“I Can¨ Mascoma Science Grade 6 Curriculum

I Have Good SCIENTIFIC SKILLS

☐ I can observe and ask questions about scientific topics.

☐ I can build and revise a simple model to represent events and design solutions.

☐ I can develop a model to describe or represent scientific phenomena.

☐ I can plan and carry out a scientific investigation to answer a question or solve a problem.

☐ I can produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials is considered.

☐ I can make observations and measurements to produce data to serve as the basis for evidence for the explanation of a phenomenon.

☐ I can measure and graph quantities such as weight and length to address scientific and engineering questions and problems.

☐ I can explain the results of a scientific investigation.

I know about Earth's Place in the Universe

☐ I can support an argument that difference in the apparent brightness of the sun compared to other stars is due to their relative distances from Earth.

☐ I can observe, collect data, and represent the data in graphical form (bar graph, pictograph, or pie chart) to show the following over time:

- Length of day/night
- Length of shadows
- Direction of shadows
- Seasonal appearance of some stars in the sky

☐ I can create a model to show the orbit of the Earth around the sun, and the orbit of the moon around the Earth.

☐ I can create a chart that shows which phenomena are caused by the revolution of the Earth around the sun, and which are caused by the rotation of Earth on its axis (eclipse, day/night, shadow changes, position of the stars, position of the moon in the sky, seasons, etc.).

☐ I can use a model of the Earth-sun-moon system to describe the cyclic pattern of lunar phases, eclipses of the sun, eclipses of the moon and seasons.

☐ I can develop a model (physical, graphical or conceptual) to explain the cyclic pattern of lunar phases, eclipses of the sun, eclipses of the moon and seasons.

☐ I can use a model to describe the role of gravity in the motions within our solar system and galaxy.

☐ I can develop a model to describe the role of gravity in the motions within our solar system and galaxy (emphasis for the model is on gravity as the force that holds together the solar system and Milky Way galaxy and controls orbital motion within them. Do not include apparent retrograde motion).

☐ I can analyze and interpret data (photographs, drawings, models, and statistical information) to determine scale properties of objects in the solar system.

Data may come from:

- Earth based telescopes
- Space based telescopes
- Spacecraft

☐ I can analyze and interpret data to determine scale properties of objects in the solar system.

Examples of scale-properties include:

- Size of an objects layers (crust, atmosphere, etc.)
- Surface features (craters, oceans, mountains, volcanoes, etc.)
- Orbital radius

☐ I can construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's 4.6 billion year old history (Emphasis is on how analyses of rock formations and the fossils they contain are used to establish relative ages of major events in Earth's history. Examples of major events could range from the very recent, such as the last ice age, to the very old, such as the earliest evidence of life. Examples can include the formation of mountain chains or the oceans basin, the evolution or extinction of particular organisms, or significant volcanic eruptions. Assessment Boundary: do not need to recall the names of specific periods or epochs and the events occurring within them).

A little primer for my teacher:

