Flooding Causes Worksheet

Part 1: Flooding Causes

Adapted from Project Wet: *Discover a Watershed - The Missouri*

Directions: Do you think it is going to flood in the Fargo/Moorhead community next spring? Go to the following link for the spinner. For each factor, spin the spinner and record your result in the table below. The higher the number, the more likely it is to flood. **(Show your answers before moving to the next section!)**

Spinner Link

Factor	+1	0	-1	Spinner Value
Fall Precipitation	Above average	Average	Below average	
Snowpack (amount of snow that falls in the winter)	Above average	Average	Below average	
Spring Snowmelt Time	Quick melting over few days	Average spring snowmelt	Slow snowmelt over many days	
Spring Temperatures	High	Average	Low	
Spring Precipitation	Above average	Average	Low	
Elevation Change of River	Low elevation change	Average change	High elevation change	
Direction of River Flow	North	East/west	South	
			Total	

Discussion:

1. Based on your value from the spinner above, why do you think it may or may not flood in the Fargo/ Moorhead community?

2. Why do you think a north-flowing river would bring a higher value for flooding than a south-flowing river?

3. How do you think high fall precipitation contributes to a spring flood?

4. The Red River flows over glacial Lake Agassiz. How do you think that impacts flooding in the Red River Valley?

5. The tributaries leading to the Red River have a larger gradient (steepness) than the main channel of the Red River. How could this impact flooding during the spring?

Part 2: Historical Flooding in the Red River Valley

Directions:
- Work in a group of 2-3 students.
- Research ONE of the big floods that have occurred in the Red River Valley: 1997 OR 2009.
- Construct a timeline of events and what factors contributed to severe flooding. (Hint: Use Part 1 for ideas!)
- Create and record a short weather newscast describing the events that led to the flood you researched.

1997 Flood

Never Ending Snow: The Record Smashing Snowfall of '96-'97 – KVRR Local News

Read the PDF Article: A Look at the conditions that led to previous major flood years in Fargo (March 18, 2019)

2009 Flood

Read the PDF Article: Ten years later, flood of '09 paid for with sweat, tears (March 17, 2019)

Read the PDF Article: A Look at the conditions that led to previous major flood years in Fargo (March 18, 2019)

Monthly Total Precipitation for Fargo, ND

Year	Oct	Nov	Dec	Jan	Feb	Mar	April	Season
1997 (inches)	2.41	2.38	1.27	1.79	0.59	1.89	3.12	13.45
2009 (inches)	4.46	1.13	1.80	0.55	1.29	4.62	0.81	14.66

Name: **Date:**   **Class:**

Rubric:

Factor	4	3	2	1
ORGANIZATION	Students present information in logical, interesting sequence that audience can follow. All of the 5Ws (What, Where, Who, When, Why, and possibly How) are answered.	Students present information in logical sequence that audience can follow. Four of the 5Ws (What, Where, Who, When, Why, and possibly How) are answered.	Audience has difficulty following the presentation because three or fewer of the 5Ws (What, Where, Who, When, Why, and possibly How) are answered. Students jump around.	Audience cannot understand presentation because only one or two of the 5Ws (What, Where, Who, When, Why, and possibly How) are answered. There is no sequence of information.
CONTENT	Students demonstrate full knowledge of the causes of flooding and engage the audience with enthusiasm.	Students are comfortable with the causes of flooding and have an easy flow within the message.	Students are uncomfortable with the causes of flooding, and the message does not flow.	Students do not understand the causes of flooding, or there is a gap in their research.
VISUAL	Audience can see and hear speakers clearly. Speakers use pauses and verbal intonation that work effectively.	Audience can see and hear speakers clearly. Speakers use good verbal intonation.	Audience can see and hear most of presentation. Speakers seem uncertain of themselves.	Speakers did not speak to the audience/camera and instead read presentation from paper. Poorly timed. Appear to have not practiced.
			TOTAL	**/12**