-1),(P-LS1-2),(P-LS3-1) NY-PK.MD.2 Sort objects into categories; count the numbers of objects in each category. 1 (limit category counts to be less than or equal to 10) (P-LS3-1) 			

		P. Earth and Space Sciences		
Students v	vho demonstrate understanding can:	ent motions of the Sun, moon, and stars to r	ecognize predictable	
	Distriction District and describe the apparent motions of the Sun, moon, and stars to recognize predictable patterns. [Clarification Statement: Examples of patterns could include that the Sun and moon appear to move across the sky in a predictable			
	pathway; day and night follow predictable patterns; seasons change in a cyclical pattern (e.g. summer follows spring, autumn follows summer); the			
D D D D D D D D D D	moon's shape appears to change in a cyclical pattern; and stars other than our Sun can be visible at night depending on local weather conditions.]			
P-ESS2-	 Ask questions, make observations, make	ns, and collect and record data using simple	instruments to recognize	
	patterns about how local weather conditions change daily and seasonally. [Clarification Statement: Emphasis is			
	of local weather conditions could include cloud	cover (sunny, partly cloudy, cloudy, foggy), precipitation (no pre-	cipitation, snow, hail, rain), wind (no	
	wind, some wind, strong wind), and temperatu	re (cold, cool, warm, hot).] [Assessment Boundary: Assessment	t is limited to qualitative measures of	
D DC2 4	local weather conditions.]	en te determine the effect of surlight on Fer		
P-P53-1	Statement: Examples of effects could include i	On to determine the effect of sunlight on Ear	Tn'S SUFFACE. [Clarification ganisms and popliying things]	
	[Assessment Boundary: Assessment of effects	is limited to relative measures: e.g. warm/cool, bright/dark.]	gariisiris and normving triings.]	
	The performance expectations above were deve	loped using the following elements from the NRC document A Fra	mework for K-12 Science Education:	
Scien	ce and Engineering Practices	Disciplinary Core I deas	Crosscutting Concepts	
Asking Ques	tions and Defining Problems	PS3.B: Conservation of Energy and Energy Transfer	Patterns	
Asking questio	ns and defining problems in grades PK–2 builds	 Sunlight warms Earth's surface. (P-PS3-1) 	Patterns in the natural world can	
on prior experi	iences and progresses to simple descriptive	PS4.B: Electromagnetic Radiation	be observed, used to describe	
questions that	Can be tested.	 Objects can be seen if light is available to illuminate them, or if they give off their own light (P-PS3-1) 	phenomena, and used as evidence (P-ESS1-1) (P-ESS2-1)	
informatio	n about the designed world. (P-ESS2-1)	ESS1.A: The Universe and its Stars	Cause and Effect	
Planning and	Carrying Out Investigations	 Patterns of the motion of the sun, moon, and stars in the 	 Simple tests can be designed to 	
Planning and o	carrying out investigations to answer questions or	sky can be observed, described, and predicted. (P-ESS1-	gather evidence to support or	
and progresse	s to simple investigations, based on fair tests.	ESS1.B: Earth and the Solar System	causes. (P-ESS2-1).(P-PS3-1)	
which provide	data to support explanations or design solutions.	 Seasonal patterns of sunrise and sunset can be 		
 With guida 	ance, plan and conduct an investigation in	observed, described, and predicted. (P-ESS1-2)	Connections to Engineering	
 Make obset 	ervations (firsthand or from media) to collect	 Weather is the combination of sunlight, wind, snow or 	Technology, and Applications	
data that d	can be used to make comparisons. (P-ESS2-1)	rain, and temperature in a particular region at a particular	of Science	
Analyzing an	d Interpreting Data	time. People measure these conditions to describe and		
progresses to	collecting recording and sharing observations	ESS2-1)	Engineering, and Technology	
 Use observer 	vations (firsthand or from media) to describe	ESS3.B: Natural Hazards	 People encounter questions about 	
patterns in	the natural world in order to answer scientific	 Some kinds of severe weather are more likely than 	the natural world every day. (P-	
 questions. Analyze data 	(P-ESST-T) ata from tests of an object or tool to determine if	severe weather so that the communities can prepare for	ESS2-1)	
it works as	s intended. (P-PS3-1),(P-ESS2-1)	and respond to these events. (P-ESS2-1)	Technology, and Science on	
			Society and the Natural World	
	Connections to Nature of Science		 People depend on various technologies in their lives: human 	
Ľ			life would be very different	
Scientific Inv	vestigations Use a Variety of Methods		without technology. (P-ESS2-1)	
 Scientists 1) (D_ESS) 	use different ways to study the world. (P-ESS1-		Order and Consistency in Natural	
I),(P-E552	2-1),(P-P33-1)		Systems	
			 Science assumes natural events 	
			happen today as they happened in the past (P_ESS1_1)	
			 Many events are repeated. (P- 	
			ESS1-1)	
Connections	to other DCIs in prokindergarten; D DS2 A (D ESS1	1)		
Articulation	f DCIs across grades K-1: K.PS3.B (P-ESS3-1); K.	, ESS2.D (P-ESS2-1); K.ESS3.B (P-ESS2-1); 1.ESS1.A (P-ESS1-1)); 1.ESS1.B (P-ESS1-1);	
New York Sta	nte Next Generation Learning Standards Connection	7S:		
ELA/LITERACY	- Particinate in discussions about a text (P-ESS1-1)	(P-FSS2-1) (P-PS3-1)		
PKR4	Exhibit an interest in learning new vocabulary. (P	ESS1-1),(P-ESS2-1),(P-PS3-1)		
PKW2	Use a combination of drawing, dictating, oral exp	ression, and/or emergent writing to name a familiar topic and su	pply information in child-centered,	
DK/N/2	authentic, play-based learning. (P-ESS1-1), (P-ESS	32-1),(P-PS3-1) ression, and/or emergent writing to parrate an event or events in	D 2 SOULODCA (D ESS1 1) (D ESS)	
111103	1),(P-PS3-1)	ession, and/or emergent writing to fidirate an event of events if	11 a sequence. (F-LSS1-1),(F-ESS2-	
PKW7	Engage in a discussion using gathered information from experiences or provided resources. (P-ESS1-1), (P-ESS2-1), (P-PS3-1)			
PKSL2	Interact with diverse formats and texts. (P-ESS1-1), (P-ESS2-1), (P-PS3-1)			
PKSL5	SL3 Identity the speaker. (P-ESS1-1),(P-ESS2-1),(P-PS3-1) SL5 Create a visual display. (P-ESS1-1),(P-ESS2-1),(P-PS3-1)			
Mathematics -		··· /		
MP.1	Make sense of problems and persevere in solving the	nem. (P-ESS1-1).(P-ESS2-1)		
MP.5 NY-PK CC 5	Use appropriate tools strategically. (P-ESS2-1)	up is more less greater than fewer and/or equal to the number	r of objects in another group, e.g.	
MI-FR.00.3	by using matching and counting strategies. 1:1 (u	to 5 objects) (P-ESS2-1)		
NY-PK.G.1	Describe objects in the environment using names	of shapes, and describe the relative positions of these objects usi	ing terms such as top, bottom, up,	
	down, in front of, behind, over, under, and next to. (P-ESS1-1)			
NY-PK.G.3	NY-PK.OA.2 Duplicate and extend (eg., What comes next?) simple patterns using concrete objects. (P-ESS1-1), (P-ESS2-1) NY-PK.G.3 Analyze, compare, and sort two- and three-dimensional shapes and objects in different sizes, using informal language to describe their			
similarities, differences, and other attributes (e.g., color, size, and shape). (P-PS3-1)				
NY-PK.G.4	Create and build shapes from components (e.g., st	icks and clay balls). (P-ESS1-1),(P-PS3-1)		
Connection bo	oxes updated as of September 2018			

*The performance expectations marked with an asterisk integrate traditional science content with engineering through a Practice or Disciplinary Core Idea. The text in the "Disciplinary Core Ideas" section is reproduced verbatim from A Framework for K-12 Science Education: Practices, Cross-Cutting Concepts, and Core Ideas unless it is preceded by (NYSED).

 P_{age} 3

K. Matter and Its Interactions



age.

