



Scoutmaster Bucky OCEANOGRAPHY Merit Badge Workbook

This Workbook has been developed to help aid in organizing notes and references while working on the Oceanography Merit Badge Requirements.

Visit www.ScoutmasterBucky.com for more information

SCOUT'S INFORMATION	MERIT BADGE COUNSELOR INFORMATION
Name _____	Name _____
Phone _____	Address _____
Organization _____	City State Zip _____
WORKBOOK INFORMATION	Phone _____
Scoutmaster Bucky Workbook based off of <i>Boy Scout Requirements – 2011 Edition</i>	Mobile _____
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REQUIREMENT 1: NAME FOUR BRANCHES OF OCEANOGRAPHY.

Branch #1: _____

Branch #2: _____

Branch #3: _____

Branch #4: _____

Notes:



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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:



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REQUIREMENT 2: DEFINE SALINITY, TEMPERATURE, AND DENSITY, AND DESCRIBE HOW THESE IMPORTANT PROPERTIES OF SEAWATER ARE MEASURED BY THE PHYSICAL OCEANOGRAPHER.

Define Salinity:

How is salinity measured:

Define Temperature:

How is temperature measured:

Define Density:

How is density measured:



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REQUIREMENT 2:

DISCUSS THE CIRCULATION AND CURRENTS OF THE OCEAN.

Notes:

REQUIREMENT 2:

DESCRIBE THE EFFECTS OF THE OCEANS ON WEATHER AND CLIMATE.

Notes:



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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:



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REQUIREMENT 3: EXPLAIN THE DIFFERENCE BETWEEN SEA, SWELL, AND SURF.

Sea:

Swell:

Surf:

REQUIREMENT 3: EXPLAIN HOW BREAKERS ARE FORMED.

Notes:



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REQUIREMENT 4:

DRAW A CROSS-SECTION OF UNDERWATER TOPOGRAPHY. SHOW WHAT IS MEANT BY (A) CONTINENTAL SHELF, (B) CONTINENTAL SLOPE, AND (C) ABYSSAL PLAIN.

NAME AND PUT ON YOUR DRAWING THE FOLLOWING: SEAMOUNT, GUYOT, RIFT VALLEY, CANYON, TRENCH, AND OCEANIC RIDGE.



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REQUIREMENT 5: LIST THE MAIN SALTS, GASES, AND NUTRIENTS IN SEAWATER.

Salts:

Gases:

Nutrients:

REQUIREMENT 5: DESCRIBE SOME IMPORTANT PROPERTIES OF WATER.

Notes:



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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:



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REQUIREMENT 6: DESCRIBE SOME OF THE BIOLOGICALLY IMPORTANT PROPERTIES OF SEAWATER.

Notes:

REQUIREMENT 6: DEFINE BENTHOS, NEKTON, AND PLANKTON.

Benthos:

Nekton:

Plankton:



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REQUIREMENT 6: NAME SOME OF THE PLANTS AND ANIMALS THAT MAKE UP EACH OF THESE GROUPS (BENTHOS, NEKTON, AND PLANKTON).

Benthos:

Nekton:

Plankton:

REQUIREMENT 6: DESCRIBE THE PLACE AND IMPORTANCE OF PHYTOPLANKTON IN THE OCEANIC FOOD CHAIN.

Notes:



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

REQUIREMENT 7A: MAKE A PLANKTON NET 9 MAY BE DONE IN LAKES OR STREAMS). TOW THE NET BY THE DOCK, 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.

Notes:

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.

Notes:



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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.

Notes:



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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 THE OFFSHORE BARS ARE BUILT UP AND TORN DOWN.

Notes:

REQUIREMENT 7E:

MAKE A WAVE GENERATOR. SHOW REFLECTION AND REFRACTION OF WAVES. SHOW HOW GROINS, JETTIES, AND BREAKWATERS AFFECT THESE PATTERNS.

Notes:



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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.

Notes:

DO ONE OF THE FOLLOWING (8A, 8B, OR 8C) IN REQUIREMENT 8

REQUIREMENT 8A: WRITE A 500-WORD REPORT ON A BOOK ABOUT OCEANOGRAPHY APPROVED BY YOUR COUNSELOR.

If you choose this option, write your report on a separate piece of paper and attach it to this workbook when completed.

REQUIREMENT 8B: VISIT ONE OF THE FOLLOWING: OCEANOGRAPHIC RESEARCH SHIP OR OCEANOGRAPHIC INSTITUTE.

Site Visited: _____

Visitation Date: _____

Notes:



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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).

Troop Presentation Place and Date:

Counselor's Name

Phone

Counselor's Signature

Date

approved

Scoutmaster or Unit Leader Name

Phone

Scoutmaster or Unit Leader Signature

Date

presented

Notes:



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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: