Ocean Currents

Purpose:

To identify, describe and list factors that control ocean currents

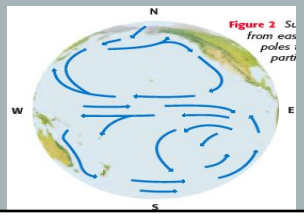
To explain how ocean currents affect climate in San Diego and the world

Thor Heyerdahl and crew of 5

- Sailed across the South Pacific from South America in a handcrafted raft called the Kon-Tiki in 1947 and landed in Polynesia
- Demonstrated it is possible to travel across the ocean using ocean currents and wind
- Believed people from Peru rafted 3000 miles across the Pacific Ocean and settled the islands of Polynesia

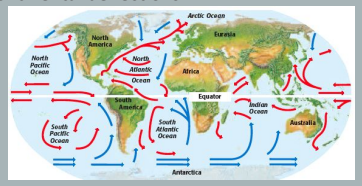
Surface Currents

- Are stream like movements of water at the ocean's surface. They are caused by the prevailing winds
- Circulate thousands of miles across entire oceans



Surface Currents are influenced by:

- Global winds
- The Coriolis Effect
- Continental deflections



Surface winds (purple arrows) create surface currents (red)

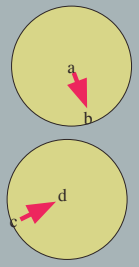
- The Trade Winds move currents east to west along the Equator
- The Westerlies move currents west to east in mid-latitudes

Ocean currents distribute heat throughout the depths of the ocean

The Coriolis Effect

- Winds, ocean currents and moving objects appear to move in curved paths as the Earth rotates beneath

Coriolis Effect Demonstration: Northern Hemisphere



- Draw 2 circles
- Rotate the paper counterclockwise
- Prediction:
- Draw a straight line from a to b. Describe the result
- Draw a straight line from c to d. Describe the result

Continents cause surface currents to change directions

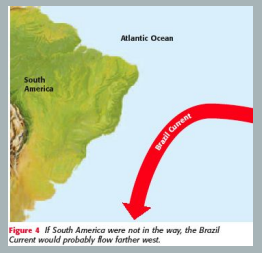


Figure 4 *If South America were not in the way, the Brazil Current would probably flow farther west.*

Surface currents affect climates of the world

- The Gulf Stream brings warm water from the Equator to northern Europe
- Warmer climates result in latitudes that are similar to Canada

- Cold water from the north is carried southward by the California Current
- The cold water current keeps the climate comfortable along the West Coast all year