K. Forces and Interactions: Pushes and Pulls

Students who demonstrate understanding can:				
K-PS2-1. Plan and conduct an investig	1. Plan and conduct an investigation to compare the effects of different strengths or different directions of			
pushes and pulls on the mot	pushes and pulls on the motion of an object. [Clarification Statement: Examples of pushes or pulls could include a string attached			
[Assessment Boundary: Assessment is lir	[Assessment Boundary: Assessment is limited to different relative strengths or different directions, but not both at the same time. Assessment does			
not include non-contact pushes or pulls s	not include non-contact pushes or pulls such as those produced by magnets.]			
K-PS2-2. Analyze data to determine if	a design solution works as intended to change the s	peed or direction of an		
object with a push of a puil.	articular path, and knock down other objects. Examples of solutions could in	clude tools such as a ramp to		
increase the speed of the object and a str	ucture that would cause an object such as a marble or ball to turn.] [Assessi	ment Boundary: Assessment does		
not include friction as a mechanism for ch The performance expectations above were devel	ange in speed.] poed using the following elements from the NRC document <i>A Framework for</i>	K-12 Science Education:		
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concents		
Science and Engineering Practices		crosscutting concepts		
Planning and carrying out investigations Planning and carrying out investigations to answer	 PS2.A: Forces and Motion Pushes and pulls can have different strengths and directions. (K- 	 Simple tests can be 		
questions or test solutions to problems in K–2 builds on	PS2-1),(K-PS2-2)	designed to gather evidence		
prior experiences and progresses to simple	 Pushing or pulling on an object can change the speed or direction of its motion and can start or stan it. (K BS2 1) (K BS2 2) 	to support or refute student		
support explanations or design solutions.	PS2.B: Types of Interactions	1).(K-PS2-2)		
With guidance, plan and conduct an investigation in	 When objects touch or collide, they push on one another and can 			
collaboration with peers. (K-PS2-1)	change motion. (K-PS2-1)			
Analyzing and interpreting Data Analyzing data in K-2 builds on prior experiences and	 A bigger push or pull makes things speed up or slow down more 			
progresses to collecting, recording, and sharing	quickly. (secondary to K-PS2-1)			
observations.	ETS1.A: Defining Engineering Problems			
determine if it works as intended. (K-PS2-2)	approached as a problem to be solved through engineering. Such			
	problems may have many acceptable solutions. (secondary to K-			
Connections to Nature of Science	P52-2)			
Scientific Investigations Use a Variety of Methods				
 Scientists use different ways to study the world. (K- PS2-1) 				
Connections to other DCIs in kindergarten: K.ETS1.A (K-PS2-2); K.ETS1.B (K-PS2-2)				
Articulation of DCIs across grade-levels: 2.ETS1.B (K-PS2-2); 3.PS2.A (K-PS2-1); (K-PS2-2); 3.PS2.B (K-PS2-1); 4.PS3.A (K-PS2-1); 4.ETS1.A (K-PS2-2)				
ivew York state ivext Generation Learning Standards Connections: ELA/Literacy –				
KR1 Develop and answer questions about a text. (K-PS2-2)				
KW6 Develop questions and participate in shared research and exploration to answer questions and to build and share knowledge. (K-PS2-1) KSI 3 Develop and answer questions to clarify what the speaker says (K-PS2-2)				
Mathematics –				
MP.2 Reason abstractly and quantitatively. (K-PS2-1)				
NY-K.MD.1 Describe measurable attributes of object(s), such as length or weight, using appropriate vocabulary. (K-PS2-1) NY-K.MD.2 Directly compare two objects with a common measurable attribute and describe the difference. (K-PS2-1)				
*Connection boxes updated as of September 2018				

 ${}^{\mathrm{Page}}\mathbf{5}$

K. Interdependent Relationships in Ecosystems: Animals, Plants, and Their Environment				
Students who	o demonstrate understanding	can:		
K-LS1-1. Use observations to describe patterns of what plants and animals (including humans) need to survive. [Clarification Statement: Examples of patterns could include that animals need to take in food but plants do not; the different kinds of food needed by different types of animals; the requirement of plants to have light; and that all living things need water and other materials to live, grow, and thrive.]				
K-ESS2-2.	Construct an argument supported by evidence for how plants and animals (including humans) can			
	change the environment to meet their needs. [Clarification Statement: Examples of plants and animals changing their			
	environment could include a squirrel digs in the ground to hide its food and tree roots can break concrete.]			
K-ESS3-1.	Use a model to represent	the relationship between the needs of different pl	ants or animals (including	
	humans) and the places they live. [Clarification Statement: Examples of relationships could include that deer eat buds and leaves, therefore, they usually live in forested areas, and grasses need sunlight so they often grow in meadows. Plants, animals, and their surroundings make un a system 1			
K-ESS3-3.	Communicate solutions th	nat will reduce the impact of humans on living orga	anisms and non-living	
	things in the local environ	nment. * [Clarification Statement: Examples of human impact on the	environment (land, water, air, plants,	
	and animals) could include cutting tre	es to produce paper and using resources to produce bottles. Examples of	solutions could include reusing paper	
	and recycling cans and bottles.]			
	The performance expectations above	were developed using the following elements from the NRC document A Fr	ramework for K-12 Science Education:	
Science an	d Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts	
Developing and Modeling in K-2 t progresses to incl (i.e., diagram, dra dramatization, or concrete events of Use a model the natural w Analyzing and I Analyzing data in and progresses to sharing observati Use observati Use observati Use observati to answer sci Engaging in Arg Engaging in Arg Engaging in Arg Engaging in argu builds on prior ex comparing ideas natural and desig Construct an support a clai Obtaining, Eval Information Ot communicate new Communicate new Communicate and/or writte drawings thai ideas. (K-ESS Connect Scientific Know Evidence Scientists loc when making world. (K-LS	d Using Models builds on prior experiences and lude using and developing models awing, physical replica, diorama, storyboard) that represent or design solutions. to represent relationships in ordd. (K-ESS3-1) Interpreting Data K–2 builds on prior experiences to collecting, recording, and ons. ions (firsthand or from media) to terns in the natural world in order ientific questions. (K-LS1-1) gument from Evidence ment from evidence in K–2 speriences and progresses to and representations about the uned world(s). argument with evidence to im. (K-ESS2-2) luating, and Communicating btaining, evaluating, and nformation in K–2 builds on prior uses observations and texts to w information. e solutions with others in oral n forms using models and/or t provide detail about scientific 53-3) 	 LS1.C: Organization for Matter and Energy Flow in Organisms (NYSED) All animals need food, air, and water in order to live, grow, and thrive. Animals obtain food from plants or from other animals. Plants need water, air, and light to live, grow, and thrive. (K-LS1-1) ESS2.E: Biogeology Plants and animals can change their environment. (K-ESS2-2) ESS3.A: Natural Resources Living things need water, air, and resources from the land, and they live in places that have the things they need. Humans use natural resources for everything they do. (K-ESS3-1) ESS3.C: Human Impacts on Earth Systems Things that people do to live comfortably can affect the world around them. But they can make choices that reduce their impacts on the land, water, air, and other living things. (secondary to K-ESS2-2). (K-ESS3-3) ETS1.B: Developing Possible Solutions Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people. (secondary to K-ESS3-3) 	 Patterns Patterns in the natural and human designed world can be observed and used as evidence. (K-LS1-1) Cause and Effect Events have causes that generate observable patterns. (K-ESS3-3) Systems and System Models Systems in the natural and designed world have parts that work together. (K-ESS2-2),(K- ESS3-1) 	
Connections to a	other DCIs in kindergarten: K.ETS1.A	(K-ESS3-3)		
Articulation of D	DCIs across grade-levels: 1.LS1.A (K-	LS1-1),(K-ESS3-1); 2.LS2.A (K-LS1-1); 2.ETS1.B (K-ESS3-3); 3.LS2.C (K	(-LS1-1); 3.LS4.B (K-LS1-1); 4.ESS2.E (K-	
ESS2-2);				
New York State	New York State Next Generation Learning Standards Connections:			
רב ELA/LITERACY –	evelop and answer questions about a t	ext (K-FSS2-2)		
KW1 Us	KW1 Use a combination of drawing, dictating, oral expression and/or emergent writing to state an opinion pieces about a familiar topic, personal experience			
an	and state a reason to support that topic. (K-ESS2-2)			
KW2 Us	KW2 Use a combination of drawing, dictating, oral expression, and/or emergent writing to name a familiar topic and supply information. (K-ESS2-2), (K-ESS2-3)			
KW7 De	evelop questions and participate in sha	rea research and exploration to answer questions and to build and share l	knowledge. (K-LS1-1)	
KOLO CI Mathematics -	reate and/or utilize existing visual disp	iays to support descriptions. (K-ESS3-1)		
MP.2 Re	eason abstractly and quantitatively. (K-I	ESS3-1)		
MP.4 Me	MP.4 Model with mathematics. (K-ESS3-1)			
NY-K.CC Co	NY-K.CC Counting and Cardinality (K-ESS3-1)			
NY-K.MD.2 Directly compare two objects with a common measurable attribute and describe the difference. (K-LS1-1) Connection boxes updated as of September 2018				
CONTRECTION DOXE	connection boxes apuated as of september 2016			

*The performance expectations marked with an asterisk integrate traditional science content with engineering through a Practice or Disciplinary Core Idea. The text in the "Disciplinary Core Ideas" section is reproduced verbatim from A Framework for K-12 Science Education: Practices, Cross-Cutting Concepts, and Core Ideas unless it is preceded by (NYSED).

