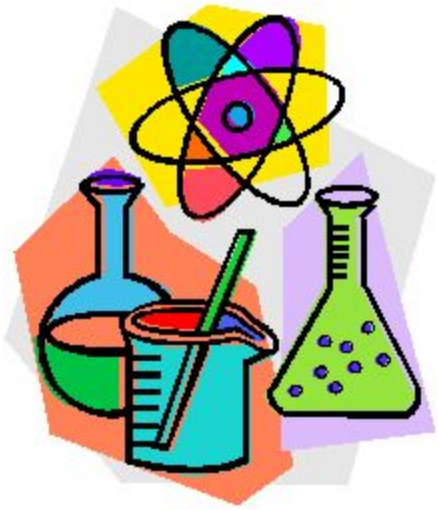


"I Can¨ Mascoma Science Grade 5 Curriculum

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.

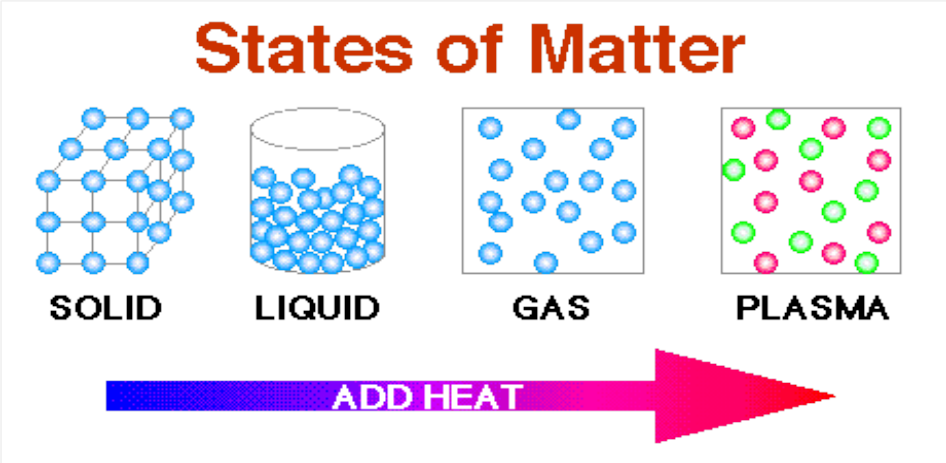
I know about Matter and Its Interactions

☐ I can develop a model to describe that matter is made of particles too small to be seen (expanding a basketball, compressing air in a syringe, dissolving sugar in water, evaporating salt from water, etc).

☐ I can measure and graph quantities to provide evidence that the total weight of matter is conserved whether it has been heated, cooled, or mixed with

another substance, even in transitions where a substance seems to vanish (reactions include phase changes, dissolving, mixing).

☐ I can make observations and measurements to identify materials based on their properties.
Materials tested can include: powders (baking soda, etc.), metals, minerals, and liquids.
Properties can include: color, hardness, reflectivity, electrical conductivity, thermal conductivity, response to magnetic force, solubility (does not include density or distinguishing mass from weight).



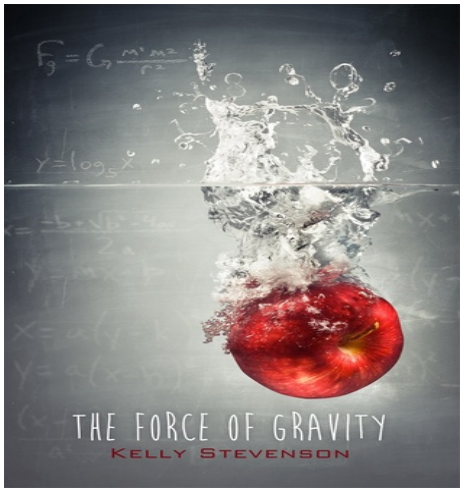
☐ I can conduct an investigation to determine whether the mixing of two or more substances results in new substances.

A little primer for my teacher:

Common Core	RI.5.3- Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or solve a problem efficiently.	W.5.7- Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.
	W.5.8- Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources.	W.5.9- Draw evidence from literary or informational texts to support analysis, reflection, and research.
	MP.5.2- Reason abstractly and quantitatively.	MP.5.4- Model with mathematics.
	MP.5.5- Use appropriate tools strategically.	NBT.A.5.1-Explain patterns in the number of zeros of the product when multiplying a number by

		powers of ten, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of ten. Use whole-number exponents to denote powers of 10.
	NF.B.5.7- Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.	MD.A.5.1-Convert among different-sized standard measurement units within a given measurement system (e.g. convert 5 cm to 0.05 m) and use these conversions in solving multi-step, real world problems.
	MD.C.5.3- Recognize volume as an attribute of solid figures and understand the concept of volume measurement.	MD.C.5.4- Measure volume by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.
Vocabulary	Evidence, matter, particles, conserve, reaction, chemical, physical, vanish, substance, properties	

I Know About Motion and Stability: Forces and Interactions



☐ I can construct a model that shows how gravity works.

