#### **Early Elementary STEM**

#### Overview:

Early Elementary STEM for Pre-Kindergarten through 2nd grade is an enhancement class that is the building blocks for understanding the relationship among science, technology, engineering, and math. This class provides discovery and innovation, using hands-on and interactive activities to understand how things work, while introducing both the scientific method and the engineering design process.

#### **Course Rationale:**

STEM education in early elementary grades allows students to have the chance to investigate and explore the world around them. Young students are also given opportunities to build their confidence to ask questions about the world, not only the "why" questions, but more importantly the "what" questions. Early Elementary STEM initiates the groundwork for curiosity among all elementary aged students.

**Grades:** Pre Kindergarten - 2nd Grade

<u>Unit Title</u>	Length of Unit
Unit 1: PreK - 2nd Grade What is STEM?	_4 - 8 weeks
Unit 2: PreK/K Science Curriculum Enhancement	8 - 12 weeks <u></u>
Unit 2: 1st Grade Science Curriculum Enhancement	8 - 12 weeks
Unit 2: 2nd Grade Science Curriculum Enhancement	8 - 12 weeks
Unit 3: Engineering Curriculum Enhancement	8 - 12 weeks

#### **Elementary STEM Curriculum**

Course Title: PreK-2nd Grade Unit Title: What is STEM? Length of Unit 4-8 weeks

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Standards & Benchmarks	Essential Questions, Learning Targets & "I can" Statements	Key Vocabulary	Activities/Projects	Resources	Evidence of Understanding
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 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 test of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.	Most students have no prior exposure or understanding of STEM components before entering kindergarten. This unit introduces the basic concepts of STEM, (Science, Technology, Engineering, and Math).  I CAN Statements:  I can have basic understanding of what the life of a scientist is like.  I can have basic understanding of what an engineer does.  I can have basic understanding of what part technology plays in STEM.  I can have basic understanding of what a	Scientist Technology Engineer Mathematician  Question Observe Hypothesis Experiment Record Measure Data Analyze Conclude  Work together Explore Investigate Problem solve Communicate Design Solution Evaluate Making sense Model	Kids will learn:  This unit will provide the building blocks for understanding the relationship among science, engineering, technology, and teamwork, which is necessary for discovery and innovation.  SCIENCE: The Scientific Method process is a way to for scientists to study and learn things. (It doesn't matter what the scientist is trying to learn, using the scientific	Books:  Engineering the ABC's: How Engineers Shape Our World  Designing Dandelions: An Engineering Everything Adventure  Rosie Revere, Engineer  Iggy Peck, Architect  Ada Twist, Scientist  What Do You	What will be the evidence of learning?  Formative Assessment Facilitation and questioning techniques, sharing of observations and reasoning through results, drawings and approximations of writing and labeling of investigations  Summative Assessment Performance assessment: Communicate and demonstrate findings from investigation and solution to problem.
	mathematician does.	Model	method can help	Do With an	

		Computer	them come up with	<u>Idea?</u>
	n learn to use the	Internet	an answer.)	
	ntific process in solving	iPad		What Do You
a sim	nple scientific problem.	Apps	TECHNOLOGY:	<u>Do With a</u>
		Keyboard	Technology and	Problem?
I car	n learn to use the	Cell phone	interactive media	
engir	neering design process	Camera	are effective tools	Rocks, Jeans,
when	n given a simple problem	Radio	to support learning	and Busy
to so	olve.	Tools	and development in	<u>Machines: An</u>
			all subject areas.	<u>Engineering</u>
I car	n work in a cooperative			<u>Kids</u>
grou	p.		ENGINEERING: Th	<u>Storybook</u>
			e Engineering	
Esse	ntial Questions:		Design Process is a	Girls Think of
			tool they can use to	Everything:
How	do I investigate		help solve	Stories of
mate	erials and objects		problems. Also,	<u>Ingenious</u>
aroui	nd me?		students will be	Inventions by
			able to use a	Women
Wha	t are scientists? How do		physical model to	
scier	ntists solve problems?		investigate and	<u>Girls Who</u>
	·		describe how	<u>Looked Under</u>
Wha	t are engineers? How do		engineers work.	Rocks: The
engir	neers solve problems?			<u>Lives of Six</u>
			MATH:	<u>Pioneering</u>
Wha	t are mathematicians?		In Math, tackling	<u>Naturalists</u>
How	do mathematicians solve		problems begin	
prob	lems?		with defining the	Sorting
			problem, then	Through
Wha	t are technologists?		thinking of ways to	Spring
	do computer		solve it,	
	nologists solve		implementing a	Websites:
	lems?		solution, and	