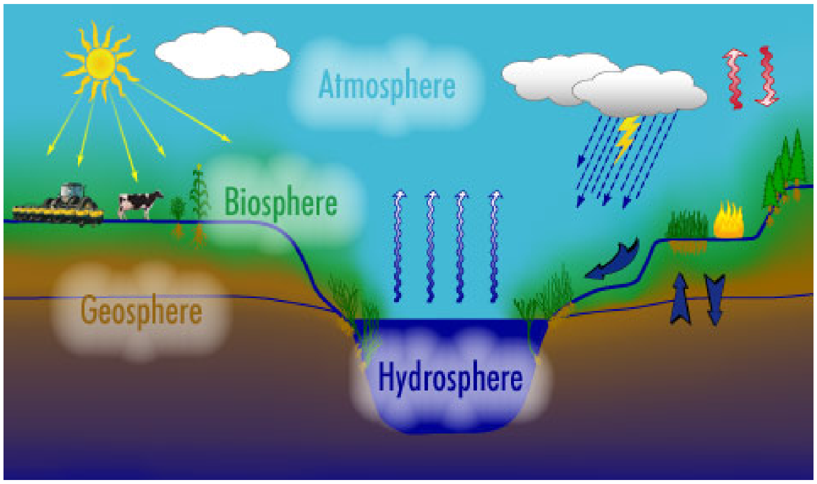
<table>
<tr><td rowspan="7">Common Core</td><td>RI.6.1- Cite textural evidence to support analysis of what the test says explicitly as well as inferences drawn from the text.</td><td>RI.6.7- Integrate information presented in different media or formats (visually, quantitatively) as well as in words to develop a coherent understanding or a topic or issue.</td></tr>
<tr><td rowspan="6">W.6.2- Introduce a topic; organize ideas, concepts, and information, using strategies such as definition, classification, comparison/ contrast, and cause/effect; include formatting (headings), graphics (charts, tables), and multimedia when useful in aiding comprehension:
• Develop the topic with relevant facts, definitions, concrete details, quotations or other information and examples
• Use appropriate transitions to clarify the relationships among ideas and concepts
• Use precise language and domain specific vocabulary to inform or explain the topic
• Establish and maintain a formal style
• Provide a concluding statement or section that follows from the information or explanation presented.</td><td>SL.6.5- Include multi-media components (graphics, images, sounds, music) and visual displays in presentations to clarify information.</td></tr>
<tr><td>MP-6.2- Reason abstractly and quantitatively.</td></tr>
<tr><td>MP-6.4- Model with mathematics.</td></tr>
<tr><td>RP.A-6.1- Understand the concept of ratio and use ratio language to describe a ratio relationship between two quantities.</td></tr>
<tr><td>RP.A-6.2- Recognize and represent proportional relationships between quantities.</td></tr>
<tr><td>EE.B-6.4- Use variables to represent quantities in a real-world problem, and construct simple equations and/or inequalities to solve problems by reasoning about the question.</td></tr>
<tr><td>Vocabulary</td><td colspan="2">Brightness, orbit, phenomena, rotation, revolution, axis, cyclic, lunar, eclipse, gravity, solar system, galaxy, scale properties, telescope, surface features, orbital radius, geologic, time scale, crust, atmosphere</td></tr>
<tr><td>Disciplinary Core Ideas</td><td colspan="2">The Universe and Its Stars
• Patterns of the apparent motion of the sun, the moon, and stars in the sky can be observed, predicted, and explained with models</td></tr>
</table>

	• Earth and its solar system are part of the Milky Way galaxy, which is one of many galaxies in the universe <u>Earth and The Solar System</u> • The solar system consists of the sun and a collection of objects, including planets, their moons, and asteroids that are held in orbit around the sun by the gravitational pull on them • This model of the solar system can explain eclipses of the sun and the moon • Earth's spin axis is fixed in direction over the short-term, but tilted relative to its orbit around the sun. • The seasons are a result of this tilt and are caused by the differential intensity of sunlight on different areas of Earth across the year • The solar system appears to have formed from a disk of dust and gas drawn together by gravity <u>The History of the Planet</u> • The geologic time scale interpreted from rock strata provides a way to organize Earth's history • Analyses of rock strata and the fossil record provide only relative dates, not an absolute scale
Cross-cutting Concepts	<u>Patterns</u> • Patterns can be used to identify cause and effect relationships <u>Scale, Proportion and Quantity</u> • Time, space, and energy phenomena can be observed at various scales using models to study systems that are too large or too small <u>Systems and System Models</u> • Models can be used to represent systems and their interactions <u>Interdependence of Science, Engineering, and Technology</u> • 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. <u>Scientific Knowledge Assumes an Order and Consistency in Natural Systems</u> • Science assumes that objects and events in natural systems occur in consistent patterns that are understandable through measurement and observation
Science and Engineering Practice	• Develop and use a model to describe phenomena • Analyze and interpret data to determine similarities and differences in findings • Construct a scientific explanation based on valid and reliable evidence obtained from sources and the assumption that theories and laws that describe the natural world operate as they did so in the past, and will continue to do so in the future.

I Know About Earth's Systems

☐ I can create and share a brief presentation on one of Earth's major systems:

- Geosphere- solid and molten rock, soil, sediment
- Hydrosphere- salt and fresh water, ice, vapor
- Atmosphere- air
- Biosphere- living things, including humans



☐ I can create, describe and graph the amounts and percentages of salt and fresh water in various reservoirs to provide evidence about the distribution of water on Earth (Nearly all of Earth's available water is in the ocean. Most fresh water is in glaciers or underground. Only a tiny fraction of water is in streams, lakes and wetlands.).

☐ I can develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process (Emphasis is on the processes of melting, crystallization, weathering, deformation, and sedimentation, which act together to form minerals and rocks through the cycling of Earth's materials. Assessment Boundary- does not include the identification and naming of the minerals).

