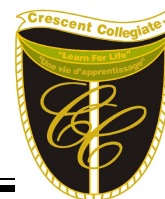


Science 8
Unit 1: Water Systems
Worksheet 5: Introduction To Oceans



Oceans are important:

1. Primary water source for the water cycle
2. Control weather
3. Support diverse life
4. Provides humans with food, minerals, and resources

Ocean Basins refers to low spots in the earth surface in which water has flowed into and accumulated over millions of years.

The five Major oceans are (Largest to smallest):

- Pacific Ocean Basin
- Atlantic Ocean Basin
- Indian Ocean Basin
- Southern Ocean Basin
- Arctic Ocean Basin



Figure 11.1 Earth's oceans

The four factors that formed Oceans

1. Tectonic plates

- Over 200 million years ago, all of the continents were together in one land mass called Pangaea
- Rest of the earth was covered by one giant ocean called Panthalassa
- Earth is made up of large, slow moving sections of rock called tectonic plates
- The tectonic plates float over a layer on molten rock called magma. Pressure buildup from the magma is causing the plates to move (Pacific Ocean is shrinking, Atlantic is getting larger)
- Tectonic plates have helped determine where ocean basins are located

Pangaea: The supercontinent 200 million years ago



The land masses after 65 million years of drift

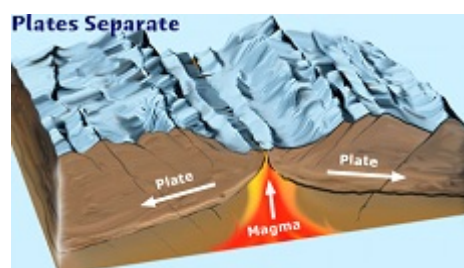


The continents today and 50 million years from now



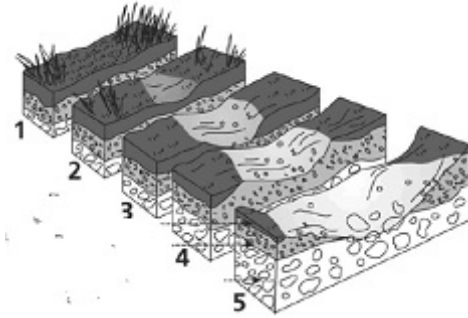
2. Volcanic Action

- Volcanic action has built ocean floor along mid-ocean ridges in areas where plates separate
- Has helped build continental divides in areas where plates have collided and mountain building occurs
- Water trapped in volcanic materials were released as vapour. It cooled, condensed and fell back to the earth. This water collected in the lowest parts of the Earth's surface... The ocean basins.



3. Erosion

-Erosion has aided the further development of continental drainage systems as material is removed and deposited into the ocean basins.



4. Glaciation

- A force of erosion in the development of continental drainage systems
- Glaciers move materials towards the oceans.

Origins of Ocean Water:

- 1) Outside of Earth cooled but the inside remained hot. Water trapped in volcanic materials was released as vapour. It cooled, condensed and fell back to the earth. This water collected in the lowest parts of the Earth's surface...the ocean basins.
- 2) From ice in comets that struck the Earth

PART A: MULTIPLE CHOICE

1. Why are the oceans important?

- (A) It affects weather
- (B) It is the largest source of water for hydrological cycle.
- (C) It supports life on earth
- (D) All above are correct

2. Which of the following refers to a low spots in the earth surface in which water has flowed into and accumulated over millions of years.