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K. Weather and Climate					
Students who demonstrate understan K-ESS2-1. Use and share observ Statement: Examples of qualit quantitative observations could in the morning than in the after quantitative observations limite	ts who demonstrate understanding can: S2-1. Use and share observations of local weather conditions to describe patterns over time. [Clarification Statement: Examples of qualitative observations could include descriptions of the weather (such as sunny, cloudy, rainy, and warm); examples of quantitative observations could include numbers of sunny, windy, and rainy days in a month. Examples of patterns could include that it is usually cooler in the morning than in the afternoon and the number of sunny days versus cloudy days in different months.] [Assessment Boundary: Assessment of quantitative observations limited to whole numbers and relative measures such as warmer/cooler.]				
respond to, severe w preparedness measures.]	Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.*[Clarification Statement: Emphasis is on local forms of severe weather and local resources available for preparedness measures]				
K-PS3-1. Make observations to Earth's surface could include sa	o determine the effect of sunlight on Earth's surface and, soil, rocks, and water] [Assessment Boundary: Assessment of temper	Ce. [Clarification Statement: Examples of erature is limited to relative measures such as			
K-PS3-2. Use tools and materia on an area.*[Clarification sun.]	als to design and build a structure that will reduce Statement: Examples of structures could include umbrellas, canopies, ar	the warming effect of sunlight and tents that minimize the warming effect of the			
The performance expectations a	above were developed using the following elements from the NRC docume	nt A Framework for K-12 Science Education.			
 Science and Engineering Practices Asking Questions and Defining Problems Asking questions and defining problems in grades K–2 builds on prior experiences and progresses to simple descriptive questions that can be tested. • Ask questions based on observations to find more information about the designed world. (K-ESS3-2) Planning and Carrying Out Investigations Planning and Carrying Out Investigations Planning and Carrying Out Investigations, based on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions. • Make observations (firsthand or from media) to collect data that can be used to make comparisons. (K-PS3-1) Analyzing and Interpreting Data Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations. • Use observations (firsthand or from media) to cellect patterns in the natural world in order to answer scientific questions. (K-ESS2-1) Constructing Explanations and Designing Solutions Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions. • Use tools and materials provided to design and build a device that solves a specific problem or a solution to a specific problem or a sol	 Disciplinary Core Ideas PS3.B: Conservation of Energy and Energy Transfer Sunlight warms Earth's surface. (K-PS3-1), (K-PS3-2) ESS2.D: Weather and Climate Weather is the combination of sunlight, wind, snow or rain, and temperature in a particular region at a particular time. People measure these conditions to describe and record the weather and to notice patterns over time. (K-ESS2-1) ESS3.B: Natural Hazards Some kinds of severe weather are more likely than others in a given region. Weather scientists forecast severe weather so that the communities can prepare for and respond to these events. (K-ESS3-2) ETS1.A: Defining and Delimiting an Engineering Problem Asking questions, making observations, and gathering information are helpful in thinking about problems. (secondary to K-ESS3-2) 	Crosscutting Concepts Patterns Patterns Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. (K-ESS2-1) Cause and Effect Events have causes that generate observable patterns. (K-PS3-1),(K-PS3- 2),(K-ESS3-2) Connections to Engineering, Technology and Applications of Science, Engineering, and Technology People encounter questions about the natural world every day. (K-ESS3-2) Influence of Engineering, Technology, and Science on Society and the Natural World People depend on various technologies in their lives; human life would be very different without technology. (K- ESS3-2)			
 describe patterns in the natural world. Connections to Nature of Science Scientific Investigations Use a Variety of Methods Scientists use different ways to study the world. (K-PS3-1) Science Knowledge is Based on Empirical Evidence Scientists look for patterns and order when making observations about the world. (K-ESS2-1) 					

Connections to other DCIs in kindergarten: K.ETS1.A (K-PS3-2), (K-ESS3-2); K.ETS1.B (K-PS3-2)

*The performance expectations marked with an asterisk integrate traditional science content with engineering through a Practice or Disciplinary Core Idea. The text in the "Disciplinary Core Ideas" section is reproduced verbatim from A Framework for K-12 Science Education: Practices, Cross-Cutting Concepts, and Core Ideas unless it is preceded by (NYSED).

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Articulation of	of DCIs across grade-levels: 1.PS4.B (K-PS3-1), (K-PS3-2); 2.ESS1.C (K-ESS3-2); 2.ESS2.A (K-ESS2-1); 2.ETS1.B (K-PS3-2); 3.ESS2.D (K-PS3-1), (K-ESS2-2); 3.ESS2.D (K-PS3-1), (K-ESS2-2); 3.ESS2.D (K-PS3-2); 3
1); 3.ESS3.E	3
New York Sta	ate Next Generation Learning Standards Connections:
ELA/Literacy	
KR1	Develop and answer questions about a text. (K-ESS3-2)
KW6	Develop questions and participate in shared research and exploration to answer questions and to build and share knowledge. (K-PS3-1), (K-PS3-2), (K-
	ESS2-1)
KSL3	Develop and answer questions to clarify what the speaker says. (K-ESS3-2)
Mathematics	-
MP.2	Reason abstractly and quantitatively. (K-ESS2-1)
MP.4	Model with mathematics. (K-ESS2-1), (K-ESS3-2)
NY-K.CC	Counting and Cardinality (K-ESS2-1), (K-ESS3-2)
NY-K.MD.1	Describe measurable attributes of objects, such as length or weight, using appropriate vocabulary. (K-ESS2-1)
NY-K.MD.2	Directly compare two objects with a common measurable attribute and describe the difference. (K-PS3-1), (K-PS3-2)
NY-K.MD.3	Classify objects into given categories; count the objects in each category and sort the categories by count. (K-ESS2-1)
*Connection b	oxes updated as of September 2018

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		1. Waves: Light and Sound		
Students wh	o demonstrate understanding car	ו:		
1-PS4-1.	Plan and conduct investigations to provide evidence that vibrating materials can make sound and that			
	sound can make materials vibrate. [Clarification Statement: Examples of vibrating materials that make sound could include tuning forks			
	and plucking a stretched string. Examples of how sound can make matter vibrate could include holding a piece of paper near a speaker making sound and			
1 05/ 2	holding an object near a vibrating tuning fork.]			
1-634-2.	soon only when illuminated	Clarification Statement: Examples of sheer stigns could include	these made in a completely dark room a ninhele	
	seen only wnen illuminated. [Clarification Statement: Examples of observations could include those made in a completely dark room, a pinhole box, and a video of a cave explorer with a flashlight. Illumination could be from an external light source or by an object diving off its own light.]			
1-PS4-3.	Plan and conduct an investion	pation to determine the effect of placing object	cts made with different	
	materials in the path of a be	am of light. [Clarification Statement: Examples of materials	s could include those that are transparent (such	
	as clear plastic), translucent (such as was	x paper), opaque (such as cardboard), and reflective (such as a min	rror).] [Assessment Boundary: Assessment	
	does not include the speed of light.]			
1-PS4-4.	Use tools and materials to d	lesign and build a device that uses light or sou	and to solve the problem of	
	communicating over a dista	Ince. [Clarification Statement: Examples of devices could inclu	ude a light source to send signals, paper cup	
	communication devices work.	rulum beats.] [Assessment boundary. Assessment does not includ		
	The performance expectations above wer	e developed using the following elements from the NPC document (Framework for K-12 Science Education	
		E VEVENDEN UNITO THE IONOWING EIEINETIN HOUTHTHE DUNG VOCUTIENT /		
0.1	The performance expectations above wer	e developed using the following elements from the fine document 7		
Science	and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts	
Science a Planning and (and Engineering Practices	Disciplinary Core Ideas PS4.A: Wave Properties	Crosscutting Concepts Cause and Effect	
Science a Planning and C Planning and car questions or tes	and Engineering Practices Carrying Out Investigations Trying out investigations to answer t solutions to problems in K-2 builds on	Disciplinary Core Ideas PS4.A: Wave Properties Sound can make matter vibrate, and vibrating matter can make sound. (1-PS4-1)	Crosscutting Concepts Cause and Effect Simple tests can be designed to gather evidence to support or refute student	
Science a Planning and C Planning and car questions or tes prior experiences	and Engineering Practices Carrying Out Investigations rying out investigations to answer t solutions to problems in K–2 builds on s and progresses to simple investigations,	Disciplinary Core Ideas PS4.A: Wave Properties • Sound can make matter vibrate, and vibrating matter can make sound. (1-PS4-1) PS4.B: Electromagnetic Radiation	Crosscutting Concepts Cause and Effect Simple tests can be designed to gather evidence to support or refute student ideas about causes. (1-PS4-1),(1-PS4-	
Science a Planning and Car questions or tes prior experiences based on fair tes	and Engineering Practices Carrying Out Investigations rying out investigations to answer t solutions to problems in K-2 builds on s and progresses to simple investigations, its, which provide data to support	Disciplinary Core Ideas PS4.A: Wave Properties Sound can make matter vibrate, and vibrating matter can make sound. (1-PS4-1) PS4.B: Electromagnetic Radiation Objects can be seen if light is available to illuminate them	Crosscutting Concepts Cause and Effect • Simple tests can be designed to gather evidence to support or refute student ideas about causes. (1-PS4-1),(1-PS4- 2),(1-PS4-3)	
Science a Planning and Car questions or tes prior experiences based on fair tes explanations or o	and Engineering Practices Carrying Out Investigations rying out investigations to answer t solutions to problems in K–2 builds on s and progresses to simple investigations, ts, which provide data to support design solutions. objuct investigations collaboratively to	Disciplinary Core Ideas Disciplinary Core Ideas Sound can make matter vibrate, and vibrating matter can make sound. (1-PS4-1) PS4.B: Electromagnetic Radiation Objects can be seen if light is available to illuminate them or if they give off their own light. (1-PS4-2) Some materials allow light to pass through them, others	Crosscutting Concepts Cause and Effect • Simple tests can be designed to gather evidence to support or refute student ideas about causes. (1-PS4-1),(1-PS4- 2),(1-PS4-3)	
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Science a Planning and Car questions or tes prior experience: based on fair tes explanations or o • Plan and cor produce data answer a qu	and Engineering Practices Carrying Out Investigations Trying out investigations to answer it solutions to problems in K-2 builds on s and progresses to simple investigations, sts, which provide data to support design solutions. Iduct investigations collaboratively to a to serve as the basis for evidence to estion. (1-PS4-1), (1-PS4-3)	Disciplinary Core Ideas PS4.A: Wave Properties • Sound can make matter vibrate, and vibrating matter can make sound. (1-PS4-1) PS4.B: Electromagnetic Radiation • Objects can be seen if light is available to illuminate them or if they give off their own light. (1-PS4-2) • Some materials allow light to pass through them, others allow only some light through and others block all the light and create a dark shadow on any surface beyond them,	Crosscutting Concepts Cause and Effect Simple tests can be designed to gather evidence to support or refute student ideas about causes. (1-PS4-1),(1-PS4- 2),(1-PS4-3) Connections to Engineering, Technology, and Applications of Science	
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Connections to Nature of Science

