Name_____ Date_____

Oceans

The study of the world's oceans is called oceanography. It is also called marine science. Since 70% of the earth's surface is made up of oceans, this field is very important because it researches such a large portion of the planet. Some of the topics in this branch of science include studying the life forms in the ocean, studying the nature and movement of the ocean floor, and studying the attributes of the ocean waters.

Oceanographers have divided the planet's oceans into different sections so that they can organize their studies in the most effective way. Ocean water that is near the coastline is known as "coastal ocean." Beyond this distance, the ocean is referred to as "blue water" or open ocean. The majority of the ocean water on earth is open ocean. These horizontal divisions are only one way of dividing up the oceans; the second is by dividing the waters vertically. The distance from the surface of the water until the two-hundred meter depth is called the neritic or euphotic zone. A good rule of thumb for knowing which level of the sea being studied is the depth where sunlight reaches. The majority of ocean life lives in the first level because it thrives on the amount of sunlight available there.

Below this level is the dysphotic or mesopelagic zone. This zone is beneath the euphotic zone, and it continues until about one-thousand meters deep. Not enough sunlight penetrates these waters to support the process of photosynthesis. Also, in this zone, there is less oxygen in the water, and the life forms that dwell here have specially adapted gills in order to survive.

Below the mesopelagic level is the bathyal zone. This zone begins around one-thousand meters below the surface and continues to about four-thousand meters below the surface. Very little light reaches this zone and the temperature remains relatively constant at 39 degrees Fahrenheit. There is less life found in this zone than in the previous one, although large whales and squid can be found in this level. The lowest level of the ocean is called the abyssal zone and it runs from four-thousand meters below the surface to the bottom of the ocean – the ocean floor. The temperature in this zone is roughly 37 degrees Fahrenheit, and it never receives any daylight.

The oceans of earth are all connected to each other, but scientists have divided them into five oceans: Atlantic, Pacific, Arctic, Indian, and Southern. The Pacific Ocean is the largest because it makes up about 32% of earth's surface area. A point called the Mariana Trench was discovered in 1960 within the Pacific Ocean and is the deepest point on earth. It has a depth of nearly eleven-thousand meters. On average, the Pacific Ocean is about four-thousand meters deep. The Atlantic Ocean is the second largest ocean on earth. The greatest depth in the Atlantic Ocean is 8,600 meters below the surface.

The oceans of the world consist of salt water. Scientists measure the amount of salt in the water and have designated this as the ocean's salinity. The standard measurement is the percentage of salt found in one-thousand grams of water.

Name_____ Date_____

Oceans (Cont'd)

In both the Atlantic and the Pacific, the percentage of salt is slightly less in the areas around the equator and it increases further from the equator. Generally speaking, the Atlantic has a higher salinity than the other oceans because it averages 3.5%. Much of the ocean's salt water has come from the water washing over land and rock to wear away the compound sodium chloride. As evaporation occurs, the salt remains in the water and the oceans have gradually gained salinity. Also, some of the salt has come from underwater volcanoes.

Marine biologists study the diversity of life in the oceans. Life in the oceans consists of plants, fish, and invertebrates. There are over one-hundred mammals that live in the ocean and depend on the marine food chain. Some of these mammals include dolphins, blue whales, sea lions, and manatees. However, all of these animals rely on microscopic organisms called plankton. The oceans require the chemical and biological balance that plankton helps to provide.

The word "plankton" is from a Greek word meaning "drifter." This is a group of living organisms that may be animal, plant, or bacteria that cannot swim against water currents. This means they do not really control their position in the water. Marine biologists have divided plankton into three main groups: phytoplankton, zooplankton, and baterioplankton. The first group is typically plant life that lives near the surface of the water. All of these groups are crucial to the food chain, but the food chain generally begins with an organism that is a form of plant. Plankton feed on other plankton, but plankton is usually consumed by larger aquatic animals including the larvae and eggs of these larger animals. In this manner, the survival of fish is dependent on the availability of plankton. Plankton is also responsible for adjusting the levels of carbon in the ocean.

Name_____ Date_____

Oceans Questions

Multiple Choice:

1. The study of the world's oceans is called oceanography or:

a. biology
b. water science
c. horticulture
d. marine science

2. The majority of ocean water on earth is:

a. coastal ocean
b. open ocean
c. riptides
d. bathyal ocean

3. The word plankton is a Greek word meaning:

a. drifter
b. ocean
c. water
d. bacteria

Fill In:

4. Generally speaking, the _____ Ocean has a higher salinity than the other oceans because it averages 3.5%.

5. The five oceans on earth are the _____, _____, _____, _____, and the Southern Ocean.

6. Marine biologists have divided plankton into _____ main groups.

7. The _____ Ocean is the largest because it makes up about 32% of earth's surface area.

8. A point called the _____ was discovered in 1960 in the Pacific Ocean and is the deepest point on earth.

9. The lowest level of the ocean is called the _____ zone.

Name_____ Date_____

Oceans Answers

Multiple Choice:

1. The study of the world's oceans is called oceanography or:

a. biology
b. water science
c. horticulture
d. marine science

2. The majority of ocean water on earth is:

a. coastal ocean
b. open ocean
c. riptides
d. bathyal ocean

3. The word plankton is a Greek word meaning:

a. drifter
b. ocean
c. water
d. bacteria

Fill In:

4. Generally speaking, the __Atlantic_ Ocean has a higher salinity than the other oceans because it averages 3.5%.

5. The five oceans on earth are the __ Atlantic __, ___Indian_____, ___Pacific___, __Arctic_____, and the Southern Ocean.

6. Marine biologists have divided plankton into __three_____ main groups.

7. The __Pacific___ Ocean is the largest because it makes up about 32% of earth's surface area.

8. A point called the _Mariana Trench_ was discovered in 1960 in the Pacific Ocean and is the deepest point on earth.

9. The lowest level of the ocean is called the __abyssal__ zone.