



Land Use in Your Watershed

SUBJECT AREA: Science – Earth Science, Environmental Science.

GRADE LEVEL: Ninth through tenth.

DURATION: 30 to 45 minutes; staff will require 30 minutes to set up demonstration.

AUDIENCE SIZE: 75 students at one time; larger groups can rotate through stations.

OVERVIEW: Enviroscape models provide an interactive lesson that simplifies complex environmental science issues, including point and nonpoint source pollution. After reviewing the concepts of a watershed, students can observe interactions of precipitation with various land use practices. This lesson also provides for discussions of sustainable land use practices, allowing students to develop several environmental scenarios and pollution control solutions.



OBJECTIVES:

The student will:

- Understand the interactions of precipitation on various land use practices.
- Differentiate between point and nonpoint source pollution.
- Utilize solution-based creative thinking skills to implement sustainable land use practices.
- Develop scenarios and pollution control solutions and test these solutions on the model.
- Understand why land management strategies are an important conservation issue.



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SUNSHINE STATE STANDARDS:

SC.912.E.7.8 - Explain how various atmospheric, oceanic, and hydrologic conditions in Florida have influenced and can influence human behavior, both individually and collectively.

SC.912.L.17.12 - Discuss the political, social, and environmental consequences of sustainable use of land.

SC.912.L.17.11 - Evaluate the costs and benefits of renewable and nonrenewable resources, such as water, energy, fossil fuels, wildlife, and forests.

SC.912.L.17.14 - Assess the need for adequate waste management strategies.

SC.912.L.17.16 - Discuss the large-scale environmental impacts resulting from human activity, including waste spills, oil spills, runoff, greenhouse gases, ozone depletion, and surface and groundwater pollution.

SC.912.L.17.20 - Predict the impact of individuals on environmental systems and examine how human lifestyles affect sustainability.

SC.912.N.1.1 - Predict the impact of individuals on environmental systems and examine how human lifestyles affect sustainability.

SC.912.N.1.3 - Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data presented.

SC.912.N.3.5 - Describe the function of models in science, and identify the wide range of models used in science.

SC.912.N.4.1 - Explain how scientific knowledge and reasoning provide an empirically-based perspective to inform society's decision making.

ADVANCED PLACEMENT COURSE CURRICULUM:

Topic 4.6 - Watersheds - Describe the characteristics of a watershed.

Topic 8.1 - Sources of Pollution - Identify differences between point and nonpoint sources of pollution.

Topic 8.2 - Anthropogenic Impacts on Ecosystems - Describe the impacts of human activities on aquatic ecosystems.

Science Practice 2 - Analyze visual representations of environmental concepts and processes.

Science Practice 4 - Analyze research studies that test environmental principles.

Science Practice 7 - Propose and justify solutions to environmental problems.