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evaluating the	http://kids.na
results.	<u>tionalgeograph</u>
(Performing math	<u>ic.com</u>
problems help	
students practice	http://www.di
the problem-solving	scoveryeducat
steps that apply to	<u>ion.com</u>
everyday	
situations.)	
	http://askdru
	niverse.wsu.ed
	<u>u/</u>
	http://pbskid
	s.org/designsg
	uad
	http://www.eq
	fi-k12.org
	http://www.ex
	ploratorium.ed
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	http://science
	howstuffwork
	<u>s.com</u>
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		sichicago.org	
		https://www.t	
		<u>ynker.com</u>	
		http://www.na	
		sa.gov/audienc e/forstudents	
		/index.html	
		http://www.na	
		sa.gov/educati on/semaa	
		http://www.pb	
		s.org/wgbh/no	
		<u>va</u>	
		http://www.sc iencebuddies.o	
		rg	
		http://www.sc	
		iencechannel.c om	
		http://stem-	
		works.com	
		https://www.t	
		echrocket.com	

Course Title: Pre K/K Unit Title: Science Curriculum Enhancement Length of Unit 8-12 weeks

Standards & Benchmarks	Essential Questions,	Key	Activities/Projects	Resources	Evidence of
	Learning Targets & "I can"	Kindergarten:Vo			Understanding
	Statements	cabulary			
Pre K/Kindergarten:	The science learning targets	Scientist	Kids will learn:	Books:	What will be the
K-PS2-1. Plan and conduct an investigation to compare the effects of different strengths or	for Kindergarten are the following topics:  • Motion and Stability	Question Observe	This unit will provide enrichment	Variety of science picture	evidence of learning?
different directions of pushes and pulls on the motion of an object	- Forces and interactions	Hypothesis Collect samples	for the understanding of	books/non-fiction books	Formative Assessment
K-PS2-2. Analyze data to	<ul> <li>Energy - Sunlight</li> </ul>	Experiment	scientific topics		Facilitation and
determine if a design solution	<ul> <li>Molecules to</li> </ul>	Record	designated for		questioning
works as intended to change the	Organisms -	Measure	kindergarten	Websites:	techniques,
speed or direction of an object	Structures and	Data	following the NGSS		sharing of
	Processes	Analyze	standards. Among	http://kids.nation	observations and