☐ I can construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales (Emphasis is on how processes change Earth's surface at time and spatial scales that can be large-such as plate motion or the uplift of mountain ranges, or small-such as a rapid landslide or microscopic geochemical reaction, and how many geoscience processes usually behave gradually, like weathering and erosion, but are punctuated by catastrophic events such as earthquakes, volcanoes, or meteor impacts.)

☐ I can analyze and interpret data on the distribution of fossils and rocks, continental shapes and seafloor structures to provide evidence of past plate motions (Data may include similarities of rock and fossil types on different continents, the shape of continents including their continental shelves, and the locations of ocean structures, such as- ridges, fracture zones, and trenches. Assessment boundary: Paleomagnetic anomalies in oceanic and continental crust are not to be assessed).

☐ I can develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity (Emphasis is on how water changes its state as it moves through the multiple pathways of the hydrologic cycle. Models may be conceptual or physical. Assessment Boundary: A quantitative understanding of the latent heats of vaporization and fusion is not assessed).

☐ I can collect data to provide evidence for how the motions and complex interactions of air masses results in changes (Emphasis is on how air masses flow from regions of high pressure to low pressure, causing weather-defined by temperature, pressure, humidity, precipitation, and wind- at a fixed location to change over time. Sudden changes in weather can result in different air masses colliding. Emphasis is also on how weather can be predicted within probabilistic ranges. Data can be provided to students through weather maps, diagrams or visualizations or obtained through experiments such as with condensation. Assessment boundary: does not include recalling names of cloud types or the weather symbols used on maps).

☐ I can 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 (Emphasis is on how patterns vary by latitude, altitude, and geographic land distribution. Emphasis of atmospheric circulations on the sunlight-driven latitude banding, the Coriolis effects, and resulting prevailing winds. Emphasis of ocean circulation is on the transfer of heat by the global ocean convection cycle, which is constrained by the Coriolis effect and the outlines of the continents. Examples of models can by diagrams, maps, globes or digital representations. Assessment boundary: Do not include the dynamics of the Coriolis Effect).

A little primer for my teacher:

Common Core	RI.6.1- Cite textural evidence to support analysis of scientific and technical texts.	RI.6.7- Integrate quantitative or technical information expressed in words in a text with a version of

		that information expressed visually in a flowchart, diagram, model, graph or table.
	RI.6.9- Compare and contrast the information gained from experiments, simulations, video or multimedia sources with that gained from reading a text on the same topic.	WHST.6.2- Write informative/ explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
	WHST.6.8- Gather relevant information from multiple print and digital sources; assess the credibility of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and providing basic bibliographic information for sources.	SL.6.5- Include multi-media components (graphics, images, sounds, music) and visual displays in presentations to clarify information.
	MP-6.2- Reason abstractly and quantitatively.	MP-6.4- Model with mathematics.
	NS.C-6.5- Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (temperature above/below zero, elevation above/below sea level, credit/debit, positive/negative electronic charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of zero in each situation	EE.B-6.4- Use variables to represent quantities in a real-world problem, and construct simple equations and/or inequalities to solve problems by reasoning about the question.
	EE.B-6.6- Use variables to represent numbers and write expressions when solving real-world or mathematical problems; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.	
Vocabulary	Cycling, flow of energy, melting, crystallization, weathering, deformation, sedimentation, minerals, geoscience process, spatial scale,	

	plate motions, geochemical reaction, catastrophic event, deposition, seafloor structure, continental shelf, fracture zone, trench, hydrologic, pressure, humidity, precipitation, air mass, oceanic circulation, altitude, latitude, transfer of heat, convection cycle, Coriolis Effect
Disciplinary Core Ideas	<u>History of Planet Earth</u> • Tectonic processes continually generate new sea floor at ridges and destroy old sea floor at trenches <u>Earth's Materials and Systems</u> • All Earth processes are the result of energy flowing and matter cycling within and among the planet's systems. This energy is derived from the sun and the Earth's hot interior. The energy that flows and matter that cycles produce chemical and physical changes in Earth's materials and living systems. • The planet's systems interact over scales that range from microscopic to global in size. • The planet's systems operate over fractions of a second to billions of years. • The interactions listed above have shaped Earth's history and will determine its future. <u>Plate Tectonics and Large-Scale System Interaction</u> • Maps of ancient land and water patterns, based on investigations of rocks and fossils, make clear how Earth's plates have move great distances, collided, and drifted apart. <u>The Roles of Water in Earth's Surface Processes</u> • Water continually cycles among land, ocean, and atmosphere via transpiration, evaporation, condensation, crystallization, and precipitation. • Water flows downhill on land • The complex patterns of the changes and the movement of water in the atmosphere, determined by winds, landforms, and ocean temperatures and currents, are major determinants of local weather patterns. • Global movements of water and its changes in form are propelled by sunlight and gravity. • Variations in density due to variations in temperature and salinity drive a global pattern of interconnected ocean currents. • Water's movement-both on land and underground-cause weathering and erosion, which change the land's surface features and create underground formations. <u>Weather and Climate</u> • Weather and climate are influenced by interactions involving sunlight, the ocean, the atmosphere, ice, landforms, and living things. These interactions vary with latitude, altitude, and

