# **Kindergarten Science**

**Curriculum Guide** 

**Dunmore School District** 

Dunmore, PA



#### **Kindergarten Science**

#### Prerequisite:

Not applicable

#### **Course Description:**

The Kindergarten Science course is designed to provide students with a conceptual understanding of kindergarten science concepts as they pertain to the Pennsylvania State Core Standards. The course content gives students an introduction into various disciplines such as Physical, Life, and Earth Science. Students will delve deeper into these areas to further explore topics that include but are not limited to matter, motion, living things, weather, and Earth conservation.

#### **Special Education:**

After a student has been evaluated and found to be eligible for specially designed instruction under one of the 13 disability categories, an individualized education plan will be developed to help the student succeed through a more intense intervention program. Special Education is the practice of educating students in a way that addresses their individual differences and needs. The purpose of special education is to provide equal access to education for children ages birth through 21 by providing specialized services that will lead to school success in general education. Our goal for each student is for him/her to be educated in his/her least restrictive environment with additional supports by way of specially designed instruction. After all interventions in the general education setting have been exhausted and the student is still not making progress, students can receive direct instruction in a special education classroom. Direct instruction provides more intense intervention and replacement instruction in order to minimize skill deficits. In our special education classrooms, students will have access to the standards-based general education curriculum, as well as using various research-based intervention programs. Resources and activities will be adjusted based on individual student needs. Suggested time found within the curriculum will be adjusted as needed per individual student's needs.

Special Education Strategies can be located in the IEP Enhancements table located in Appendix: A at the end of this document.

## Year-at-a-glance

## 1<sup>st</sup> Quarter

Topic	Resources	Standards
Introduction to Kindergarten: The first quarter of the kindergarten year is a time when students are getting oriented to their new surroundings, rules, and routines, as well as, language arts and math programs.	N/A	N/A

## 2<sup>nd</sup> Quarter

Торіс	Resources	Standards
Physical Science	Approved textbook; <i>Science</i> , Chapter 6 Lesson 2; Chapter 8 Lessons 1-4; online resources or teacher created lesson	3.2.4.A, 3.2.4.C, 3.4.4.A, 3.1.4.A, 3.2.4.D, 3.4.4.C

## 3<sup>rd</sup> Quarter

Topic	Resources	Standards	
Earth and Space Science	Approved textbook; <i>Science</i> , Chapter 1, Lessons 3-6;	3.1.4.C, 3.2.4.B, 3.4.4.D, 3.5.4.C,	
	Chapter 3 Lessons 1-4; Chapter 4 Lesson 6; Chapter	3.4.4.B, 3.2.4.C, 3.8.4.A, 3.2.4.D,	
	6 Lesson 6; Chapter 7 Lesson 1; online resources or	3.8.4.C	
	teacher created lessons		

# 4<sup>th</sup> Quarter

Topic	Resources	Standards
Life Science	Approved textbook; Science, Chapter 1 Lessons 3-	3.2.4.B, 3.3.4.A, 3.1.4.A, 3.1.4.B,
	6; Chapter 2 Lesson 2; Chapter 3 Lessons 2-4;	3.1.4.C, 3.2.4.A, 3.3.4.B, 3.4.4.B,
	online resources or teacher created lessons	3.4.4.D

General Topic	Anchor Descriptor	Eligible Content,	Resources & Activities	Assessments	Suggested
	PA Academic and Core Standards	Essential Knowledge,			Time
		Skills & Vocabulary			(In Days)
Introduction to					10 Weeks
Kindergarten					

General Topic	Anchor Descriptor	Eligible Content,	Resources & Activities	Assessments	Suggested
	PA Academic and Core Standards	Essential Knowledge, Skills & Vocabulary			Time (In Days)
Physical Science:	Anchor Descriptor:	Eligible Content:	Approved textbook	Teacher observation	1 Week
	<b>S.4.A.1.1</b> Identify and explain the	<b>S.4.C.1.1.2</b> Categorize/group	Science, Chapter 6		
Matter can be	application of scientific,	objects using physical	Lesson 2; online		
understood in	environmental, or technological	characteristics.	resources or teacher		
terms of the types	knowledge to possible solutions		created lesson		
of atoms present	to problems.	<b>S.4.A.2.1.4</b> State a conclusion			
and the		that is consistent with the			
interactions both	S.4.C.3.1 Identify and describe	information/data.			
between and	different types of force and				
within atoms.	motion resulting from these				
	forces, or the effect of the	Essential Knowledge/Skills:			
	interaction between force and	Different materials are suited			
	motion.	to different purposes.			
	<b>S.4.C.1.1</b> Describe observable	Analyze data from testing			
	physical properties of matter.	objects made from different			
		materials to determine if a			
	<b>S.4.A.2.1</b> Apply skills necessary to	proposed object functions as			
	conduct an experiment or design	intended.			
	a solution to solve a problem.				
		Vocabulary:			
	PA Academic Standards: Science	Data			
	3.2.4.A Identify and use the	Test			
	nature of scientific and				
	technological knowledge.				
	Distinguish between a scientific				
	fact and a belief.				
	Provide clear explanations that				
	account for observations and				
	results.				
	•Relate how new information can				

change existing perceptions.		
<b>3.2.4.C</b> Recognize and use the		
elements of scientific inquiry to		
solve problems.		
Generate questions about		
objects, organisms and/or events		
that can be answered through		
scientific investigations.		
Design an investigation.		
Conduct an experiment.		
State a conclusion that is		
consistent with the information.		
<b>3.4.4.A</b> Recognize basic concepts		
about the structure and		
properties of matter.		
<ul> <li>Describe properties of matter</li> </ul>		
(e.g., hardness, reactions to		
simple chemical tests).		
<ul> <li>Know that combining two or</li> </ul>		
more substances can make new		
materials with different		
properties.		
Know different material		
characteristics (e.g., texture, state		
of matter, solubility).		

General Topic	Anchor Descriptor	Eligible Content, Essential Knowledge, Skills & Vocabulary	Resources & Activities	Assessments	Suggested
	PA Academic and Core Standards				Time (In Days)
Physical Science:	Anchor Descriptor:	Eligible Content:	Online resources or	Teacher	1 Week
-	<b>S.4.A.3.2</b> Use models to illustrate	<b>S.4.A.3.2.2</b> Use models to	teacher created lesson	observation	
Matter can be	simple concepts and compare the	make observations to explain			
understood in	models to what they represent.	how systems work (e.g., water			
terms of the types		cycle, Sun-Earth-Moon			
of atoms present	<b>S.4.A.1.1</b> Identify and explain the	system).			
and the	application of scientific,				
interactions both	environmental, or technological	<b>S.4.A.2.1.4</b> State a conclusion			
between and	knowledge to possible solutions	that is consistent with the			
within atoms.	to problems.	information/data.			
	S.4.C.3.1 Identify and describe				
	different types of force and	Essential Knowledge/Skills:			
	motion resulting from these	A variety of objects can be			
	forces, or the effect of the	built up from small parts.			
	interaction between force and				
	motion.	Design an object built from a			
		small set of pieces to solve a			
	<b>S.4.A.2.1</b> Apply skills necessary to	problem and compare			
	conduct an experiment or design	solutions designed by peers			
	a solution to solve a problem.	given the same set of pieces.			
	PA Academic Standards: Science	Vocabulary:			
	<b>3.1.4.A</b> Know that natural and	Problem Solving			
	human-made objects are made up				
	of parts.				
	• Identify and describe what parts				
	make up a system.				
	• Identify system parts that are				
	natural and human-made (e.g.,				
	ball point pen, simple electrical				

circuits, plant anatomy).			
<ul> <li>Describe the purpose of</li> </ul>			
analyzing systems.			
<ul> <li>Know that technologies include</li> </ul>			
physical technology systems (e.g.,			
construction, manufacturing,			
transportation), informational			
systems and biochemical-related			
systems.			
3.2.4.A Identify and use the			
nature of scientific and			
technological knowledge.			
<ul> <li>Distinguish between a scientific</li> </ul>			
fact and a belief.			
<ul> <li>Provide clear explanations that</li> </ul>			
account for observations and			
results.			
<ul> <li>Relate how new information can</li> </ul>			
change existing perceptions.			
<b>3.2.4.D</b> Recognize and use the			
technological design process to			
solve problems.			
<ul> <li>Recognize and explain basic</li> </ul>			
problems.			
<ul> <li>Identify possible solutions and</li> </ul>			
their course of action.			
• Try a solution.			
Describe the solution, identify			
its impacts and modify if			
necessary.			
Show the steps taken and the			
results.			

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<ul> <li>3.4.4.A Recognize basic conceptabout the structure and properties of matter.</li> <li>Describe properties of matter (e.g., hardness, reactions to simple chemical tests).</li> <li>Know that combining two or more substances can make new materials with different properties.</li> <li>Know different material characteristics (e.g., texture, stof matter, solubility). A. Describ concepts about the structure a properties of matter.</li> <li>Identify elements as basic building blocks of matter that cannot be broken down chemically.</li> </ul>	r v ate pe		
characteristics (e.g., texture, st	ate		
of matter, solubility). A. Describ	pe		
	nd		
Distinguish compounds from			
mixtures.			
Describe and conduct			
experiments that identify			
chemical and physical propertion	es.		

