Seventh Grade NGSS Course Map								Crosscutting Concepts						Common Core State Standards		
Schedule subject to change with additional NGSS Performance Expectations marked for 6th or 8th added to prepare students for Spring 2016 Science ISAT tentative window 3/28 to 5/20, as an incentive, or as a secondary discipline, not necessarily listed, but tying into primary expectation being covered.																
Quarter	**Dates**	**Disciplinary Core Ideas**		**Performance Expectations**		**Secondary DCIs**		**Idea**	**Description**	**Idea**	**Description**	**Idea**	**Description**	**Reading**	**Writing / Multimedia**	**Mathematics**
1	8/20/15 - 9/2/15	ESS3.A	Natural Resources	MS-ESS3-1	Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes			Cause & Effect	Cause and effect relationships may be used to predict phenomena in natural or designed systems.	Influence of Science, Engineering, and Tecnology on Society and the Natural Wold	All human activity draws on natural resources and has both short- and long-term consequences, positive as well as negative, for the health of people and the natural environment.			RST.6-8.1	WHST.6-8.2, WHST.6-8.9	6.EE.B.6, 7.EE.B.4
	9/8/15 - 9/14/15	ESS2.C & ESS2.D	The Roles of Water in Earth's Surface Processes & Weather and Climate	MS-ESS2-6	Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates			Systems and System Models	Models can be used to represent systems and their interactions--such as inputs, processes and outputs--and energy, matter, and information flows within systems.						SL.8.5	
	9/15/15 - 10/16/15			MS-ESS2-4	Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity			Energy & Matter	Within a natural or designed system, the transfer of energy drives the motion and / or cycling of matter.							
				MS-ESS2-5	Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions			Cause & Effect	Cause and effect relationships may be used to predict phenomena in natural or designed systems.					RST.6-8.1, RST.6-8.9	WHST.6-8.8	MP.2, 6.NS.C.5
		ESS3.B	Natural Hazards	MS-ESS3-2	Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects			Patterns	Graphs, charts, and images can be used to identify patterns in data.	Influence of Science, Engineering, and Technology on Society and the Natural World	The uses of technologies and any limitations on their use are driven by individual or societal needs, desires, and values; by the findings of scientific research; and by differences in such factors as climate, natural resources, and economic conditions. Thus technology use varies from region to region and over time.			RST.6-8.1, RST.6-8.7		MP.2, 6.EE.B.6
2	10/19/15 - 11/16/15	ESS2.A	Earth's Materials and Systems	MS-ESS2-1	Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process			Stability & Change	Explanations of stability and change in natural or designed systems can be constructed by examining the changes over time and processes at different scales, including the atomic scale.						SL.8.5	
		ESS2.A & ESS2.C	Earth's Materials and Systems & The Role of Water in Earth's Surface Processes	MS-ESS2-2	Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales			Scale, Proportion, & Quantity	Time, space, and energy phenomena can be observed at various scales using models to study systems that are too large or too small.					RST6-8.1	WHST.6-8.2, SL8.5	MP.2, 6.EE.B.6, 7.EE.B.4
		ESS2.B	Plate Tectonics and Large-Scale System Interactions	MS-ESS2-3	Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions	ESS1.C	The History of Planet Earth	Patterns	Patterns in rates of change and other numerical relationships can provide information about natural systems.					RST.6-8.1, RST.6-8.7, RST.6-8.9		MP.2, 6.EE.B.6, 7.EE.B.4
	11/16 - 12/18	PS1.A	Structure and Properties of Matter	MS-PS1-1	Develop models to describe the atomic composition of simple molecules and extended structures			Scale, Proportion, & Quantity	Time, space, and energy phenomena can be observed at various scales using models to study systems that are too large or too small.					RST.6-8.7		MP.2, MP.4, 6.RP.A.3, 8.EE.A.3
		PS1.A & PS1.B	Structure and Properties of Matter & Chemical Reactions	MS-PS1-2	Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred			Patterns	Macroscopic patterns are related to the nature of microscopic and atomic-level structure					RST.6-8.1, RST.6-8.7		MP.2, 6.RP.A.3, 6.SP.B.4, 6.SP.B.5
				MS-PS1-3	Gather and make sense of information to describe that synthetic materials come from natural resources and impact society			Structure & Function	Structures can be designed to serve particular functions by taking into account properties of different materials, and how materials can be shaped and used.	Interdependence of Science, Engineering, and Technology	Engineering advances have led to important discoveries in virtually every field of science, and scientific discoveries have led to the development of entire industries and engineered systems.	Influence of Science, Engineering & Technology on Society and the Natural World	The uses of technologies and any limitations on their use are driven by individual or societal needs, desires, and values; by the findings of scientific research; and by differences in such factors as climate, natural resources, and economic conditions. Thus technology use varies from region to region and over time.	RST.6-8.1	WHST.6-8.8	
	1/4/16 - 1/8/16	PS1.A	Structure and Properties of Matter	MS-PS1-4	Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed	PS3.A	Definitions of Energy	Cause & Effect	Cause and effect relationships may be used to predict phenomena in natural or designed systems.					RST.6-8.7		6.NS.C.5
	1/11/15 - 2/11/15	ETS1-1 to 1-4	Engineering Design Project	MS-PS2-1, 2-2, 3-1, & 3-5 (Review)	Engineering Design Project - Forces, Conservation of Energy and Energy Transfer				Cause & Effect; Systems and System Models; Stability and Change; Scale, Proportion, and Quantity; Energy and Matter	Influence of Science, Engineering, and Technology on Society and the Natural World	The uses of technologies and any limitations on their use are driven by individual or societal needs, desires, and values; by the findings of scientific research; and by differences in such factors as climate, natural resources, and economic conditions			RST.6-8.1, RST.6-8.3, RST.6-8.7	WHST.6-8.1, WHST.6-8.7	MP.2, 6.NS.C.5, 6.EE.A.2, 7.EE.B.3, 7.EE.B.4, 6.RP.A.1, 6.RP.A.2, 7.RP.A.2, 8.EE.A.1, 8.EE.A.2, 8.F.A.3
3	2/12/16 - 2/26/16	LS1.C	Organization for Matter and Energy Flow in Organisms	MS-LS1-6	Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms	PS3.D	Energy in Chemical Processes and Everyday Life	Energy & Matter	Within a natural system, the transfer of energy drives the motion and / or cycling of matter					RST.6-8.1, RST.6-8.2	WHST.6-8.2, WHST.6-8.9	6.EE.C.9
				MS-LS1-7	Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and / or release energy as this matter moves through an organism				Matter is conserved because atoms are conserved in physical and chemical processes						SL.8.5	
		LS2.A	Interdependent Relationships in Ecosystems	MS-LS2-1	Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem			Cause & Effect	Cause and effect relationships may be used to predict phenomena in natural or designed systems.					RST.6-8.1, RST.6-8.7		
				MS-LS2-2	Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems			Patterns	Patterns can be used to identify cause and effect relationships.					RST.6-8.1	WHST.6-8.2, WHST.6-8.9, SL.8.1, SL.8.4	6.SP.B.5
		LS2.B	Cycle of Matter and Energy Transfer in Ecosystems	MS-LS2-3	Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem			Energy & Matter	The transfer of energy can be tracked as energy flows through a natural system.	Scientific Knowledge Assumes an Order and Consistency in Natural Systems	Science assumes that objects and events in natural systems occur in consistent patterns that are understandable through measurement and observation.				SL.8.5	6.EE.C.9
4	3/28/16 - 4/22/16	LS2.C	Ecosystem Dynamics, Functioning, and Resilience	MS-LS2-4	Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations			Stability & Change	Small changes in one part of a system might cause large changes in another part.					RST.6-8.1	WHST.6-8.1, WHST.6-8.9	
				MS-LS2-5	Evaluate competing design solutions for maintaining biodiversity and ecosystem services	LS4.D	Biodiversity and Humans			Influence of Science, Engineering, and Tecnology on Society and the Natural Wold	The use of technologies and any limitations on their use are driven by individual or societal needs, desires, and values; by the findings of scientific research; and by differences in such factors as climate, natural resources, and economic conditions. Thus technology use varies from region to region and over time	Science Addresses Questions About the Natural and Material Wold	Scientific knowledge can describe the consequences of actions but does not necessarily prescribe the decisions that society takes.	RST.6-8.8, RI.8.8		MP.4, 6.RP.A.3
	4/25/16 - 5/27/16	PS1.B	Chemical Reactions	MS-PS1-5	Develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved			Energy & Matter	Matter is conserved because atoms are conserved in physical and chemical processes					RST.6-8.7		MP.2, MP.4, 6.RP.A.3
				MS-PS1-6	Undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes	ETS1.B & ETS1.C	Developing Possible Solutions & Optimizing the Design Solution		The transfer of energy can be tracked as energy flows throug a designed or natural system.					RST.6-8.3	WHST.6-8.7	

