

NAME: _____

DATE: _____

How Big Rivers Are Made

When you see a large river, you are actually seeing the result of the contributions of many smaller streams and even trickles of run-off. They flow downhill and join with one another gradually building in size and increasing the quantity of water. All the streams that contribute to a river make up its drainage basin.

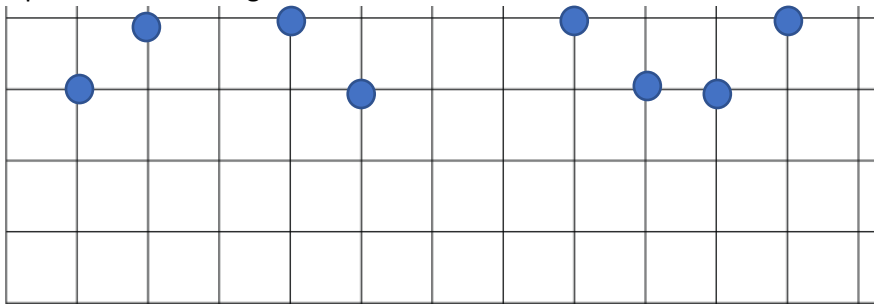
In this activity, you will create your own drainage system. You will see how a pattern can quickly develop from what starts as a random sequence. You will then analyze the pattern and try to determine the limits of particular drainage basins.

Materials:

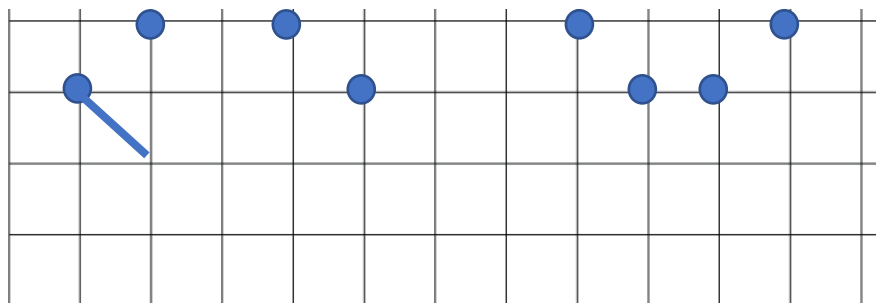
- Pencil
- 8 ½ x 14 graph paper (1cm x 1cm grid)
- Coin
- Ruler
- Coloured pencil crayons

What to do:

1. On your graph paper, make 20 dots randomly at the intersection of grid lines along the first and second rows at the top of the paper (see below). The 20 dots do not have to be evenly spread. These dots represent the starting location of 20 streams.

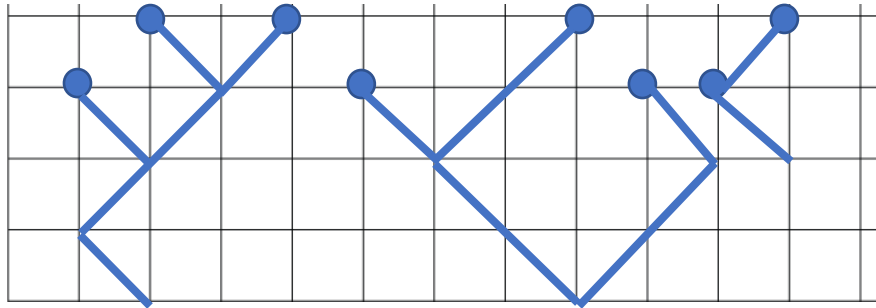


2. Flip your coin to determine which direction to draw your first line. **HEADS IS RIGHT, TAILS IS LEFT.** Starting at the first dot on the far left of the graph paper, draw a diagonal line down to the corner of the square below. The example below shows the results of the coin landing heads.



3. Repeat step 2 for each point. Always start from the left and work across the page to the right.

4. When you have flipped for all 20 dots, start again, but continue from the bottom-most point of each line you drew in the first round. If the line goes off the grid it means the stream or river is finished.
5. If, after a coin flip, your line connects with another line, this means the streams have joined. The next time you flip for that point where two lines join, draw the new line diagonally across two squares. If three lines connect, it means three streams have joined. So, when you flip for that point, draw the next line diagonally across three squares. Continue the same way for four lines and so on.



6. Continue until all rivers have run off either the bottom or side of the grid.

What did you find out?

Answer the following questions after you have completed your grid paper rivers.

1. What did you notice about the pattern of your streams? How is it similar to that of real river systems? How is it different?

2. With your pencil crayons:
 - a. Lightly shade in the areas that make different drainage basins
 - b. Draw a dotted line between each drainage basin. These are the divides.
3. Where will your rivers eventually drain?
