

MAPPING GRADE 4 SCIENCE INSTRUCTION

Concept: Energy Sources
PWC Strand: Environmental Science

CMS Unit Test: VA Natural Resources and Conservation
Reporting Category: Earth/Space Systems and Cycles

PWC Objective: 4.3.1

The student will investigate and understand important Virginia natural resources. Key concepts include:

- Watershed and water resources **(SOL 4.8a)**
- Virginia animals and plants **(SOL 4.8b)**
- Virginia geological regions **(SOL 4.8 c)**
- Virginia minerals, rocks, ores and energy sources **(SOL 4.8d)**
- Virginia forests, soil, and land **(SOL 4.8e)**

What Students Should Know (Critical Attributes)	What Students Should Be Able To Do (Essential Skills)
<p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> • What is a watershed? • What is meant by a “water resource”? • What are some examples of wild and domesticated animals? • What are examples of minerals, ores, and rocks found in Virginia? • What are the geological regions of Virginia? • What are some habitats in Virginia? <p><u>Critical Attributes:</u></p> <p>4.8a Virginia’s water resources include groundwater, lakes, reservoirs, rivers, bays, and the Atlantic Ocean.</p> <p>4.8a Water is vital to Virginia. Water supports <i>farming, forestry</i>, the generation of <i>electric power</i> and all types of <i>manufacturing processes</i> in the state. <u>Farming</u> or <u>agriculture</u> provides a number of jobs in Virginia. Water sustains human habitats as well as the plants and animals with which we share our state.</p>	<ul style="list-style-type: none"> • Distinguish among rivers, lakes, and bays; describe characteristics of each and name an example of each in Virginia.

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What Students Should Know (Critical Attributes)	What Students Should Be Able To Do (Essential Skills)
<p>4.8a A <u>watershed</u> is an area over which surface water and the materials it carries flows to a single collection point. These collection points may be oceans, rivers, lakes, streams, and ponds. <u>Watersheds are natural resources</u>. The <i>Chesapeake Bay watershed</i> covers approximately half of Virginia's land area. <u>Land drained by rivers west of Roanoke is part of the Mississippi watershed</u>.</p> <p>4.8b Plants and animals that live in Virginia's forests, ponds, oceans, lakes and streams, and on mountains are considered <i>natural resources</i>. Animals and plants that live naturally in these habitats are considered <u>wild</u>. <u>Domesticated</u> animals and plants are those we deliberately raise and serve as food, pleasure, and for the products they produce. We rely on domesticated plants and animals to support our agriculture industry and on wild plants and animals to maintain the balance of nature and for esthetic beauty and recreation.</p> <p>4.8c Geological regions of Virginia: Tidewater (coastal plain), fall line, Piedmont, Ridge and Valley, Blue Ridge Mountain, and Allegheny Plateau.</p> <p>4.8d A natural fall line divides the Tidewater Region (Coastal Plain) from the Piedmont Region (central). The Ridge and Valley region of Virginia is located along the western border of the state. The Allegheny Plateau is in the farthest, southwestern part, or "toe" of the state.</p> <p>4.8d There are a number of minerals, rocks, and ore resources found in Virginia, including coal, limestone, and granite. You can visit Luray Caverns and view the rock formations.</p> <p>4.8e <u>Forests</u> are a <u>renewable resource</u>. Virginia's forests are predominantly broad-leaf <u>deciduous trees</u> such as <i>oaks</i>, <i>hickory</i>, and some <i>pine</i>. Most pine forests are located on the <i>Tidewater Region (Coastal Plain)</i>. Pine forests are planted because of a need for pine fiber. Forests are important as a habitat for plants and animals. They are also important in the production of lumber for homes in Virginia. Forests provide air through photosynthesis. <u>Washington and Jefferson National Forests</u> are protected forest areas in Virginia. <u>Soil</u> must be protected from erosion by planting crops.</p>	<ul style="list-style-type: none">• Create and interpret a model of a watershed; evaluate the statement: "we all live downstream".• Identify watershed addresses. • Differentiate between wild and domesticated animals and plants and categorize examples of each found in Virginia. • Recognize the importance of Virginia's mineral resources including coal, limestone, granite, sand, and gravel.• Compare and contrast Virginia natural and man-made resources.• Appraise the importance of natural and cultivated forests in Virginia.• Describe a variety of soil and land uses important in Virginia. <p>Teacher note: The intent of this objective is to introduce students to the variety of relationships among living and nonliving things in an ecosystem, including food webs, adaptations, and human impact. <u>These concepts should be explored in the context of Virginia ecosystems</u>. <i>Virginia's Natural Resources Education Guide</i>, published by the Virginia Resource-Use Education Council (VRUEC). It contains information, activities, and resources that are valuable in teaching this objective. This document can be downloaded from the Science Office page of the Prince William County Public Schools website.</p>