

Ocean 11

Oceans and Seas



Oceans of the World

All of the oceans of the world are part of one, vast body of water.
Approximately 71% of the earth's surface is water.
There are no dividing lines between the five oceans of the world.
Each ocean is connected to at least one of the others.

Background to the Ocean

The earth is often called "the water planet", because about 71% of the earth's surface is water. Water is three times more common than all of the other substances on earth combined.

About 97% of all water on earth is salt water. About 50% of this seawater is found in the Pacific Ocean. If the whole world were to be smoothed out, it would be covered to a depth of 200 metres. The bottom of the Marianas Trench has a pressure supporting the equivalent of 50 Jumbo jets.

The great ocean currents redistribute the sun's heat on earth. This cools the tropics and heats the polar regions. The mighty Gulf Stream affects the climate of Scandinavia (Denmark, Norway, Sweden) even though its origin is thousands of kilometres away. The interaction of the sun, moon, and the earth, produce the daily rhythm of the tides. Special places like the Bay of Fundy have giant tides.

The ocean serves as the world's superhighway and ports like Halifax, and Sydney are the gateways linking entire continents to the rest of the world.

Historically, the ocean has been important as a source of fish and other marine animals. The ocean has tremendous mineral resources and will become more valuable as technology advances. Eco-tourism, whale watching, scuba diving are becoming very good businesses.

Aquaculture has been involved in many parts of the world.

The five oceans of the world arranged from largest to smallest:

Pacific

Atlantic

Indian

Arctic

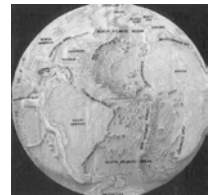
Antarctic

The Pacific Ocean is the largest. It has an average depth of 4300 metres.

The deepest part of this ocean is the Marianas Trench, which is 12 kilometres in depth.



The Atlantic Ocean lies between the Americas and the continents of Europe and Africa.



The Indian Ocean has an average depth of 4300 metres.

Most of the Arctic Ocean is covered by a layer of ice, which is 3 metres deep.

The Antarctic Ocean surrounds the South Pole and it is thought to be the southern continuation of the Indian, Atlantic and Pacific Oceans.

Topic: The Atlantic Ocean
Questions are based on the handout.

Introduction

1. What is the largest ocean?
2. How many square miles are covered by the Atlantic Ocean?
3. What separates the Atlantic Ocean from the Pacific?
4. What is the major division between the North and South Atlantic Ocean?

Bottom Topography

1. What is the principle feature of the bottom topography of the Atlantic Ocean?
2. What is the average depth of water above this feature?
3. What are the four largest basins of the North Atlantic?
4. What major feature influences characteristics of the ocean?
5. Where is the highest salinity in the Atlantic Ocean?
6. In the North Atlantic, what is the direction of water circulation?
7. In the South Atlantic, what is the direction of water circulation?
8. What makes up the Gulf Stream system?
9. How many cubic metres of water per second are transported?

Topic: The Atlantic Ocean
Answers to Handout Questions

Introduction

1. The Pacific Ocean is the largest ocean.
2. The Atlantic Ocean covers more than 41 million square miles.
3. The Atlantic is separated in the north from the Pacific by the Bering Strait.
4. The major division between the North and South Atlantic is the equator.

Bottom Topography

1. The principle feature of the bottom topography of the Atlantic Ocean is the Mid-Atlantic Ridge, which extends from Iceland to Cape Horn.
2. The depth of water over this ridge is generally more than 1500 fathoms. (2743 metres)
3. The four largest basins of the North Atlantic are: North American, Guiana, Canaries, and Cape Verde.
4. The major influences are: solar radiation, precipitation and evaporation.

5. The highest salinity of the Atlantic Ocean is found at the Equator. Water is warmest there and evaporates, leaving a higher salt concentration.
6. The direction of water circulation in the North Atlantic is clockwise.
7. The direction of water circulation in the South Atlantic is counter-clockwise.
8. The Gulf Stream system is made up of the Florida Current, Gulf Stream, and North Atlantic Current.
9. About 50 million cubic metres of water per second are carried by the Gulf Stream.

Seas

Oceanographers use the term "sea" for those bodies of water that are close to land.

The seven major seas of the world, arranged from largest smallest are :

- South China Sea
- Mediterranean Sea
- Caribbean Sea
- Bering Sea
- Sea of Okhotsk
- Gulf of Mexico
- Yellow Sea

The South China Sea is 1,148,500 square miles in area.

The Mediterranean Sea is 969,000 square miles in area.

The Caribbean Sea is 750,000 square miles in area.

The Yellow Sea is about 500,000 square miles in area.

The Indian Ocean is 28 million square miles in area.

The average depth is 3,890 metres or 12,762 feet.

Table 1: The seven major seas of the world (square miles)

Sea	Area (square miles)
1. South China Sea	1,148,500
2. Mediterranean Sea	969,000
3. Caribbean Sea	750,000
4. Yellow Sea	500,000
5. Indian Ocean	28,000,000
6. Bering Sea	2,200,000
7. Sea of Okhotsk	1,700,000

