

Where do rivers flow? Do most streams and rivers flow in the same direction? Is there a pattern to the directions in which they flow?

MATERIALS: Tables below, Maps of the USA and the World, Pencil or pen

PROCEDURE:

- How can you describe the flow direction of streams and rivers? \_\_\_\_\_
- On a map, what does that mean? \_\_\_\_\_
- The table below shows information from the U.S. Geological Survey about the largest rivers in the world. Use this data and a map of the world to show the directions in which these rivers flow on the round chart at the top of the next page.

Show each river as a line starting at the center of the chart and going in the direction from the source of each river to its mouth where it flows into an ocean.

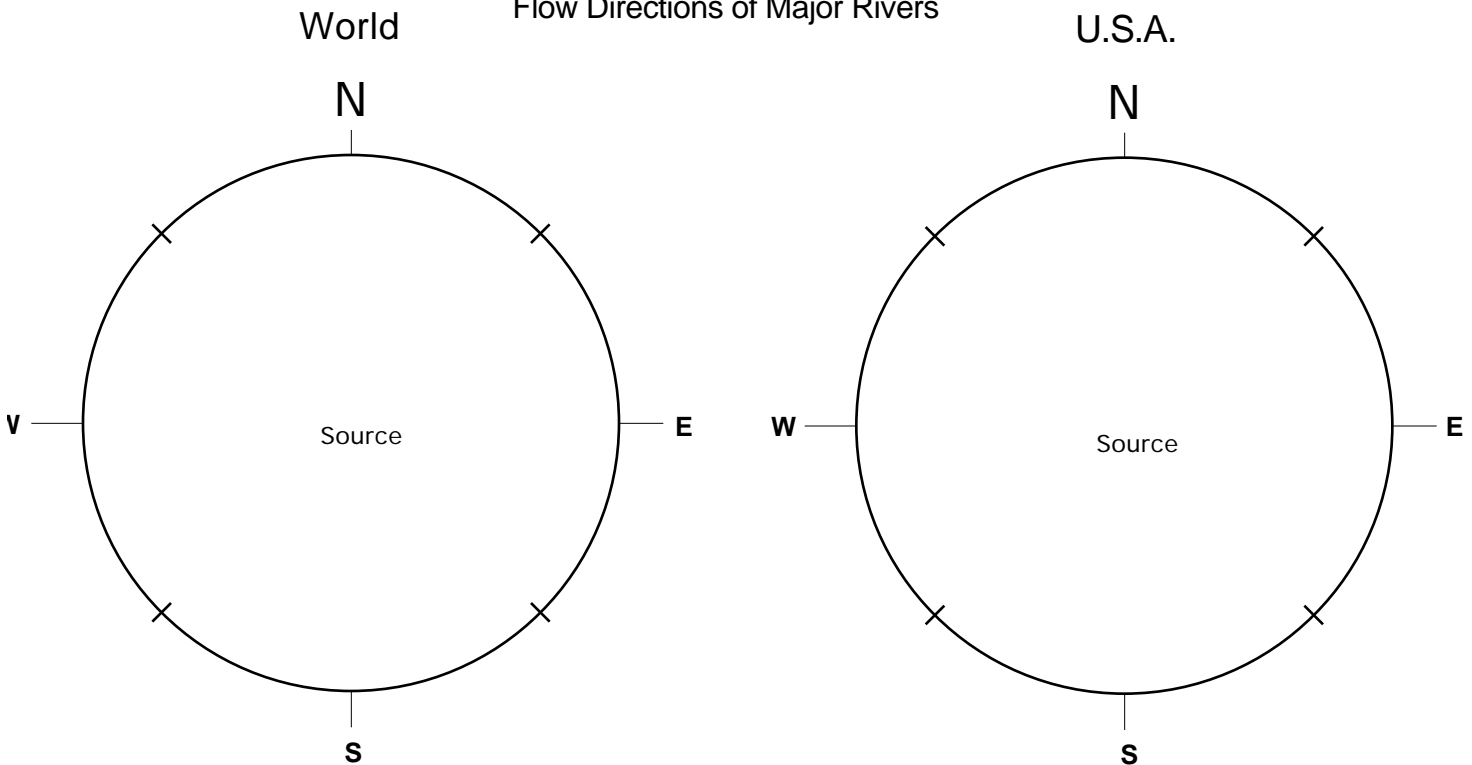
Number each line by the rank of the river. (The Amazon River will be #1.)

- Draw each river below onto the world map provided.

A. World

Rank	River	Country	Drainage area (thousands of square miles)	Average discharge at mouth (thousands of cubic feet per second)
1	Amazon	Brazil	2,231	3,000 to 4,000
2	Congo	Congo	1,550	1,400
3	Yangtze	China	750	770
4	Bramaputra	E. Pakistan	361	700
5	Ganges	India	409	660
6	Yenisei	USSR	1,000	614
7	Mississippi	USA	1,244	611
8	Lena	USSR	936	547
9	Parana	Argentina	890	526
10	St. Lawrence	USA & Canada	498	500
26	Danube	Romania	315	218 (Largest river in Europe)

Flow Directions of Major Rivers



4. What is the most common general direction of flow for these major rivers of the world? \_\_\_\_\_
6. Use the table below and a map to find the flow directions for the major rivers of the United States. Plot them with rank numberers on the second diagram above.
7. Draw each of these rivers onto the USA map provided..

B. United States

Rank	River	Length (miles)	Drainage area (thousands of square miles)	Average discharge at mouth (thousands of cubic feet per second)	Discharge at gaging station nearest mouth (thousands of cubic feet per second)	
					Average	Maximum recorded
1	Mississippi	3,892	1,243.7	611 <sup>a</sup>	553	2,080
2	Ohio	1,306	203.9	259	257	1,850
3	Columbia	1,214	258.2	256	183	1,240
4	St. Lawrence	—	302.0 <sup>b</sup>	241 <sup>b</sup>	236	314 <sup>c</sup>
5	Missouri	2,714	529.4	69	69	892
6	Tennessee	900	40.6	64	61	460
7	Mobile	758	42.3	58	—	—
8	Red	1,300	91.4 <sup>d</sup>	57	51 <sup>d</sup>	233
9	Snake	1,038	109.0	49	49	409
10	Arkansas	1,450	160.5	42	41	536

a—About 25% of flow occurs in the Atchafalaya River; b—At international boundary, lat. 45°; c—Maximum monthly discharge; d—Flow of Ouachita River has been added.

WRAP UP:

A. What did you discover about the directions in which rivers flow?

\_\_\_\_\_

B. How do the two patterns (World and USA) compare? \_\_\_\_\_

C. What did you learn about the flow directions of major rivers?

\_\_\_\_\_

D. What can you say about your hypotheses (ideas) in questions 1 and 2?

\_\_\_\_\_

E. What direction is usually at the bottom of a map? \_\_\_\_\_

F. When we say that rivers flow downhill, does this mean that they flow from the top of the map toward the bottom? \_\_\_\_\_

G. What does "downhill" mean? \_\_\_\_\_

STRANGE BUT TRUE: The Mississippi River flows over 6000 kilometers from its most distant source in Western Montana to the Gulf of Mexico. But it actually begins its journey closer to the center of the earth than where it empties into the sea. Why does the water flow away from the earth's center?