with a push or a pull.*	• Earth's Systems-	Conclude	the topics are:	algeographic.com	reasoning through
with a pash of a pail.	Plants and Animals	Concidae	Motion and	algeographic.com	results of
K-PS3-1. Make observations to	Earth and Human	Work together	Stability, Energy,	http://www.discov	drawings and
determine the effect of sunlight	Activity - Impact on	Explore	Molecules to	eryeducation.com	conversation.
on Earth's surface.	Humans	Investigate	Organisms, Earth's		
	I CAN Statements:	Problem solve	Systems and the		
K-PS3-2. Use tools and materials		Communicate	impact of human	http://askdrunive	
to design and build a structure	I can have basic	Design	activity.	rse.wsu.edu/	
that will reduce the warming	understanding of what the	Solution			
effect of sunlight on an area.	life of a scientist is like.	Evaluate	Students will be	http://pbskids.org	
_		Making sense	encouraged to be	/designsquad	
K-LS1-1. Use observations to	I can observe how objects	Model	curious about the	<u>/ designsquad</u>	
describe patterns of what plants	fall toward the Earth.		world around them.	http://www.egfi-	
and animals (including humans)		Computer		k12.org	
need to survive	I can identify what a force	Internet	In the scientific	KIL.OI G	
	is.	iPad	lessons, students	http://www.explor	
K-ESS3-1. Use a model to		Apps	will try and answer	atorium.edu	
represent the relationship	I can demonstrate what a		questions through	aror ium.eau	
between the needs of different	force is.	Tools:	exploration. They	http://www.extre	
plants or animals (including			will discover	mescience.com	
humans) and the places they live.	I can observe how sunlight	Goggles	through	mescience.com	
	affects the Earth's surface.	Lab Equipment	observations and	http://science.ho	
		Magnifying Glass	will begin to	wstuffworks.com	
	I can use tools and materials	Microscope	collaborate with	wsruj į works.com	
	to design and build a	Magnets	their peers in small	http://www.msichi	
	structure that will reduce		and large groups.	cago.org	
	the warming effect of			<u> </u>	
	sunlight.		Students will begin	https://www.tynk	
			to use laboratory	er.com	
	I can describe patterns of		tools during their		
	what plants need to survive.		observations and	1.11	
			use scientific	http://www.nasa.g	
	I can describe patterns of		vocabulary.	ov/audience/forst	

what animals need to survive.		udents/index.html	
	The Scientific		
I can explain how plants	Method process	http://www.nasa.g	
survive in different	will be reviewed	ov/education/sem	
environments.	and explained for	αα	
	scientists to study		
I can explain how animals	and learn things.	http://www.pbs.or	
survive in different		g/wgbh/nova	
environments.			
		http://www.scienc	
Essential Questions:		ebuddies.org	
What are scientists? How do		http://www.scienc	
scientists solve problems?		<u>echannel.com</u>	
How do I investigate		http://stem-	
materials and objects		works.com	
around me?			
		https://www.tech	
What happens if you push or		<u>rocket.com</u>	
pull an object harder?			
What is the effect of			
sunlight on Earth's natural			
surfaces of sand, soil, rock,			
and water?			
1			
How does different			
materials on Earth warm by			
sunlight in different			
amounts?			
1			
What is the effect of			

make a prototype structure that shades light using tools and materials.  Where do animals live and why do they live there?  What is the effect of sunlight on different natural surfaces?  How can I design a structure to block the sunlight with the tools and materials provided?
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Course Title: <u>1st Grade</u> Unit Title: <u>Science Curriculum Enhancement</u> Length of Unit <u>8-12 weeks</u>

Standards & Benchmarks	Essential Questions,	Key	Activities/Projects	Resources	Evidence of
	Learning Targets & "I can"	Kindergarten:Vo			Understanding
	Statements	cabulary			

Kids will learn: Books: What will be the Scientist The science learning targets 1st Grade: evidence of learning? for 1st Grade are the 1-PS4-1. Plan and conduct Question This unit will All About following topics: investigations to provide explore a number Observe Liaht Formative Assessment Waves: Light and evidence that vibrating of "henrichment Facilitation and Hypothesis Sound materials can make sound and for the Collect samples All About questioning techniques, Structure, Function. that sound can make materials understanding of sharing of Experiment Sound and Information vibrate scientific topics Record observations and Processing of Plants 1-PS4-3. Plan and conduct an Measure designated for Explore a reasoning through and Animals Data 1stgrade following number of results of drawings investigation to determine the • Space Systems: Analyze and conversation. the NGSS "how-to" effect of placing objects made Patterns and Cycles Conclude standards. Among books with different materials in the I CAN Statements: the topics are: Summative path of a beam of light. Work together Assessment Sending 1-PS4-4. Use tools and Light and Sound I can have basic Explore Performance Messages materials to design and build a understanding of what the Investigate Energy, Plant and With Light assessment: device that uses light or sound Problem solve life of a scientist is like. Animal Structure and Sound Communicate and to solve the problem of Communicate and how the are demonstrate findings communicating over a distance. What are from investigation and I can understand that Design the same and Shadows and 1-LS1-1. Use materials to science investigations begin solution to problem. Solution different, Space Reflections with a question. **Evaluate** design a solution to a human System patterns. Making sense problem by mimicking how I can understand that light Model In the scientific plants and/or animals use their Websites: and sound are both examples lessons, students external parts to help them of energy. Computer will continue their survive, grow, and meet their http://kids.na learning and answer Internet tionalgeograph needs I can understand that sound iPad questions through 1-ESS1-1. Use observations of ic.com travels in waves exploration. They Apps the sun, moon, and stars to will discover http://www.di describe patterns that can be I can understand how sound Tools: through scoveryeducat makes objects vibrate.

