6/3/11-YG

Pima County Natural Resources, Parks and Recreation
Environmental Education

Exploring Watersheds
High School Level

Description: Exploring Watersheds Workshop
Students track the movement of water through the landscape and learn about land use issues that affect watersheds. Student teams participate in a watershed management planning exercise.

Linked to Arizona Academic Standards: Science S4, C3, HS; S6, C1, HS.

Duration: 1-2 hours

Objectives

- Students learn the definition of a watershed (a land area that drains into a body of water)
- Students understand the water cycle.
- Students understand they and everyone else live in a watershed
- Students understand how non-point source pollution as well as point source pollution can pollute a watershed
- Students understand the concept of land use and how land use affects watersheds

Conceptual Framework:

- Renewable natural resources are replenished through natural cycles, but are still finite.
- Effective conservation practices depend on clearly defined management objectives, and understanding of natural processes and the application of knowledge from many disciplines.
- The decisions and actions of individuals and groups of people impact natural systems.

Vocabulary
Aquifer, condensation, contour line, evaporation, infiltration, lake, ocean, pond, precipitation, ridge, river, spring, stream, topography, transpiration, valley, water body, watersheds, water cycle, groundwater, pollution.

Materials:
Relief and topographic maps
Dry erase board
Dry-erase markers

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Description of Activity

1. Open a discussion of the water cycle & watershed

Sit at the tables or in a circle on the ground.
Encourage students to describe the water cycle and introduce vocabulary.
Define watershed "A land area that drains into a water body". Write the definition on a whiteboard.
Ask students for examples of water bodies. Ask students for examples of land areas. Write examples on a white board.
Explain how to identify the boundaries of a watershed. Make drawing on white board of mountain ridge with valleys and a water body on either side. Use arrows to indicate flow of water and left side #1 watershed, east side #2 watershed.

2. Identifying Watersheds on Topo or Relief Map

Pass out 1 map for 2-3 students
Provide instruction on how to read a topo map
Ask the students to find:
A) Agua Caliente Park or Feliz Paseos Park and identify the features marked on the map (education building, ponds, spring).
B) Agua Caliente Hill
C) Identify Agua Caliente Wash on the map.
Review the definition of watershed.
Work with the students to mark the peaks of the mountains surrounding Agua Caliente Wash.
Draw a line to delineate the land areas that drain into AC Wash.
Ask the students to look at the area within the boundaries that you have drawn on the maps and draw lines to indicate the route that rain water might take using arrows to indicate the direction that it would flow.

3. Scenario This section is omitted for the 1-hour classroom version.(This is an extension if time allows or as appropriate to group):

The town of Agua Caliente is growing and needs to identify a place for a new landfill somewhere on the topo map. The land planners are concerned about damage to the watersheds in the area which is home to the endangered pequeño fish. You are fish biologists who at the request of the land planners have been asked to identify locations that would be inappropriate to locate a landfill and those that might pose the least threat to pequeño fish habitat.

4. Closing & Wrap-up

Closing discussion: What did your group consider when placing the landfill? How could the understanding of watersheds effect land use planning decisions? What other considerations or information would be helpful in making a land use decision such as the construction of a landfill?

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