☐ I can compare/contrast what happens to an object dropped on Earth to an object "dropped" in outer space.

☐ I can support an argument that gravitational force exerted by Earth on objects is directed towards the Earth's center.

A little primer for my teacher:

Common Core	RI.5.1- Quote accurately from text when explaining what the text says explicitly and when drawing inferences from a text.	RI.5.9- Integrate information from several texts on the same topic in order to write or speak about the subject knowledgably.

	W.5.1- Write opinion pieces on topics or texts, supporting a point of view with reasons and information.	
Vocabulary	Force, gravity, exerted, Earth's Core	

I Know About Energy

☐ I can create a model to show how food provides animals with the material they need to repair their body, grow, maintain warmth, and move around.

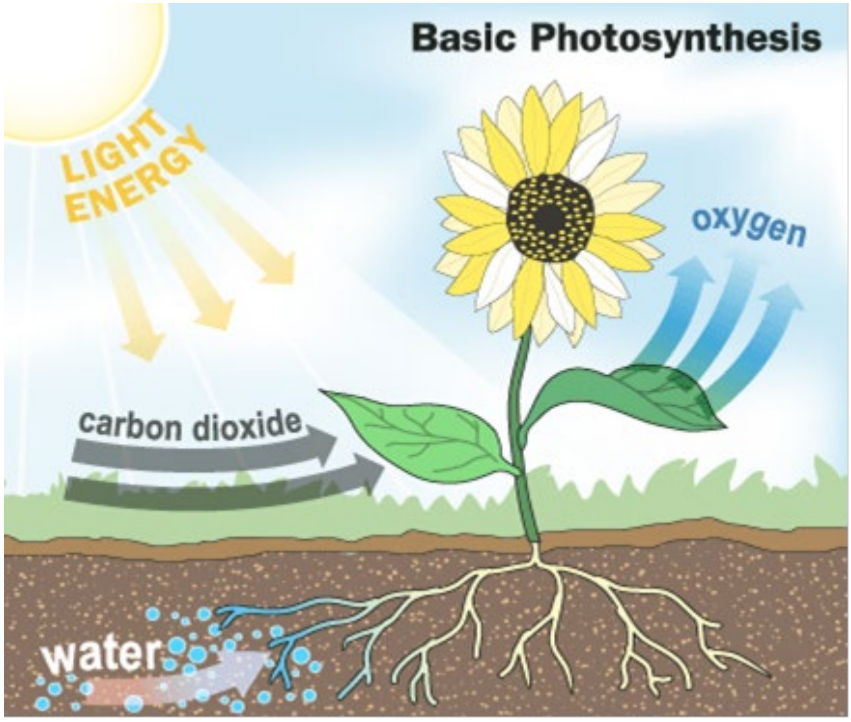
☐ I can explain how the energy released by an animal's food was once energy from the sun.

☐ I can create a model that illustrates how plants capture energy from the sun in a chemical process to mix with air and water to form plant matter.

A little primer for my teacher:

Common Core	RI.5.7- Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or solve a problem efficiently.	SL.5.5- Include multimedia components (graphics or sound) and visual displays to presentations when appropriate to enhance the development of main ideas or themes.
Vocabulary	System, component, maintain, released, chemical process, capture	

I Know About Molecules and Organisms: Structure and Process



☐ I can create a diagram that illustrates photo-synthesis.

☐ I can support an argument that plants get the materials that they need for growth chiefly from air and water.

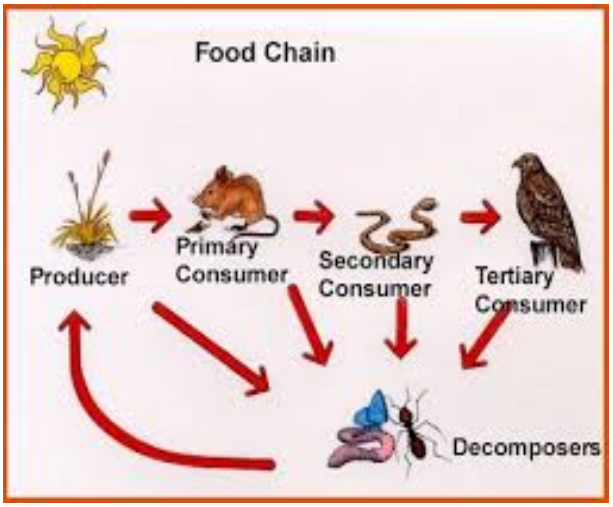
☐ I can design and conduct an experiment that illustrates the importance of air, water, and light in the growth of a plant.

