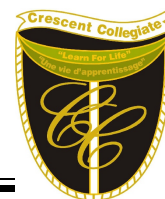
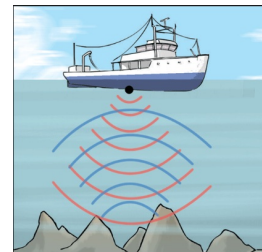


Science 8
Unit 1: Water Systems
Worksheet 6: Exploring Ocean Floor

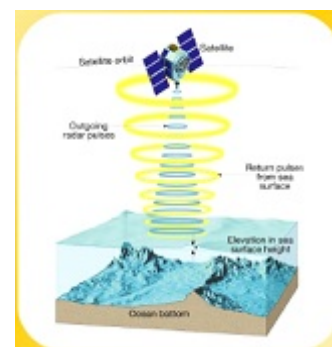


There are many different technologies that can be used to explore the ocean floor:

1. Sonar (Sound Navigation Ranging) : Use sound waves to probe the seabed



2. Satellites: Space Craft that orbit far above the earth and use technologies to record its features. An advantage of satellites over ships is that satellites can survey very large areas of the ocean in very short time. Satellites can also record and transmit data in all kinds of weather, and in both day and night.



3. Underwater Photography/ Videography: Cameras towed from ships can take thousands of high resolution photographs a day. New deep sea cameras and video allow pictures and video to be taken 6000m beneath the surface
4. Deep sea submersibles: Small but extremely strong vehicles that are capable of travelling to great depths.

There are two types of submersible

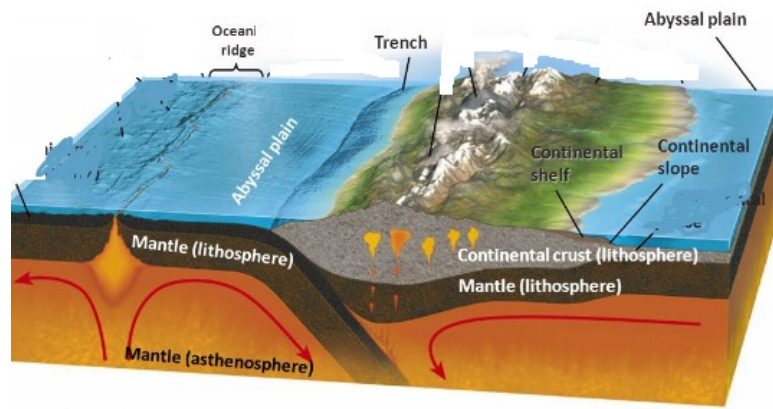
1. Manned Submersibles : Carry people inside and allow them to make their own observations of the deep sea
2. Remotely Operated Vehicles (ROV's): allow people to control the vehicle from a ship that is safely on the surface. They can stay down longer than a manned submersible and continuously send data back to the ship.

There are many organization involved in ocean research:

1. Environment Canada
2. Federal Fisheries
3. Ocean Science Centre
4. Centre for Cold Ocean Research (C-CORE at MUN)



You may be surprised to find many of the features found on land located on the ocean floor. (Mountain ranges, valleys and vast plains). These features was formed due to movement of the earth's crust through the tectonic plates



- Ocean Basin** the ocean floor at a depth of more than 4,000 meters
- Ocean Ridges** the undersea mountain chains that are formed when magma oozes up and solidifies between tectonic plates that are moving apart
- Trench** the deep area that is formed when an ocean plate collides with a continental plate and is forced to bend steeply down beneath the continental plate
- Continental margins** refers to the area between the basin and the coastline. The area of the ocean floor that lie underwater along the edge of the continent. These margins are made of two key components:
 - 1) **Continental shelf:** the submerged part of the continent between the coast and the edge of the basin.
 - 2) **Continental slope:** continental shelves slope gradually away from the land before dropping drastically.
- Abyssal plain** the wide open regions of the ocean floor between the continents and the mountain ranges at the centre of the ocean. It is formed from thick deposits of sediments that come from the continents, brought to the ocean edge by rivers. They reach the sea floor by great underwater landslides

