


CCSU Guaranteed, Viable Curriculum

K-12 Power Standards and Power Indicators

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SCIENCE: K

Science Power Standard #1 Scientific Inquiry	Science Power Standard #2 Physical Science	Science Power Standard #3 Physical Science	Science Power Standard #4 Life Science and Human Body	Science Power Standard #5 Universe, Earth, and Environment
<p>Students apply inquiry skills to explore and understand the world around them. (Aligns with Vermont Standard 7.1)</p>	<p>Students describe the relationship between energy and matter. (Aligns with Vermont Standard 7.12)</p>	<p>Students describe motion and demonstrate how forces affect motion. (Aligns with Vermont Standard 7.12)</p>	<p>Students observe and describe structures, characteristics, systems, life cycles, patterns of development, and interdependent relationships that allow organisms to survive and species to evolve. (Aligns with Vermont Standards 7.13, 7.14)</p>	<p>Students observe, describe, explain, and predict continual changes in the universe and in Earth's features and atmosphere and consider their impact on managing natural resources and agricultural systems. (Aligns with Vermont Standards 7.15, 7.16)</p>
<p>a) Use senses to make reasonable observations b) Use simple tools to extend sensory observations</p> <p><i>Aligns with VT GE SPK-K: 4</i></p>	<p>a) Distinguish between solids and liquids by sorting a variety of substances into categories b) Identify the sun as a source of heat energy</p> <p><i>Aligns with VT GEs SPre-K-K: 9, 23</i></p>	<p>a) Move an object and describe its motion</p> <p><i>Aligns with VT GE SPK-K: 19</i></p>	<p>a) Distinguish between living and non-living by sorting objects or pictures into categories b) Distinguish between plants and animals by sorting into categories c) Name the five senses and use them to identify objects in their environment</p> <p><i>Aligns with VT GEs SPK-K: 30, 38, 41</i></p>	<p><i>No indicators at this level</i></p>

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<p>a) Describe observations with pictures and words b) Record observations in simple charts</p> <p><i>Aligns with VT GEs S1-2: 1, 7</i></p>	<p>a) Name four physical properties of an object b) Identify two similarities and two differences between solids and liquids c) Describe what happens when heat is added to a solid d) Describe what happens when heat leaves a liquid</p> <p><i>Aligns with VT GEs S1-2: 9, 12, 14</i></p>	<p><i>No indicators at this level</i></p>	<p>a) Label parts of a plant and explain how they help the plant to survive b) Compare and contrast plant growth under different conditions, including light and no light c) Draw and label the stages of a plant throughout its life cycle d) Compare physical features with classmates e) Describe how the senses help people survive f) Identify activities now that you couldn't do as a baby</p> <p><i>Aligns with VT GEs S1-2: 30, 31, 34, 40, 41, 43</i></p>	<p><i>No indicators at this level</i></p>

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<p>a) Describe observations about objects</p> <p>b) Ask reasonable questions and make simple plans to investigate possible answers</p> <p>c) Record findings</p> <p><i>Aligns with VT GEs S1-2: 1, 2, 3, 7</i></p>	<p><i>No indicators at this level</i></p>	<p>a) Explain why objects fall to the ground (gravity)</p> <p><i>Aligns with VT GEs S1-2: 2, 19, 21; S3-4: 21</i></p>	<p>a) Identify how the physical features of an animal allows it to survive and defend itself</p> <p>b) Describe the life cycle of a familiar animal</p> <p>c) Design a habitat for a specific type of animal and explain how it meets the needs of the animal that lives there</p> <p>d) Compare and contrast physical features between living and extinct animals (reptiles / dinosaurs; elephant / wooly mammoth)</p> <p>e) Create a simple diagram illustrating what eats what (food web)</p> <p><i>Aligns with VT GEs S1-2: 30, 31, 35, 39</i></p>	<p>a) Describe how the sky looks at different times</p> <p>b) Describe two things that change in the night sky (moon, stars)</p> <p>c) Given a scenario, predict the weather</p> <p>d) Explain the water cycle as it relates to weather, using words and pictures</p> <p><i>Aligns with VT GEs S1-2: 44, 45, 47, 48, 49</i></p> <p><i>GE S1-2:49 see social studies grade two curriculum for natural resources connection</i></p>