	local/regional geography. All of which can affect oceanic and atmospheric flow patterns • Since the patterns are so complex, weather can only be predicted probabilistically. • The ocean exerts a major influence on weather and climate by absorbing energy from the sun, releasing it over time, and globally redistributing it through ocean currents.
Cross-cutting Concepts	<u>Patterns</u> • Patterns can be used to identify cause and effect relationships <u>Cause and Effect</u> • Cause and effect relationships may be used to predict phenomena in natural or designed systems <u>Scale, Proportion and Quantity</u> • Time, space, and energy phenomena can be observed at various scales using models to study systems that are too large or too small <u>Systems and System Models</u> • Models can be used to represent systems and their interactions <u>Energy and Matter</u> • Within a natural or designed system, the transfer of energy drives the motion and/or cycling of matter <u>Stability and Change</u> • Explanation of stability and change in natural or designed systems can be constructed over time and processes at different scales, including the atomic scale
Science and Engineering Practice	• Develop and use a model to describe phenomena • Develop a model to describe unobservable mechanisms • Collect data to produce information to serve as the basis for evidence to answer scientific questions or test design solutions under a range of conditions • Analyze and interpret data to provide evidence for phenomena • Construct a scientific explanation based on valid and reliable evidence obtained from sources (including the student's own experiments) and the assumption that theories and laws that describe the natural world operate as they did in the past, and will continue to do so in the future • Scientific findings are frequently revised and/or reinterpreted based on new evidence

I Know About Earth and Human Activity

☐ I can obtain and combine information about ways that communities use science or engineering ideas to protect the environment and Earth's resources.

☐ I can create a report on how a human activity like: agriculture, industry, or the use of everyday technology have had major effects on the land, vegetation, streams, oceans, air, and even outer space.

☐ I can construct a scientific explanation based on evidence for how the uneven distribution of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes (Emphasis is on how these resources are limited and typically non-renewable. Their distributions are significantly changing as a result of human action. Uneven distribution is the result of processes, including but not limited to: removal of buried organic marine sediments for petroleum, removal of metal ore sediments produced by past volcanic or hypothermic activity, or removal of soil produced by active weathering or deposition of rock).

☐ I can analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects (Emphasis is on how some natural hazards, such as volcanic eruptions and severe weather, are preceded by phenomena that allow for reliable predictions, but others, such as earthquakes occur suddenly and with no notice, and thus are not yet predictable. Examples of natural hazards can be taken from interior Earth processes-earthquakes and volcanic eruptions, from surface processes-mass wasting and tsunamis, from severe weather events- hurricanes, tornadoes, floods. Examples of prediction data can include: event location, magnitude, and frequency. Examples of technology can include: global satellite systems to monitor hurricanes or forest fires, or local systems such as building tornado shelter basements or reservoirs to mitigate droughts).

☐ I can apply scientific principles to design a method for monitoring and minimizing a human impact on the environment (Examples of the design process include examining human environmental impacts, assessing the kinds of solutions that are feasible, and designing and evaluating solutions that could reduce the impact. Human impact can include water usage, such as withdrawal of water from streams and aquifers or the construction of levees and dams. Human impact could also include land usage such as agriculture, urban development, or removal of wetlands. Human impact could also include pollution, such as of the air, water, or soil).

☐ I can construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems (Examples of evidence include grade appropriate databases on human population, and the rates of consumption of food and natural resources, such as freshwater, minerals or energy. Examples of impacts can include changes to the appearance, composition, and structure of Earth's systems as well as the rates at which they change. The consequences of increases in human populations and consumption of natural resources are described by science, but science does not make decisions for the actions a society takes).