General Topic	Anchor Descriptor	Eligible Content,	Resources & Activities	Assessments	Suggested
	PA ACADEMIC AND CORE STANDARDS	Essential Knowledge, Skills & Vocabulary			Time (In Days)
Physical Science:	Anchor Descriptor:	Eligible Content:	Approved textbook	Teacher	1 Week
•	<b>S.4.A.1.1</b> Identify and explain the	<b>S.4.C.2.1.4</b> Identify	Science, Chapter 8	observation	
Interactions	application of scientific,	characteristics of sound (e.g.,	Lesson 2-4; online		
between any two	environmental, or technological	pitch, loudness, reflection).	resources or teacher		
objects can cause	knowledge to possible solutions	,	created lessons		
changes in one or both.	to problems.	<b>S.4.C.3.1.1</b> Describe changes in motion caused by forces (e.g.,			
	<b>S.4.C.3.1</b> Identify and describe	magnetic, pushes or pulls,			
	different types of force and	gravity, friction).			
	motion resulting from these				
	forces, or the effect of the	S.4.C.3.1.2 Compare the			
	interaction between force and	relative movement of objects			
	motion.	or describe types of motion			
		that are evident (e.g., bouncing			
	<b>S.4.C.2.1</b> Recognize basic energy	ball, moving in a straight line,			
	types and sources, or describe	back and forth, merry-go			
	how energy can be changed from	round).			
	one form to another.				
		Essential Knowledge/Skills:			
	PA Academic Standards: Science	Pushes and pulls can have			
	<b>3.2.4.C</b> Recognize and use the	different strengths and			
	elements of scientific inquiry to	directions.			
	solve problems.				
	Generate questions about	Plan and conduct an			
	objects, organisms and/or events	investigation to compare the			
	that can be answered through	effects of different strengths or			
	scientific investigations.	different directions of pushes			
	Design an investigation.	and pulls on the motion of an			
	Conduct an experiment.	object.			
	State a conclusion that is				

consistent with the information.	Vocabulary: Cause and effect		
2.4.4.C.Observe and describe			
<b>3.4.4.C</b> Observe and describe	Explanation		
different types of force and	Motion		
motion.	Push		
Identify characteristics of sound	Pull		
(pitch, loudness and echoes)	Speed		
Recognize forces that attract or			
repel other objects and			
demonstrate them.			
Describe various types of			
motions.			
Compare the relative movement			
of objects and describe types of			
motion that are evident.			
Describe the position of an			
object by locating it relative to			
another object or the background			
(e.g., geographic direction, left,			
up).			

<b>General Topic</b>	Anchor Descriptor	Eligible Content,	Resources & Activities	Assessments	Suggested
	PA Academic and Core Standards	Essential Knowledge,			Time
		Skills & Vocabulary			(In Days)
Physical Science:	Anchor Descriptor:	Eligible Content:	Approved textbook	Teacher	1 Week
	<b>S.4.A.1.1</b> Identify and explain the	<b>S.4.A.2.1.4</b> State a conclusion	Science, Chapter 8	observation	
Interactions	application of scientific,	that is consistent with the	Lesson 1; online		
between any two	environmental, or technological	information/data.	resources or teacher		
objects can cause	knowledge to possible solutions		created lessons		
changes in one or	to problems.	<b>S.4.C.3.1.2</b> Compare the			
both.		relative movement of objects			
	<b>S.4.C.3.1</b> Identify and describe	or describe types of motion			
	different types of force and	that are evident (e.g., bouncing			
	motion resulting from these	ball, moving in a straight line,			
	forces, or the effect of the	back and forth, merry-go-			
	interaction between force and	round).			
	motion.				
	<b>S.4.A.2.1</b> Apply skills necessary to	Essential Knowledge/Skills:			
	conduct an experiment or design	Pushing or pulling on an			
	a solution to solve a problem.	object can change the speed			
		or direction of its motion and			
	PA Academic Standards: Science	can start or stop it.			
	3.2.4.C Recognize and use the	•			
	elements of scientific inquiry to	Plan and conduct an			
	solve problems.	investigation to compare the			
	<ul> <li>Generate questions about</li> </ul>	effects of different strengths or			
	objects, organisms and/or events	different directions of pushes			
	that can be answered through	and pulls on the motion of an			
	scientific investigations.	object.			
	Design an investigation.				
	Conduct an experiment.	Vocabulary:			
	State a conclusion that is	Cause and effect			
	consistent with the information.	Explanation			
	<b>3.4.4.C</b> Observe and describe	Motion			

different types of force	ce and motion. Push		
Identify characterist	tics of sound Pull		
(pitch, loudness and e	echoes) Speed		
Recognize forces th			
repel other objects ar	nd		
demonstrate them.			
Describe various type	oes of motions.		
Compare the relative	re movement		
of objects and describ	pe types of		
motion that are evide	ent.		
Describe the position	n of an object		
by locating it relative	to another		
object or the backgro	und (e.g.,		
geographic direction,	left, up).		

General Topic	Anchor Descriptor	Eligible Content,	Resources & Activities	Assessments	Suggested
	PA Academic and Core Standards	Essential Knowledge, Skills & Vocabulary			Time (In Days)
Physical Science: Interactions between any two objects can cause changes in one or both.	Anchor Descriptor: S.4.A.3.1 Identify systems and describe relationships among parts of a familiar system (e.g., digestive system, simple machines, water cycle).  S.4.A.1.1 Identify and explain the application of scientific, environmental, or technological knowledge to possible solutions to problems.  S.4.C.3.1 Identify and describe different types of force and motion resulting from these forces, or the effect of the interaction between force and motion.  S.4.A.2.1 Apply skills necessary to conduct an experiment or design a solution to solve a problem.  PA Academic Standards: Science 3.2.4.C Recognize and use the elements of scientific inquiry to solve problems.  • Generate questions about objects, organisms and/or events that can be answered through	Eligible Content: S.4.A.2.1.4 State a conclusion that is consistent with the information/data.  Essential Knowledge/Skills: Objects pull or push each other when they collide or are connected and can change motion.  Analyze data to determine if a design solution works as intended to change the direction or speed of an object with a push or a pull.  Vocabulary: Cause and effect Design Speed	Approved textbook Science, Chapter 8 Lesson 1; online resources or teacher created lesson	Teacher observation	1 Week

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	entific investigations.			
	esign an investigation.			
• C	onduct an experiment.			
• St	ate a conclusion that is			
cor	sistent with the information.			
3.4	.4.C Observe and describe			
diff	erent types of force and			
mo	tion.			
• Ic	lentify characteristics of sound			
	ch, loudness and echoes)			
	ecognize forces that attract or			
	el other objects and			
	nonstrate them.			
	escribe various types of			
	tions.			
	ompare the relative movement			
	bjects and describe types of			
	tion that are evident.			
	escribe the position of an			
	ect by locating it relative to			
	other object or the background			
	g., geographic direction, left,			
up)	•			

General Topic	Anchor Descriptor PA Academic and Core Standards	Eligible Content, Essential Knowledge, Skills & Vocabulary	Resources & Activities	Assessments	Suggested Time (In Days)
Physical Science:	Anchor Descriptor:	Eligible Content:	Approved textbook	Teacher	1 Week
,	<b>S.4.C.3.1</b> Identify and describe	<b>S.4.A.2.1.2</b> Design and	Science, Chapter 8	observation	
Interactions	different types of force and	describe an investigation (a fair	Lesson 1; online		
between any two	motion resulting from these	test) to test one variable.	resources or teacher		
objects can cause	forces, or the effect of the	,	created lesson		
changes in one or	interaction between force and	S.4.A.2.1.4 State a conclusion			
both.	motion.	that is consistent with the			
		information/data.			
	<b>S.4.A.1.1</b> Identify and explain the				
	application of scientific,	<b>S.4.C.3.1.1</b> Describe changes in			
	environmental, or technological	motion caused by forces (e.g.,			
	knowledge to possible solutions	magnetic, pushes or pulls,			
	to problems.	gravity, friction).			
	<b>S.4.A.2.1</b> Apply skills necessary to	<b>S.4.C.3.1.2</b> Compare the			
	conduct an experiment or design	relative movement of objects			
	a solution to solve a problem.	or describe types of motion			
		that are evident (e.g., bouncing			
		ball, moving in a straight line,			
	PA Academic Standards: Science	back and forth, merry-go-			
	<b>3.2.4.C</b> Recognize and use the	round).			
	elements of scientific inquiry to				
	solve problems.				
	Generate questions about	Essential Knowledge/Skills:			
	objects, organisms and/or events	A bigger push or pull makes			
	that can be answered through	things speed up or slow down			
	scientific investigations.	more quickly.			
	Design an investigation.				
	Conduct an experiment.	Plan and conduct a simple test			
	State a conclusion that is	to compare the effects of			
	consistent with the information.	different strengths or different			

	directions of pushes and pulls		
<b>3.4.4.C</b> Observe and describe	on the motion of an object.		
different types of force and			
motion.	Vocabulary:		
• Identify characteristics of sound	Investigation		
(pitch, loudness and echoes)	Speed		
• Recognize forces that attract or			
repel other objects and			
demonstrate them.			
<ul> <li>Describe various types of</li> </ul>			
motions.			
• Compare the relative movement			
of objects and describe types of			
motion that are evident.			
<ul> <li>Describe the position of an</li> </ul>			
object by locating it relative to			
another object or the background			
(e.g., geographic direction, left,			
up).			

