



An Adventure Underwater

Who hasn't dreamed of finding a sunken shipwreck full of gold or being a great underwater explorer like Jacques Cousteau or Robert Ballard? The good news is you don't have to be a professional to explore the world under water. Similar experiences and adventures are available to scuba divers worldwide.

Although you may not find any gold, your life will be changed once you venture below the surface. You will gain new confidence about your abilities and learn about this hidden world. Whether you dive in freshwater or the ocean, new sights and experiences await you there.

Don't think diving is limited to those who live near an ocean. Diving and dive careers are available virtually anywhere there is water. You might be surprised to learn how much diving takes place in rivers, lakes, and quarries in your own backyard. Whether you live near the coast or in the center of the country, you can always find new underwater worlds to explore.

Note: A complete scuba program will take more than four meetings. This module is designed to lead to a Discover Scuba experience offered by certified PADI (Professional Association of Diving Instructors) dive shops. The BSA requires the use of outside agencies like PADI (with whom the BSA has a memorandum of understanding to promote scuba diving) and others for training and certification.

Objectives

This month's activities should:

- Demonstrate that scuba diving can be fun and exciting.
- Teach Scouts about scuba equipment.
- Help Scouts understand the hazards and risks of scuba diving.
- Teach Scouts about compressed gas and how nitrogen builds up in the human body.
- Inspire Scouts to help protect the underwater environment.

RELATED ADVANCEMENT AND AWARDS

- Second Class requirement 3a
- First Class requirement 3
- Scuba BSA
- Snorkeling BSA
- Fish and Wildlife Management, Oceanography, Scuba Diving, Sustainability, Swimming, and Water Sports merit badges
- Quest: Requirement 5



Leadership Planning

As a leadership team, you may want to discuss the following items when choosing scuba as your program feature during your planning meetings.

1. Are any of our youth scuba-certified?
2. Which scuba shop and instructor should we use?
3. Who will contact them?
4. What costs are involved?
5. Are we going to have a fundraiser to assist with costs?
6. Where are we going to do our dives?
7. What changes should we make to the sample meeting plans that would fit our needs better?

PARENTS CAN HELP WITH THE SCUBA DIVING PROGRAM FEATURE BY:

1. Sharing scuba experiences, if applicable and certified
2. Helping with financial needs
3. Giving references of scuba instructors
4. Providing transportation for the main event



SCUBA INFORMATION

The Boy Scouts of America scuba policy recognizes scuba industry standards and implements them by using outside agencies for training and certification. All scuba instruction must be conducted by recreational diving instructors in good standing with a scuba agency recognized by the BSA and approved by the BSA local council.

Scuba diving prerequisites, knowledge, and skills are neither itemized nor adequately covered in this publication. Earning the Open Water Diver Certification means the Scout must meet training requirements set by outside agencies and must supplement the material here with an entry-level scuba diver manual.

All phases of scuba instruction—classroom, pool, and open water training—must comply with the minimum training standards for entry-level scuba certification adopted by the American National Standards Institute (ANSI) or the U.S. Recreational Scuba Training Council (RSTC). The RSTC is recognized as the ANSI Accredited Standards Developer for recreational diving instructional standards. The BSA acknowledges those standards by limiting scuba instruction only to instructors trained and sanctioned by recognized scuba agencies.

Agencies recognized by the BSA for scuba training are PADI (Professional Association of Diving Instructors), NAUI (National Association of Underwater Instructors), SSI (Scuba Schools International), IDEA (International Diving Educators Association), PDIC (Professional Diving Instructors Corporation), and SDI (Scuba Diving International). In addition to the agencies listed by name, any current member of the World Recreational Scuba Training Council (WRSTC) also is recognized.

Each approved instructor must follow the training protocols established by his or her authorizing agency, including limitations and special provisions based on medical conditions and age. For Scout divers under age 15, this will include restrictions for maximum depth, buddies, and supervision ratios.