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<p>COMMON LOCAL ASSESSMENT</p> <p>a) Describe observations about objects</p> <p>b) Ask reasonable questions for given experiments</p> <p>c) Record related and important findings from given experiments</p> <p><i>Aligns with VT GEs S3-4: 1, 3, 4, 6</i></p>	<p>a) Predict and measure the weight of matter</p> <p>b) Compare the properties of solids, liquids and gases</p> <p>c) Name three forms of energy (heat, light, sound)</p> <p>d) Observe and explain how heat can change a substance from a solid to a liquid to a gas</p> <p>e) Observe and explain how light rays reflect off objects</p> <p>f) Observe and explain how sound energy is caused by vibrating objects</p> <p><i>Aligns with VT GEs S3-4: 9, 12, 13, 14, 28, 29</i></p>	<p><i>No indicators at this level</i></p>	<p>a) Identify the parts (structure) of a tree</p> <p>b) Explain how the structure of a tree allows it to survive</p> <p>c) Design a habitat for a specific type of tree, and explain how it meets the needs of trees that live there</p> <p>d) Describe the life cycle of a tree</p> <p><i>Aligns with VT GEs S3-4: 30, 31, 34, 35, 38</i></p>	<p>a) Compare the physical properties of two soil types</p> <p>b) Identify rocks, minerals, and soil as natural resources</p> <p>c) Compare the physical properties of two rocks</p> <p>d) Sketch a landform and explain how erosion causes change over time</p> <p><i>Aligns with VT GEs S1-2: 46; S3-4: 46, 47, 49</i></p>

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<p>a) Make observations about objects and/or events in context b) Ask testable questions c) Provide explanations (hypotheses) that are reasonable in terms of evidence d) Collect data e) Organize data into tables/graphs</p> <p><i>Aligns with VT GEs S3-4: 1, 3, 4</i></p>	<p>a) Draw a diagram of a complete circuit b) Explain why electricity flows or does not flow through a circuit c) Classify 10 different materials as either insulators or conductors</p> <p><i>Aligns with VT GEs S3-4: 14, 24, 28, 29</i></p>	<p>a) Describe how magnets can make some things move without touching them b) Describe what happens when like and opposite poles of a magnet are placed near each other</p> <p><i>Aligns with VT GEs S1-2: 25; S3-4: 25</i></p>	<p>a) Identify how the physical features of an animal allow it to survive b) Explain how physical and behavioral changes of an animal allow it to survive c) Design a habitat for a specific type of animal and explain how it meets the needs of the animal that lives there d) Describe the life cycles of two familiar animals e) Identify differences in characteristics within one type of animal (e.g., dogs with long hair or short hair) f) Describe three characteristics that can be inherited g) Explain the survival needs of an animal (food, water, air, shelter, elimination of waste) h) Explain how tears, saliva, and skin protect the body from harmful germs</p> <p><i>Aligns with VT GEs S3-4: 30, 31, 34, 35, 36, 38, 39, 40, 41, 42</i></p>	<p>a) Identify the planets in their correct order from the sun b) Explain why we have day and night c) Cite evidence of Earth's orbit around the sun and the moon's orbit around the Earth d) Explain why the sun and moon appear to be the same size when seen from the Earth</p> <p><i>Aligns with VT GEs S3-4: 44, 45; S5-6: 44, 45</i></p> <p><i>GE S3-4:49 see social studies grade 4 curriculum for articulated natural resource connection</i></p>

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<p>COMMON LOCAL ASSESSMENT</p> <p>a) Make observations about objects and/or events in context</p> <p>b) Ask testable questions</p> <p>c) Identify variables</p> <p>d) Provide explanations (hypotheses) that are reasonable in terms of evidence</p> <p>e) Collect data</p> <p>f) Organize data into tables/graphs</p> <p><i>Aligns with VT GEs S5-6: 1, 3, 4</i></p>	<p>a) Describe and observe densities of substances</p> <p>b) List three ways to measure matter</p> <p>c) Measure the weight of a gas</p> <p>d) Observe three charged objects (static electricity), and describe the behavior of the charges</p> <p>e) Predict the effect of heating and cooling on the physical state and the mass of a substance</p> <p>f) Record and explain four examples of physically changed matter</p> <p>g) Observe three chemical changes, list the indicators, and identify the new substances</p> <p><i>Aligns with VT GEs S5-6: 9, 13, 14, 15, 23, 24, 25</i></p>	<p><i>No indicators at this level</i></p>	<p><i>No indicators at this level</i></p>	<p>a) Describe the differences among the layers of the Earth</p> <p>b) Sketch and label the rock cycle</p> <p>c) Identify three examples of geologic changes on the Earth's surface</p> <p>d) Explain the relationship among volcanoes, earthquakes, and the movement of the Earth's plates</p> <p><i>Aligns with VT GEs S5-6: 46, 47</i></p>