General Topic	Anchor Descriptor	Eligible Content,	Resources & Activities	Assessments	Suggested
	PA Academic and Core Standards	Essential Knowledge,			Time
		Skills & Vocabulary			(In Days)
<b>Physical Science:</b>	Anchor Descriptor:	Eligible Content:	Approved textbook	Teacher	1 Week
	S.4.C.3.1 Identify and describe	<b>S.4.A.1.3.1</b> Observe and record	Science, Chapter 8	observation	
Interactions	different types of force and	change by using time and	Lesson 2-3; online		
between any two	motion resulting from these	measurement.	resources or teacher		
objects can cause	forces, or the effect of the		created lesson		
changes in one or	interaction between force and	S.4.A.2.1.4 State a conclusion			
both.	motion.	that is consistent with the			
		information/data.			
	<b>S.4.A.1.1</b> Identify and explain the				
	application of scientific,				
	environmental, or technological	Essential Knowledge/Skills:			
	knowledge to possible solutions	When objects touch or collide,			
	to problems.	they push on one another and			
		can change motion.			
	<b>S.4.A.1.3</b> Recognize and describe				
	change in natural or human-made	Analyze data to determine if a			
	systems and the possible effects	design solution works as			
	of those changes.	intended to change the speed			
		or direction of an object with a			
	<b>S.4.A.2.1</b> Apply skills necessary to	push or pull.			
	conduct an experiment or design				
	a solution to solve a problem.	Vocabulary:			
		Data			
	PA Academic Standards: Science	Design			
	<b>3.2.4.C</b> Recognize and use the	Solution			
	elements of scientific inquiry to				
	solve problems.				
	Generate questions about				
	objects, organisms and/or events				
	that can be answered through				
	scientific investigations.				

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Design an investigation.		
Conduct an experiment.		
State a conclusion that is		
consistent with the information.		
<b>3.4.4.C</b> Observe and describe		
different types of force and		
motion.		
<ul> <li>Identify characteristics of sound</li> </ul>		
(pitch, loudness and echoes)		
Recognize forces that attract or		
repel other objects and		
demonstrate them.		
Describe various types of		
motions.		
Compare the relative movement		
of objects and describe types of		
motion that are evident.		
Describe the position of an		
object by locating it relative to		
another object or the background		
(e.g., geographic direction, left,		
up).		

General Topic	Anchor Descriptor	Eligible Content,	Resources & Activities	Assessments	Suggested
	I A Academic and Core Standards	Essential Knowledge, Skills & Vocabulary			Time (In Days)
Interactions of objects or systems of objects can be predicted and explained using the concept of energy transfer and conservation.	Anchor Descriptors: S.4.A.1.1 Identify and explain the application of scientific, environmental, or technological knowledge to possible solutions to problems.  S.4.C.3.1 Identify and describe different types of force and motion resulting from these forces, or the effect of the interaction between force and motion.  S.4.A.1.3 Recognize and describe change in natural or human-made systems and the possible effects of those changes.  S.4.A.2.1 Apply skills necessary to conduct an experiment or design a solution to solve a problem.  PA Academic Standards: Science 3.2.4.C Recognize and use the elements of scientific inquiry to solve problems.  • Generate questions about objects, organisms and/or events that can be answered through scientific investigations.	Eligible Content: S.4.C.3.1.1 Describe changes in motion caused by forces (e.g., magnetic, pushes or pulls, gravity, friction).  S.4.C.3.1.2 Compare the relative movement of objects or describe types of motion that are evident (e.g., bouncing ball, moving in a straight line, back and forth, merry-go-round).  S.4.A.2.1.2 Design and describe an investigation (a fair test) to test one variable.  S.4.A.2.1.4 State a conclusion that is consistent with the information/data.  Essential Knowledge/Skills: The more an object is pushed or pulled makes things speed up or slow down.	Approved textbook Science, Chapter 8 Lesson 4; online resources or teacher created lessons	Teacher observation	1 Week

	• Design an investigation	provide evidence that energy is		
	Design an investigation.	provide evidence that energy is		
	<ul> <li>Conduct an experiment.</li> </ul>	being transferred or conserved		
	<ul> <li>State a conclusion that is</li> </ul>	by objects.		
	consistent with the information.			
		Vocabulary:		
	3.4.4.C Observe and describe	Conserved		
	different types of force and	Energy		
	motion.	Investigation		
	<ul> <li>Identify characteristics of sound</li> </ul>	Transfer		
	(pitch, loudness and echoes)			
	<ul> <li>Recognize forces that attract or</li> </ul>			
	repel other objects and			
	demonstrate them.			
	<ul> <li>Describe various types of</li> </ul>			
	motions.			
	<ul> <li>Compare the relative movement</li> </ul>			
	of objects and describe types of			
	motion that are evident.			
	<ul> <li>Describe the position of an</li> </ul>			
	object by locating it relative to			
	another object or the background			
	(e.g., geographic direction, left,			
	up).			
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General Topic	Anchor Descriptor PA Academic and Core Standards	Eligible Content, Essential Knowledge, Skills & Vocabulary	Resources & Activities	Assessments	Suggested Time (In Days)
Physical Science:	Anchor Descriptor:	Eligible Content:	Approved textbook	Teacher	1 Week
·	<b>S.4.A.1.1</b> Identify and explain the	<b>S.4.C.3.1.1</b> Describe changes in	Science, Chapter 8	observation	
Interactions of	application of scientific,	motion caused by forces (e.g.,	Lesson 2-3; online		
objects or systems	environmental, or	magnetic, pushes or	resources or teacher		
of objects can be	technological knowledge to	pulls, gravity, friction).	created lessons		
predicted and	possible solutions to problems.				
explained using the		<b>S.4.C.3.1.2</b> Compare the			
concept of energy	S.4.C.3.1 Identify and describe	relative movement of			
transfer and	different types of force and	objects or describe types of			
conservation.	motion resulting from these	motion that are evident (e.g.,			
	forces, or the effect of the	bouncing ball, moving in a			
	interaction between force and	straight line, back and			
	motion.	forth, merry-go-round).			
	S.4.A.1.3 Recognize and describe	S.4.A.2.1.4 State a conclusion			
	change in natural or human-made	that is consistent with the			
	systems and the possible effects	information/data.			
	of those changes.				
	<b>S.4.A.2.1</b> Apply skills necessary to	Essential Knowledge/Skills:			
	conduct an experiment or design	The amount and position of			
	a solution to solve a problem.	mass affect how an object			
		moves.			
	PA Academic Standards: Science				
	<b>3.4.4.C</b> Observe and describe	Carry out investigations to			
	different types of force and	provide evidence that energy is			
	motion.	being transferred or conserved			
	Identify characteristics of sound	by objects.			
	(pitch, loudness and echoes)				
	Recognize forces that attract or	Vocabulary:			
	repel other objects and	Balance			

demonstrate them.	Conserved		
<ul> <li>Describe various types of</li> </ul>	Energy		
motions.	Investigation		
Compare the relative movement	Mass		
of objects and describe types of	Rotate		
motion that are evident.	Transfer		
Describe the position of an			
object by locating it relative to			
another object or the background			
(e.g., geographic direction, left,			
up).			