Scuba industry standards for open water diver certification require the student to be at least 15 years of age. Students under the minimum age who meet open water scuba performance requirements may qualify for a special certification that allows them to dive with an adult buddy who has, as a minimum, an Open Water Diver Certification. Several of the scuba



organizations recognized by the BSA offer “junior” open water certifications for those as young as 10; others have a minimum age of 12. Such junior open water diver certifications satisfy scuba diving certification for the Scuba Diving merit badge.

OPEN WATER AND CONFINED DIVING

Open water dive certification has three sections: 1) confined water/pool training; 2) knowledge development; and 3) open water dives. Confined water training establishes the basic skills that all divers need (or may need in the unlikely event of a problem) in a relatively low-stress environment. It also reinforces and supplements knowledge development training by having student divers practice and apply what they learn from reading the manual and watching training videos.

Students complete five confined water dives, which correspond to five knowledge development sections, and four open water dives, which link the information and skills learned in the confined water with knowledge development sections.



Hand signals may vary somewhat, so be sure to review the signals you will be using when planning a dive with a new buddy.





Getting Started

When contacting a dive center or resort, ask these questions to determine the type of program that will best suit your unit.

1. How is the knowledge development portion of the course completed?

Options include:

- Online training, where students complete this portion online at their own pace
 - Home study, where students complete this portion at home using DVDs and/or hard copies of the training materials
 - Classroom training, where students complete the training with an instructor at the dive center
2. What is the schedule for the course?

Most dive centers offer a variety of course schedules, including evenings and weekends. If the dive center does not have a class schedule that meets the needs of your unit, ask if customizing the schedule is an option.

3. What information do I need to have available when I contact the dive center?

When scheduling a group, the dive center will ask you a variety of questions, including the number of students and age of each participant. This information is important because dive training standards require specific instructor-to-student ratios.

4. How much will the course cost?

Each dive center is independently owned and operated, so course pricing will vary depending on the store and the method of learning you choose. Many dive centers do offer special pricing for groups, so be sure to identify yourself as a Scout leader.

5. What type of gear will I need?

To ensure the experience is enjoyable, most dive centers require each student diver to have personal snorkeling gear including mask, snorkel, and fins. Depending on the geographic location and water temperature, some stores may also require a hood, dive booties, and gloves. All of these items can be purchased onsite at the dive center. Most dive centers will have the remainder of the gear available for rental.





SCUBA DIVING GAMES AND ACTIVITIES

Scuba Gear Relay

Equipment: A complete set of scuba gear for each group. A set of cards listing each piece of equipment. Space to run a relay race.

Method: Place all the gear at one end of the room, and have the groups line up at the other end. Shuffle the gear cards. When told to go, one player from each team turns over the top card and then races across the room to get that piece of equipment. If he returns with the wrong piece, he has to go back and get the right piece. The next player then turns over the next card and repeats the process. The relay continues until all the equipment has been retrieved.

Scoring: The first group to finish the task wins.

Notes: To reinforce the correct use of equipment, have each group properly lay out the equipment as if it were on a diver. Another option would be to have one member put on all the equipment at the finish. (**Note:** This person should *not* race *with* the equipment.)

Pressure in a Bottle

Equipment: An unopened screw-top bottle (8 to 24 ounces) of soda for each Scout (Have Scouts choose a flavor they would like to drink afterward.)

Method: Go outside! Each youth vigorously shakes his or her bottle of soda for one minute. When instructed to do so, each person slowly opens the soda bottle in such a manner to avoid spraying liquid. Clean up as appropriate.

Scoring: The first to open his or her soda without spraying liquid wins.

Notes: This activity demonstrates how a gas is suspended in a liquid and how, in order to avoid sudden release of that gas, the pressure must be released slowly. Ask this question: How does this exercise relate to decompression sickness?

