

## Oceanography





This workbook can help you but you still need to read the merit badge pamphlet.

This Workbook can help you organize your thoughts as you prepare to meet with your merit badge counselor. You still must satisfy your counselor that you can demonstrate each skill and have learned the information. You should use the work space provided for each requirement to keep track of which requirements have been completed, and to make notes for discussing the item with your counselor, not for providing full and complete answers.

If a requirement says that you must take an action using words such as "discuss", "show",

"tell", "explain", "demonstrate", "identify", etc, that is what you must do.

## Merit Badge Counselors may not require the use of this or any similar workbooks.

No one may add or subtract from the official requirements found in Scouts BSA Requirements (Pub. 33216 – SKU 653801).

The requirements were last issued or revised in 2013 • This workbook was updated in June 2020.

\_\_\_\_\_ Unit: \_\_\_\_\_ Scout's Name:\_\_\_\_ Counselor's Name: Phone No.: Email: http://www.USScouts.Org • http://www.MeritBadge.Org Please submit errors, omissions, comments or suggestions about this workbook to: Workbooks@USScouts.Org Comments or suggestions for changes to the requirements for the merit badge should be sent to: Merit.Badge@Scouting.Org Name four branches of oceanography. 1. 2. 3. 4. Describe at least five reasons why it is important for people to learn about the oceans. 1. 2. 3. 4.

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Define salinity, temperature, and density, and describe how these important properties of seawater are measured by the physical oceanographer.	eanography	Scout's Name:
physical oceanographer. Salinity  Femperature  Density	5.	
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Temperature  Density	physical oceanographer.	,
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ceanography	Scout's Name:
Discuss the circulation and currents of the ocean.	
Describe the effects of the second on weather an	al alimata
Describe the effects of the oceans on weather and	d climate.
Describe the characteristics of ocean waves.	
Point out the differences among the storm surge,	tsunami, tidal wave, and tidal bore.
Storm surge	

3.

eanography	Scout's Name:
Tsunami	
Tidal wave	
Tidal bore	
Explain the diff	erence between sea, swell, and surf.
Sea	
Swell	
Surf	
Explain how br	eakers are formed.

can	yor	n, tre	enc	h, a	nd	OCE	ani	c ric	lge.	C	omp	oare	e th	e d	epth	ns ii	n th	e od	cea	ns v	drav vith	the	hei	ght	s of	mc	ount	ain	s oi	n la	nd.		•
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Oceanography - Merit Badge Workbook

anograpny	Scouts Name.
Gases	
Nutrients	
 Describe some	e important properties of water.
	, important proportion of materi
•	
Tell how the ar	nimals and plants of the ocean affect the chemical composition of seawater.
Explain how di	ifferences in evaporation and precipitation affect the salt content of the oceans.
Dagariha agree	
Describe some	and the a higher right in a grant and a grant and a grant and
	e of the biologically important properties of seawater.
	e of the biologically important properties of seawater.
	e of the biologically important properties of seawater.
	e of the biologically important properties of seawater.
	e of the biologically important properties of seawater.
	e of the biologically important properties of seawater.

anography	Scout's Name:
Define benthos, nekton, and plank	kton.
Benthos,	
Nekton,	
Plankton.	
Name some of the plants and anir	mals that make up each of these groups.
Benthos	and and any case, or another groupe.
Bonardo	
Nekton	
TVOROTT	
Dianistan	
Plankton	
Describe the place and importance	ce of phytoplankton in the oceanic food chain.

JC	eano	grap	ПУ	Scouts Name.
7.	Do	ONE	of th	e following:
		a.	abou	e 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 ut 20 minutes. Save the sample. Examine it under a microscope or high-power glass. Identify the three most mon types of plankton in the sample.  *May be done in lakes or streams.
			1.	
			2.	
			3.	
		b.		e a series of models (clay or plaster and wood) of a volcanic island. Show the growth of an atoll from a fringing through a barrier reef. Describe the Darwinian theory of coral reef formation.
		C.	cons muc of th	sure the water temperature at the surface, midwater, and bottom of a body of water four times daily for five secutive days. You may measure depth with a rock tied to a line. Make a Secchi disk to measure turbidity (how h suspended sedimentation is in the water). Measure the air temperature. Note the cloud cover and roughness e water. Show your findings (air and water temperature, turbidity) on a graph. Tell how the water temperature ges with air temperature.  (You can record your findings in the table at the end of the workbook)
		d.	Inclu	e a model showing the inshore sediment movement by littoral currents, tidal movement, and wave action. Ide such formations as high and low waterlines, low-tide terrace, berm, and coastal cliffs. Show how offshore are built up and torn down.
		e.		e a wave generator. Show reflection and refraction of waves. Show how groins, jetties, and breakwaters affect e patterns.
		f.		k and monitor satellite images available on the Internet for a specific location for three weeks. Describe what have learned to your counselor.
3)	Do	ONE	of th	e following: (Use a blank sheet of paper for your report or speech outline)
		a.		e a 500-word report on a book about oceanography approved by your counselor.
		b.	mari	one of the following: (1) an oceanographic research ship or (2) an oceanographic institute, marine laboratory, one aquarium. Write a 500-word report about your visit.
		C.	Opp	ain to your troop in a five-minute prepared speech "Why Oceanography Is Important" or describe "Career ortunities in Oceanography." (Before making your speech, show your speech outline to your counselor for oval.)

Desc wate	ribe four methods that marine scientists use to investigate the ocean, underlying geology, and organisms living in the r.
1.	
2.	
3.	
1.	

Scout's Name: \_\_

When working on merit badges, Scouts and Scouters should be aware of some vital information in the current edition of the *Guide to Advancement* (BSA publication 33088). Important excerpts from that publication can be downloaded from <a href="http://usscouts.org/advance/docs/GTA-Excerpts-meritbadges.pdf">http://usscouts.org/advance/docs/GTA-Excerpts-meritbadges.pdf</a>.

You can download a complete copy of the Guide to Advancement from <a href="http://www.scouting.org/filestore/pdf/33088.pdf">http://www.scouting.org/filestore/pdf/33088.pdf</a>.

Oceanography

9.

## Table of temperature readings for item 7c.

		Day 1	Day 2	Day 3	Day 4	Day 5
1	Time					
	Air(°F)					
	S(°F)					
	M(°F)					
	B(°F)					
	Notes:					
0	Time					
2	Time					
	Air(°F)					
	S(°F)					
	M(°F)					
	B(°F) Notes:					
	Notes.					
3	Time					
	Air(°F)					
	S(°F)					
	M(°F)					
	B(°F)					
	Notes:					
4	Time					
7	Air(°F)					
	S(°F)					
	M(°F)					
	B(°F)					
	Notes:					
	10.00.					

S=Surface water M=Mid-water B=Bottom