Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_ Block\_\_\_\_\_\_\_\_\_\_\_\_

**Surface Currents**

 Surface waters of the Earth’s oceans are forced to move, primarily by winds. Where winds blow in the same direction for a long period of time, currents will develop that transport large masses of water over considerable distances across ocean surfaces. In this activity, you will identify some surface currents and determine their effect on the temperatures of the continents they border. All you will need for this activity is a pencil or pen and colored pencils.

 The following chart list some surface currents in the ocean. Each current is identified with a number and classified as a ***cold*** or ***warm*** current. These same currents are represented by arrows and identified by numbers on the map.

|  |  |  |
| --- | --- | --- |
| **Number** | **Name of Surface Current** | **Temperature of Water Transported by Current** |
| 1 | California Current | Cold |
| 2 | Canary Current | Cold |
| 3 | Gulf Stream | Warm |
| 4 | Kuroshio Current | Warm |
| 5 | East Australian Current | Warm |
| 6 | Benguela Current | Cold |
| 7 | Brazil Current | Warm |
| 8 | Peru Current | Cold |
| 9 | Antarctic Circumpolar Current | Cold |

1. Correctly identify each of the *currents* on the map by labeling them in the spaces provided **within** the arrows.
2. Correctly identify the *seven continents* (North America, South America, Antarctica, Europe, Asia, Africa, and Australia) and label them.
3. Correctly identify the *four oceans* (Pacific, Atlantic, Indian, and Arctic) and label them.
4. Using a light blue colored pencil, color the arrows that represent the cold-water currents.
5. Using a red colored pencil, color the arrows that represent the warm-water currents.
6. Using a green colored pencil, color the continents.
7. Using a darker blue colored pencil, color the oceans.
8. Using a black colored pencil, trace the equator (0° latitude). Label the equator.

Note: Make sure that the labeling is readable after you have colored in the map. You may have to go over your labeling with a pen.

1. After identifying and coloring the map, answer the questions.

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_ Block\_\_\_\_\_\_\_\_\_\_\_\_

**Surface Currents**

1. The ocean current on your map generally travel in either a clockwise or counter-clockwise direction. Look at the ocean currents. What is the general direction of the currents in the Northern Hemisphere compared to the currents in the Southern Hemisphere?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. Cold-water currents have a cooling effect on the continental coastlines that they border, while warm-water current tend to have a warming effect.
	1. Look at the pattern of currents in the Northern Hemisphere, and describe which area of the continents’ coastlines are being cooled, and which areas are being warmed by the effects of the ocean currents.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	2. Look at the pattern of currents in the Southern Hemisphere, and describe which area of the continents’ coastlines are being cooled, and which areas are being warmed by the effects of the oceancurrents.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Look at the pattern of cold- and warm-water currents. What seems to determine whether a current carries warm or cold water? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Most of Europe is located between latitudes 40° and 50°. Look at where this latitude corresponds to in the United States. Based on what you have learned about surface currents, would you expect the climate of Western Europe to be more like the Northern United States or not? Explain. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Most of California is located between latitudes 25° and 35°, just like Texas. Based on what you learned about surface currents, would you expect the climate of California to be more like Texas or not? Explain. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Global Map of Surface Currents**