Scientific Investigations Use a Variety of Methods

 Sci Sci 	ence investigations begin with a question. (1-PS4-1) entists use different ways to study the world. (1- 4-1)
гэ	4-1)
Conne	ections to other DCIs in first grade · N/A

CONTECTIONS	lo une Deis inni si gidue. Nik
Articulation of	of DCIs across grade-levels: K.ETS1.A (1-PS4-4); 2.PS1.A (1-PS4-3); 2.ETS1.B (1-PS4-4); 4.PS4.C (1-PS4-4); 4.PS4.B (1-PS4-2); 4.ETS1.A (1-PS4-4);
New York Sta	ate Next Generation Learning Standards Connections:
ELA/Literacy ·	
1W2	Write an informative/explanatory text to introduce a topic, supplying some facts to develop points, and provide some sense of closure. (1-PS4-2),(1-
	PS4-1), (1-PS4-2), (1-PS4-3), (1-PS4-4)
1W6	Develop questions and participate in shared research and explorations to answer questions and to build knowledge. (1-PS4-1), (1-PS4-2), (1-PS4-3)
414/7	Decell and assessed as lower the formation formation or with a information formation formation to assess the second state of t

Recall and represent relevant information from experiences or gather information from provided sources to answer a question in a variety of ways. (1-PS4-1W7 1),(1-PS4-2),(1-PS4-3)

Participate in collaborative conversations with diverse peers and adults (e.g., in small and large groups and during play). (1-PS4-1),(1-PS4-2),(1-PS4-3) 1SL1 Mathematics

MP.5 Use appropriate tools strategically. (1-PS4-4)

NY-1.MD.1 Order three objects by length; compare the lengths of two objects indirectly by using a third object. (1-PS4-4)

NY-1.MD.2 Measure the length of an object using same-size "length units" placed end to end with no gaps or overlaps. Express the length of an object as a whole number of "length units". (1-PS4-4)

Connection boxes updated as of September 2018

1. Structure, Function, and Information Processing

Students who demonstrate understanding can:					
1-LS1-1. Use materials to de	1-LS1-1. Use materials to design a solution to a human problem by mimicking how plants and/or animals use their				
external parts to be that can be solved by mimic shells, and animal scales; sta animal quills; and, detecting	external parts to help them survive, grow, and meet their needs.* [Clarification Statement: Examples of human problems that can be solved by mimicking plant or animal solutions could include designing clothing or equipment to protect bicyclists by mimicking turtle shells, acorn shells, and animal scales; stabilizing structures by mimicking animal tails and roots on plants; keeping out intruders by mimicking thorns on branches and animal quills; and, detecting intruders by mimicking eyes and ears.]				
1-LS1-2. Read texts and use	media to d	etermine patterns in behavior of parents and offs	oring that help offspring		
survive. [Clarification Sta vocalizations) and the respon 1-LS3-1. Make observations to, but not exactly Examples of observations co its parents but is not exactly	 Survive. [Clarification Statement: Examples of patterns of behaviors could include the signals that offspring make (such as crying, cheeping, and other vocalizations) and the responses of the parents (such as feeding, comforting, and protecting the offspring).] LS3-1. Make observations to construct an evidence-based account that some young plants and animals are similar to, but not exactly like, their parents. [Clarification Statement: Examples of patterns could include features plants or animals share. Examples of observations could include leaves from the same kind of plant are the same shape but can differ in size; and, a particular breed of dog looks like its parents but is not exactly the same.] [Assessment Boundary: Assessment does not include inheritance or animals that undergo metamorphosis or hybrids.] 				
The performance expectation	ns above were de	eveloped using the following elements from the NRC document A Framew	ork for K-12 Science Education.		
Science and Engineering Pra	ctices	Disciplinary Core Ideas	Crosscutting Concepts		
 Constructing Explanations and Designing Constructing explanations and designing soluti builds on prior experiences and progresses to t evidence and ideas in constructing evidence-based of natural phenomena and designing solutions. Make observations (firsthand or from medi construct an evidence-based account for natural phenomena. (1-LS3-1) Use materials to design a device that solve specific problem or a solution to a specific (1-LS1-1) Obtaining, Evaluating, and Communicating Information Obtaining, evaluating, and communicating info K–2 builds on prior experiences and uses obset texts to communicate new information. Read grade-appropriate texts and use med obtain scientific information to determine the natural world. (1-LS1-2) Connections to Nature of Science Science Knowledge is Based on Empirica Scientists look for patterns and order when observations about the world. (1-LS1-2) 	Solutions ons in K–2 he use of ised accounts a) to s a problem. rmation in rvations and lia to patterns in rnce I Evidence making	 LS1.A: Structure and Function All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. (1-LS1-1) LS1.B: Growth and Development of Organisms Adult plants and animals can have young. In many kinds of animals, parents and the offspring themselves engage in behaviors that help the offspring to survive. (1-LS1-2) LS1.D: Information Processing Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive. Plants also respond to some external inputs. (1-LS1-1) LS3.A: Inheritance of Traits (NYSED) Some young animals are similar to, but not exactly, like their parents. Some young plants are also similar to, but not exactly, like their parents. (1-LS3-1) LS3.B: Variation of Traits Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways. (1-LS3-1) 	 Patterns Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. (1-LS1-2),(1-LS3-1) Structure and Function The shape and stability of structures of natural and designed objects are related to their function(s). (1-LS1-1) Connections to Engineering, Technology and Applications of Science Influence of Engineering, Technology, and Science on Society and the Natural World Every human-made product is designed by applying some knowledge of the natural world and is built by using materials derived from the natural world. (1-LS1-1) 		
Connections to other DCIs in first grade: N/A					
Articulation of DCIs across grade-levels: K.E (1-LS1-1)	TS1.A (1-LS1-1); 3.LS2.D (1-LS1-2) 3.LS3.A (1-LS3-1); 3.LS3.B (1-LS3-1); 4.LS1.A (1-	-LS1-1); 4.LS1.D (1-LS1-1); 4.ETS1.A		
 New York State Next Generation Learning Standards Connections: ELA/Literacy – TR1 Develop and answer questions about key ideas and details in a text. (1-LS1-2),(1-LS3-1) TR2 Identify a main topic or idea in a text and retell important details. (1-LS1-2) TR2 Identify a main topic or idea in a text and retell important details. (1-LS1-2) TR2 Identify a main topic or idea in a text and retell important details. (1-LS1-2) TR2 Identify a main topic or idea in a text and retell important details. (1-LS1-2) TR2 Identify a main topic or idea in a text and retell important details. (1-LS1-2) TR2 Recall and represent information from experiences or gather information from provided sources to answer a question. (1-LS3-1) MP.2 Reason abstractly and quantitatively. (1-LS3-1) WP.1 NBT.3 Compare two two-digit numbers based on the meanings of the tens and one digits, recording the results of comparisons with the symbols >, =, and <. (1-LS1-2) NY-1.NBT.4 Add within 100, including adding a two-digit number, and adding a two-digit number and a multiple of 10. Use concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten. Relate the strategy to a written method and explain the reasoning used. (1-LS1-2) NY-1.NBT.5 Given a two-digit number, mentally find 10 more or 10 less than the number, without having to court; explain the reasoning used. (1-LS1-2) NY-1.NBT.6 Subtract multiples of 10 from the range 10-90 from multiples of 10 in the range 10-90 using concrete models or drawings, and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. Relate the strategy to a written method and explai					

