

Name: _____

Hydro 8 Practice 1

Model a Watershed: Crumpled Paper Activity

http://fergusonfoundation.org/teacher_resources/crumpled_paper.pdf

Targets	1	2 (all of 1 plus)	3 (all of 2 plus)	4 (all of 3 plus)
LE 5.7 Preparedness	Does not complete formative or summative in an effortful and timely manner, is not engaged, does not arrive on time with class materials ready to learn, does not communicate when issues arise	Completes formative or summative in an effortful or timely manner, is sometimes engaged, sometimes arrives on time with class materials ready to learn, sometimes communicates when issues arise	Completes formative or summative in an effortful and timely manner, remains engaged, arrives on time with materials ready to learn, communicates when issues arise	Completes formative or summative in an effortful and timely manner, remains engaged, arrives on time with materials ready to learn, communicates when issues arise, and is reflective on strengths and challenges within your preparedness skill
LE 5.6 Precision	Recognizes the importance of products that are planned, edited, and completed with care	Attempts products that are planned, edited, and completed with care	Creates products that are planned, edited, and completed with minimal errors	Creates products that are planned, edited, and completed free from errors or need for revision
Hydro 8	I can identify the rivers within a watershed.	I can delineate a watershed by identifying the spaces between the headwaters of rivers.	I can delineate a watershed by identifying the high elevation points in the spaces between the headwaters of rivers.	I can delineate a watershed by identifying the high elevation points in the spaces between the headwaters of rivers and determine precise boundaries by looking at the shape of the contour lines.
MP4 Watersheds and Water Cycle	I can interpret elevations and features on contour maps	(all of 1 plus) I can identify and diagram a watershed	(all of 2 plus) I demonstrate an understanding of interactions between water and Earth's environment (including watersheds and water cycles)	(all of 3 plus) You nailed it !!

Goal: Create a model of a watershed

Materials

8.5” x 11” paper, water soluble pens, squirt bottle

Directions:

1. Crumple up the piece of paper your teacher gave you, and then smooth it back out some. Make sure you have some prominent “up-folds”. It should still be a bit crumpled, showing ridges (high points) and valleys (low points).
2. Imagine that this paper is a section of land, and find the ridgelines (the tops of the fold-lines).
3. Use a water-soluble (*not permanent*) blue marker to color along the ridgelines (all the “up-folds”) on your “land.”

Make Your Hypotheses

It is going to “rain” on your landform. Answer the following questions to make your hypotheses before conducting the experiment.

1. What do you think will happen to your land when it “rains?”
2. What will happen to the blue ridge lines you colored?
3. Where will the “rainwater” travel?

Follow the directions below to conduct the experiment.

1. Use a spray bottle of water to create a “rainstorm” over your land. You want to create gentle sprays of mist.
 - one spray (mist) at a time
 - wait 5 seconds in between ‘misting’s
 - use about 5 ‘misting’s
2. As your “rainfall” accumulates, observe the pathways where the excess “rainfall” travels.

Analysis of Results

In the space below, record your observations about what happened. Use words and pictures if you wish.

1. Did the results of the rainfall support your hypotheses? Explain why or why not.
2. Find an area on your land where water collected. This is a lake. My lake is Lake _____.
 - a. Look for a major stream/river running into your lake. Name this stream/river as well. My stream/river is called _____.
 - b. This stream/river may have several tributaries (small streams which run into the larger stream/river). How many does your stream/river have? _____
 - c. With your finger, trace your stream(s)/river(s) (*or source(s) of water for your lake*) all the way back up to where they start at the top of a ridge. (*This should be path(s) of blue ink.*) When you reach the tops, this is a point along the edge of the **watershed** for your stream/river and lake.
 - d. Trace the entire edge of the watershed with your finger – the high points from which the water came from to “make” your lake. This will be something like tracing the edge of a bowl. All of the inside, downward-sloping area you have just outlined is the **watershed** for your stream/river and lake.
 - e. On your “map”....
 - i. Flatten and dry your “map”. Put your name on your map.
 - ii. Label your stream/river and lake.
 - iii. With arrows, indicate the direction of water flow from the high points (ridges) into your lake.
 - iv. With a highlighter, outline the **watershed of your lake**. Outline as much of the watershed as defined by the limits/edges of your piece of paper.