

# PROJECT STREAMS

## BY

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Statement: The project that I decided to do was with streams. I live in the Mississippi River drainage basin. My project is to use the information on stream discharge to help predict the erosional force of streams feeding the Mississippi River.

Objectives- The main objective of this project is to help students to understand the the relationship between stream discharge and the effects on the Mississippi. Not only the Mississippi, but the surrounding lands.

Implementation- This project will be a field trip to some of the feeder streams around the Dubuque area. We will learn about the effects that moving water has on the banks, and the movement of sediment. Then we will go to several small creeks, and do the discharge rate using the methodology learned in class.

Evaluation- The evaluation of this project is to diagram the cross section of the stream, show the data, and complete the calculations on discharge rate. They will also have in their report, a description of the surrounding area, what effect the streams discharge has on the area, and the Mississippi. Then they need to explain what would happen to the area if the streams discharge rate where to increase and decrease.

Project- The lesson plan of the project is fairly simple. We start the unit talking about the effects water has on our area. How streams have the ability to move sediment and change the area. We will show that with stream table activities. ( Velocity, load, and carrying capacities)

After this part of the unit is finished, we will discuss the idea of discharge. We will then travel to several small stream that feed into the Mississippi. The terrain, sediment, and surrounding area will be noted. The students will be assigned different sites, and be responsible for the data at that site.

The experiment begins with the streams being marked 100 feet apart. They string a rope across, measure quadrants, and depths at the parts of the stream along the rope. To get the flow- it would be nice to have a flow meter, but being a low budget place, we will use a fishing cork. The students will get the velocity of the stream by dropping the cork by the upstream line and timing how long it takes to reach the downstream line. They will do this several times in each quadrant. After the data is taken I will give them the formula to compute discharge rate.

Discharge formula-  $Q=V \times D \times W$

Q= discharge rate

V= velocity

D= depth

W= width

After we are finished with collecting the data and drawing the cross section of the stream, the students will show the class their results. We will then use the Corps of Engineers from lock and dam 11 to explain to them the importance of knowing discharge rate of the streams that feed the Mississippi, and the effects it has on the geology of the area.