☐ I can ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century (Examples of factors include human activity- such as, fossil fuel combustion, cement production, agricultural activity, etc. and natural processes- such as, incoming solar radiation, increased volcanic activity, shrinking of the polar ice caps, etc. Examples of evidence can include tables, graphs, and maps of global and regional temperatures, atmospheric levels of gases such as carbon dioxide and methane, and the rates of human activities. Emphasis is on the major role that human activity play in causing the rise in global temperatures).

A little primer for my teacher:

Common Core	RIST.6.1- Cite textural evidence to support analysis of scientific and technical texts.	RIST.6.7- Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually in a flowchart, diagram, model, graph or table.

	WHST.6.1- Write arguments focused on discipline content.	WHST.6.2- Write informative/ explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
	WHST.6.7- Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.	WHST.6.8- Gather relevant information from multiple print and digital sources; assess the credibility of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and providing basic bibliographic information for sources.
	WHST.6.9- Draw evidence from informational texts to support analysis, reflection, and research	SL.6.5- Include multi-media components (graphics, images, sounds, music) and visual displays in presentations to clarify information.
	MP-6.2- Reason abstractly and quantitatively.	RP. A-6.2- Recognize and represent proportional relationships between quantities.
	EE.B-6.4- Use variables to represent quantities in a real-world problem, and construct simple equations and/or inequalities to solve problems by reasoning about the question.	EE.B-6.6- Use variables to represent numbers and write expressions when solving real-world or mathematical problems; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.
Vocabulary	Distribution, groundwater, non-renewable, petroleum, hydrothermal, subduction zone, geologic trap, mitigate, interior process, surface process, atmospheric process, magnitude, frequency, design process, environmental impact, feasible, evaluate a solution, reduce impact, consumption, global temperature, society	
Disciplinary Core Ideas	Natural Resources • Humans depend on Earth's land, ocean, atmosphere and biosphere for many different resources. Minerals, fresh water, and biosphere resources are limited, and many are not renewable or replaceable over human lifetimes. These resources are distributed unevenly around the planet as a result of past geologic processes.	

	Natural Hazards • Mapping the history of natural hazards in a region, combined with an understanding of related geologic forces can help forecast the locations and likelihoods of future events. Human Impacts on Earth Systems • Human activities have significantly altered the biosphere, sometimes damaging or destroying natural habitats and causing the extinction of other species. But changes to Earth's environments can have negative or positive impacts for different living things. • Typically as human populations and per-capita consumption of natural resources increase, so do the negative impacts on Earth unless the activities and technologies are engineered otherwise. Global Climate changes • Human activities, such as the release of greenhouse gases from burning fossil fuels, are major factors in the current rise in Earth's mean surface temperature (global warming). Reducing the level of climate change and reducing human vulnerability to whatever climate changes do occur depend on the understanding of climate science, engineering capabilities, and other kinds of knowledge, such as understanding of human behavior and on applying that knowledge wisely in future decisions and activities.
Cross-cutting Concepts	Patterns • Patterns can be used to identify cause and effect relationships Cause and Effect • Cause and effect relationships may be used to predict phenomena in natural or designed systems Stability and Change • Explanation of stability and change in natural or designed systems can be constructed over time and processes at different scales, including the atomic scale Influence of Science, Engineering, and Technology on Society and the Natural World • 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 • The uses of technologies and any limitations on their use are driven by individual or societal needs, desires, and values; by the finding 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 World • Scientific knowledge can describe the consequences of actions, but does not necessarily prescribe the decisions that society makes.