- (A) Ocean Basin
- (B) Pond
- (C) Pangae
- (D) Panthalassa

3. Which of the following is the largest ocean basin?

- (A) Pacific Ocean Basin
- (B) Atlantic Ocean Basin
- (C) Indian Ocean Basin
- (D) Southern Ocean Basin

4. Which of the following ocean basins surrounds Newfoundland?

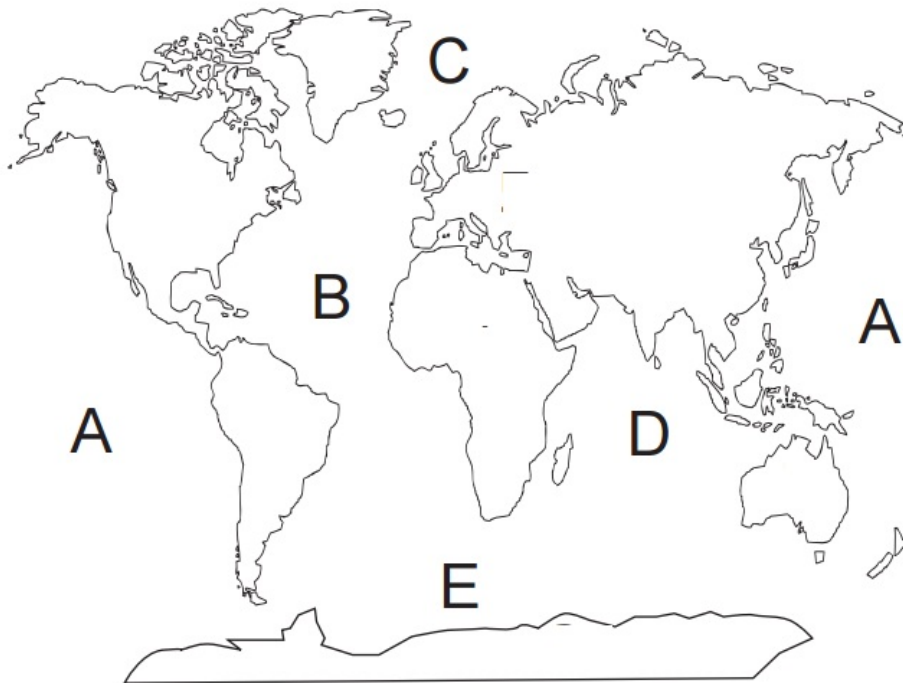
- (A) Pacific Ocean Basin
- (B) Atlantic Ocean Basin
- (C) Indian Ocean Basin
- (D) Southern Ocean Basin

5. Which of the following is not a major ocean?
- (A) Pacific
 - (B) Indian
 - (C) Arctic
 - (D) African
6. Which of the following would have contributed to the formation of oceans?
- (I) Tectonic Plates (II) Volcanoes (III) Erosion (IV) Glaciation
- (A) I and II
 - (B) II and III
 - (C) I, II, and III
 - (D) I, II, III and IV
7. Which of the following statements regarding tectonic plates is not true?
- (A) Pressure from magma can force tectonic plates apart.
 - (B) Tectonic plates move about as fast as your fingernails grow.
 - (C) Tectonic plates float on a layer of superheated water.
 - (D) There are two types of tectonic plates: oceanic and continental.
8. The origin of ocean water on Earth can be mainly attributed to
- (A) Nuclear reactions in the sun.
 - (B) Gravitational shifting of molten rock.
 - (C) Meteors and melting glaciers.
 - (D) Comets striking Earth, and water vapour released from volcanoes.
9. What is the name for the Supercontinent to which all of the land mass on Earth was joined approximately 600 million years ago?
- (A) Tectonic Plates
 - (B) Ocean Basin
 - (C) Panthalassa
 - (D) Pangaea
10. What is the name for the super ocean that covered the earth approximately 600 million years ago?
- (A) Tectonic Plates
 - (B) Ocean Basin
 - (C) Panthalassa
 - (D) Pangaea

PART B : WRITTEN RESPONSE

1. Write a letter from the map on the line in front of the correct ocean! Place your answer on the scantron.

- 11. ___ Arctic Ocean
- 12. ___ Atlantic Ocean
- 13. ___ Indian Ocean
- 14. ___ Pacific Ocean
- 15. ___ Southern Ocean



2. List four factors that resulted in the formation of an ocean basin?

3. Describe what is meant by plate tectonics ?

4. Scientist speculate that most of the water that originally formed the oceans billions of years ago came from two different sources. What are these sources?