observations and

ion.com

predicted.

T		T	<u> </u>	
	Goggles	will continue to		
I can understand how light	Lab Equipment	collaborate with		
can be considered opaque,	Magnifying Glass	their peers in small	http://askdru	
translucent, or transparent.	Microscope	and large groups.	niverse.wsu.ed	
			<u>u/</u>	
I can identify what a force	Shadow	Students will begin		
is.	Illuminate	to use laboratory	http://pbskid	
	Transparent	tools during their	s.org/designsg	
I can demonstrate what a	Translucent	observations and	uad	
force is.	OpaqueS	use scientific	daa	
	, .	vocabulary.	http://www.eg	
I can observe how sunlight		·	fi-k12.org	
affects the Earth's surface.	Sun	The Scientific	11-K12.01'g	
	Moon	Method process	1.11	
I can describe patterns of	Stars	will be reviewed	http://www.ex	
what plants need to survive.	Planets	and explained for	ploratorium.ed	
'	Orbit	scientists to study	<u>u</u>	
I can describe patterns of	Sunrise	and learn things.	1	
what animals need to survive.	Sunset		http://www.ex	
			<u>tremescience.</u>	
I can explain how plants			com	
survive in different				
environments.			http://science	
			.howstuffwork	
I can explain how animals			<u>s.com</u>	
survive in different			1	
environments.			http://www.m	
			<u>sichicago.org</u>	
I can understand how the				
Sun is the center of our			https://www.t	
planetary system and all			<u>ynker.com</u>	
planets orbit around it.				
F			http://www.na	
		<u> </u>		

I	can understand the		sa.gov/audienc	
po	atterns of the Sun and how		e/forstudents	
İit	affects our day and night.		/index.html	
	, ,			
E:	ssential Questions:		http://www.na	
			sa.gov/educati	
l w	Vhat are scientists? How do		on/semaa	
So	cientists solve problems?			
	·		http://www.pb	
l w	Vhat happens when		s.org/wgbh/no	
	naterials vibrate?		va	
			_	
н	low does light travel?		http://www.sc	
	-		iencebuddies.o	
н	low does sound travel?		rg	
			_	
D	oes sound travel better		http://www.sc	
+1	hrough air, water, or		iencechannel.c	
So	sbild?		<u>om</u>	
l w	Vhat are some ways plants		http://stem-	
ar	nd animals meet their		works.com	
ne	eeds so that they can			
su	urvive and grow?		https://www.t	
	-		echrocket.com	
l w	Vhat objects are in the sky			
ar	nd how do they seem to			
m	nove?			

Course Title: 2nd Grade Unit Title: Science Curriculum Enhancement Length of Unit 8-12 weeks

