

Science (4-12)
Essential Standards/Skills List for May & June

| Course | Grade | Essential Skills/Standards in May | Essential Skills/Standards in June |
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| Science | 4 | <p>★ Parent Guidance</p> <p style="text-align: center;">May 4-15 Measurement Unit <i>Main Materials Used: IXL</i> <i>Teacher created/adapted digital and hardcopy activities</i></p> <p>3.1c <i>Objects have properties that can be observed, described, and/or measured: length, width, volume, size, shape, mass or weight, temperature, texture, flexibility, reflectiveness of light.</i></p> <p>★ Things we measure</p> <p>3.1e <i>The material(s) an object is made up of determine some specific properties of the object (sink/float, conductivity, magnetism). Properties can be observed or measured with tools such as hand lenses, metric rulers, thermometers, balances, magnets, circuit testers, and graduated cylinders.</i></p> <p>★ Tools we use to measure</p> <p>1. <i>Know relative sizes of measurement units: ft., in.; km, m, cm Coherence: NY-4.MD.1 → NY-5.MD.1</i></p> <p>★ Understand and Convert between different measurement units within the U.S. customary and metric systems</p> <p style="text-align: center;">May 18- 29 Matter Unit <i>Main Materials Used:</i> <i>Science textbook</i></p> <p>3.2a <i>Matter exists in three states: solid, liquid, gas. • solids have a definite shape and volume • liquids do not have a definite shape but have a definite volume • gases do not hold their shape or volume</i></p> <p>★ Identifying 3 states of Matter</p> <p>3.2b <i>Temperature can affect the state of matter of a substance.</i></p> <p>★ The state of matter can change</p> <p>3.2c <i>Changes in the properties or materials of objects can be observed and described.</i></p> <p>★ Changes in the state of matter can be observed</p> | <p><i>Instruction will be through the use of HSP Science Harcourt Textbook, Books, Youtube videos, videos, IXL, google forms, google docs, google slides and teacher created/ adapted digital and hard copy activities.</i></p> <p style="text-align: center;">June 1-12 Force and Motion Unit <i>Main Materials Used: HSP Harcourt Science Textbook, IXL</i></p> <p>5.1b <i>The position or direction of motion of an object can be changed by pushing or pulling.</i></p> <p>★ Force is a push or pull motion</p> <p>5.1c <i>The force of gravity pulls objects toward the center of Earth.</i></p> <p>★ The purpose of gravity</p> <p>5.1d <i>The amount of change in the motion of an object is affected by friction.</i></p> <p>★ Friction affects motion</p> <p style="text-align: center;">Simple Machine Unit <i>Main Materials Used:</i> <i>Simple machine books/ Science textbooks</i></p> <p>5.1f <i>Mechanical energy may cause change in motion through the application of force and through the use of simple machines such as pulleys, levers, and inclined planes.</i></p> <p>★ Identify the 6 types of simple machines and their purposes.</p> <p style="text-align: center;">June 15- 16 Water Cycle Unit <i>Main Materials Used:</i> <i>Science textbook</i></p> <p>2.1c <i>Water is recycled by natural processes on Earth. • evaporation: changing of water (liquid) into water vapor (gas) • condensation: changing of water vapor (gas) into water (liquid) • precipitation: rain, sleet, snow, hail • runoff: water flowing on Earth's surface • groundwater: water that moves downward into the ground</i></p> <p>★ Identify parts of the water cycle and types of precipitation</p> <p style="text-align: center;">June 17- 19 Erosion Unit <i>Main Materials Used:</i> <i>Science textbook</i></p> <p>2.1d <i>Erosion and deposition result from the interaction among air, water, and land.</i></p> <p>★ Causes of erosion</p> |
| Science | 5 | 5PS1-1: Develop a model to describe that | 5-PS1-3: Make observations and |

