Scouting America

Oceanography Merit Badge Workbook

SCOUTMASTER BUCKY

Scouts participating in a Scoutmaster Bucky merit badge opportunity, whether online or in person, should consider using the Oceanography merit badge pamphlet for discovery and knowledge, along with the class preparation pages for clarifications, insights, and expectations.

https://scoutmasterbucky.com/merit-badges/oceanography/oceanography-pamphlet.pdf

https://scoutmasterbucky.com/merit-badges/oceanography/oceanography-cpp.pdf

REQUIREMENTS 8a and 8c REQUIRE COUNSELOR APPROVAL.

REQUIREMENT 1:	Name four branches of oceanography. Describe at least five reasons why it is important for people to learn about the oceans.
Oceanography Branch #1:	
Oceanography Branch #2:	
Oceanography Branch #3:	
Oceanography Branch #4:	

REQUIREMENT 1:	Describe at least five reasons why it is important for people to learn about the oceans.
Reason #1:	
Reason #2:	

Reason #3:	
Reason #4:	
Reason #5:	
REQUIREMENT 2:	Explain the following terms: salinity, temperature, and density. Describe how these important properties of seawater are measured by oceanographer. Discuss the circulation and currents of the ocean. Describe the effects of the oceans on weather and climate.
Salinity: How is Salinity measured:	

Temperature:

How is Temperature measured:

Density:

How is Density measured:

REQUIREMENT 3: Describe the characteristics of ocean waves.

Notes:

REQUIREMENT 3:	Point out the differences among the storm surge, tsunami, tidal wave, and tidal bore.
Storm Surge:	
Tsunami:	
Tidal Wave:	
Tidal Bore:	

REQUIREMENT 3:	Explain the difference between sea, swell, and surf.
Sea:	
Swell:	
Surf:	

REQUIREMENT 3:	Explain how breakers are formed.
Notes:	

REQUIREMENT 4:	Draw a cross-section of underwater topography. Show what is meant by: a. Continental shelf b. Continental slope c. Abyssal plain. Name and put on your drawing the following: seamount, guyot, rift valley, canyon, trench, and oceanic ridge.

Notes:

REQUIREMENT 4:	Compare the depths in the oceans with the heights of mountains on land
Notes:	

REQUIREMENT 5:	List the main salts, gases, and nutrients in seawater.
Salts:	
Gases:	
Nutrients:	

REQUIREMENT 5:	Describe some important properties of water.
Notes:	

REQUIREMENT 5:	Tell how the animals and plants of the ocean affect the chemical composition of seawater.
Notes:	

REQUIREMENT 5:	Explain how differences in evaporation and precipitation affect the salt content of the oceans.

Notes:

REQUIREMENT 6:	Describe some of the biologically important properties of seawater.

Notes:

REQUIREMENT 6:	Define benthos, nekton, and plankton. Name some of the plants and animals that make up each of these groups.
BENTHOS:	
Definition:	
Plants / Animals that make up this group:	
NEKTON:	
Definition:	
Plants / Animals that make up this group:	
PLANKTON:	
Definition:	
Plants / Animals that make up this group:	

REQUIREMENT 6:	Describe the place and importance of phytoplankton in the oceanic food chain.
Notes:	

DO ONE OF THE FOLLOWING (7A, 7B, 7C, 7D, 7E, or 7F) FOR REQUIREMENT 7

REQUIREMENT 7a:	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. **Note:** May be done in lakes or streams.
If choosing this requirement option, you will need to share your work with your counselor **This requirement must be reviewed with your merit badge counselor.** **BE PREPARED!**	

REQUIREMENT 7b:	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.
If choosing this requirement option, you will need to share your work with your counselor **This requirement must be reviewed with your merit badge counselor.** **BE PREPARED!**	

REQUIREMENT 7c:	Measure the water temperature at the surface, midwater, and bottom of a body of water four times daily for five consecutive days. You may measure depth with a rock tied to a line. Make a Secchi disk to measure turbidity (how much suspended sedimentation is in the water). Measure the air temperature. Note the cloud cover and roughness of the water. Show your findings (air and water temperature, turbidity) on a graph. Tell how the water temperature changes with air temperature.
If choosing this requirement option, you will need to share your work with your counselor **This requirement must be reviewed with your merit badge counselor.** **BE PREPARED!**	

REQUIREMENT 7d:	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 offshore bars are built up and torn down.

If choosing this requirement option, you will need to share your work with your counselor

This requirement must be reviewed with your merit badge counselor.

BE PREPARED!

REQUIREMENT 7e:	Make a wave generator. Show reflection and refraction of waves. Show how groins, jetties, and breakwaters affect these patterns.

If choosing this requirement option, you will need to share your work with your counselor

This requirement must be reviewed with your merit badge counselor.

BE PREPARED!

REQUIREMENT 7f:	Track and monitor satellite images available on the internet for a specific location for three weeks. Describe what you have learned to your counselor.

If choosing this requirement option, you will need to share your work with your counselor

This requirement must be reviewed with your merit badge counselor.

BE PREPARED!

Notes:

DO ONE OF THE FOLLOWING (8A, 8B, or 8C) FOR REQUIREMENT 8

REQUIREMENT 8a:	Write a 500-word report on a book about oceanography approved by your counselor.

Consider composing your report on a separate piece of paper and attach it to this workbook

This requirement must be reviewed with your merit badge counselor.

BE PREPARED!

COUNSELOR APPROVAL: IS REQUIRED.

Counselor's Name _____ Phone or Email _____

Counselor's Signature _____ Date _____ ☐ *approved*

REQUIREMENT 8b:	Visit one of the following and write a 500-word report about your visit. 1. Oceanographic research ship 2. Oceanographic institute, marine laboratory, or marine aquarium.
Site, Location, and Date Visited:	
Consider composing your report on a separate piece of paper and attach it to this workbook **This requirement must be reviewed with your merit badge counselor.** **BE PREPARED!**	
REQUIREMENT 8c:	Explain to your troop in a five-minute prepared speech "Why Oceanography Is Important" or describe "Career Opportunities in Oceanography." (Before making your speech, show your speech outline to your counselor for approval.)
COUNSELOR APPROVAL: IS REQUIRED.	
Counselor's Name	Phone or Email
Counselor's Signature	Date ☐ *approved*
REQUIREMENT 9:	Describe four methods that marine scientists use to investigate the ocean, underlying geology, and organisms living in the water.
Method #1:	
Method #2:	
Method #3:	
Method #4:	