investigation to describe and classify different kinds of materials by their observable properties.  2-PS1-4. Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.  2-LS2-1. Plan and conduct an investigation to determine if plants need sunlight and water to grow.  2-LS2-2. Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.  following topics:  Structure and Properties of Matter  Observe Hypothesis  Collect samples  Experiment Relationships in Ecosystems  Science Science  Ness standards. Analyze Amazing Goutestion of an animal in dispersing seeds or pollinating plants.  Formative Assessmen Facilitation and questioning technique scientific topics designated for 2nd grade following the NGSS standards. Analyze Among the topics are: Motion and Stability, Energy, Molecules to Organisms, Earth's Systems and the life of a scientist is like.  Formative Assessmen Facilitation and questioning technique scientific topics designated for 2nd grade following the NGSS standards. Analyze Among the topics are: Motion and Stability, Energy, Molecules to Organisms, Earth's Systems and the impact of human activity.	Standards & Benchmarks	Essential Questions,	Key	Activities/Projects	Resources	Evidence of
2nd Grade: 2-P51-1. Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. 2-P51-4. Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot. 2-L52-1. Plan and water to grow. 2-L52-2. Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.  The science learning targets for 2nd grade are the following targets:  Scientist  Kids will learn:  Scientist  Kids will learn:  Mamazing  Materials  Science  Science  Science  Amazing  Materials  Science  Changing  Materials  Science  Changing  Materials  Series:  Molecules to  Organisms, Earth's  Systems and the  impact of human  activity.  Communicate and  demonstrate finding:		Learning Targets & "I can"	Kindergarten:Vo			Understanding
2-PS1-1. Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. 2-PS1-4. Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot. 2-LS2-1. Plan and conduct an investigation to determine if plants need sunlight and water to grow. 2-LS2-2. Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.  This unit will provide enrichment for the understanding of Observe provide enrichment for the Understanding of Understanding of Observe provide enrichment for the Understanding of Understanding of Observe provide enrichment for the Understanding of Understanding of Understanding of Understanding of Understanding of Observe provide enrichment for the Understanding of Understand		Statements	cabulary			
pollinating plants.  life of a scientist is like.  Communicate  activity.  Readers: A Closer Look  demonstrate findings	2-PS1-1. Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. 2-PS1-4. Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot. 2-LS2-1. Plan and conduct an investigation to determine if plants need sunlight and water to grow. 2-LS2-2. Develop a simple model that mimics the function of an	The science learning targets for 2nd grade are the following topics:	cabulary  Scientist  Question Observe Hypothesis Collect samples Experiment Record Measure Data Analyze Conclude  Work together Explore Investigate	This unit will provide enrichment for the understanding of scientific topics designated for 2nd grade following the NGSS standards. Among the topics are: Motion and Stability, Energy, Molecules to Organisms, Earth's Systems and the	Amazing Materials Series: Amazing Science Changing Materials Series: Working With Materials Melting And Freezing	evidence of learning?  Formative Assessment Facilitation and questioning techniques, sharing of observations and reasoning through results of drawings and conversation.  Summative Assessment Performance assessment:
Decion   them invection to	·	_		•	Readers: A Closer Look	demonstrate findings from investigation and

