

## Middlesex County Schools Curriculum Map

Grade/Course 6 / ScienceSchedule Type 90 minute block/semester

Time Frame	Unit/SOLs	SOL #	Strand
5 days (Ongoing)	<p><b>Scientific Investigation, Reasoning, and Logic</b> The student will demonstrate an understanding of scientific reasoning, logic, and the nature of science by planning and conducting investigations in which</p> <ul style="list-style-type: none"> <li>a) observations are made involving fine discrimination between similar objects and organisms;</li> <li>b) precise and approximate measurements are recorded;</li> <li>c) scale models are used to estimate distance, volume, and quantity;</li> <li>d) hypotheses are stated in ways that identify the independent and dependent variables;</li> <li>e) a method is devised to test the validity of predictions and inferences;</li> <li>f) one variable is manipulated over time, using many repeated trials;</li> <li>g) data are collected, recorded, analyzed, and reported using metric measurements and tools;</li> <li>h) data are analyzed and communicated through graphical representation;</li> <li>i) models and simulations are designed and used to illustrate and explain phenomena and systems; and</li> <li>j) current applications are used to reinforce science concepts.</li> </ul>	6.1	a-j
6 days	<p><b>Force, Motion, and Energy</b> The student will investigate and understand basic sources of energy, their origins, transformations, and uses. Key concepts include</p> <ul style="list-style-type: none"> <li>a) potential and kinetic energy;</li> <li>b) the role of the sun in the formation of most energy sources on Earth;</li> <li>c) nonrenewable energy sources;</li> <li>d) renewable energy sources; and</li> <li>e) energy transformations.</li> </ul>	6.2	a-e
6 days	<p><b>Force, Motion, and Energy</b> The student will investigate and understand the role of solar energy in driving most natural processes within the atmosphere, the hydrosphere, and on Earth's surface. Key concepts include</p> <ul style="list-style-type: none"> <li>a) Earth's energy budget;</li> <li>b) the role of radiation and convection in the distribution of energy;</li> <li>c) the motion of the atmosphere and the oceans;</li> <li>d) cloud formation; and</li> <li>e) the role of thermal energy in weather-related phenomena including thunderstorms and hurricanes.</li> </ul>	6.3	a-e

8 days	<p><b>Matter</b> The student will investigate and understand that all matter is made up of atoms. Key concepts include</p> <ul style="list-style-type: none"> <li>a) atoms consist of particles, including electrons, protons, and neutrons;</li> <li>b) atoms of a particular element are alike but are different from atoms of other elements;</li> <li>c) elements may be represented by chemical symbols;</li> <li>d) two or more atoms interact to form new substances, which are held together by electrical forces (bonds);</li> <li>e) compounds may be represented by chemical formulas;</li> <li>f) chemical equations can be used to model chemical changes; and</li> <li>g) a limited number of elements comprise the largest portion of the solid Earth, living matter, the oceans, and the atmosphere.</li> </ul>	6.4	a-g
9 days	<p><b>Matter</b> The student will investigate and understand the unique properties and characteristics of water and its roles in the natural and human-made environment. Key concepts include</p> <ul style="list-style-type: none"> <li>a) water as the universal solvent;</li> <li>b) the properties of water in all three phases;</li> <li>c) the action of water in physical and chemical weathering;</li> <li>d) the ability of large bodies of water to store thermal energy and moderate climate;</li> <li>e) the importance of water for agriculture, power generation, and public health; and</li> <li>f) the importance of protecting and maintaining water resources.</li> </ul>	6.5	a-f
9 days	<p><b>Matter</b> The student will investigate and understand the properties of air and the structure and dynamics of Earth's atmosphere. Key concepts include</p> <ul style="list-style-type: none"> <li>a) air as a mixture of gaseous elements and compounds;</li> <li>b) pressure, temperature, and humidity;</li> <li>c) atmospheric changes with altitude;</li> <li>d) natural and human-caused changes to the atmosphere and the importance of protecting and maintaining air quality;</li> <li>e) the relationship of atmospheric measures and weather conditions; and</li> <li>f) basic information from weather maps, including fronts, systems, and basic measurements.</li> </ul>	6.6	a-f
8 days	<p><b>Living Systems</b> The student will investigate and understand the natural processes and human interactions that affect watershed systems. Key concepts include</p> <ul style="list-style-type: none"> <li>a) the health of ecosystems and the abiotic factors of a watershed;</li> <li>b) the location and structure of Virginia's regional watershed systems;</li> <li>c) divides, tributaries, river systems, and river and stream processes;</li> <li>d) wetlands;</li> <li>e) estuaries;</li> <li>f) major conservation, health, and safety issues associated with watersheds; and</li> <li>g) water monitoring and analysis using field equipment including hand-held technology.</li> </ul>	6.7	a-g

6 days	<p><b>Earth Resources</b>  The student will investigate and understand public policy decisions relating to the environment. Key concepts include</p> <ul style="list-style-type: none"> <li>a) management of renewable resources;</li> <li>b) management of nonrenewable resources;</li> <li>c) the mitigation of land-use and environmental hazards through preventive measures; and</li> <li>d) cost/benefit tradeoffs in conservation policies.</li> </ul>	6.9	a-d
11 days	<p><b>Interrelationships in Earth/Space Systems</b>  The student will investigate and understand the organization of the solar system and the interactions among the various bodies that comprise it. Key concepts include</p> <ul style="list-style-type: none"> <li>a) the sun, moon, Earth, other planets and their moons, dwarf planets, meteors, asteroids, and comets;</li> <li>b) relative size of and distance between planets;</li> <li>c) the role of gravity;</li> <li>d) revolution and rotation;</li> <li>e) the mechanics of day and night and the phases of the moon;</li> <li>f) the unique properties of Earth as a planet;</li> <li>g) the relationship of Earth's tilt and the seasons;</li> <li>h) the cause of tides; and</li> </ul> <p>the history and technology of space exploration</p>	6.8	a-i