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| | | <p>matter is made of particles too small to be seen. [Clarification Statement: Examples of evidence supporting a model could include adding air to expand a basketball, compressing air in a syringe, dissolving sugar in water, and evaporating salt water.]</p> <p>5-PS1-2: Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved. [Clarification Statement: Examples of reactions or changes could include phase changes, dissolving, and mixing that form new substances.]</p> <p>5-PS1-3: Make observations and measurements to identify materials based on their properties. [Clarification Statement: Examples of materials to be identified could include baking soda and other powders, metals, minerals, and liquids. Examples of properties could include color, hardness, reflectivity, electrical conductivity, thermal conductivity, response to magnetic forces, and solubility; density is not intended as an identifiable property.]</p> | <p>measurements to identify materials based on their properties. [Clarification Statement: Examples of materials to be identified could include baking soda and other powders, metals, minerals, and liquids. Examples of properties could include color, hardness, reflectivity, electrical conductivity, thermal conductivity, response to magnetic forces, and solubility; density is not intended as an identifiable property.]</p> <p>5-PS1-4: Conduct an investigation to determine whether the mixing of two or more substances results in new substances.</p> <p>5-LS1-1: Support an argument that plants get the materials they need for growth chiefly from air and water. [Clarification Statement: Emphasis is on the idea that plant matter comes mostly from air and water, not from the soil.]</p> |
| Science | 6 | <p>PS1-1: Develop models to describe the atomic composition of simple molecules and extended structures.</p> <p>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.</p> <p>PS1-4: Develop a model that predicts and describes changes in particle motion, temperature, and phase (state) of a substance when thermal energy is added or removed.</p> <p>PS1-7: Use evidence to illustrate that density is a property that can be used to identify samples of matter.</p> <p>PS1-8: Plan and conduct an investigation to demonstrate that mixtures are combinations of substances.</p> | <p>PS1-4: Develop a model that predicts and describes changes in particle motion, temperature, and phase (state) of a substance when thermal energy is added or removed.</p> <p>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.</p> <p>PS1-6: Undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy during a chemical and/or physical process.</p> |
| Science | 7 | <p>Evolution</p> <ul style="list-style-type: none"> - Charles Darwin - Natural Selection and Adaptations - Evidence for Evolution-direct observation, anatomy, fossil record, DNA comparisons <p>Geoscience Processes</p> <ul style="list-style-type: none"> - Shaping and changing of Earth's surface (both large and small changes) - Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions. - Weathering, deposition etc - Rock Cycle <p>http://www.nysed.gov/common/nysed/files/progr</p> | <p>Finish up Geoscience Processes (see May)</p> <p>Review</p> <ul style="list-style-type: none"> - Scientific method & experimental design - Cells - Human body systems - Genetics <p>http://www.nysed.gov/common/nysed/files/progr/ams/curriculum-instruction/ms-science-learning-standards.pdf</p> |