Essential Questions:	Solution Evaluate	In the scientific		solution to problem.
Essential Questions:		مقتنات بالمصادرا	0 4 5 5 5 4 5 5	'
		lessons, students	Oscar And	
Have doed land above and	Making sense Model	will try and answer	The Snail	
How does land change and	Model	questions through	Series: Start	
what are some things that		exploration. They	<u>With Science</u>	
cause it to change?				
140			NAZ 1 **	
			Websites:	
	Apps	•		
water?				
	Tools:			
		•	<u>ic.com</u>	
		* *		
*	• •			
1	Magnifying Glass	•	<u>scoveryeducat</u>	
relate to their use?	Microscope	observable	ion.com	
		properties.		
What do plants need to	Different names			
grow?	of soils - Sandy	The Scientific	http://askdru	
	Loam, Sand, Clay,	Method process	niverse.wsu.ed	
How many types of living	etc.	will be reviewed	<u>u/</u>	
things live in a place?		and explained for		
	Mountains	scientists to study	http://phskid	
How does water shape the	Hills	and learn things.		
Earth?	Valleys	They will use it to		
	Rivers	find changes	ddd	
What is the difference	Oceans	heating or cooling a	http://www.co	
between erosion and	Streams	substance may		
displacement?	Lakes	cause changes that	11-K12.01'Y	
·	Plains	can be observed.	latana / /	
What forces cause erosion?	Plateaus	Sometimes these		
	Islands	changes are		
What are the different	Deserts	_	<u>u</u>	
	what are the different kinds of land and bodies of water?  How are materials similar and different from one another, and how do the properties of the materials relate to their use?  What do plants need to grow?  How many types of living things live in a place?  How does water shape the Earth?  What is the difference between erosion and displacement?  What forces cause erosion?	Computer Internet What are the different kinds of land and bodies of water?  How are materials similar and different from one another, and how do the properties of the materials relate to their use?  What do plants need to grow?  What do plants n	cause it to change?  Computer Internet iPad Apps  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 of the materials relate to their use?  What do plants need to grow?  How many types of living things live in a place?  What is the difference between erosion and displacement?  What forces cause erosion?  Computer Internet iPad Maph Maph Maph Maph Maph Maph Maph Maph	cause it to change?  Computer Internet different kinds of water exist and kinds of land and bodies of water?  Tools:  How are materials similar and different from one another, and how do the properties of the materials relate to their use?  What do plants need to grow?  What do plants need to grow?  Whow does water shape the Earth?  What is the difference between erosion and displacement?  What forces cause erosion?  Computer Internet 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.  Matter can be described and classified by its observable properties.  Different names of soils - Sandy Loam, Sand, Clay, etc.  Mountains  How does water shape the Earth?  What is the difference between erosion and displacement?  What forces cause erosion?  What forces cause erosion?

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la	indforms on Earth?	Peninsulas	sometimes they are	http://www.ex	
			not.	tremescience.	
	/hat is the history of the		Conduct	<u>com</u>	
E	arth?		experiments to see		
			if plants depend on	http://science	
W	/hat are tectonic plates?		water and light to	.howstuffwork	
			grow.	<u>s.com</u>	
			Students will	http://www.m	
			discover how	<u>sichicago.org</u>	
			erosion affects the		
			soil with wind,	https://www.t	
			water, and ice.	<u>ynker.com</u>	
			Students will	http://www.na	
			create landforms	sa.gov/audienc	
			by molding material	e/forstudents	
			into the different	/index.html	
			types of forms		
			that appear on	http://www.na	
			Earth.	sa.gov/educati	
				on/semaa	
				OTI/ DOTITION	
				http://www.pb	
				s.org/wgbh/no	
				<u>va</u>	
				http://www.sc	
				iencebuddies.o	
				rg	
				http://www.sc	
				iencechannel.c	
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		<u>om</u>	
		http://stem- works.com	
		https://www.t echrocket.com	

Course Title: Pre K-2 Unit Title: Engineering Curriculum Enhancement Length of Unit 8-12 weeks

Standards & Benchmarks	Essential Questions,	Key	Activities/Projects	Resources	Evidence of
	Learning Targets & "I can"	Kindergarten:Vo			Understanding
	Statements	cabulary			
PreK - 2nd Grade: K-2-ETS1-1. Ask questions, make	The science learning targets for Kindergarten are the	Scientist	Kids will learn:	Books:	What will be the evidence of
observations, and gather	following topics:	Question	This unit will	Simple Machines	learning?
information about a situation	<ul> <li>Modeling in K-2</li> </ul>	Observe	provide enrichment	(Let's-Read-and-	
people want to change to define a	builds on prior	Hypothesis	for the	Find-Out Science 2)	Formative
simple problem that can be solved	experiences and	Collect samples	understanding of	<u> </u>	Assessment
through the development of a new	progresses to include	Experiment	scientific and	Pull, Lift, and	Facilitation and
sag as as sopilion of a new	using and developing	Record	engineering topics	Lower: A Book	questioning

