

SOL Strand: Resources

INVESTIGATING AND UNDERSTANDING WHILE LEARNING SCIENCE

The Virginia Science Standards of Learning (SOL) for each grade include one standard that specifically lists science process skills for that grade level. In addition, many of the other science standards begin with the phrase, “Students will investigate and understand...” For example, standard K.8, for kindergarten students, begins, “The student will investigate and understand that materials can be reused, recycled, and conserved.” The phrase “investigate and understand” is explained in the introduction to the Science SOL, but, briefly, “investigate” refers to scientific methodology

and systematic use of inquiry skills. It is expected that each of the content SOL will be taught to students in a context of raising and answering questions, and active learning by the students.

THE RESOURCES SOL STRAND

“Resources” is one of the strands running through the Virginia Science Standards of Learning for Grades K–6. Like the other parallel strands, the Resources SOL progress in complexity at each grade level. The SOL strand of Resources includes the following standards (Standards of Learning for Virginia Public Schools, Virginia Board of Education, 1995 – Revised 2003).

— WATER-RELATED SOL IN THE RESOURCES STRAND —

GRADE LEVEL	STANDARDS OF LEARNING
Kindergarten <i>K.10</i>	The student will investigate and understand that materials can be reused, recycled, and conserved. Key concepts include a) materials and objects can be used over and over again; b) everyday materials can be recycled; and c) water and energy conservation at home and in school helps preserve resources for future use.
Grade 1 <i>1.8</i>	The student will investigate and understand that natural resources are limited. Key concepts include a) identification of natural resources (plants and animals, water, air, land, minerals, forests, and soil); b) factors that affect air and water quality; and c) recycling, reusing, and reducing consumption of natural resources.

HOW CAN WE HELP PROTECT OUR WATER RESOURCES?

Grade 3 <i>3.10</i>	The student will investigate and understand that natural events and human influences can affect the survival of species. Key concepts include a) the interdependency of plants and animals; b) human effects on the quality of air, water, and habitat; c) the effects of fire, flood, disease, and erosion; and d) conservation and resource renewal.
Grade 4 <i>4.8</i>	The student will investigate and understand important Virginia natural resources. Key concepts include a) watershed and water resources; b) animals and plants; c) minerals, rocks, ores, and energy sources; and d) forests, soil, and land.
Grade 6 <i>6.9</i>	The student will investigate and understand public policy decisions relating to the environment. Key concepts include a) management of renewable resources (water, air, plant life, animal life); b) management of nonrenewable resources (coal, oil, natural gas, nuclear power, mineral resources); c) the mitigation of land-use hazards through preventative measures; and d) cost/benefit tradeoffs in conservation policies.

Water as a precious resource is a part of the Resources SOL that is to be taught to students at kindergarten, first grade, third grade, fourth grade, and sixth grade. In kindergarten, the emphasis of SOL K.10 is on reusing, recycling, and conservation. In first grade (SOL 1.8), this theme is continued and students also learn about water as a limited natural resource as well as different factors that affect water quality. In third grade, SOL 3.10 deals with the impact of natural events and human influences on the survival of species. Specifically, 3.10 includes human effects on water quality and also the concepts of conservation and resource renewal. The fourth grade SOL 4.8 covers important Virginia natural

resources, including watershed and water resources. Finally, for sixth grade, SOL 6.9 focuses on public policy decisions and the environment. Included in 6.9 are the concepts of resource management, mitigation of land-use hazards through preventative measures, and cost/benefit tradeoffs in conservation policies.

USING THIS PACKET

For this section of the curriculum packet, “How Can We Help Protect Our Water Resources?” we have chosen to emphasize problems and solutions associated with the issue of litter and debris in our waterways.

HOW CAN WE HELP PROTECT OUR WATER RESOURCES?

The two content chapters in the section describe “Litter and Debris in Our Waterways” and “Endangered Aquatic Species.” This theme correlates most clearly with the elementary standards for first grade and third grade, 1.8 and 3.10, and the middle school standard for sixth grade, 6.9.

Using the two lessons included with this section of the packet, students are able to learn about different types of aquatic debris and they are able to participate in a simple cleanup of a waterway. The first lesson, “Lesson 1 – Classifying Aquatic Debris,” is targeted to the third grade level. The second lesson, “Lesson 2 – Helping Clean Up a Waterway” is targeted to sixth grade. Of course, both lessons can be adapted for different age levels.