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| Science | 8 | http://www.nysed.gov/common/nysed/files/programs/curriculum-instruction/ms-science-learning-standards.pdf <ul style="list-style-type: none"> ● Asking questions and defining problems. <ul style="list-style-type: none"> ○ Ask and refine questions that lead to descriptions and explanations of how the natural and designed world works and which can be empirically tested ○ Clarify problems to determine criteria for successful solutions and identify constraints to solve problems about the designed world ● Planning and (Hypothetically) carrying out Investigations <ul style="list-style-type: none"> ○ Plan investigations that are systematic and require clarifying what data and identifying variables or parameters ● Obtaining, Evaluating, and Communicating Information <ul style="list-style-type: none"> ○ Communicate clearly ideas and methods ○ Analyze sources of information for legitimacy ● Developing and Using Models <ul style="list-style-type: none"> ○ Use and construct models as helpful tools for representing ideas and explanations. ● Using mathematics and computation to predict the behavior of systems ● Constructing Explanations and Designing Solutions | http://www.nysed.gov/common/nysed/files/programs/curriculum-instruction/ms-science-learning-standards.pdf <ul style="list-style-type: none"> ● Asking questions and defining problems. <ul style="list-style-type: none"> ○ Ask and refine questions that lead to descriptions and explanations of how the natural and designed world works and which can be empirically tested ○ Clarify problems to determine criteria for successful solutions and identify constraints to solve problems about the designed world ● Planning and (Hypothetically) carrying out Investigations <ul style="list-style-type: none"> ○ Plan investigations that are systematic and require clarifying what data and identifying variables or parameters ● Obtaining, Evaluating, and Communicating Information <ul style="list-style-type: none"> ○ Communicate clearly ideas and methods ○ Analyze sources of information for legitimacy ● Developing and Using Models <ul style="list-style-type: none"> ○ Use and construct models as helpful tools for representing ideas and explanations. ● Using mathematics and computation to predict the behavior of systems ● Constructing Explanations and Designing Solutions |
| Physical Science | 9 | Ecology <ul style="list-style-type: none"> - Distinguish between and give examples of abiotic and biotic parts of an ecosystem - Show the direction of energy flow in an ecosystem - Understand the factors shaping ecosystems and biomes Review curriculum <ul style="list-style-type: none"> - Scientific Inquiry - Ecology - Water cycle - Weather and climate - Geoscience processes and plate tectonics - Rocks and minerals and rock cycle - Topographic Maps - Natural disasters - Human Impact | Review curriculum <ul style="list-style-type: none"> - Scientific Inquiry - Ecology - Water cycle - Weather and climate - Geoscience processes and plate tectonics - Rocks and minerals and rock cycle - Topographic Maps - Natural disasters - Human Impact |
| Earth Science | 9 | Ask and refine questions that lead to descriptions and explanations of how the natural and designed world works and which can be empirically tested. Review of all content: Geologic age Page 2 ,3, 8, 9 of the reference tables. https://essential.ed.capitalregionboces.org/grades-9-12/earth-science/ | Review of all content: Climate and Earth's motions https://essential.ed.capitalregionboces.org/grades-9-12/earth-science/ |
| Living Environment | 10 | Review of all content: -Classification of Life and its history -Human systems (Regents related questions) | Review of all content: https://essential.ed.capitalregionboces.org/grades-9-12/living-environment/ |

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| | | <p>Connections between systems https://essentialed.capitalregionboces.org/grades-9-12/living-environment/</p> <p><u>Evolution</u></p> <ul style="list-style-type: none"> - Natural Selection - Speciation - Evidence of Evolution | <ul style="list-style-type: none"> - Lab review - State lab review |
| TC3 Biology 105 | 11 & 12 | <p>Plants</p> <ul style="list-style-type: none"> - Classification - Life Cycles - Transport of materials - Hormones and Tropisms <p>Ecology</p> <ul style="list-style-type: none"> - Population ecology - Community ecology - Ecosystems | <p>Finish up Ecology (see May)</p> <p>Review</p> <ul style="list-style-type: none"> - Evolution - Diversity of living things |
| Chemistry | 11 | <p>Review of all content:</p> <ul style="list-style-type: none"> - Organic Chemistry - Isomers and uses of hydrocarbons - Alcohols, ethers, and carbonyl compounds....looking at addition reactions to introduce functional groups - Formations of polymers and how we use them - Fermentation, distillation, saponification reactions <p>https://essentialed.capitalregionboces.org/grades-9-12/chemistry/</p> | <p>Review of all content:</p> <ul style="list-style-type: none"> - Nuclear Chemistry - Nuclear stability and Decay - Transmutation - Fission/Fussion - Radiation in life <p>Yearly Review of Topic https://essentialed.capitalregionboces.org/grades-9-12/chemistry/</p> |
| Physics | 12 | <p>Fluid Mechanics Calorimetry Please see TC3 website for further information.</p> | <p>Wave mechanics Simple harmonic motion Please see TC3 website for further information.</p> |
| Astronomy | 12 | <p>Electromagnetic energy Solar system Please see TC3 website for further information</p> | <p>Stars, Galaxies and Cosmology Please see TC3 website for further information</p> |