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New York State	P-12 Science	Learning	Standards

1. Space Systems: Patterns and Cycles

Students who demonstrate understanding can:			
 1-ESS1-1. Use observations of the Sun, moon, and stars to describe patterns that can be predicted. [Clarification Statement: Examples of patterns could include that the Sun and moon appear to rise along the eastern horizon, move in a predictable pathway across the sky, and set along the western horizon; and stars other than our Sun are visible at night depending on weather and other conditions such as light pollution but not visible during the day.] [Assessment Boundary: Assessment of star patterns is limited to stars being seen at night and not during the day.] 1-ESS1-2. Make observations at different times of year to relate the amount of daylight to the time of year. [Clarification Statement: Emphasis is on relative comparisons of the amount of daylight in the winter to the amount in the spring or fall.] [Assessment Boundary: Assessment is limited to relative amounts of daylight, not quantifying the hours or time of daylight.] 			
The performance expectations above were de	eveloped using the following elements from the NRC document A	Framework for K-12 Science Education.	
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts	
 Planning and Carrying Out Investigations Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions. Make observations (firsthand or from media) to collect data that can be used to make comparisons. (1-ESS1-2) Analyzing and Interpreting Data Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations. Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. (1-ESS1-1) 	 ESS1.A: The Universe and its Stars Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted. (1-ESS1-1) ESS1.B: Earth and the Solar System Seasonal patterns of sunrise and sunset can be observed, described, and predicted. (1-ESS1-2) 	Patterns Patterns Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. (1-ESS1-1),(1-ESS1-2) Connections to Nature of Science Scientific Knowledge Assumes an Order and Consistency in Natural Systems Science assumes natural events happen today as they happened in the past. (1-ESS1-1) Many events are repeated. (1-ESS1-1)	
Connections to other DCIs in first grade: N/A			
Articulation of DCIs across grade-levels: 3.PS2.A (1-ESS1-1); 5.PS2.B (1-ESS1-1), (1-ESS1-2) 5-ESS1.B (1-ESS1-1), (1-ESS1-2)			
ELA/Literacy- 1W6 Develop questions and participate in shared research and explorations to answer questions and to build knowledge. (1-ESS1-1),(1-ESS1-2) 1W7 Recall and represent relevant information from experiences or gather information from provided sources to answer a question in a variety of ways. (1-ESS1-1),(1-ESS1-2) Mathematics - MP.2 MP.4 Model with mathematics. (1-ESS1-2) MP.4 Model with mathematics. (1-ESS1-2) MP.4 Use appropriate tools strategically. (1-ESS1-2) NY-1.OA.1 Use addition and subtraction within 20 to solve one step word problems involving situations of adding to, taking from, putting together, taking apart, and/or comparing, with unknowns in all positions. (1-ESS1-2) NY-1.MD.4 Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another. (1-ESS1-2)			
*Connection boxes updated as of September 2018			

