Name: _____

Modeling Streams

This week, make your stream simulation even more realistic than it was last week.

Making a stream

Materials
Plastic tub, bucket, water, water pump, stream table media, hardware cloth, shelf liner

Overview
Last week you explored how to set up the stream tables to best simulate actual streams. This week, you will seek to optimize the conditions to produce realistic stream landscapes, such as meanders with point bars and cut banks, oxbow lakes, alluvial fans, braided streams, and deltas.

Set-up
Your first task is to construct the stream bed. You want the media to stay in place rather than to slide around on the smooth bottom of the plastic tub. To that end, you will first put down the hardware cloth, or the shelf liner, or both. Work last week suggested that putting the hardware cloth on top of the shelf liner might be the best option: shelf liner by itself floats up through the granular media when under water, and the hardware cloth by itself slides down the slippery tub.

Investigation
Today, try to learn about actual stream behavior.

Has your stream created an alluvial fan? If not, find conditions to make one. Describe the conditions and the fan.

Has your stream created a delta? If not, determine what conditions must be present to form one and set them up. Describe the conditions and the delta.

How does the delta change with time? Give it plenty of time. Provide the stream with more material to erode if necessary.

Has your stream developed a meander? If not, arrange the necessary conditions. (You may need to work at this.) Show me the meander. What conditions create the meander?

Does the meander change with time? In what ways does it change?

Can you find conditions to make a braided stream? What are they?

Can you find conditions to make a V-shaped valley? What are they?

Clean-up

When you are done, carefully drain as much of the water away from the media as you can. Strain and collect the water in a bucket. Place the tub of damp sand out to dry. Run clear water through the pump. Remove all the media from your bucket before decanting. Do not allow any media into the sink! Wash, rinse, and drain your other hardware.

Lab report

Show me each of the features that your steam creates so that I can verify them. Turn in this paper with the questions answered.