

WEBQUEST Oceans, Waves, Tides & Currents

<http://www.enchantedlearning.com/subjects/ocean/>

Introduction:

Oceans Cover about _____% of the Earth's surface. The oceans contain roughly _____% of the Earth's water supply.

1. Name the Earth's five main oceans and the square miles of each:

a. _____

b. _____

c. _____

d. _____

e. ___ Southern _____ (delimited in year _____)

Why are Oceans Salty?

1. As water flows in _____, it picks up small amounts of mineral _____ from the rocks and soil of river beds. This very slightly salty water flows into the _____ and seas.
2. The salinity (salt content) of ocean water _____.
3. The saltiest water is in the _____ and in the _____.
4. The least salty seas are in the _____ regions, where both melting polar ice and a lot of rain dilute the salinity.

Why is the Ocean Blue?

1. Sunlight is made of all the colors of the rainbow: red, orange, yellow, green, blue, and _____. Some of the sunlight is reflected off the surface of the water, reflecting the color of the _____.
2. Some oddly-colored seas are The Red Sea looks red because of red _____ that lives in this sea.

What causes Waves?

1. The _____ cause waves on the surface of the ocean and on lakes. The wind transfers some of its _____ to the water.
2. Stronger winds cause _____ waves.
3. Waves do not move horizontally (side to side), they only move _____ and _____ (vertically).

What causes Tides?

1. Tides are periodic rises and falls of large bodies of water. Tides are caused by the gravitationally interaction between the _____ and the _____.
2. The gravitational attraction of the moon causes the oceans to _____ out in the direction of the moon.
3. _____ was the first person to explain tides scientifically.
4. Spring tides are are especially strong tides (they do not have anything to do the season of _____.)
5. They occur when the Earth, the Sun and the Moon are in a _____.

http://www.classzone.com/books/earth_science/terc/content/visualizations/es2401/es2401page01.cfm?chapter_no=visualization

Global Ocean Currents

Notice the ocean currents. Currents flowing toward the equator are generally _____ and currents flowing away from the equator are _____.

http://www.classzone.com/books/earth_science/terc/content/visualizations/es1904/es1904page01.cfm?chapter_no=visualization

Coriolis Effect

In the first animation: The target location, in the Northern Hemisphere, where the plane was headed when it took off, has moved with Earth's rotation, so the plane would end up _____ of its original target. (Continue to 2nd animation)

In the second animation: The target location, in the Southern Hemisphere, where the plane was headed when it took off, has moved with Earth's rotation, so the plane would end up to the _____ of its original target.

http://oceanservice.noaa.gov/education/kits/tides/media/supp_tide06a.html

TIDES

Together, the gravitational pull of the moon and the sun affect the Earth's tides on a monthly basis. When the sun, moon, and _____ are in alignment (at the time of the new or full moon), the solar tide has an additive effect on the lunar tide, creating extra-high high tides, and very low, low tides — both commonly called _____ tides. One week later, when the sun and moon are at right angles to each other, the solar tide partially cancels out the lunar tide and produces moderate tides known as _____ tides. During each lunar month, _____ sets of spring and _____ sets of neap tides occur.

http://www.classzone.com/books/earth_science/terc/content/visualizations/es2405/es2405page01.cfm?chapter_no=visualization

Upwelling

In this animation, winds blowing along the coast push the coastal surface water. When combined with the _____, this motion moves surface water away from the coast. As surface water moves outward, cold, plankton-rich water from the ocean bottom moves toward the coast and _____ to replace the displaced surface water.

http://www.classzone.com/books/earth_science/terc/content/visualizations/es1604/es1604page01.cfm?chapter_no=visualization

Wave Motion

When wave _____ passes through water, the water moves in a _____ motion. Energy is passing from left to right in this animation, but the water itself stays in the _____ general location.