2. Structure and Properties of Matter

 2-P51-1. Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. Earlier describes and redulip. Platents could include the state properties that different materials takes. 2-P51-2. Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose. "[Caritation Statement]. Langues of prose out include the insplay. 2-P51-3. Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object. Itaket outside statement is bind in out on object. Taket observations of proces out include theore, and testing of proces out include theore, based account of how an object made of a small set of pieces can be disassembled and made into a new object. Itaket outside statement is bind in data works of the XI Statement of the	Students wh	o demonstrate understanding can:	·	
observable properties [Clearing and memory could include outry, have, hardness, and haveling. Patterns could include the submatrix and backs for an intended purpose." (Clearing and purposes, Clearing and advances to an existing and fifterent materials to determine which materials have the properties that are best suited for an intended purpose. "(Clearing and memory) have observables and advances to an existing and the subset of advances to advance the advances to an existing and advances to an existing advances to advance the advance advance advances to advance advances to advance advance advances to advance advances adva	2-PS1-1.	Plan and conduct an investigation	n to describe and classify different kinds of ma	aterials by their
Sense properties that database haves, 2-PS1-2. Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose. (Centration Statement, Lampson d properties coult include, strength, flexability, hardines, which and absorberg (Lexaberged bounds). Assessment descaments is limited to inphi) 2-PS1-3. Make observations to construct an evidence-based account of how an object model of a small set, fuelding inclus or other construct an evidence-based account of how an object model of a small set, fuelding inclus or other construct an evidence that some changes caused by heating or cooling can be reversed and Some cannot. (Lexing of the state of the		observable properties. [Clarification S	tatement: Observations could include color, texture, hardness, and	d flexibility. Patterns could include the
21-21-2. Analyze data during to the study of meterin (materials to determine which metades, study, haddes, haddes, the study, haddes, haddes, haddes, study, haddes, ha	2 061 2	similar properties that different materials share.]	a different meteriale to determine which met	orials have the properties that
aid to best surfact for an interfaced put pose. (Latification Statimet): Lategets of poperties could include the starget, reconstruct an evidence-based account of how an object manifest instantion. 2-PS1-3. Make observations to construct an evidence-based account of how an object manifest instantion. 2-PS1-4. Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot. 2-PS1-4. Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot. Parting and carrying Out Investigations allowment. An example of a reversite through used weeked use and the base argument is an example of a reversite through used weeked use and the base argument is an example of an reversite of manifest in the status and through used weeked use and the base argument is an example of an reversite of manifest in the status and through used weeked use and the base argument is an example of a reversite and many of the counce of the status and through used weeked use and through the status and	2-P51-2.	Analyze data obtained from testin	ig different materials to determine which mat	erials have the properties that
 2-PS1-3. Make observations to construct an evidence-based account of how an object manado of a small set of pieces of the asympted small regists. 2-PS1-4. Construct an argument with evidence that some changes could include frequency and melling. An example of an treverside and melling and previous and include blocks, building brites, or of construct an evidence based with evidence that some changes could include frequency and melling. An example of an treverside and melling and example of an treverside and melling and example of an treverside and exampl		texture and absorbency] [Assessment Boundary	• Assessment of quantitative measurements is limited to length 1	a include, strength, flexibility, hardness,
can be disassembled and made into a new object. [Carticulus Istament: Examples of pieces could include blocks, building bricks, or outline water dama displays] 2-P51-4. Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot. (Carticulus Istament: An example of a reversible drange could include include blocks, building bricks, or outline water dama displays and carrying out investigations abuse were developed using the following elements from the ME document AF Francescore AF	2-PS1-3.	Make observations to construct a	n evidence-based account of how an object n	nade of a small set of pieces
atter associated small capacity 2.P51.4. Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot. (Clainfaction Statement: An example of a reversible change could include thready and melling. An example of an interversible change could include cooling an egg] The performance expectations ables were developed using the following dements from the NRC document <i>A Formated to K 1:12 Science Education</i> Parning and Carrying Out Investigations Terroride data to support explanations or dosign solutions. P14: Structure and Properties of Matter on the solution is for vidence to answer a question data to save as the basis for evidence to answer a question data to save as the basis for evidence to answer a question data to save as the basis for evidence to answer a question oriented data to support explanations and beging solutons in constructing explanations and beging solutons in constructing explanations and beging solutons constructing explanations and beging solutons in constructing explanations and beging solutons in constructing explanations and beging solutons in constructing explanations and designing solutons in constructing explanations in constructing explanations and designing solutons in constructing explanations and designing solutons. P112 (2-P51-1) (2-P51-4) P112 (2-P51-1) (2-P51-4) Consections to Explanations in designing solutons. Consections to Support explanations in a due soluton in the solution of non medial to construct an evidence-based count for target phenomene. (2-P51-4) P112 (2-P51-1) (2-		can be disassembled and made in	to a new object. [Clarification Statement: Examples of pie	eces could include blocks, building bricks, or
 2-P51-4. Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cancel, (cleficitation structure). Cleficitation structure devices were deviced using the following elements from the IKC document <i>J. Framework for K-12 Science Education</i>. Science and Engineering Practices Planning and Carrying Out Investigations and the specific carrying out investigation of the sequences and and only of the structure and Properties of Matter Science and Engineering Practices P1. <i>Extructure and Properties of Matter</i> Science and Cargin point investigations on the sequences and and carry of the structure and evidence in the structure of edges solution. (2:F51-1) Planning and Carrying Out Investigations to answer questions of the solution of the structure in prior sequences and properties of the solution of the structure in prior sequences and properties of the solution of the solution		other assorted small objects.]		3 • • • •
Some Cannol. [Clarification Studement: An example of a reversible change could include freeing and melting. An example of an interventible change could include freeing and melting. An example of an interventible change could include freeing and melting. An example of an interventible change could include freeing and melting. An example of an interventible change could include freeing and melting. An example of an interventible change could include freeing and melting. An example of an interventible change could include freeing and melting. An example of an interventible change could include freeing and melting. An example of an interventible change could include freeing and melting. An example of an interventible change could include free coul	2-PS1-4.	Construct an argument with evid	ence that some changes caused by heating or	cooling can be reversed and
Conditionation were developed using the following elements from the NRC document A Framework for K-12 Science Education. Science and Engineering Practices Planning and Carrying Out Investigations Disciplinary Core Ideas Planning and Carrying Out Investigation Disciplinary Core Ideas Planning and Carrying Out Investigation Out Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2" Colspan="2" Colspan="2" Colspan="2" Colspan="2" Colspan="2" Colspan="2" Colspan="2" Colspan="2"		some cannot. [Clarification Statement: An	example of a reversible change could include freezing and melting	. An example of an irreversible change
Science Models, Laws, Mechanisms, and Theories Explain Natural Phenomena Descriptions of Science Models, Laws, Mechanisms, and Theories Explain Natural Phenomena Matural Menomena Matural Menomena Mat		could include cooking an egg.]	nod using the following elements from the NDC decument A Frame	work for K 12 Science Education
Science and Engineering Practices Disciplinary Core I deas Crosscutting Concepts Binning and carrying out investigations to answer questions or is solutions to probem is K-2 builds on prior experiance and corpresses to simple investigations, based on fair tests, within yoride data is server a design solutions (2-851-1) Different kinds of matter exist and many of them can be described and classified by its observable (2-851-1) Patters Patters • Different kinds of matter exist and many of them can be described and classified by its observable (2-851-1) • Different kinds of matter exist and many of them can be described and classified by its observable (2-851-1) • Different inpertures and its observable patterns. (2-851-4) • Different inpertures and its observable patterns. (2-851-4) • Different particle, 24-851-3) • Different inpertures and its observable patterns. (2-851-4) • Different inpertures of the its observable patterns. (2-851-4) • Different inpertures of the its observable patterns. (2-851-4) • Different kinds of its observable patterns. (2-851-4) • Observable patterns. (2-851-4) • Different kinds of its observable patterns. (2-851-4) • Make observables. • or experiments and programs to the use of evidence in the solution in designed solutions. • Oraneetimes these data ontexind phenomena • Vidence based account for natural phenomena • Vid		The performance expectations above were develo	ped using the following elements from the NRC document A Frame	
 Planning and Carrying out Investigations Planning and Carrying out Investigations to answer questions or test solutions to problems in K-2 builds on prior experiences and progresses to simple investigations. In the advantage of the adv	Scienc	e and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
materials derived from the natural Connections to Nature of Science Science Models, Laws, Mechanisms, and Theories Explain Natural Phenomena • Scientists search for cause and effect relationships to explain natural events. (2-P51-4) Connections to other DCIs in second grade: N/A Articulation of DCIs across grade-levels: 4.ESS2.A (2-P51-3); 5.P51.A (2-P51-2), (2-P51-3); 5.P51.B (2-P51-4); 5.L52.A (2-P51-3) New York State Next Generation Learning Standards Connections: Articulation of DCIs across grade-levels: 4.ESS2.A (2-P51-3); 5.P51.A (2-P51-2), (2-P51-3); 5.P51.B (2-P51-4); 5.L52.A (2-P51-3) New York State Next Generation Learning Standards Connections: Articulation of DCIs across grade-levels: 4.ESS2.A (2-P51-3); 5.P51.A (2-P51-3); 5.P51.B (2-P51-4); 5.L52.A (2-P51-3) New York State Next Generation Learning Standards Connections: Articulation of DCIs across grade-levels: 4.ESS2.A (2-P51-3); 5.P51.A (2-P51-4); (2-P51-4) Revelop and answer questions to demonstrate an understanding of key ideas and details in a text. (2-P51-4) Revelop and answer questions to demonstrate an understanding of key ideas and telvant evaluence. (2-P51-4) Write an opinion about a topic or personal experience, using clear reasons and relevant reasons. (2-P51-4) Write an opinion about a topic or personal experience	Planning and C Planning and Car test solutions to progresses to sin provide data to s • Plan and con data to serve (2-PS1-1) Analyzing and Analyzing data in to collecting, recc • Analyze data works as inte Constructing ex prior experiences in constructing exp prior experiences and designing sc • Make observ evidence-bas Engaging in argu experiences and representations a • Construct an (2-PS1-4)	 Carrying Out Investigations rying out investigations to answer questions or problems in K–2 builds on prior experiences and nple investigations, based on fair tests, which support explanations or design solutions. Induct an investigation collaboratively to produce e as the basis for evidence to answer a question. Interpreting Data In K–2 builds on prior experiences and progresses ording, and sharing observations. If om tests of an object or tool to determine if it ended. (2-PS1-2) xplanations and Designing Solutions a drogresses to the use of evidence and ideas vidence-based accounts of natural phenomena oblutions. ations (firsthand or from media) to construct an seed account for natural phenomena. (2-PS1-3) gument from Evidence ment from evidence in K–2 builds on prior progresses to comparing ideas and about the natural and designed world(s). argument with evidence to support a claim. 	 PS1.A: Structure and Properties of Matter Different kinds of matter exist and many of them can be either solid or liquid, depending on temperature. Matter can be described and classified by its observable properties. (2-PS1-1) Different properties are suited to different purposes. (2-PS1-2), (2-PS1-3) A great variety of objects can be built up from a small set of pieces. (2-PS1-3) PS1.B: Chemical Reactions Heating or cooling a substance may cause changes that can be observed. Sometimes these changes are reversible, and sometimes they are not. (2-PS1-4) 	 Patterns Patterns in the natural and human designed world can be observed. (2-PS1-1) Cause and Effect Events have causes that generate observable patterns. (2-PS1-4) Simple tests can be designed to gather evidence to support or refute student ideas about causes. (2-PS1-2) Energy and Matter Objects may break into smaller pieces and be put together into larger pieces, or change shapes. (2-PS1-3) Connections to Engineering, Technology, and Applications of Science Influence of Engineering, Technology, and Science on Society and the Natural World Every human-made product is designed by applying some knowledge of the natural world and is built using
 Science Models, Laws, Mechanisms, and Theores Explain Natural Phenomena Scientists search for cause and effect relationships to explain natural events. (2-PS1-4) Connections to other DCIs in second grade: N/A Articulation of DCIs across grade-levels: A LESS2.A (2-PS1-3); 5.PS1.A (2-PS1-2), (2-PS1-3); 5.PS1.B (2-PS1-4); 5.LS2.A (2-PS1-3) New York State Next Generation Learning Standards Connections: LAULiteracy - 2R1 Develop and answer questions to demonstrate an understanding of key ideas and details in a text. (2-PS1-4) 2R3 In Informational texts, describe the connections among ideas, concepts, or a series of events. (2-PS1-4) 2R8 Explain how specific points the author or illustrator makes in a text are supported by relevant reasons. (2-PS1-2), (2-PS1-4) 2W1 Write an opinion about a topic or personal experience, using clear reasons and relevant evidence. Please note: Students in 2nd grade should understand the difference between opinions and arguments and begin to learn how to write arguments with claims and supporting reasons. (2-PS1-4) 2W6 Develop questions and participate in shared research and explorations to answer questions and to build knowledge. (2-PS1-1), (2-PS1-2), (2-PS1-3) 2W7 Recall and represent relevant information from experiences or gather information from provided sources to answer a question. (2-PS1-1), (2-PS1-2), (2-PS1-3) 2W7 Recall and represent relevant information from experiences or gather information from provided sources to answer a question. (2-PS1-1), (2-PS1-2), (2-PS1-3) 2W6 Model with mathematics. (2-PS1-1), (2-PS1-2) WP.4 Model with mathematics. (2-PS1-2) WP.5 Use appropriate tools strategically. (2-PS1-2) WP.4 Model with mathematics. (2-PS1-2) WP.5 Use appropriate tools argeraple with scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, an	Ci	onnections to Nature of Science		materials derived from the natural
Scientists search for cause and effect relationships to explain natural events. (2-PS1-4) Connections to other DCIs in second grade: N/A Articulation of DCIs across grade-levels: 4.ESS2.A (2-PS1-3); 5.PS1.A (2-PS1-2), (2-PS1-3); 5.PS1.B (2-PS1-4); 5.LS2.A (2-PS1-3) New York State Next Generation Learning Standards Connections: LA/Literacy - 2R1 Develop and answer questions to demonstrate an understanding of key ideas and details in a text. (2-PS1-4) 2R3 In informational texts, describe the connections among ideas, concepts, or a series of events. (2-PS1-4) 2R4 Explain how specific points the author or illustrator makes in a text are supported by relevant reasons. (2-PS1-2), (2-PS1-4) 2W1 Write an opinion about a topic or personal experience, using clear reasons and relevant evidence. Please note: Students in 2nd grade should understand the difference between opinions and arguments and begin to learn how to write arguments with claims and supporting reasons. (2-PS1-4) 2W6 Develop questions and participate in shared research and explorations to answer questions and to build knowledge. (2-PS1-1), (2-PS1-2), (2-PS1-3) 2W7 Recall and represent relevant information from experiences or gather information from provided sources to answer a question. (2-PS1-1), (2-PS1-2), (2-PS1-3) athematics - MP.2 Reason abstractly and quantitatively. (2-PS1-2) MP.4 Model with mathematics. (2-PS1-1), (2-PS1-2) WF.5 Use appropriate tools strategically. (2-PS1-2) MP.4 Divelop fraction as a part of the single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a picture graph or a bar graph. (2-PS1-1), (2-PS1-2)	Natural Pheno	is, Laws, Mechanisms, and Theories Explain omena		
explain natural events. (2-PS1-4) Connections to other DCIs in second grade: N/A Articulation of DCIs across grade-levels: 4.ESS2.A (2-PS1-3); 5.PS1.A (2-PS1-2),(2-PS1-3); 5.PS1.B (2-PS1-4); 5.LS2.A (2-PS1-3) New York State Next Generation Learning Standards Connections: LA/Literacy - 2R1 Develop and answer questions to demonstrate an understanding of key ideas and details in a text. (2-PS1-4) 2R3 In informational texts, describe the connections among ideas, concepts, or a series of events. (2-PS1-4) 2R8 Explain how specific points the author or illustrator makes in a text are supported by relevant reasons. (2-PS1-2), (2-PS1-4) 2W1 Write an opinion about a topic or personal experience, using clear reasons and relevant evidence. Please note: Students in 2nd grade should understand the difference between opinions and arguments and begin to learn how to write arguments with claims and supporting reasons. (2-PS1-4) 2W6 Develop questions and participate in shared research and explorations to answer questions and to build knowledge. (2-PS1-1), (2-PS1-2), (2-PS1-3) 2W7 Reason abstractly and quantitatively. (2-PS1-2) MP-2 Reason abstractly and quantitatively. (2-PS1-2) MP-3 Model with mathematics. (2-PS1-1), (2-PS1-2) MP-4 Model with mathematics. (2-PS1-1), (2-PS1-2) MP-5 Use appropriate tools strategically. (2-PS1-2) MP-4 Mod	 Scientists se 	earch for cause and effect relationships to		
Articulation of DCIs across grade-levels: 4.ESS2.A (2-PS1-3); 5.PS1.A (2-PS1-1), (2-PS1-2), (2-PS1-3); 5.PS1.B (2-PS1-4); 5.LS2.A (2-PS1-3) New York State Next Generation Learning Standards Connections: L/Literacy – 2R1 Develop and answer questions to demonstrate an understanding of key ideas and details in a text. (2-PS1-4) 2R3 In informational texts, describe the connections among ideas, concepts, or a series of events. (2-PS1-4) 2R4 Explain how specific points the author or illustrator makes in a text are supported by relevant reasons. (2-PS1-4) 2R5 Write an opinion about a topic or personal experience, using clear reasons and relevant evidence. Please note: Students in 2nd grade should understand the difference between opinions and arguments and begin to learn how to write arguments with claims and supporting reasons. (2-PS1-4) 2W6 Develop questions and participate in shared research and explorations to answer questions and to build knowledge. (2-PS1-1), (2-PS1-2), (2-PS1-3) 2W7 Recall and represent relevant information from experiences or gather information from provided sources to answer a question. (2-PS1-1), (2-PS1-2), (2-PS1-3) 2W7 Reason abstractly and quantitatively. (2-PS1-2) MP.2 Reason abstractly and quantitatively. (2-PS1-2) MP.4 Model with mathematics. (2-PS1-1), (2-PS1-2) MP.5 Use appropriate tools strategically. (2-PS1-2) MP.4 Model with mathematics. (2-PS1-1), (2-PS1-2) NY-2.MD.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a picture graph or a bar graph. (2-PS1-1), (2-PS1-2) Campation bores undited as a cf Sotember 2019	explain natu	ural events. (2-PS1-4)		
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NY-2.MD.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a picture graph or a bar graph. (2-PS1-1),(2-PS1-2)	MP.5 U	se appropriate tools strategically. (2-PS1-2)		
compare problems using information presented in a picture graph or a bar graph. (2-PS1-1),(2-PS1-2)	NY-2.MD.10 D	raw a picture graph and a bar graph (with single-u	unit scale) to represent a data set with up to four categories. Solve	e simple put-together, take-apart, and
Connection boxes updated as of september 2018	co Connection boxe	ompare problems using information presented in a es updated as of September 2018	picture graph or a bar graph. (2-PS1-1),(2-PS1-2)	