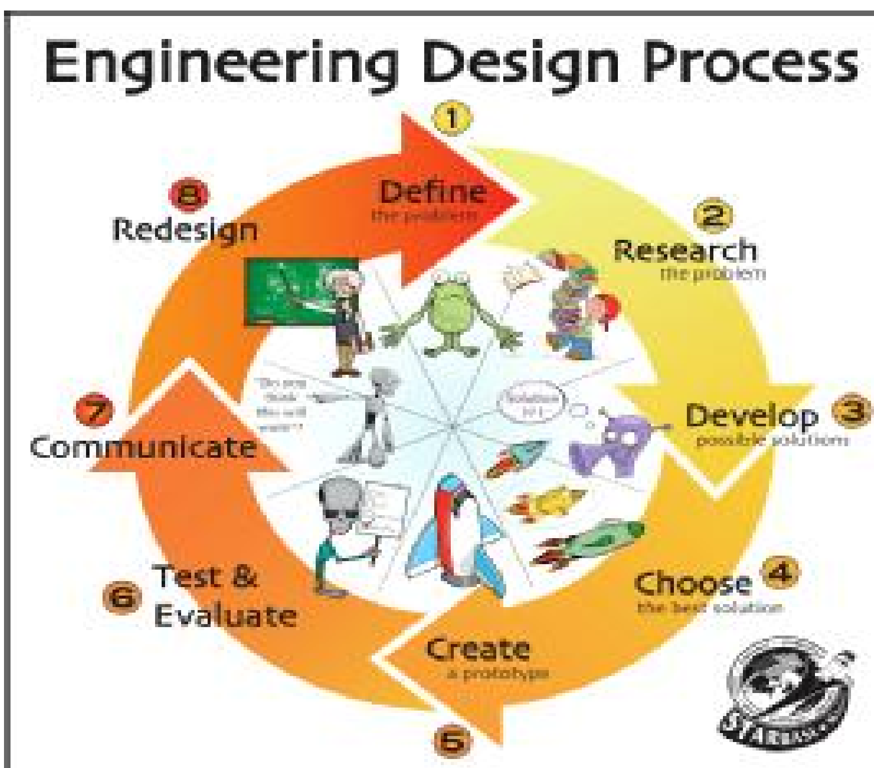
Science and Engineering Practice	• Ask questions to identify and clarify evidence of an argument • Analyze and interpret data to determine similarities and differences in findings • Construct a scientific explanation based on valid and reliable evidence obtained from sources (including the student's own experiments) and the assumption that theories and laws that describe the natural world operate as they did in the past, and will continue to do so in the future • Apply scientific principles to design an object, tool, process or system • Construct an oral and/or written argument supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomena or a solution to a problem

I Know Engineering and Design

☐ I can 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.

☐ I can evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.

☐ I can 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.



☐ I can 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.

A little primer for my teacher:

Common Core	RIST.6.1- Cite textural evidence to support analysis of scientific and technical texts.	RIST.6.7- Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually in a flowchart, diagram, model, graph or table.
	RIST.6.9-Compare and contrast the information gained from experiments, simulations, video or multimedia sources with that gained from reading a text on the same topic.	WHST.6.7- Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.
	WHST.6.8- Gather relevant information from multiple print and digital sources; assess the credibility of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and providing basic bibliographic information for sources.	WHST.6.9- Draw evidence from informational texts to support analysis, reflection, and research
	SL.6.5- Include multi-media components (graphics, images, sounds, music) and visual displays in presentations to clarify information.	MP-6.2- Reason abstractly and quantitatively.
	EE-6.3- Solving multi-step, real-life problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals) using tools strategically. Apply properties of operations to calculate with numbers in any form. Convert between two forms as appropriate,	SP-6.7- Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources for the discrepancy.

	and assess the reasonableness of answers using mental computation and estimation strategies.	
Vocabulary	Criteria, constraints, design, precision, evaluate, competing, rubric, characteristics for success, generate, iterative, modification, optimal	
Disciplinary Core Ideas	<u>Defining and Delimiting Engineering Problems</u> • The more precisely a design task's criteria and constraints can be defined, the more likely it is that the designed solution will be successful. Specification of constraints includes consideration of scientific principles and other relevant knowledge that are likely to limit possible solutions. <u>Developing Possible Solutions</u> • A solution needs to be tested, and then modified on the basis of the test results, in order to improve it. • There are systematic processes for evaluating solutions with respect to how well they meet the criteria and constraints of a problem. • Sometimes parts of different solutions can be combined to create a solution that is better than any of its predecessors. • Models of all kinds are important for testing solutions. <u>Optimizing the Design Solution</u> • Although one design may not perform the best across all tests, identifying characteristics of the design that performed the best in each test can provide useful information for the redesign process- that is some of those characteristics may be incorporated into the new design. • The iterative process of testing the most promising solutions and modifying what is proposed on the basis of test results leads to greater refinement and ultimately to an optimal solution.	
Cross-cutting Concepts	<u>Influence of Science, Engineering, and Technology on Society and the Natural World</u> • 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 • The uses of technologies and any limitations on their use are driven by individual or societal needs, desires, and values; by the finding of scientific research; and by differences in such factors as climate, natural resources, and economic conditions. •	
Science and Engineering	• Define a design problem that can be solved through the development of an object, tool, process or system and includes	

Practice	multiple criteria and constraints, including scientific knowledge that may limit possible solutions. • Develop a model to generate data about designed systems, including those representing inputs and outputs. • Analyze and interpret data to determine similarities and differences in findings • Evaluate competing design solutions based on jointly developed and agreed-upon design criteria.