General Topic	Anchor Descriptor PA Academic and Core Standards	Eligible Content, Essential Knowledge, Skills & Vocabulary	Resources & Activities	Assessments	Suggested Time (In Days)
Life Science:	Anchor Descriptor:	Eligible Content:	Approved textbook	Teacher	2 Weeks
	S.4.B.1.1 Identify and describe	S.4.B.1.1.1 Identify life	Science, Chapter 1	observation	
All organisms are	similarities and differences	processes of living things	Lessons 3-6		
made of cells and	between living things and their life	(e.g., growth, digestion,			
can be characterized by	processes.	respiration).			
common aspects of	<b>S.4.A.2.1</b> Apply skills necessary to	S.4.A.2.1.3 Observe a natural			
their structure and	conduct an experiment or design	phenomenon (e.g.,			
functioning.	a solution to solve a problem.	weather changes, length of daylight/night, movement of			
	PA Academic Standards: Science	shadows, animal migrations,			
	<b>3.2.4.B</b> Describe objects in the	growth of plants), record			
	world using the five senses.	observations, and then make a			
	Recognize observational	prediction based on those			
	descriptors from each of the five	observations.			
	senses (e.g., see-blue, feel-rough).				
	Use observations to develop a	<b>S.4.B.1.1.2</b> Compare similar			
	descriptive vocabulary.	functions of external			
		characteristics of organisms			
	<b>3.3.4.A</b> Know the similarities and	(e.g., anatomical			
	differences of living things.	characteristics:			
	Identify life processes of living	appendages, type of covering,			
	things (e.g., growth, digestion,	body			
	react to environment).	segments).			
	Know that some organisms have				
	similar external characteristics	S.4.B.1.1.3 Describe basic			
	(e.g., anatomical characteristics;	needs of plants and			
	appendages, type of covering,	animals (e.g., air, water, food).			
	body segments) and that	S.4.B.1.1.4 Describe how			
	similarities and differences are	different parts of a living			
	related to environmental habitat.	thing work together to provide			

Describe basic needs of pla	ants and what the organism needs (e.g.,	
animals.	parts of	
	plants: roots, stems, leaves).	
<b>4.6.4.A</b> Understand that li	-	
things are dependent on n	nonliving	
things in the environment	for Essential Knowledge/Skills:	
survival.	Animals need food (plants and	
Identify and categorize li	iving other animals) and water in	
and nonliving things.	order to live and grow.	
Describe the basic needs		
organism.	Use observations to describe	
<ul> <li>Identify basic needs of a</li> </ul>	plant what animals need to survive.	
and an animal and explain	how	
their needs are met.	Vocabulary:	
Identify plants and anim		
their habitat and food sou	rces. Leaves	
Identify environmental v	variables Organism	
that affect plant growth.	Patterns	
Describe how animals in	teract Roots	
with plants to meet their r	needs Stems	
for shelter.	Structure	
Describe how certain ins	sects Survive	
interact with soil for their	needs.	
<ul> <li>Understand the compon</li> </ul>	ents of	
a food chain.		
<ul> <li>Identify a local ecosyster</li> </ul>	m and	
its living and nonliving		
components.		
<ul> <li>Identify a simple ecosyst</li> </ul>	tem and	
its living and nonliving		
components.		
• Identify common soil tex	ktures.	
<ul> <li>Identify animals that live</li> </ul>		
underground.		

General Topic	Anchor Descriptor	Eligible Content,	Resources & Activities	Assessments	Suggested
	PA Academic and Core Standards	Essential Knowledge,			Time
		Skills & Vocabulary			(In Days)
Life Science:	Anchor Descriptor:	Eligible Content:	Approved textbook	Teacher	2 Weeks
	S.4.B.1.1 Identify and describe	S.4.B.1.1.1 Identify life	Science, Chapter 1	observation	
All organisms are	similarities and differences	processes of living things	Lessons 3-6		
made of cells and	between living things and their life	(e.g., growth, digestion,			
can be	processes.	respiration).			
characterized by					
common aspects of	PA Academic Standards: Science	S.4.B.1.1.2 Compare similar			
their structure and	<b>3.2.4.B</b> Describe objects in the	functions of external			
functioning.	world using the five senses.	characteristics of organisms			
	Recognize observational	(e.g., anatomical			
	descriptors from each of the five	characteristics:			
	senses (e.g., see-blue, feel-rough).	appendages, type of covering,			
	Use observations to develop a	body segments).			
	descriptive vocabulary.				
		<b>S.4.B.1.1.3</b> Describe basic			
	<b>3.3.4.A</b> Know the similarities and	needs of plants and			
	differences of living things.	animals (e.g., air, water, food).			
	Identify life processes of living				
	things (e.g., growth, digestion,	S.4.B.1.1.4 Describe how			
	react to environment).	different parts of a living			
	Know that some organisms have	thing work together to provide			
	similar external characteristics	what the organism needs (e.g.,			
	(e.g., anatomical characteristics;	parts of			
	appendages, type of covering,	plants: roots, stems, leaves).			
	body segments) and that				
	similarities and differences are				
	related to environmental habitat.	Essential Knowledge/Skills:			
	Describe basic needs of plants and	Plants need water and light in			
	animals.	order to live and grow.			
	<b>4.6.4.A</b> Understand that living	Use observations to describe			

		$\overline{}$
things are dependent on nonliving	what plants need to survive.	
things in the environment for		
survival.	Vocabulary:	
Identify and categorize living	Cause and effect Leaves	
and nonliving things.	Environment	
<ul> <li>Describe the basic needs of an</li> </ul>	Organism	
organism.	Roots	
<ul> <li>Identify basic needs of a plant</li> </ul>	Stems	
and an animal and explain how	Structure	
their needs are met.	Survive	
<ul> <li>Identify plants and animals with</li> </ul>		
their habitat and food sources.		
<ul> <li>Identify environmental variables</li> </ul>		
that affect plant growth.		
<ul> <li>Describe how animals interact</li> </ul>		
with plants to meet their needs		
for shelter.		
<ul> <li>Describe how certain insects</li> </ul>		
interact with soil for their needs.		
<ul> <li>Understand the components of</li> </ul>		
a food chain.		
<ul> <li>Identify a local ecosystem and</li> </ul>		
its living and nonliving		
components.		
• Identify a simple ecosystem and		
its living and nonliving		
components.		
• Identify common soil textures.		
Identify animals that live		
underground.		
B. Understand the concept of		
cycles.		
• Explain the water cycle.		
• Explain the carbon		

dioxide/oxygen cycle (photosynthesis).		
C. Identify how ecosystems change over		

General Topic	Anchor Descriptor	Eligible Content,	Resources & Activities	Assessments	Suggested
	PA Academic and Core Standards	Essential Knowledge,			Time
		Skills & Vocabulary			(In Days)
Life Science:	Anchor Descriptor:	Eligible Content:	Approved textbook	Teacher	2 Weeks
	<b>S.4.A.1.3</b> Recognize and describe	N/A	Science, Chapter 3	observation	
All organisms are	change in natural or human-made		Lessons 2-4; online		
made of cells and	systems and the possible effects		resources or teacher		
can be	of those changes.	Essential Knowledge/Skills:	created lessons		
characterized by		Living things need water, air,			
common aspects of	<b>S.4.A.2.1</b> Apply skills necessary to	and resources from the land,			
their structure and	conduct an experiment or design	and they live in places that			
functioning.	a solution to solve a problem.	have the things they need.			
	S.4.B.2.1 Identify and explain how	Use a model to explain the			
	adaptations	relationship between the			
	help organisms to survive.	needs of different plants or			
		animals and the places they			
	PA Academic Standards: Science	live.			
	<b>3.1.4.A</b> Know that natural and				
	human-made objects are made up	Vocabulary:			
	of parts.	Habitat			
	•Identify and describe what parts	Model			
	make up a system.	Needs			
	•Identify system parts that are	Relationship			
	natural and human-made (e.g.,				
	ball point pen, simple electrical				
	circuits, plant anatomy).				
	• Describe the purpose of				
	analyzing systems.				
	Know that technologies include				
	physical technology systems (e.g.,				
	construction, manufacturing,				
	transportation), informational				
	systems and biochemical-related				

	systems.			
	<b>3.1.4.B</b> Know models as useful			
	simplifications of objects or			
	processes.			
	•Identify different types of			
	models.			
	•Identify and apply models as			
	tools for prediction and insight.			
	<ul> <li>Apply appropriate simple</li> </ul>			
	modeling tools and techniques.			
	<ul> <li>Identify theories that serve as</li> </ul>			
	models (e.g., molecules).			
	<b>3.1.4.C</b> Illustrate patterns that			
	regularly occur and reoccur in			
	nature.			
	•Identify observable patterns			
	(e.g., growth patterns in plants,			
	crystal shapes in minerals,			
	climate, structural patterns in bird			
	feathers).			
	<ul> <li>Use knowledge of natural</li> </ul>			
	patterns to predict next			
	occurrences (e.g., seasons, leaf			
	patterns, lunar phases).			
	2.2.4.4.1.d			
	<b>3.2.4.A</b> Identify and use the nature of scientific and			
	technological knowledge.			
	<ul> <li>Distinguish between a scientific fact and a belief.</li> </ul>			
	Provide clear explanations that			
	•			
İ	account for observations and			

results.		
•Relate how new information can		
change existing perceptions.		
<b>3.2.4.B</b> Describe objects in the		
world using the five senses.		
Recognize observational		
descriptors from each of the five		
senses (e.g., see-blue, feel-rough).		
•Use observations to develop a		
descriptive vocabulary.		
descriptive vocabulary.		
<b>3.3.4.A</b> Know the similarities and		
differences of living things.		
•Identify life processes of living		
things (e.g., growth, digestion, react to environment).		
Know that some organisms have similar external characteristics		
(e.g., anatomical characteristics;		
appendages, type of covering,		
body segments) and that		
similarities and differences are		
related to		
environmental habitat.		
•Describe basic needs of plants		
and animals.		
<b>3.3.4.B</b> Know that living things are		
made up of parts that have		
specific functions.		
•Identify examples of unicellular		
and multicellular organisms.		
Determine how different parts of		

a living thing work together to			
make the organism function.			
<b>3.4.4.A</b> Recognize basic concepts			
about the structure and properties			
of matter.			
Describe properties of matter			
(e.g., hardness, reactions to simple			
chemical tests).			
•Know that combining two or more			
substances can make new materials			
with different properties.			
Know different material			
characteristics (e.g., texture, state			
of matter, solubility).			
<b>3.4.4.B</b> Know basic energy types,			
sources and conversions.			
<ul> <li>Identify energy forms and</li> </ul>			
examples (e.g., sunlight, heat,			
stored, motion).			
•Know the concept of the flow of			
energy by measuring flow through			
an object or system.			
•Describe static electricity in terms			
of attraction, repulsion and sparks.			
<ul> <li>Apply knowledge of the basic</li> </ul>			
electrical circuits to design and			
construction simple direct current			
circuits.			
<ul> <li>Classify materials as conductors</li> </ul>			
and nonconductors.			
•Know and demonstrate the basic			
properties of heat by producing it in			
a variety of ways.			
<ul> <li>Know the characteristics of light</li> </ul>			