2. Interdependent Relationships in Ecosystems			
Students wh	o demonstrate understanding can	i i i i i i i i i i i i i i i i i i i	
2-LS2-1.	Plan and conduct an investig	pation to determine if plants need sunlight and wa	ter to arow. [Assessment
	Boundary: Assessment is limited to testi	ng one variable at a time.]	
2-LS2-2.	Develop a simple model that [Clarification Statement: Examples could for animals.]	: illustrates how plants and animals depend on eac include animals dispersing seeds or pollinating plants, and plants providing	h other for survival.* g food, shelter, and other materials
2-LS4-1.	Make observations of plants	and animals to compare the diversity of life in dif	ferent habitats. [Clarification
	Statement: Emphasis is on the diversity	of living things in each of a variety of different habitats.] [Assessment Bou	indary: Assessment does not include
	specific animal and plant names in specifi	c habitats.]	5
	The performance expectations above were	e developed using the following elements from the NRC document A Frame	ework for K-12 Science Education.
Science a	and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
Developing and Modeling in K-2 progresses to inc (i.e., diagram, dr dramatization, or events or design • Develop a si represent a Planning and car questions or tes prior experiences investigations, ba support explanat • Plan and cor produce dat answer a qu • Make observ collect data (2-LS4-1)	d Using Models builds on prior experiences and lude using and developing models awing, physical replica, diorama, storyboard) that represent concrete solutions. mple model based on evidence to proposed object or tool. (2-LS2-2) arrying Out Investigations rying out investigations to answer a solutions to problems in K–2 builds on and progresses to simple used on fair tests, which provide data to ions or design solutions. iduct an investigation collaboratively to a to serve as the basis for evidence to testion. (2-LS2-1) ations (firsthand or from media) to that can be used to make comparisons.	 LS2.A: Interdependent Relationships in Ecosystems Animals depend on plants or other animals for food. (2-LS2-2) (NYSED) Plants depend on water, light and air to grow. (2-LS2-1) (NYSED) Some plants depend on animals for pollination and for dispersal of seeds from one location to another. (2-LS2-2) LS4.D: Biodiversity and Humans There are many different kinds of living things in any area, and they exist in different places on land and in water. (2-LS4-1) ETS1.B: Developing Possible Solutions (NYSED) Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas to other people (secondary to 2-LS2-2) 	 Cause and Effect Events have causes that generate observable patterns. (2-LS2-1) Structure and Function The shape and stability of structures of natural and designed objects are related to their function(s). (2-LS2-2) Patterns Similarities and differences in patterns can be used to sort and classify organisms. (2-LS4-1)
Ca Scientific Know Evidence • Scientists loc making obse LS4-1)	Innections to Nature of Science Vedge is Based on Empirical k for patterns and order when rvations about the world. (2-		
Connections to	other DCIs in second grade: N/A		
Articulation of DCIs across grade-levels: K.LS1.C (2-LS2-1); K-ESS3.A (2-LS2-1); K.ETS1.A (2-LS2-2); 3.LS4.C (2-LS4-1); 3.LS4.D (2-LS4-1); 5.LS1.C (2-LS2-1); 5.LS2.A			
New York State Next Generation Learning Standards Connections:			
ELA/Literacy –			
2W6 Develop questions and participate in shared research and explorations to answer questions and to build knowledge. (2-LS2-1), (2-LS4-1)			
2 vv / Recail and represent relevant information from experiences or gather information from provided sources to answer a question. (2-LS2-1),(2-LS4-1) 2SL5 Include digital media and/or visual displays in presentations to clarify or support ideas, thoughts, and feelings, (2-LS2-2)			
Mathematics –			
MP.2 Reason abstractly and quantitatively. (2-LS2-1), (2LS4-1)			
MP.4 №	odel with mathematics. (2-LS2-1), (2-LS2-2	2),(2-LS4-1)	
	se appropriate tools strategically. (2-LS2-1)	single unit scale) to concorant a data set with up to four estagories. Solve	simple put together, take sport, and
101-2.1VID.10D	aw a picture graph and a bar graph (With ompare problems using information presen	ted in a nicture graph or a bar graph (2-1 S2-2) (2-1 S4-1)	simple put-together, take-apart, and
*Connection boxes updated as of September 2018			

