



SOUTH CAROLINA FAMILY AND COMMUNITY LEADERS

Affiliated with National Volunteer Outreach Network, Country Women’s Council, U.S.A., Associated Country Women of the World and in partnership with Clemson University Cooperative Extension Service
 scfcl website: <http://www.scfcl.com>

Leader Training Guide

MY Needs, SHARED Water

Objectives: Participants will explore the connection between land use and shared water resources. Participants will also identify pollutants related to specific land uses and discuss potential practices that can minimize their individual impact on water resources.

Lesson Overview/Introduction: In this lesson, participants will explore how human activities can affect water quality downstream. Teams of participants will in theory develop parcels of land associated with their team’s assigned “need.” The exercise will allow participants to explore impacts—including pollutants—that specific land use practices can have on local water quality. Participants can also learn from other teams about how their own needs/uses may differ from their team’s usage. (Duration: approximately 60-90 minutes.)

Lesson:

Lesson Outline:

- Prepare materials before session (see “materials” and template below).
- Begin activity by having volunteers describe different land uses they have observed in their day-to-day life or on while travelling. For instance, what type of land use did you observe on the drive or walk to this meeting? (commercial, residential, mixed use, recreational, agricultural, industrial)
- Introduce vocabulary words (see below).
- Give instructions on activity.
- Give groups approximately 20-30 minutes for activity.
- Have groups report-out on their findings.
- Group discussion.
- Suggest additional activities and resources for participants.

Vocabulary:

Land Use	Variety of ways humans change the natural environment to serve a need.
Development	Changing the purpose of the land by altering landforms from a natural or semi-natural state to a different land use such as agriculture or housing.
Watershed	A land area drained by a single river system where all the streams flow to a common outlet.

Activity:

- Divide group into six teams.
- Each team will be given a parcel of land (see “materials” and template).
- Each team (and each parcel) will be assigned a “need.” This need will be the interest that their team has in the water quality or quantity for their assigned parcel of land. See examples below. Teams can choose their need, or be assigned their need by the leader. The groups do not have

to use the “descriptions” of the needs below. These are just examples that the leader can use to better explain the activity. Participants are encouraged to expand on their needs and be creative!

<i>NEED</i>	<i>DESCRIPTION</i>
Business	You own a business such as a restaurant, a gas station, feed and seed store, or a marine supply store. Choose a business. You want to maximize access to your business by having roads, homes, etc. nearby. Where would you place your business in relation to other land uses?
Land Developer	You are in the business of developing subdivisions and apartment complexes. You want to make your properties attractive to purchasers as well as using as much of the land as you are able. This may mean you want your homes to be close to parks/recreation, schools, and businesses.
Environmental Conservationist	You want to maximize conservation on your land by choosing an area that is well-protected from pollution—yet accessible to the local community so that you can raise awareness about the environment.
Farmer	You want land and open space, as well as access to irrigation and transportation to market, etc. What kind of farmer are you?
Homeowner	You want to live in a place that fits all of your needs! Schools, businesses, recreation opportunities, businesses, etc. What would a homeowner want in an “ideal” world?
Industry	You own an industrial complex such as a tire factory, a hydroelectric plant, or a canning facility. You need your workers to have access to the factory, as well as land to sustain and expand your industry.

- Each group must “develop” their parcel of land. They *must* include at the minimum three other needs. Examples of these needs may be a business complex, a local industry for jobs, homes, parks/recreation areas, schools, or farms. Be creative with your parcel!
- Next, each group reports out to the rest of the group their parcel of land. As each group presents, add their parcel of land to the larger map.
- After each group presents, have them choose another group’s parcel and reassemble their original group. Now they must look critically at the other group’s parcel of land. What pollution may enter the waterways with the other group’s land use? Be creative and think of individual and specific pollutants that may enter the local waterway.
- Next, each group reports out to the larger group on potential pollution activities of their “neighbor’s” parcel of land (see table below for example pollutants).

<i>NEED</i>	<i>POTENTIAL POLLUTANT</i>
Businesses	Fats/oils/grease, debris/trash, chemicals.
Development	Sediment from construction, fertilizers, pesticides, auto fluids, household chemicals.
Parks/Recreation	Pet waste, fertilizers, debris.
Farms	Nutrients from fertilizers, chemicals from pesticides, animal waste.
Homeowner	Fertilizers, pet waste, car wash soap and chemicals, leaves and yard waste.
Industry	Heated water, chemicals.

- Finally, discuss as a group the complications involved in competing land use management.
 - What issues are relevant in your area?
 - What could be done to address pollution coming from different sources?
 - What could you do as an individual to reduce pollution entering the local waterways?
 - This exercise did not consider existing infrastructure such as roads and old buildings. Do you believe these are considered in your area's land use planning?

Lesson Summary: In today's world, with ever-increasing development, there are many competing land use issues. "Responsible" land use planning to protect our local waterways is important to everyone's needs. There are actions we can take as individuals and as a community to protect our local waterways for future generations.

Suggested Activities: Participants can use the Environmental Protection Agency's (EPA's) "Surf Your Watershed" tool to explore their own local watershed: <http://cfpub.epa.gov/surf/locate/index.cfm>. This tool uses addresses and zip codes to identify the user's watershed and identify what information is known about the health of that watershed (existing water quality data, contaminated sites, and more).

Suggested Materials: For this activity, it is essential to have the following items: 1) cut-up land use "parcel" puzzle pieces (see next page for template); 2) background material to attach parcel pieces (such as plain piece of posterboard, dry erase board, chalkboard, or a blank wall); 3) tape for attaching parcel pieces to background material; and 4) pens/pencils/markers for participants to develop their parcel.

Lesson Prepared by: Nell Orscheln, Water Resources Agent, Clemson University Extension; Katie Giacalone, Carolina Clear Coordinator, Clemson University;

Lesson Review by: Cal Sawyer, PhD, Program Team Leader, Water Resources and Assistant Professor, School of Agriculture, Forestry and Environmental Sciences, Clemson University

Sources/References: Lesson adapted from "Sum of the Parts," by ProjectWET Curriculum & Activity Guide (1995); and "A River Runs Through It," by Elizabeth Joyner for Clemson University's Carolina Clear (2010).

TEMPLATE FOR LAND PARCELS

Note: this can be hand-drawn on posterboard and cut-up in pieces. This is only a template.