		1	1	,
	(e.g., reflection, refraction,			
	absorption) and use them to			
	produce heat, color or a virtual			
	image.			
	<b>3.4.4.D</b> Describe the composition			
	and structure of the universe and			
	the earth's place in it.			
	<ul> <li>Recognize earth's place in the</li> </ul>			
	solar system.			
	•Explain and illustrate the causes of			
	seasonal changes.			
	•Identify planets in our solar system			
	and their general characteristics.			
	• Describe the solar system motions			
	and use them to explain time (e.g.,			
	days, seasons), major lunar phases			
	and eclipses.			
	<b>4.1.4.A</b> Identify various types of			
	water			
	environments.			
	Identify the lotic system			
	(e.g., creeks, rivers, streams).			
	• Identify the lentic system			
	(e.g., ponds, lakes, swamps).			
	(e.g., portas, takes, swamps).			
	<b>4.1.4.B</b> Explain the differences			
	between			
	moving and still water.			
	Explain why water moves or does			
	not move.			
	• Identify types of precipitation.			
	ruentily types of precipitation.			
	424 A Identify peeds of peeple			
	<b>4.2.4.A</b> Identify needs of people.			
1	<ul> <li>Identify plants, animals, water,</li> </ul>	Ĭ	1	1

_:			
air,	_		
minerals and fossil fuels	as natural		
resources.			
Explain air, water and	nutrient		
cycles.			
• Identify how the envir	onment		
provides for the needs of			
provides for the needs e	греоріс.		
4.2.4.C Know that some	natural		
resources have limited I	· ·		
Identify renewable and			
nonrenewable resource	s used in		
the local community.			
Identify various means	of		
conserving natural resou	ırces.		
Know that natural reso			
varying life spans.			
varying me spans.			
<b>4.4.4.B</b> Identify the role	of the		
sciences in			
Pennsylvania agriculture			
Identify common anim	als found		
on Pennsylvania farms.			
Identify common plan	s found on		
Pennsylvania farms.			
Identify the parts of in	portant		
agricultural related plan	ts (i.e.,		
corn, soybeans, barley).	•		
• Identify a fiber produc	t from		
Pennsylvania farms.			
remisyivama lamis.			

General To	pic	Anchor Descriptor	Eligible Content,	Resources & Activities	Assessments	Suggested
	P	PA Academic and Core Standards	Essential Knowledge,			Time
			Skills & Vocabulary			(In Days)

Anchor Descriptor:	Eligible Content:	Approved textbook	Teacher	2 Weeks
S.4.B.1.1 Identify and describe	<b>S.4.B.1.1.2</b> Compare similar	Science, Chapter 2	observation	
similarities and differences	functions of external	Lesson 2; online		
between living things and their	characteristics of organisms	resources or teacher		
processes.	(e.g., anatomical	created lessons		
	characteristics: appendages,			
PA Academic Standards: Science	type of covering, body			
<b>3.3.4.A</b> Know the similarities and	segments).			
differences of living things.				
•Identify life processes of living		_		
things (e.g., growth, digestion,	Essential Knowledge/Skills:			
react to environment).				
•Know that some organisms have	Animals have identifiable			
similar external characteristics	structures and behaviors.			
(e.g., anatomical characteristics;				
appendages, type of covering,	Observe and describe			
body	structures of organisms and			
segments) and that similarities	functions of the structures.			
and differences are related to				
environmental habitat.	Vocabulary:			
Describe basic needs of plants	Function			
and animals.	Patterns			
	Structure			
	s.4.B.1.1 Identify and describe similarities and differences between living things and their processes.  PA Academic Standards: Science 3.3.4.A Know the similarities and differences of living things.  •Identify life processes of living things (e.g., growth, digestion, react to environment).  •Know that some organisms have similar external characteristics (e.g., anatomical characteristics; appendages, type of covering, body segments) and that similarities and differences are related to environmental habitat.  •Describe basic needs of plants	S.4.B.1.1 Identify and describe similarities and differences between living things and their processes.  PA Academic Standards: Science 3.3.4.A Know the similarities and differences of living things.  •Identify life processes of living things (e.g., growth, digestion, react to environment).  •Know that some organisms have similar external characteristics (e.g., anatomical characteristics (e.g., anatomical characteristics (e.g., anatomical characteristics appendages, type of covering, body segments) and that similarities and differences are related to environmental habitat.  •Describe basic needs of plants and animals.  S.4.B.1.1.2 Compare similar functions of external characteristics of organisms (e.g., anatomical characteristics: appendages, type of covering, body segments).  Essential Knowledge/Skills:  Animals have identifiable structures and behaviors.  Observe and describe structures of organisms and functions of the structures.  Vocabulary:  Function  Patterns	S.4.B.1.1 Identify and describe similarities and differences between living things and their processes.  PA Academic Standards: Science 3.3.4.A Know the similarities and differences of living things.  •Identify life processes of living things (e.g., growth, digestion, react to environment).  •Know that some organisms have similar external characteristics; appendages, type of covering, body segments) and that similarities and differences are related to environmental habitat.  •Describe basic needs of plants and animals.  S.4.B.1.1.2 Compare similar functions of external characteristics of organisms (e.g., anatomical characteristics of organisms (e.g., anatomical characteristics)  Animals have identifiable structures and behaviors.  Observe and describe structures of organisms and functions of the structures.  Vocabulary:  Function  Patterns	S.4.B.1.1 Identify and describe similarities and differences between living things and their processes.  PA Academic Standards: Science 3.3.4.A Know the similarities and differences of living things.  •Identify life processes of living things (e.g., growth, digestion, react to environment).  •Know that some organisms have similar external characteristics; appendages, type of covering, body segments) and that similarities and differences are related to environmental habitat.  •Describe basic needs of plants and animals.  S.4.B.1.1.2 Compare similar functions of external characteristics of organisms (e.g., organisms (e.g., anatomical characteristics; appendages, type of covering, body segments).  Science, Chapter 2 Lesson 2; online resources or teacher created lessons  Fescurical Knowledge/Skills:  Animals have identifiable structures and behaviors.  Observe and describe structures.  Observe and describe structures.  Vocabulary:  Function Patterns

General Topic	Anchor Descriptor PA Academic and Core Standards	Eligible Content, Essential Knowledge, Skills & Vocabulary	Resources & Activities	Assessments	Suggested Time (In Days)
Earth and Space Science:  The Earth is a complex and dynamic set of interconnected systems (e.g. geosphere, hydrosphere, atmosphere, biosphere) that interact over a wide range of temporal and spatial scales.	Anchor Descriptor: S.4.A.1.1 Identify and explain the application of scientific, environmental, or technological knowledge to possible solutions to problems.  S.4.A.1.3 Recognize and describe change in natural or human-made systems and the possible effects of those changes.  S.4.A.2.1 Apply skills necessary to conduct an experiment or design a solution to solve a problem.  S.4.A.2.2 Identify appropriate instruments for a specific task and describe the information the instrument can provide.  S.4.A.3.1 Identify systems and describe relationships among parts of a familiar system (e.g., digestive system, simple machines, water cycle).  S.4.A.3.2 Use models to illustrate simple concepts and compare the models to what they represent.	Eligible Content: S.4.A.3.3.1 Identify and describe observable patterns (e.g., growth patterns in plants, weather, water cycle).  S.4.A.2.1.3 Observe a natural phenomenon (e.g., weather changes, length of daylight/night, movement of shadows, animal migrations, growth of plants), record observations, and then make a prediction based on those observations.  S.4.A.3.3.1 Identify and describe observable patterns (e.g., growth patterns in plants, weather, water cycle).  S.4.A.3.3.2 Predict future conditions/events based on observable patterns (e.g., day/night, seasons, sunrise/sunset, lunar phases).	Approved textbook Science, Chapter 5 Lessons 2-5; online resources or teacher created lessons	Observation	5 Weeks

