College of Agriculture & Life Sciences
Cooperative Extension

ARIZONA Wet Water Education

Watersheds Model
Lesson Plan

Unit Watersheds

Objectives:

1. Students simulate a watershed and begin to understand how it functions
2. Predict where water will flow in a watershed

Materials: 2 sheets of 8½ x 11 white paper (reuse paper that has writing on one side), scotch tape, spray water bottle, water-soluble colored markers, water

Warm Up:

What is a Watershed? (have them brainstorm on the word). If they don't know ask them what a toolshed is. A place where tools are stored. That's a start. Give them the definition: A watershed is the land area that drains into a water body or drainage. (Use hand motions: with hands out in front of you palms down move them down to a point in front of you as you say the definition.)

So what marks the boundary of a watershed? The high points or mountain ridges mark the watershed boundary. So that a drop of water just to left of that high point goes into one watershed and the drop of water just to the right goes into another watershed.

A watershed could be as big as the 7 state Colorado River Watershed, as big as the Santa Cruz River Watershed or it could be the land area in the back of your school yard where water drains into a drainage ditch!

ACTIVITY:

We are going to make an elevation map that will contains many partial watersheds and some whole watersheds.

1. Put a piece of 8 ½ by 11 white paper (used on one side) down on the table in front of you (white side up)

2. Crumple up a second piece of 8 ½ by 11 white paper (used on one side) with the white side facing out

3. Uncrumple the paper until you can find all 4 corners (not all of the way flat again)

4. Tape all four corners down on the white piece of paper with scotch tape

5. Use water soluble magic markers. Make a key:

    a. Green marker to draw a line along all of the ridges (or up folded areas).
    b. Blue marker to draw a line along all of the valleys (or down folded areas).
    c. Red marker to indicate any abandoned mines with a * symbol.
    d. Purple marker to indicate cities with a crosshatched pattern.
    e. Brown marker to indicate a farm with a colored in square symbol.

6. You have made a model of the land surface or a relief map.

7. Predict how water is going to flow in your model when we spray them. What direction will water flow? Why? Gravity works!

8. Are there areas on your model that have no outlet and will hold water? This would be a closed basin like the Great Salt Lake or Willcox Playa.

9. Take your model outside and spray them with a spray bottle, in other words make it rain on your model.

Wrap Up:

Did any of your cities flood? If there was pollution on your city streets could it get in to your farm field? Could excess pesticide or fertilizers from farms go in to your cities? Could old mines affect water coming into cities or farms? What is a watershed?

Further Thought: What do you think we manage when we talk about watershed management? It's really the land area or land use that we manage to maintain water quality and quantity in a drainage or stream! Runoff is water that flows over the land surface to a drainage.

Vocabulary:

- Watershed: all the land area that drains to a low point or a body of water (river, stream, lake, arroyo, drainage ditch)
- Runoff: the water that runs across a land or human-made surface.
- Gravity: the natural force of attraction exerted by Earth on objects or materials on its surface that tends to draw them down toward its center