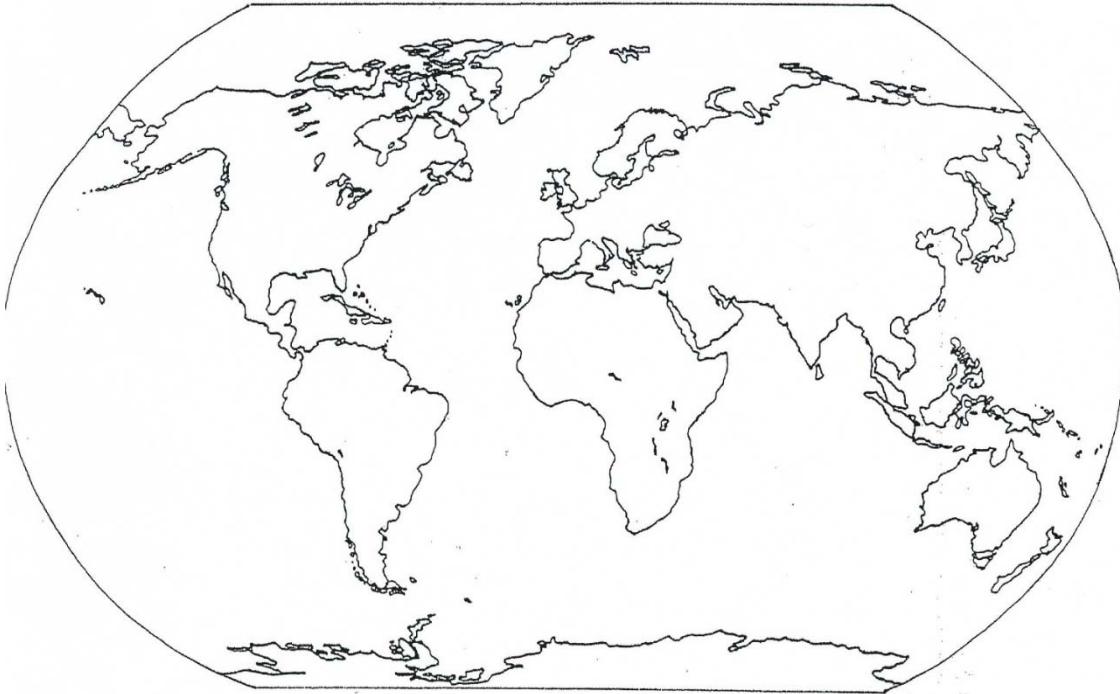


## Webquest - Oceans and Ocean Circulation

Directions: You will be visiting a variety of websites today in order to investigate the various features that our oceans have. Read the selected sections within the websites and answer the following questions.

### **Part 1: Oceans and Seas. You can use any map from the internet.**

1. On the map below, label the 7 continents, 4 oceans, and the following seas: Mediterranean Sea, Arabian Sea, Sea of Japan, Bering Sea, Ross Sea, and Tasman Sea.



### **Part 2: Smithsonian Ocean Planet: Go to**

[https://seawifs.gsfc.nasa.gov/OCEAN\\_PLANET/HTML/oceanography\\_currents\\_1.html](https://seawifs.gsfc.nasa.gov/OCEAN_PLANET/HTML/oceanography_currents_1.html)

1. What are the 5 factors that affect current flow?
2. Can you think of another factor that may affect current flow near the coast or land?
3. Describe what causes upwellings.
4. How does "deep water" form?
5. Eastern boundary currents are often associated with what process? \_\_\_\_\_
6. Why is the Somali current unique?

### **Part 3: Water on the Move... Oceans in Motion.**

Go to <http://legacy.mos.org/oceans/motion/currents.html>

1. What do you call the circular patterns in which the world's oceans travel? \_\_\_\_\_
2. What body of water can these patterns be compared to?
3. What else causes currents to flow?
4. Do all currents have the same characteristics? \_\_\_\_\_ Explain.
5. Describe the Gulf Stream by its characteristics.
6. Besides cold water, what does the Humboldt current normally bring to the surface?

### **Part 4: Ocean Surface Current Simulator.** Go to <http://las.pfeg.noaa.gov/oscurs/#>.

1. On the website map, drag the red maker to any location in the Pacific Ocean. On the map below, write #1 in the same place as you marked on the computer simulator. You can alter the dates under the map but note....the longer the time period, the longer it will take for the simulation to run.
2. On the bottom left of the website, click on "Run Model". Then sketch pattern on your map below using a solid line.
3. Place the red marker on a different part of the map and write #2. Click "Run Model" and sketch the pattern on the map below using stars (★).
4. Select one more random place on the website map and write #3 at selected spot. Click "Run Model" and sketch the pattern on the map below using a dotted line.



5. Identify 3 patterns with ocean currents you noticed while running the simulation (e.g. direction of current, distance travel, area concentrated in, etc...).

6. Describe what may have caused these patterns that you observed in the simulator (e.g. physical features, specific land masses, specific sea floor features).

**Part 4: Wave Simulator.** Go to <http://www.nationalgeographic.org/media/wave-simulator/>

1. How are waves formed? \_\_\_\_\_

2. List and describe the 3 key characteristics that shape a wave.

- a.
- b.
- c.

3. Using the simulator, move the controls for wavelength, period, and height to create the following scenarios for the waves.

a. Place an "X" where you placed the controllers to create the **calmest water.**

LESS

MORE

Wave Height .....

Wavelength .....

Period .....

b. Place an "X" where you placed the controllers to create the **choppiest water.**

LESS

MORE

Wave Height .....

Wavelength .....

Period .....

b. Place an "X" where you placed the controllers to create the **longest and highest waves.**

LESS

MORE

Wave Height .....

Wavelength .....

Period .....