S.4.A.3.3 Identify and ma	ake Essential Knowle	dge/Skills:	
observations about patte			
regularly occur and reoc			
nature.	and temperature		
1.333.31	particular region		
PA Academic Standards			
	•		
3.1.4.C Illustrate pattern	s that Use and share ob	servations of	
regularly occur and reoc	cur in local weather con	ditions to	
nature.	describe patterns	over time.	
Identify observable p	atterns		
(e.g., growth patterns in	n plants, Vocabulary:		
crystal shapes in minera	als, Sunny		
climate, structural patte	erns in Changes		
bird feathers).	Cloudy		
Use knowledge of nat	tural Cold		
patterns to predict next	Cool		
occurrences (e.g., seaso	ons, leaf Describe		
patterns, lunar phases).	Foggy		
	Hot		
<b>3.2.4.B</b> Describe objects	in the Observe		
world using the five sens			
<ul> <li>Recognize observatio</li> </ul>			
descriptors from each of			
senses (e.g., see-blue, fe			
<ul> <li>Use observations to of</li> </ul>			
descriptive vocabulary.	Warm		
	Weather		
<b>3.4.4.D</b> Describe the con	·		
and structure of the univ	verse and		
the earth's place in it.			
Recognize earth's pla	ce in the		
solar system.			
Explain and illustrate	the		

causes of seasonal changes.  Identify planets in our solar system and their general characteristics.  Describe the solar system motions and use them to explain time (e.g., days, seasons), major lunar phases and eclipses.  3.5.4.C Know basic weather		
elements.  • Identify cloud types.  • Identify weather patterns from data charts (including temperature, wind direction and speed, precipitation) and graphs of the data.  • Explain how the different seasons effect plants, animals, food availability and daily human life.		

<b>General Topic</b>	Anchor Descriptor	Eligible Content,	Resources & Activities	Assessments	Suggested
	PA Academic and Core Standards	Essential Knowledge,			Time
		Skills & Vocabulary			(In Days)
Earth and Space	Anchor Descriptor:	Eligible Content:	Approved textbook	Teacher	1 Week
Science:	<b>S.4.A.1.3</b> Recognize and describe	N/A	Science, Chapter 7	observation	
	change in natural or human-made		Lesson 1		
The Earth is a	systems and the possible effects				
complex and	of those changes.	Essential Knowledge/Skills:			
dynamic set of		Sunlight warms the Earth's			
interconnected	<b>S.4.A.2.1</b> Apply skills necessary to	surface.			
systems (e.g.	conduct an experiment or design				
geosphere,	a solution to solve a problem.	Make observations to			
hydrosphere,		determine the effect of			
atmosphere,	S.4.A.3.3 Identify and make	sunlight on the Earth's surface.			
biosphere) that	observations about patterns that				
interact over a	regularly occur and reoccur in	Vocabulary:			
wide range of	nature.	Changes			
temporal and		Describe			
spatial scales.	<b>S.4.D.2.1</b> Identify basic weather	Earth			
	conditions and how they are	Surface			
	measured.	Sunlight			
		Observe			
	PA Academic Standards: Science	Predict			
	<b>3.4.4.B</b> Know basic energy types,				
	sources and conversions.				
	<ul> <li>Identify energy forms and</li> </ul>				
	examples (e.g., sunlight, heat,				
	stored, motion).				
	Know the concept of the flow of				
e	energy by measuring flow through				
	an object or system.				
	<ul> <li>Describe static electricity in</li> </ul>				
	terms of attraction, repulsion and				
	sparks.				

Apply knowledge of the basic		
electrical circuits to design and		
construction simple direct current		
circuits.		
<ul> <li>Classify materials as conductors</li> </ul>		
and nonconductors.		
<ul> <li>Know and demonstrate the</li> </ul>		
basic properties of heat by		
producing it in a variety of ways.		
Know the characteristics of light		
(e.g., reflection, refraction,		
absorption) and use them to		
produce heat, color or a virtual		
image.		
<b>3.5.4.C</b> Know basic weather		
elements.		
Identify cloud types.		
Identify weather patterns from		
data charts (including		
temperature, wind direction and		
speed, precipitation) and graphs		
of the data.		
Explain how the different		
seasons effect plants, animals,		
food availability and daily human		
life.		

General Topic	Anchor Descriptor	Eligible Content,	Resources & Activities	Assessments	Suggested
	PA Academic and Core Standards	Essential Knowledge,			Time
		Skills & Vocabulary			(In Days)
Earth and Space	Anchor Descriptor:	Eligible Content:	Approved textbook	Teacher	1 Week
Science:	<b>S.4.A.1.3</b> Recognize and describe	N/A	Science, Chapter 7	observation	
	change in natural or human-made		Lesson 1; online		
The Earth is a	systems and the possible effects		resources or teacher		
complex and	of those changes.	Essential Knowledge/Skills:	created lessons		
dynamic set of		Sunlight warms the Earth's			
interconnected	<b>S.4.A.2.1</b> Apply skills necessary to	surface.			
systems (e.g.	conduct an experiment or design				
geosphere,	a solution to solve a problem.	Use tools and materials to			
hydrosphere,		design and build a structure			
atmosphere,	S.4.A.2.2 Identify appropriate	that will reduce (or increase)			
biosphere) that	instruments for a specific task and	the warming effect of sunlight			
interact over a	describe the information the	on an area.			
wide range of	instrument can provide.				
temporal and		Vocabulary:			
spatial scales.	S.4.A.3.3 Identify and make	Build			
	observations about patterns that	Canopy			
	regularly occur and reoccur in	Cool			
	nature.	Materials			
		Structure			
	<b>S.4.B.2.1</b> Identify and explain how	Sunlight			
	adaptations help organisms to	Tent			
	survive.	Tools			
		Umbrella			
	<b>S.4.B.3.2</b> Describe, explain, and	Warming effect			
	predict change in natural or				
	human-made systems and the				
	possible effects of those changes				
	on the environment.				
	<b>S.4.D.2.1</b> Identify basic weather				

conditions and how they are		
measured.		
PA Academic Standards: Science		
<b>3.4.4.B</b> Know basic energy types,		
sources and conversions.		
<ul> <li>Identify energy forms and</li> </ul>		
examples (e.g., sunlight, heat,		
stored, motion).		
Know the concept of the flow of		
energy by measuring flow through		
an object or system.		
Describe static electricity in		
terms of attraction, repulsion and		
sparks.		
Apply knowledge of the basic		
electrical circuits to design and		
construction simple direct current		
circuits.		
Classify materials as conductors		
and nonconductors.		
Know and demonstrate the		
basic properties of heat by		
producing it in a variety of ways.		
Know the characteristics of light		
(e.g., reflection, refraction,		
absorption) and use them to		
produce heat, color or a virtual		
image.		
<b>3.5.4.C</b> Know basic weather		
elements.		
Identify cloud types.		
Identify weather patterns from		

data charts (including temperature, wind direction and speed, precipitation) and graphs of the data.			
<ul> <li>Explain how the different seasons effect plants, animals,</li> </ul>			
food availability and daily huma life.	n		

General Topic	Anchor Descriptor PA Academic and Core Standards	Eligible Content, Essential Knowledge, Skills & Vocabulary	Resources & Activities	Assessments	Suggested Time (In Days)
Earth and Space	Anchor Descriptor:	Eligible Content:	Approved textbook	Teacher	1 Week
Science:	S.4.A.1.1 Identify and explain the	N/A	Science, Chapter 6	observation	
	application of scientific,		Lesson 6; online		
The Earth is a	environmental, or technological		resources or teacher		
complex and	knowledge to possible solutions	Essential Knowledge/Skills:	created lessons		
dynamic set of	to problems.	Some kinds of severe weather			
interconnected		are more likely than others in			
systems (e.g.	<b>S.4.A.1.3</b> Recognize and describe	a given region. Weather			
geosphere,	change in natural or human-made	scientists forecast severe			
hydrosphere,	systems and the possible effects	weather so that the			
atmosphere,	of those changes.	communities can prepare for			
biosphere) that		and respond to these events.			
interact over a	<b>S.4.A.2.1</b> Apply skills necessary to	·			
wide range of	conduct an experiment or design	Ask questions to obtain			
temporal and	a solution to solve a problem.	information about the purpose			
spatial scales.		of weather forecasting to			
	S.4.A.2.2 Identify appropriate	prepare for and respond to			
	instruments for a specific task and	weather.			
	describe the information the				
	instrument can provide.	Vocabulary:			
		Conditions			
	<b>S.4.A.3.1</b> Identify systems and	Design			
	describe relationships among	Evaluate			
	parts of a familiar system (e.g.,	Hazard			
	digestive system, simple	Natural			
	machines, water cycle).	Natural hazard			
		Process			
	<b>S.4.A.3.2</b> Use models to illustrate	Region			
	simple concepts and compare the	Solution			
	models to what they represent.	Weather			