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2.1	Earth's Systems: Processes that Shape the Ea	arth
Students who demonstrate understanding can		
 2-ESS1-1. Use information from severa [Clarification Statement: Examples of every erosion of rocks, which may occur slowly.] 2-ESS2-1. Compare multiple solutions of land.* [Clarification Statement: Example with the several sever	al sources to provide evidence that Earth ev vents and timescales could include volcanic explosions and earthq [Assessment Boundary: Assessment does not include quantitativ designed to slow or prevent wind or water fro oles of solutions could include different designs for using rocks, shr	ents can occur quickly or slowly. uakes, which happen quickly and weathering and 'e measurements of timescales.] or changing the shape of the ubs, grass, and trees to hold back wind, water,
2-ESS2-2. Develop a model to represer	t the shapes and kinds of land and bodies of	water in an area. [Assessment
2-ESS2-3. Obtain information to identif	y where water is found on Earth and that it can be able to the formation of the second on the second of the second	an be solid or liquid.
The performance expectations above were	developed using the following elements from the NRC document A	Framework for K-12 Science Education:
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
 Developing and Using Models Modeling in K–2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, or storyboard) that represent concrete events or design solutions. Develop a model to represent patterns in the natural world. (2-ESS2-2) Constructing Explanations and Designing Solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions. Make observations from several sources to construct an evidence-based account for natural phenomena. (2-ESS1-1) Compare multiple solutions to a problem. (2-ESS2-1) Obtaining, Evaluating, and Communicating Information Obtaining, evaluating, and communicating information in K–2 builds on prior experiences and uses observations and texts to communicate new information. Obtain information using various texts, text features (e.g., headings, tables of contents, glossaries, electronic menus, icons), and other media that will be useful in answering a scientific question. (2-ESS2-3) 	 ESS1.C: The History of Planet Earth Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe. (2-ESS1-1) ESS2.A: Earth Materials and Systems Wind and water can change the shape of the land. (2-ESS2-1) ESS2.B: Plate Tectonics and Large-Scale System Interactions Maps show where things are located. One can map the shapes and kinds of land and water in any area. (2-ESS2-2) ESS2.C: The Roles of Water in Earth's Surface Processes Water is found in the ocean, rivers, lakes, and ponds. Water exists as solid ice and in liquid form. (2-ESS2-3) ETS1.C: Optimizing the Design Solution Because there is always more than one possible solution to a problem, it is useful to compare and test designs. (secondary to 2-ESS2-1) 	 Patterns Patterns in the natural world can be observed. (2-ESS2-2), (2-ESS2-3) Stability and Change Things may change slowly or rapidly. (2-ESS1-1), (2-ESS2-1) Connections to Engineering, Technology, and Applications of Science Influence of Engineering, Technology, and Science on Society and the Natural World Developing and using technology has impacts on the natural world. (2-ESS2-1) Connections to Nature of Science Science Addresses Questions About the Natural and Material World Scientists study the natural and material world. (2-ESS2-1)
Connections to other DCIs in second grade: 2 PS1 & (2-FS	(\$2-3)	
Articulation of DCIs across grade-levels: K.ETS1.A (2-ESS	52-1); 3.LS2.C (2-ESS1-1); 4.ESS1.C (2-ESS1-1); 4.ESS2.A (2-ES	\$1-1),(2-ESS2-1); 4.ESS2.B (2-ESS2-2);
4.ETS1.A (2-ESS2-1); 4.ETS1.B (2-ESS2-1); 4.ETS1.C (2 New York State Next Generation Learning Standards Conne ELA/Literacy- 2RI Develop and answer such questions to demor 2R3 In literary texts, describe how characters res 2W6 Develop questions and participate in shared 2W7 Recall and represent relevant information from 2SI 2 Percent or describe key ideas or details of	-ESS2-1); 5.ESS2.A (2-ESS2-1); 5.ESS2.C (2-ESS2-2);(2-ESS2- ections: nstrate understanding of key ideas and details in a text. (2-ESS1-1) pond to major events and challenges. (2-ESS1-1),(2-ESS2-1) research and explorations to answer questions and to build knowle m experiences or gather information from provided sources to ans liverse texts and formats. (2-ESS1-1)	I) edge. (2-ESS1-1), (2-ESS1-1) swer a question. (2-ESS1-1),(2-ESS2-3)
2SL2 Recount on describe Key Ideas or defails of c 2SL5 Include digital media and/or visual displays i Mathematics – MP.2 MP.4 Model with mathematics. (2-ESS1-1),(2-ESS MP.5 Use appropriate tools strategically. (2-ESS2-1) NY-2.NBT Understand place value. (2-ESS1-1) NY-2.NBT.3 Read and write numbers to 1000 using base- NY-2.MD.5 Use addition and subtraction within 100 to sc symbol for the unknown number to represent Connection boxes updated as of September 2018	 in presentations to clarify or support ideas, thoughts, and feelings. 2-1),(2-ESS2-1),(2-ESS2-2) 2-1),(2-ESS2-2) ten numerals, number names, and expanded form. (2-ESS2-2) vive word problems involving lengths that are given in the same unit the problem. (2-ESS2-1) 	(2-ESS2-2) nits, e.g., using drawings and equations with a

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	K-2.Engineering Design			
Students who demonstrate understanding can: K-2-ETS1-1. Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or				
K-2-ETS1-2. Develop a simple sketch, dr function as needed to solve	tool. K-2-ETS1-2. Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.			
K-2-ETS1-3. Analyze data from tests of and weaknesses of how each	two objects designed to solve the same problem to a chorecter.	compare the strengths		
The performance expectations above were develo	ped using the following elements from the NRC document A Framework for	K-12 Science Education:		
Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts		
 Asking Questions and Defining Problems Asking questions and defining problems in K-2 builds on prior experiences and progresses to simple descriptive questions. • Ask questions based on observations to find more information about the natural and/or designed world. (K-2-ETS1-1) • Define a simple problem that can be solved through the development of a new or improved object or tool. (K-2-ETS1-1) Developing and Using Models Modeling in K-2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, or storyboard) that represent concrete events or design solutions. • Develop a simple model based on evidence to represent a proposed object or tool. (K-2-ETS1-2) Analyzing data in K-2 builds on prior experiences and progresses to collecting, recording, and sharing observations. • Analyze data from tests of an object or tool to determine if it works as intended. (K-2-ETS1-3) 	 ETS1.A: Defining and Delimiting Engineering Problems A situation that people want to change or create can be approached as a problem to be solved through engineering. (K-2-ETS1-1) Asking questions, making observations, and gathering information are helpful in thinking about problems. (K-2-ETS1-1) Before beginning to design a solution, it is important to clearly understand the problem. (K-2-ETS1-1) ETS1.B: Developing Possible Solutions Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people. (K-2-ETS1-2) ETS1.C: Optimizing the Design Solution Because there is always more than one possible solution to a problem, it is useful to compare and test designs. (K-2-ETS1-3) 	Structure and Function • The shape and stability of structures of natural and designed objects are related to their function(s). (K-2- ETS1-2)		
Connections to K-2-ETS1.A: Defining and Delimiting Engineering Problems include: Kindergarten: K-PS2-2, K-ESS3-2 Connections to K-2-ETS1.B: Developing Possible Solutions to Problems include: Kindergarten: K-ESS3-3, First Grade: 1-PS4-4, Second Grade: 2-LS2-2 Connections to K-2-ETS1.C: Optimizing the Design Solution include: Second Grade: 2-ESS2-1				
Articulation of DCIs across grade-bands: 3-5.ETS1.A (K-2-ETS1-1), (K-2-ETS1-2), (K-2 -ETS1-3); 3-5.ETS1.B (K-2-ETS1-2), (K-2-ETS1-3); 3-5.ETS1.C (K-2-ETS1-1), (K-2-ETS1-2), (K-2-ETS1-2), (K-2-ETS1-2), (K-2-ETS1-2), (K-2-ETS1-3); 3-5.ETS1.B (K-2-ETS1-3); 3-5.ETS1.C (K-2-ETS1-1), (K-2-ETS1-2), (K-				
New York State Next Generation Learning Standards Connections: ELA/Literacy - 2R1 Develop and answer to demonstrate understanding of key ideas and details in a text. (K-2-ETS1-1) 2W7 Recall and represent information from experiences or gather information from provided sources to answer a question. (K-2-ETS1-1),(K-2-ETS1-3) 2SL5 Include digital media and/or visual displays in presentations to clarify ideas, thoughts, and feelings. (K-2-ETS1-2) Mathematics - MP.2 Reason abstractly and quantitatively. (K-2-ETS1-1),(K-2-ETS1-3) MP.4 Model with mathematics. (K-2-ETS1-1),(K-2-ETS1-3) MP.5 Use appropriate tools strategically. (K-2-ETS1-3) MY-2.MD.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. (K-2-ETS1-1),(K-2-ETS1-3) *Connection boxes updated as of September 2018				

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