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<ul style="list-style-type: none"> a) Make observations about objects and/or events in context b) Ask testable questions in the context of observations c) Identify variables d) Formulate hypotheses based on background information e) Collect data f) Organize data into tables/graphs g) Recognize cause and effect relationships <p><i>Aligns with VT GEs S5-6: 2, 3, 4</i></p>	<ul style="list-style-type: none"> a) Describe light and sound energy and their sources b) Explain how light and sound energy is carried by waves <p><i>Aligns with VT GEs S5-6: 28, 29</i></p>	<ul style="list-style-type: none"> a) Measure the speed of an object b) Cite evidence of inertia c) Provide examples of how force affects the motion of an object <p><i>Aligns with VT GEs S5-6: 19, 20, 21, 22</i></p>	<ul style="list-style-type: none"> a) Create a diagram that illustrates energy flow within an ecosystem (sun, producers, consumers, decomposers) b) Describe how an environmental change affects the balance of an ecosystem c) Explain the transfer of energy in a food web <p><i>Aligns with VT GEs S5-6: 34, 35, 36, 37</i></p>	<ul style="list-style-type: none"> a) Identify the relationship of the seasons to the revolution of the Earth, on its axis, around the sun b) Identify and label the location of the sun in our solar system and its relationship to the galaxy c) Diagram the water (hydrologic) cycle d) Explain how differential heating affects the earth's weather e) Discuss how overpopulation of living things can degrade the environment due to increased use of resources f) Identify the impact of human activities on the land, waterways, and atmosphere and describe effects on the natural resources in those environments <p><i>Aligns with VT GEs S5-6 48, 49; S7-8 45, 49</i></p>

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<p>COMMON LOCAL ASSESSMENT (Power Indicators a-g)</p> <ul style="list-style-type: none"> a) Make observations about objects and/or events in context b) Ask testable questions in the context of observations c) Identify variables d) Formulate hypotheses based on background information e) Collect data f) Organize data into tables/ graphs g) Recognize cause and effect relationships h) Examine hypotheses based on collected data <p><i>Aligns with VT GEs S7-8: 1, 2, 3, 4, 5, 6, 7</i></p>	<p><i>No indicators at this level</i></p>	<p><i>No indicators at this level</i></p>	<ul style="list-style-type: none"> a) Diagram energy flow and transfer from the sun through plants and into animals b) Explain how the cell membrane maintains balance (homeostasis) within a system c) Give two examples of how systems are interdependent d) Identify the structural and functional differences between plant and animal cells e) Give three examples of adaptations in changing environments that allow organisms to survive and reproduce f) Classify organisms according to traits g) Explain how genes from two parents determine traits <p><i>Aligns with VT GEs S7-8: 30, 31, 33, 38, 39, 40, 43</i></p>	<p><i>No indicators at this level</i></p>

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<p>COMMON LOCAL ASSESSMENT</p> <ul style="list-style-type: none"> a) Make observations about objects and/or events in context b) Ask testable questions in the context of observations c) Identify variables d) Formulate hypotheses based on background information e) Collect and analyze data f) Organize data into tables/ graphs g) Identify cause and effect relationships h) Evaluate hypothesis based on collected data <p><i>Aligns with VT GEs S9-11: 1, 2, 3, 4, 5, 6</i></p>	<p><i>No indicators at this level</i></p>	<p><i>No indicators at this level</i></p>	<ul style="list-style-type: none"> a) Draw or model a cell (plant or animal) and identify each structure and its function b) Explain how the cell membrane uses diffusion and osmosis to maintain homeostasis c) Identify the characteristics and functions of each of the biological macromolecules: lipids, carbohydrates, nucleic acids, and proteins d) Explain how variation, adaptation, and natural selection contribute to evolution e) Use evidence from the fossil record, molecular biology, similarities in development, and homologous structures to explain how groups of organisms change over time f) Describe the molecular structure of the gene, with emphasis on DNA g) Describe the process of DNA replication as it relates to mutations h) Solve genetics problems to understand patterns of inheritance i) Identify the key components of protein synthesis j) Explain how the differences between mitosis and meiosis produce different outcomes for organisms k) Describe how photosynthesis and cellular respiration are interdependent reactions l) Explain how the movement of energy and the movement of chemicals are different in ecosystems 	<p><i>No indicators at this level</i></p>