

Boy Scout Merit Badge Requirements



OCEANOGRAPHY

1. Name four branches of oceanography. Describe at least five reasons why it is important for people to learn about the oceans.
2. Define salinity, temperature, and density, and describe how these important properties of seawater are measured by the physical oceanographer. Discuss the circulation and currents of the ocean. Describe the effects of the oceans on weather and climate.
3. Describe the characteristics of ocean waves. Point out the differences among the storm surge, tsunami, tidal wave, and tide bore. Explain the difference between sea, swell, and surf. Explain how breakers are formed.
4. Draw a cross-section of underwater topography. Show what is meant by:
 - a. Continental shelf
 - b. Continental slope
 - c. Abyssal plainsName and put on your drawing the following: seamount, guyot, rift valley, canyon, trench, and oceanic ridge. Compare the depths in the oceans with the heights of the mountains on land.
5. List the main salts, gases, and nutrients in sea water. Describe some important properties of water. Tell how the animals and plants of the ocean affect the chemical composition of seawater. Explain how differences in evaporation and precipitation affect the salt content of the oceans.
6. Describe some of the biologically important properties of seawater. Define benthos, nekton, and plankton. Name some of the plants and animals that make up each of these groups. Describe the place and importance of phytoplankton in the oceanic food chain.
7. Do ONE of the following:
 - a. Make a plankton net. Tow the net by a dock, wade with it, hold it in a current, or tow it from a rowboat. Do this for about 20 minutes. Save the sample. Examine it under a microscope or high-power glass. Identify the three most common types of plankton in

the sample.

May be done in lakes or streams.

- b. Make a series of models (clay or plaster and wood) of a volcanic island. Show the growth of an atoll from a fringing reef through a barrier reef. Describe the Darwinian theory of coral reef formation.
- c. Measure the water temperature 1 foot below the surface of a body of water four times daily (8 a.m., noon, 4 p.m., and 8 p.m.) for six consecutive days. Measure the air temperature. Note the cloud cover and roughness of the water. Show your findings on a graph. Tell how the water temperature changes with air temperature.

May be done in lakes or streams.

- d. Make a model showing the inshore sediment movement by littoral currents, tidal movement, and wave action. Include such formations as high and low waterlines, low tide terrace, berm, and coastal cliffs. Show how the offshore bars are built up and torn down.

- e. Make a wave generator. Show reflection and refraction of waves. Show how groins, jetties, and breakwaters affect these patterns.
- 8. Do ONE of the following:
 - a. Write a 500-word report on any good book about oceanography approved by your counselor.
 - b. Visit one of the following:
 - 1. an oceanographic research ship or
 - 2. an oceanographic institute.
 Write a 500-word report about your visit.
 - c. Explain to your troop in a 5-minute prepared speech "Why Oceanography Is Important" or describe "Jobs in Oceanography." (Before making your speech, show your speech outline to your counselor for approval.)

BSA Advancement ID#: 79

Source: *Boy Scout Requirements*, #33215D, revised 2001

DEDICATED WEB SITES

Pending

TOPICAL LINKS

[List of Oceanography Resources](#)

[WWW Virtual Library: Oceanography](#)

NATURAL SCIENCE MERIT BADGE GROUP

[Archaeology](#)

[Bird Study](#)

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No Notes

No Outline

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No Examination

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