

Oceans

Let's look at a map and identify the oceans and the seas.

How are oceans and seas different?



Have you ever wondered...

- Why the ocean is blue?
- How many gallons of water are in the ocean?
- What percentage of the Earth is covered by ocean?
- What life would be like without the ocean?

Ocean Facts

- The ocean looks blue because the seawater absorbs all of the reds, yellows, and greens in the water, leaving only blue light for the water to reflect.



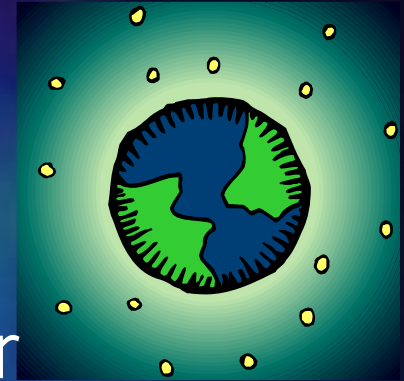
In some areas, the water looks green because the blue water mixes with the yellow pigments in floating plants.

The Black Sea looks black because it has little oxygen.

The Red Sea looks red because it contains seasonal blooms of algae that color the surface water red.

The Yellow Sea is yellow because it contains a yellow mud carried into it by adjoining rivers.

More Ocean Facts...



- There are 328 million cubic miles or 361 quintillion gallons of seawater in the ocean. If it was all piled on top of the United States, the land would be submerged under 88.2 miles of water.
- The ocean covers 71 percent of the Earth's surface and contains 97 percent of the Earth's water. Less than 1 percent of the water on Earth is freshwater.

What Would Life Be Like Without Oceans?

- Ocean water is always on the move. The movement of waves, tides, and currents influences climate and living conditions for many plants and animals, in the water and on land.
- Ocean currents are powered by the sun. As water heats up, currents form regulating temperatures around the globe.
- Without oceans, temperature extremes might make the planet inhospitable to life.

Waves



Nature creates waves through earthquakes, volcanic eruptions, and tides.

- As wind blows across a smooth water surface, air molecules from the wind “grab” surface-water molecules. This force or friction between air and water stretches the water's surface, resulting in small ripples, known as **capillary waves**. As water molecules begin to move, they travel in circles.

Tides

- Tides are periodic fluctuations (rising and falling of seawater).
- They are caused by the gravitational pull of the sun and moon.



Topography of the Ocean Floor

- The continental shelf extends for several hundred miles from the shoreline and has hills, ridges, and canyons.
- The continental slope exists between the continental shelf and deep ocean basin.

Resources From the Ocean

- Much of our natural gas and oil resources come from the continental shelf.
- Other minerals are obtained from the continental slope and the deep ocean basin.



Humans Have Not Always Taken Care of These Ocean Resources

- Chemical and petroleum spills
- Sewage and waste dumping
- Overfishing
- Destruction of sea-life habitats



Nature Also Interacts With the Ocean...Which Affects Human Life

- Hurricanes and typhoons grow bigger and more dangerous as the ocean supplies warm, water-saturated air to the storm.
- Coastal towns have milder winters and cooler summers.
- El Niño, a periodic shift of warm waters in the Pacific Ocean, can affect the climate worldwide.

Resources

- Neptune's Web
(<http://pao.cnmoc.navy.mil/educate/neptune/neptune.htm>)
- Smithsonian Ocean Planet
(http://seawifs.gsfc.nasa.gov/OCEAN_PLANET/HTML/oceanography_currents_1.html)