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or improved object or tool.	models (i.e., diagram,	Measure	designated for pre-	About Pulleys	techniques,
	drawing, physical	Data	kindergarten	(Amazing Science: Simple Machines)	sharing of
K-2-ETS1-2. Develop a simple	replica, diorama,	Analyze	through 2nd grade	Olimpie Macrilles)	observations and
sketch, drawing, or physical model	dramatization, or	Conclude	following the NGSS	Simple Machines	reasoning through
to illustrate how the shape of an	storyboard) that		standards. Among	(Starting with	results of
object helps it function as needed	represent concrete	Work together	the topics are:	Science)	drawings and
to solve a given problem.	events or design	Explore	investigating simple	<u>Science)</u>	conversation.
	solutions	Investigate	machines,		
K-2-ETS1-3. Analyze data from	<ul> <li>Investigating and</li> </ul>	Problem solve	designing, making,	Variety of science	Summative
tests of two objects designed to	exploring gears,	Communicate	and testing Legos	picture	Assessments on
solve the same problem to	wheels, axles, levers,	Design	with simple	books/non-fiction	Engineering Design
compare the strengths and	and pulleys; and	Solution	instructions in 2	books	Process
weaknesses of how each performs.	matching a solution	Evaluate	dimensions to		
·	to needs.	Making sense	create 3	Websites:	Summative
	<ul> <li>Cooperatively</li> </ul>	Model	dimensional models.		Assessments on
	working in a team			http://kids.nation	Simple Machines
	<ul> <li>Create simple</li> </ul>	Computer	Students will be	algeographic.com	•
	machine builds with	Internet	encouraged to work		
	Legos to develop an	iPad	as a team coopera-	http://www.discov	
	understanding of	Apps	tively through the	eryeducation.com	
	science and	''	Engineering Design		
	engineering concepts	Tools:	Process.		
	I CAN Statements:			http://askdrunive	
		Legos	Students will begin	rse.wsu.edu/	
	I can have basic	Unconventional	to use laboratory		
	understanding of what the	Materials like	tools during their	http://pbskids.org	
	life of a engineer is like.	clay, pipe	observations and	/designsquad	
		cleaners, pieces	use scientific	<u>/ designisquau</u>	
	I can use build alone or in	of wood, craft	vocabulary.	http://www.egfi-	
	pairs, depending on my	sticks, rubber	,	k12.org	
	ability.	bands, spaghetti,	Students will begin	VIC.OLA	
	,	marshmallows,	to use engineering		
	I can use Legos and other	etc.	tools during their	http://www.explor	
	<u> </u>			<u>atorium.edu</u>	

materials to find solutions	builds and	
like young scientists and	communicate using	http://www.extre
engineers.	engineering terms	mescience.com
	and vocabulary.	
I can begin to use the		http://science.ho
Engineering Design Process		wstuffworks.com
(EDP)to connect to		
identifying the problem to		http://www.msichi
solve.		cago.org
I can use the EDP to imagine		https://www.tynk
a plan of action to solve the		er.com
problem		
'		http://www.nasa.g
I can use the EDP to		ov/audience/forst
construct the build using the		udents/index.html
instructions and/or solving a		<u>udents/index.ntml</u>
problem.		http://www.nasa.g
'		ov/education/sem
I can use the EDP to test my		
build, then modify and make		<u>aa</u>
changes to the construction		letter / /
of my build to improve it.		http://www.pbs.or
,		g/wgbh/nova
		letter / / dei ene
I can investigate simple		http://www.scienc
machines that are driven by		<u>ebuddies.org</u>
wind power,.		letter / / dei ene
' '		http://www.scienc
I can investigate friction		<u>echannel.com</u>
and other forces that		http://atam
change the performance of		http://stem-
my build.		works.com
<b>'</b>		

Essential Questions:		https://www.tech rocket.com	
What are scientists? How do scientists solve problems?			
How do I investigate materials that I would use in a design?			
What happens if you push or pull an object harder?			
What is the effect of sunlight on Earth's natural surfaces of sand, soil, rock, and water?			
How does different materials on Earth warm by sunlight in different amounts?			
What is the effect of sunlight on surfaces if I make a prototype structure that shades light using tools and materials.			
Where do animals live and why do they live there?			
What is the effect of			

sunlight on different natural surfaces?		
How can I design a structure to block the sunlight with the tools and materials provided?		
provided		