S.4.A.3.3 Identify and make		
observations about patterns that		
regularly occur and reoccur in		
nature.		
PA Academic Standards: Science		
<b>3.2.4.C</b> Recognize and use the		
elements of scientific inquiry to		
solve problems.		
<ul> <li>Generate questions about</li> </ul>		
objects, organisms and/or events		
that can be answered through		
scientific investigations.		
<ul> <li>Design an investigation.</li> </ul>		
<ul> <li>Conduct an experiment.</li> </ul>		
<ul> <li>State a conclusion that is</li> </ul>		
consistent with the information.		
<b>3.8.4.A</b> Know that people select,		
create and use science and		
technology and that they are		
limited by social and physical		
restraints.		
<ul> <li>Identify and describe positive</li> </ul>		
and negative impacts that		
influence or result from new tools		
and techniques.		
Identify how physical		
technology (e.g., construction,		
manufacturing, transportation),		
informational technology and		
biotechnology are used to meet		
human needs.		
<ul> <li>Describe how scientific</li> </ul>		

discoveries and technological advancements are related.  • Identify interrelationships among technology, people and their world.  • Apply the technological design process to solve a simple problem.		
process to solve a simple problem.		

hor Descriptor: A.1.1 Identify and explain the lication of scientific, ironmental, or technological wledge to possible solutions roblems.  A.1.3 Recognize and describeinge in natural or human-made ems and the possible effects	Eligible Content: S.4.A.1.3.4 Explain what happens to a living organism when its food supply, access to water, shelter, or space is changed (e.g., it might die, migrate, change behavior, eat something else).	Online resources or teacher created lessons	Teacher observation	2 Weeks
dication of scientific, fronmental, or technological wledge to possible solutions roblems.  A.1.3 Recognize and describeinge in natural or human-made ems and the possible effects	happens to a living organism when its food supply, access to water, shelter, or space is changed (e.g., it might die, migrate, change behavior, eat	teacher created lessons	observation	
ronmental, or technological wledge to possible solutions roblems. <b>A.1.3</b> Recognize and describe nge in natural or human-made ems and the possible effects	when its food supply, access to water, shelter, or space is changed (e.g., it might die, migrate, change behavior, eat			
wledge to possible solutions roblems.  A.1.3 Recognize and describe age in natural or human-made ems and the possible effects	water, shelter, or space is changed (e.g., it might die, migrate, change behavior, eat			
A.1.3 Recognize and describe nge in natural or human-made ems and the possible effects	changed (e.g., it might die, migrate, change behavior, eat			
<b>A.1.3</b> Recognize and describe nge in natural or human-made ems and the possible effects	migrate, change behavior, eat			
nge in natural or human-made ems and the possible effects				
nge in natural or human-made ems and the possible effects	something else).			1
ems and the possible effects				
•				
nose changes.	Essential Knowledge/Skills:			
	Plants and animals can change			
<b>A.2.1</b> Apply skills necessary to	their environment.			
duct an experiment or design				
lution to solve a problem.	Use evidence to show how			
	plants and animals are able to			
A.2.2 Identify appropriate	change their environment to			
ruments for a specific task and	meet their needs.			
cribe the information the				
rument can provide.	Vocabulary:			
	Needs			
<b>A.3.1</b> Identify systems and				
cribe relationships among				
s of a familiar system (e.g.,				
stive system, simple				
hines, water cycle).				
<b>A.3.2</b> Use models to illustrate				
ole concepts and compare the				
Cr Cr Cr Sr Sh	uments for a specific task and ribe the information the ument can provide.  3.1 Identify systems and ribe relationships among of a familiar system (e.g., tive system, simple lines, water cycle).  3.2 Use models to illustrate	change their environment to meet their needs.  Vocabulary:  Needs  Vocabulary:  Needs  1.3.1 Identify systems and ibe relationships among of a familiar system (e.g., tive system, simple lines, water cycle).  3.2 Use models to illustrate e concepts and compare the	change their environment to meet their needs.  Vocabulary:  Needs  Needs  A.2. Use models to illustrate to change their environment to meet their needs.	change their environment to meet their needs.  vocabulary:  Needs  vocabulary:  Needs  sibe relationships among of a familiar system (e.g., tive system, simple sines, water cycle).  3.2 Use models to illustrate e concepts and compare the

S 4 A 2 2 Identify and make		
S.4.A.3.3 Identify and make		
observations about patterns that		
regularly occur and reoccur in		
nature.		
PA Academic Standards: Science		
<b>3.2.4.C</b> Recognize and use the		
elements of scientific inquiry to		
solve problems.		
Generate questions about		
objects, organisms and/or events		
that can be answered through		
=		
scientific investigations.		
Design an investigation.		
Conduct an experiment.		
State a conclusion that is		
consistent with the information.		

General Topic	Anchor Descriptor	Eligible Content,	Resources & Activities	Assessments	Suggested
	PA Academic and Core Standards	Essential Knowledge,			Time
		Skills & Vocabulary			(In Days)
Earth and Space	Anchor Descriptor:	Eligible Content:	Approved textbook	Teacher	1 Week
Science:	<b>S.4.B.3.2</b> Describe, explain, and	N/A	Science, Chapter 4	observation	
	predict change in natural or		Lesson 6; online		
The Earth's surface	human-made systems and the		resources or teacher		
processes affect	possible effects of those changes	Essential Knowledge/Skills:	created lessons		
and are affected by	on the environment.	People can make choices to			
human activities.		reduce impact on the			
	S.4.B.3.3 Identify and describe	environment.			
	human reliance on the				
	environment at the individual or	Describe ways to reduce			
	the community level.	impact of humans on the land,			
		water, and air.			
	PA Academic Standards: Science				
	4.8.4.C Explain how human	Vocabulary:			
	activities may change the	Air			
	environment.	Choices			
	Identify everyday human	Impact			
	activities and how they affect the	Land			
	environment.	Water			
	Identify examples of how human				
	activities within a community				
	affect the natural environment.				

<b>General Topic</b>	Anchor Descriptor	Eligible Content,	Resources & Activities	Assessments	Suggested
	PA Academic and Core Standards	Essential Knowledge,			Time
		Skills & Vocabulary			(In Days)
Earth and Space	Anchor Descriptor:	Eligible Content:	Approved textbook	Teacher	1 Week
Science:	<b>S.4.B.3.2</b> Describe, explain, and	N/A	Science, Chapter 4	observation	
	predict change in natural or		Lesson 6; online		
The Earth's surface	human-made systems and the		resources or teacher		
processes affect	possible effects of those changes	Essential Knowledge/Skills:	created lessons		
and are affected by	on the environment.	Things that people do to live			
human activities.		can affect the world around			
	S.4.B.3.3 Identify and describe	them.			
	human reliance on the				
	environment at the individual or	Describe and communicate			
	the community level.	solutions to reduce impact of			
		humans on land, water, water,			
	PA Academic Standards: Science	and air.			
	<b>3.2.4.D</b> Recognize and use the				
	technological design process to	Vocabulary:			
	solve problems.	Recycle			
	<ul> <li>Recognize and explain basic</li> </ul>	Reduce			
	problems.	Reuse			
	<ul> <li>Identify possible solutions and</li> </ul>	Solutions			
	their course of action.				
	• Try a solution.				
	<ul> <li>Describe the solution, identify</li> </ul>				
	its impacts and modify if				
	necessary.				
	<ul> <li>Show the steps taken and the</li> </ul>				
	results.				
	<b>3.8.4.A</b> Know that people select,				
	create and use science and				
	technology and that they are				
	limited by social and physical				

restraints.		
<ul> <li>Identify and describe positive</li> </ul>		
and negative impacts that		
influence or result from new tools		
and techniques.		
<ul> <li>Identify how physical</li> </ul>		
technology (e.g., construction,		
manufacturing, transportation),		
informational technology and		
biotechnology are used to meet		
human needs.		
<ul> <li>Describe how scientific</li> </ul>		
discoveries and technological		
advancements are related.		
<ul> <li>Identify interrelationships</li> </ul>		
among technology, people and		
their world.		
<ul> <li>Apply the technological design</li> </ul>		
process to solve a simple problem.		
<b>3.8.4.C</b> Know the pros and cons of		
possible solutions to scientific and		
technological problems in society.		
<ul> <li>Compare the positive and</li> </ul>		
negative expected and		
unexpected impacts of		
technological change.		
<ul> <li>Identify and discuss examples</li> </ul>		
of technological change in the		
community that have both		
positive and negative impacts.		
4.8.4.C Explain how human		
activities may change the		

environment.  • Identify everyday human activities and how they affect the environment.  • Identify examples of how human activities within a community		
affect the natural environment.		