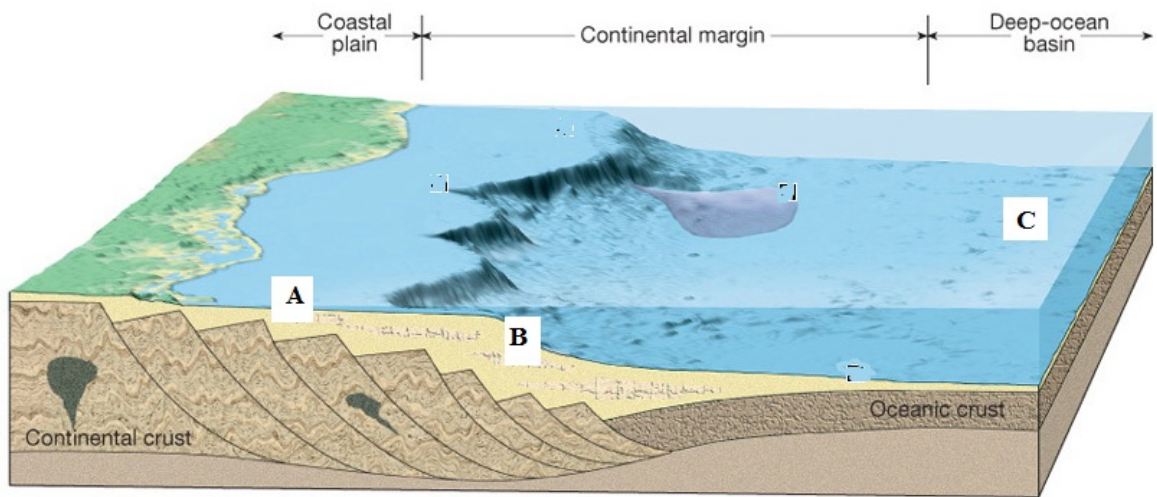
PART A: MULTIPLE CHOICE

1. Which of the following is not used to research the ocean floor?
 - (A) Satellites
 - (B) Sonar
 - (C) Submersible
 - (D) Weather Balloons

2. Which of the following uses sound waves to research the ocean floor?
 - (A) Underwater Photography and Video
 - (B) Satellites
 - (C) Sonar
 - (D) Submersible

3. What was ROV stand for?
- (A) Remotely Operated Vehicle
 - (B) Remotely Owned Vehicles
 - (C) Randomly Operated Vehicles
 - (D) Remotely Owned Vehicle
4. What is the benefit of using satellites to research the ocean floor?
- I) They can survey very large areas of the ocean in very short time
 - II) They can record and transmit data in all kinds of weather
 - III) They are inexpensive to use
 - IV) They can work day and night
- (A) I
 - (B) I and II
 - (C) I, II and III
 - (D) I, II and IV

Use the diagram below to answer questions 5 to 7:

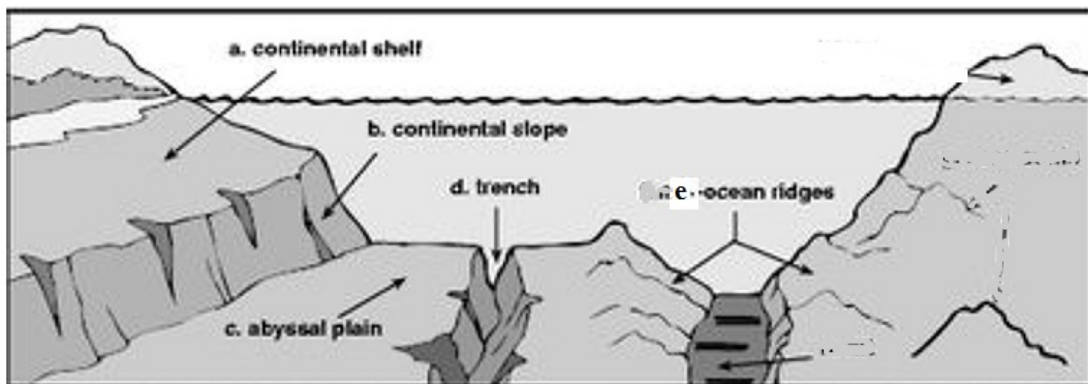


5. What does **A** represent in the above diagram?
- (A) Abyssal plain
 - (B) Continental shelf
 - (C) Continental slope
 - (D) Ocean Ridge
6. What does **B** represent in the above diagram?
- (A) Abyssal plain
 - (B) Continental shelf
 - (C) Continental slope
 - (D) Ocean Ridge
7. What does **C** represent in the above diagram?
- (A) Abyssal plain
 - (B) Continental shelf
 - (C) Continental slope
 - (D) Ocean Ridge

8. The deepest parts of the ocean are long, narrow features known as deep-ocean
- (A) Trenches
 - (B) Rifts
 - (C) Scars
 - (D) Ridges
9. Wide, flat areas between trenches and mid-oceans ridges are called
- (A) Abyssal plains
 - (B) Continental slopes
 - (C) Continental shelves
 - (D) Trenches
10. Which of the following refers to the drastic sloping of the land after the continental shelf?
- (A) Abyssal plain
 - (B) Continental slope
 - (C) Ocean Ridge
 - (D) Trenches

PART B : MATCHING

Use the diagram below to help you decide which feature is being described.



11. _____ A chain of mountains that rise from the ocean basin; where seafloor spreading takes place
12. _____ A submerged area that rims the land, beginning at the shoreline and gently sloping underwater to an average depth of about 130 m
13. _____ A flat area of the ocean floor, covered with sand, mud, and plant and animal remains.
14. _____ A steep drop-off from the continental shelf that plunges to depths of 3.6 km
15. _____ A long, narrow, steep-sided valley that forms the deepest parts of the ocean

PART C: WRITTEN RESPONSE

1. What is a basin?

2. What two features make up the continental margin?

3. Briefly describe each of the following features of the ocean floor and explain how they formed:

(a) ridge

(b) trench

3. What is an advantage of satellite mapping?

4. Describe two types of submersibles.