Repeats

LS1-6 — LS1-7	PS1.B	Chemical Reactions	MS-PS1-2	Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred
			MS-PS1-3	Gather and make sense of information to describe that synthetic materials come from natural resources and impact society
	PS3.A	Definitions of Energy	MS-PS1-4	Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed
	PS3.D	Energy in Chemical Processes	MS-LS1-6	Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms
			MS-LS1-7	Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and / or release energy as this matter moves through an organism
	LS4.D	Biodiversity and Humans	MS-LS2-5	Evaluate competing design solutions for maintaining biodiversity and ecosystem services
	ESS2.C	The Roles of Water in Earth's Surface Processes	MS-ESS2-2	Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales
	ESS2.C	The Roles of Water in Earth's Surface Processes	MS-ESS2-4	Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity
	ESS2.D	Weather and Climate	MS-ESS2-5	Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions
			MS-ESS2-6	Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates
Integrated throughout entire year	ETS1.A	Defining and Delimiting Engineering Problems	MS-ETS1-1	Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions
	ETS1.B	Developing Possible Solutions	MS-ETS1-2	Evaluation competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem
			MS-ETS1-3	Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success
			MS-ETS1-4	Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved
	ETS1.C	Optimizing the Design Solution	MS-ETS1-3	Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success

Seventh Grade NGSS Course Map					Crosscutting Concepts						Common Core State Standards		
Schedule subject to change with additional NGSS Performance Expectations marked for 6th or 8th added to prepare students for Spring 2016 Science ISAT tentative window 3/28 to 5/20, as an incentive, or as a secondary discipline, not necessarily listed, but tying into primary expectation being covered.													
Quarter	**Dates**	**Disciplinary Core Ideas**	**Performance Expectations**	**Secondary DCIs**	**Idea**	**Description**	**Idea**	**Description**	**Idea**	**Description**	**Reading**	**Writing / Multimedia**	**Mathematics**
			MS-ETS1-4 Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved										

Key to highlighted cells
PE appears in two DCIs within grade
PE is identified in NGSS as a secondary connection
PE Connected across grades and integrated within other DCIs

Quarter 1
Quarter 2
Quarter 3
Quarter 4
Integrated Throughout the Year