

# Land Use Activity *Teacher's Guide*

*Students will examine possible correlations between land use patterns and water pollution.*

**GRADE LEVEL:** 9th - 12<sup>th</sup>

**SUBJECT AREA/COURSE:** Biology, Geography, Environmental Science

**SUNSHINE STATE STANDARDS:**

- Explain the general distribution of life in aquatic systems as a function of chemistry, geography, light, depth, salinity, and temperature. (SC.912.L.17.2)
- Discuss how various oceanic and freshwater processes, such as currents, tides, and waves, affect the abundance of aquatic organisms. (SC.912.L.17.3)
- Describe changes in ecosystems resulting from seasonal variations, climate change and succession. (SC.912.L.17.4)
- Recognize the consequences of the losses of biodiversity due to catastrophic events, climate changes, human activity, and the introduction of invasive, non-native species. (SC.912.L.17.8)
- Use a food web to identify and distinguish producers, consumers, and decomposers. Explain the pathway of energy transfer through trophic levels and the reduction of available energy at successive trophic levels (SC.912.L.17.9)
- 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.17.16)
- Describe how human population size and resource use relate to environmental quality. (SC.912.L.17.18)
- Describe how different natural resources are produced and how their rates of use and renewal limit availability. (SC.912.L.17.19)
- Predict the impact of individuals on environmental systems and examine how human lifestyles affect sustainability. (SC.912.L.17.20)
- Understands the global impact of human changes in the physical environment. (SS.B.2.4.4)

**ACADEMIC OUTCOMES/LESSON OBJECTIVES:**

- Students will be able to compare the various watersheds of Pinellas County, Florida as to how the land in that watershed is used.
- Students will be able to determine if the use of the lands of the watershed have impacted the watershed in either a positive or negative way.

**TEACHER RESEARCH:** Develop a lesson on land use planning. Discuss how governments determine how land is to be used. A discussion of zoning would be appropriate. Teachers should also research the sources of nutrients listed in the water atlas as to their impact on the environment. This lesson can be completed in one or slightly more than one instructional period. The Digital Library on [www.pinellas.wateratlas.org](http://www.pinellas.wateratlas.org) is helpful for articles on these topics. One particular article on land use planning is the "Florida Springs: Strategies for Protection and Restoration", however there are many more available.

Preview the student activity. Many waterbodies do not have TSI information available. You might want to select watersheds that have waterbodies with this data available to save time.

**MATERIALS NEEDED:** Access to the website on the Internet

**SAFETY:** N/A

**VOCABULARY:** zoning, agriculture, urban, rural, conservation, property tax

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