How Ocean Currents Influence the Climates of the World

The Phenomena of Climates of the World

1. Water is warmer at the surface and going deeper gets cooler.
2. The ocean is warmer in some parts of the world than other parts of the world.
3. Different lands at the same latitude lines are colder in the winter where some are warmer in the winter.
4. Different lands at the same latitude lines are warmer in the summer where some are colder in the summer.

The Facts of the Video:

1. There are two types of ocean currents
    a. Warm water currents that flow near the surface of the ocean.
    b. Cold water currents that flow near the bottom of the ocean floor.

2. Ocean currents flow close to the edge of continents.
    a. The type of current that flows near the continents will decide what the temperature that land region will have—warm winter or cool summer.
    b. Warm water temperature can be transferred to the air causing the nearby land to have a warm climate.
    c. Cold water temperature can be transferred to the air causing the nearby land to have a cold climate.

3. Cold and warm currents of water circling in the oceans distribute cold water to warm areas and warm water to cold areas.

4. What causes ocean currents to occur?
    a. Prevailing winds
    b. Convection currents
    c. Winds blowing across the ocean
    d. Earth's rotation
    e. Contour of the ocean floor
    f. Heat capacities of the water
    g. Air pressure
    h. Amount of salt in the ocean

5. Description of each cause of ocean currents:
    a. Heat capacity of water:
        i. The ocean has a high capacity to store heat
        ii. The ocean also takes a long time to heat up and a long time to cool down.

    b. The amount of salt in the ocean:
        i. As water currents go north, the water tends to evaporate leaving more salt in the water.
        ii. The dense, salty water sinks creating deep, cold water currents.

iii. The dense, salty water sinking from the top of the currents are replaced with less dense, salty warm water.

c. Convection currents:
    i. A convection current is the cycling of air and water which rises upward when heated and sinks when it cools causing a circling effect.
    ii. The equator gets the most amount of solar energy. This causes convection currents to form.
    iii. The warm water rises toward the poles and cools and then turns and sinks toward the equator.

d. Prevailing winds:
    i. They are the winds that are mostly blown across a particular regions.
    ii. Some go to the east and some go to the west caused by the Coriolis Effect.
    iii. These winds are caused by the Earth's rotation causing the air above the Earth to either go east or west.
    iv. Those winds that are blowing north because hot air rises are blowing the warm air from the equator up toward the poles. Those winds that are blowing south because cold air sinks are blowing cold air from poles toward the equator.

e. Air Pressure:
    i. Ocean currents affect the air pressure above them.
    ii. Warm ocean currents create a low air density and warm air causing low pressure systems causing air to rise.
    iii. Cold ocean currents create high air density and cold air causing high pressure systems causing air to sink.

6. Warm and cold bodies of air:
    a. Warm bodies of air can hold moisture giving these regions more precipitation.
    b. Cold bodies of air cannot hold moisture giving these regions dry, cold weather.

7. Heat of the sun at the equator:
    a. There is a greater amount of water at the equator than land.
    b. Because the equator is where the heat from the sun's rays get radiated, there are warm currents rising up from the equator.
    c. Ocean currents change direction pushing warm water from the equator to the poles.
    d. When the water gets cold, they turn around and go toward the equator.
    e. Ocean currents help spread the sun's energy that is absorbed by moving the energy all around the world.

8. The ocean plays a huge roll in this world. They are very important and without them the ocean wouldn't be able to cool down.