<b>General Topic</b>	Anchor Descriptor	Eligible Content,	Resources & Activities	Assessments	Suggested
	PA Academic and Core Standards	Essential Knowledge,			Time
		Skills & Vocabulary			(In Days)
Earth and Space	Anchor Descriptor:	Eligible Content:	Approved textbook	Teacher	1 Week
Science:	S.4.A.1.1 Identify and explain the	N/A	Science, Chapter 1	observations	
	application of scientific,		Lessons 3-6; Science,		
The Earth's surface	environmental, or technological		Chapter 3 Lesson 1-4;		
processes affect	knowledge to possible solutions	Essential Knowledge/Skills:	online resources or		
and are affected by	to problems.	Living things need water, air,	teacher created lessons		
human activities.		and resources from the land.			
	<b>S.4.B.3.2</b> Describe, explain, and	Organisms live in places that			
	predict change in natural or	have the things they need.			
	human-made systems and the				
	possible effects of those changes	Using evidence, state an			
	on the environment.	argument how plants and			
		animals can change the			
	<b>S.4.B.3.3</b> Identify and describe	environment to meet their			
	human reliance on the	needs.			
	environment at the individual or				
	the community level.	Vocabulary:			
		Argument			
	PA Academic Standards: Science	Evidence			
	<b>3.2.4.C</b> Recognize and use the				
	elements of scientific inquiry to				
	solve problems.				
	Generate questions about				
	objects, organisms and/or events				
	that can be answered through				
	scientific investigations.				
	Design an investigation.				
	Conduct an experiment.				
	State a conclusion that is				
	consistent with the information.				

		,
<b>4.6.4.A</b> Understand that living		
things are		
dependent on nonliving things in		
the		
environment for survival.		
<ul> <li>Identify and categorize living</li> </ul>		
and nonliving things.		
Describe the basic needs of an		
organism.		
<ul> <li>Identify basic needs of a plant</li> </ul>		
and an animal and explain how		
their needs are met.		
<ul> <li>Identify plants and animals with</li> </ul>		
their habitat and food sources.		
• Identify environmental variables		
that affect plant growth.		
Describe how animals interact		
with plants to meet their needs		
for shelter.		
Describe how certain insects		
interact with soil for their needs.		
Understand the components of		
a food chain.		
Identify a local ecosystem and		
its living and nonliving		
components.		
• Identify a simple ecosystem and		
its living and nonliving		
components.		
• Identify common soil textures.		
Identify animals that live		
underground.		

	Appen		
	IEP Enhan	cements	
General Topic:	Specially Designed Instruction:	Additional Vocabulary:	Assessments/Suggested Time:
Physical Science: Matter can be understood in terms of the types of atoms present and the interactions both between and within atoms.  Different materials are suited to different purposes.	Preferential Seating     Manipulatives     Visual Aids     Multi-modality instruction including modeling, explicit instruction, repetition, rephrasing, visual cues, and chunking of material		Suggested Time: 1 week with additional time as needed per individual student
Physical Science: Matter can be understood in terms of the types of atoms present and the interactions both between and within atoms.  A variety of objects can be built up from small parts.	Preferential Seating     Manipulatives     Visual Aids     Multi-modality instruction including modeling, explicit instruction, repetition, rephrasing, visual cues, and chunking of material		Suggested Time:  1 week with additional time as needed per individual student
Physical Science: Interactions between any two objects can cause changes in one or both. Pushes and pulls can have different strengths and directions.	Preferential Seating Manipulatives Visual Aids Multi-modality instruction including modeling, explicit instruction, repetition, rephrasing, visual cues, and chunking of material		Suggested Time: 1 week with additional time as needed per individual student
Physical Science: Interactions between any two objects can cause changes in one or both.  Pushing or pulling on an object can change the speed or direction of its motion and can start or stop it.	Preferential Seating Manipulatives Visual Aids Multi-modality instruction including modeling, explicit instruction, repetition, rephrasing, visual cues, and chunking of material		Suggested Time: 1 week with additional time as needed per individual student
Physical Science: Interactions between any two objects can cause changes in one or both.  Objects pull or push each other when they collide or are connected and can change motion.	Preferential seating Manipulatives Visual aids Multi-modality instruction including modeling, explicit instruction, repetition, rephrasing, visual cues, and chunking of material		Suggested Time: 1 week with additional time as needed per individual student

General Topic:	Specially Designed Instruction:	Additional Vocabulary:	Assessments/Suggested Time:
Physical Science: Interactions of objects or systems of objects can be predicted and explained using the concept of energy transfer and conservation.  A bigger push or pull makes things speed up or slow down more quickly	Resources & Activities:     Preferential Seating     Manipulatives     Visual Aids     Multi-modality instruction including modeling, explicit instruction, repetition, rephrasing, visual cues, and chunking of material		Suggested Time:  1 week with additional time as needed per individual student
Physical Science: Interactions of objects or systems of objects can be predicted and explained using the concept of energy transfer and conservation.  The amount and position of mass affect how an object moves.	<ul> <li>Preferential Seating</li> <li>Manipulatives</li> <li>Visual Aids</li> <li>Multi-modality instruction including modeling, explicit instruction, repetition, rephrasing, visual cues, and chunking of material</li> </ul>		Suggested Time:  2 weeks with additional time as needed per individual student
Life Science: All organisms are made of cells and can be characterized by common aspects of their structure and functioning. Use observations to describe what animals need to survive.	<ul> <li>Preferential Seating</li> <li>Manipulatives</li> <li>Visual Aids</li> <li>Multi-modality instruction including modeling, explicit instruction, repetition, rephrasing, visual cues, and chunking of material</li> </ul>		Suggested Time:  2 weeks with additional time as needed per individual student
Life Science: All organisms are made of cells and can be characterized by common aspects of their structure and functioning.  Plants need water and light in order to live and grow.	Preferential Seating Manipulatives Visual Aids Multi-modality instruction including modeling, explicit instruction, repetition, rephrasing, visual cues, and chunking of material		Suggested Time:  2 weeks with additional time as needed per individual student
Life Science: All organisms are made of cells and can be characterized by common aspects of their structure and functioning. Living things need water, air, and resources from the land, and they live in places that have the things they need.	Preferential Seating Manipulatives Visual Aids Multi-modality instruction including modeling, explicit instruction, repetition, rephrasing, visual cues, and chunking of material		Suggested Time:  2 weeks with additional time as needed per individual student

General Topic:	Specially Designed Instruction:	Additional Vocabulary:	Assessments/Suggested Time:
Life Science: All organisms are made of cells and can be characterized by common aspects of their structure and functioning. Animals have identifiable structures and behaviors.	<ul> <li>Preferential Seating</li> <li>Manipulatives</li> <li>Visual Aids</li> <li>Multi-modality instruction including modeling, explicit instruction, repetition, rephrasing, visual cues, and chunking of material</li> </ul>		Suggested Time: 5 weeks with additional time as needed per individual student
Earth and Space Science: The Earth is a complex and dynamic set of interconnected systems (e.g. geosphere, hydrosphere, atmosphere, biosphere) that interact over a wide range of temporal and spatial scales.  Weather is the combination of sunlight, wind, snow or rain, and temperature in a particular region at a particular time.	Preferential Seating Manipulatives Visual Aids Multi-modality instruction including modeling, explicit instruction, repetition, rephrasing, visual cues, and chunking of material		Suggested Time:  1 week with additional time as needed per individual student
Earth and Space Science: The Earth is a complex and dynamic set of interconnected systems (e.g. geosphere, hydrosphere, atmosphere, biosphere) that interact over a wide range of temporal and spatial scales.  Sunlight warms the Earth's surface.	Preferential Seating Manipulatives Visual Aids Multi-modality instruction including modeling, explicit instruction, repetition, rephrasing, visual cues, and chunking of material		Suggested Time:  1 week with additional time as needed per individual student
Earth and Space Science: The Earth is a complex and dynamic set of interconnected systems (e.g. geosphere, hydrosphere, atmosphere, biosphere) that interact over a wide range of temporal and spatial scales.  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.	Preferential Seating Manipulatives Visual Aids Multi-modality instruction including modeling, explicit instruction, repetition, rephrasing, visual cues, and chunking of material		Suggested Time:  1 week with additional time as needed per individual student

General Topic:	Specially Designed Instruction:	Additional Vocabulary:	Assessments/Suggested Time:
Earth and Space Science: The Earth is a complex and dynamic set of interconnected systems (e.g. geosphere, hydrosphere, atmosphere, biosphere) that interact over a wide range of temporal and spatial scales.  Plants and animals can change their environment.	Preferential Seating     Manipulatives     Visual Aids     Multi-modality instruction including modeling, explicit instruction, repetition, rephrasing, visual cues, and chunking of material		Suggested Time:  2 weeks with additional time as needed per individual student
Earth and Space Science: The Earth's surface processes affect and are affected by human activities.  People can make choices to reduce impact on the environment.	<ul> <li>Preferential Seating</li> <li>Manipulatives</li> <li>Visual Aids</li> <li>Multi-modality instruction including modeling, explicit instruction, repetition, rephrasing, visual cues, and chunking of material</li> </ul>		Suggested Time:  1 week with additional time as needed per individual student
Earth and Space Science: The Earth's surface processes affect and are affected by human activities.  Things that people do to live can affect the world around them.	<ul> <li>Preferential Seating</li> <li>Manipulatives</li> <li>Visual Aids</li> <li>Multi-modality instruction including modeling, explicit instruction, repetition, rephrasing, visual cues, and chunking of material</li> </ul>		Suggested Time:  1 week with additional time as needed per individual student