A little primer for my teacher:

Common Core	RI.5.1- Quote accurately from text when explaining what the text says explicitly and when drawing inferences from a text.	RI.5.9- Integrate information from several texts on the same topic in order to write or speak about the subject knowledgably.
	W.5.1- Write opinion pieces on topics or texts, supporting a point of view with reasons and information.	MP.5.2- Reason abstractly and quantitatively.
	MP.5.4- Model with mathematics.	MP.5.5- Use appropriate tools strategically.
	MD.5.1a- Convert among different-sized standard measurement units within a given measurement system (e.g. convert 5 cm to 0.05 m) and use these conversions in solving multi-step, real world problems.	
Vocabulary	System, photosynthesis, carbon dioxide, oxygen,	

I Know About Ecosystems:
Interactions, Energy, and Dynamics

☐ I can develop a model that describes the movement of matter among plants, animals, and decomposers in the environment.



☐ I can analyze interdependent relationships in the environment (The food of almost any kind of animal can be traced back to plants. Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants. Some organisms, such as fungi and bacteria, break down dead organisms, both plants and animals, and therefore operate as decomposers. Decomposition eventually restores or recycles some materials back to the soil. Organisms can survive only in environments in which their particular needs are met. A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. Newly introduced species can damage the balance of an ecosystem.).

☐ I can make inferences about what would happen if a certain producer, consumer, or decomposer were removed from a food chain.

☐ I can illustrate how cycles of matter and energy transfers work in an ecosystem (Matter cycles between the air and soil and among plants, animals, and microbes as these organisms live and die. Organisms obtain gases and water, from the environment, and release waste matter (gas, liquid, or solid) back into the environment.).

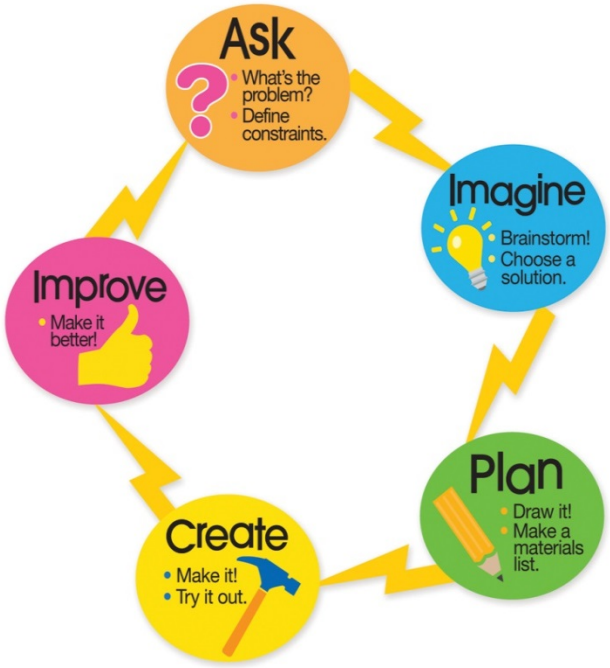
A little primer for my teacher:

Common Core	RI.5.7- Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or solve a problem efficiently.	SL.5.5- Include multimedia components and visual displays to presentations when appropriate to enhance the development of main ideas or themes.

	MP.5.4- Model with mathematics.	MP.5.5- Use appropriate tools strategically.
Vocabulary	Ecosystem, carnivore, herbivore, omnivore, decomposer, interdependent, consumer, producer	

I Know about Engineering and Design

☐ I can define a simple design problem based on a need or want. I will include specified criteria for success and constraints on my materials, time, and cost. (the design problem can be solved through the development of an object, tool, process, or system.)



☐ I can generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of my problem. (communication with peers about proposed solutions is an important part of the design process, and shared ideas can often lead to improved designs.)

☐ I can plan and carry out fair tests in which variables are controlled and failure points are considered.

☐ I can use a failure point to identify aspects of my model that can be improved and generate a brief list of possible improvements.

A little primer for my teacher:

Common Core	RI.5.1- Quote accurately from text when explaining what the text says explicitly and when drawing inferences from a text.	RI.5.7- Draw on information from multiple print or digital sources, demonstrating the ability to locate

		an answer to a question quickly or solve a problem efficiently.
	RI.5.9- Integrate information from several texts on the same topic in order to write or speak about the subject knowledgably.	W.5.7- Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.
	W.5.8- Recall relevant information from experiences or gather relevant information from print and digital sources, summarize or paraphrase information in notes and finished work, and provide a list of sources.	MP.5.2- Reason abstractly and quantitatively
	MP.5.4- Model with mathematics	MP.5.5- Use appropriate tools strategically.
Vocabulary	Design, criteria, constraints, generate, compare, variable, controls, failure points, proto-type	