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UNL MESOWHEELS Program
What is a River?

BACKGROUND:

Nebraska is home to nearly 80,000 miles of rivers. Rivers provide several benefits to our state including[2]: water for agriculture, municipalities, and industry; habitat; recreation. One of these rivers, the Niobrara River, is designated a "National Scenic River", which is perfect for canoeing and kayaking and known for its diverse riverine ecosystems. Additionally, Nebraska is home to the Platte river, which a rare braided prairie river has provided the foundation for communities throughout time by providing a water and food source.

OBJECTIVE:

The objective of this exercise is to

1. Understand how rivers are impacted by change in gradient and adjacent land uses
2. Observe how erosion occurs in rivers and methods to reduce soil loss.

MATERIALS NEEDED:

- Two 30-foot tin foil rolls or 6" PVC cut in half
- Sponges
- Rocks
- Sand
- Food coloring
- Water hose
- 5-gallon Bucket
- A hill outside

PROCEDURE:

1. First start by discussing what is a river and why rivers are important. Discuss examples within the community.
2. Go outdoors and stretch out the foil and place a rock on the edges to keep it stable. Put one roll of foil down a hillslope and the other on a flattened area.
3. Using the materials create different rivers and discuss various geologies (e.g. braided, oxbows, meandering, oxbow lake[2])
4. Begin allowing water to flow into the rivers and compare how fast water moves down the river using the same object in both systems (i.e., rocks, sand, food coloring, etc.)
5. Allow students to experiment with changing features of the river to enhance or reduce movement of their objects.

1. http://netnebraska.org/basic-page/television/rivers-nebraska
2. https://courses.lumenlearning.com/geo/chapter/reading-types-of-streams-and-rivers/

Figure 1: Example of downhill river setup for tin foil (you can also do this with PVC cut in half or plastic.

DISCUSSION:

1. What is erosion? Which of the rivers have the most erosion?
2. How does increased slope impact sand movement in the river?
3. Ask students to make their river curvy. How does this impact sand movement in the river?
4. Why is it important to reduce erosion in Nebraska? (e.g., land loss, pollutants attach and move with sediment, buries fish eggs and endangered ecosystems)