Fish ID Concentration

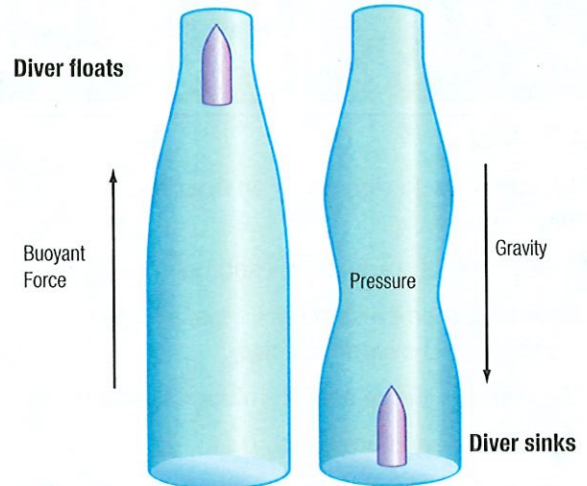
Equipment: Matching pairs of fish ID flashcards (Find on the Internet or make your own.)

Method: Mix up the cards and lay them out facedown in a traditional concentration memory grid. Teams take turns flipping over the cards trying to find matches. When a match is found, the team can earn extra points by identifying the fish on the card.

Scoring: Each match earns the team 1 point, but identifying the fish gives the team an additional 2 points.

Notes: Bonus points can be earned by showing the appropriate hand signal for the fish.

Make a Cartesian Diver



The Cartesian diver is named after Rene Descartes, a famous French scientist, mathematician, and philosopher. This is a fun activity that demonstrates how pressure changes buoyancy. Have a discussion as to what makes the "diver" go up and down.

Equipment: Each youth needs a writing pen lid (or medicine dropper), preferably transparent, as the diver; some clay or sticky tack; clean, clear plastic soft drink bottle filled to the top with water, and the cap

Step 1—Add some clay or sticky tack to the tip of the pen lid. Drop the pen lid, with the hole side down so that air is trapped inside, in a glass of water. If it floats with the tip of the lid just above the water, go to the next step. Otherwise, add or remove clay until the cap floats as needed.

Step 2—Fill the bottle to the very top with water. Float the pen lid in the bottle. Screw on the bottle cap tightly.

Step 3—Squeeze the sides of the bottle. The diver should sink to the bottom.

Step 4—Relax your grip on the bottle. Now what did the diver do?

The diver, like a boat, floats because of *buoyancy*, the force equal to the weight of the water displaced by the volume of the diver. When the pressure increases, and the trapped air bubble compresses, the air displaces less water. At this point, the pull of gravity exceeds the buoyant force, so the diver sinks.



E.D.G.E. Ideas

Explain how it is done—Tell them.

Demonstrate the steps—Show them.

Guide learners as they practice—Watch them do it.

Enable them to succeed on their own—Have them practice/teach it.

EXPLAIN

- Discuss how to sign up for an open water diver course.
- Describe scuba equipment and how it is used.
- Discuss decompression sickness, nitrogen narcosis, and oxygen toxicity.
- Explain how tissue absorbs nitrogen while diving.
- Discuss safety procedures.
- Discuss how to help protect the underwater world.

GUIDE

- Have Scouts complete the open water training dives of your open water diver course.
- Guide Scouts in putting on equipment.
- Guide Scouts in using dive tables to plan a dive.
- Have Scouts work through mask clearing, ear equalization, and regulator recovery.
- Guide Scouts in alternate air-assist skills.
- Have Scouts practice underwater communication.

DEMONSTRATE

- Demonstrate the knowledge and skills found in your open water diver course.
- Show how to wear and use scuba equipment.
- Demonstrate how to plan a dive using dive tables.
- Demonstrate dive skills needed for Open Water Diver Certification.
- Show alternate air-assist procedures.
- Teach proper hand signals.

ENABLE

- Have dive buddies perform safety checks on each other's gear.
- Enable Scouts to use dive tables to plan a dive.
- Have Scouts earn the Open Water Diver Certification.
- Help Scouts plan future training and expeditions so they can enjoy a lifetime of scuba diving.

MAIN EVENT SUMMARIES

● ESSENTIAL

Weekend Activity

Discover Scuba experience—Under the direction of a certified scuba instructor or appropriately certified Divemaster, participate in a Discover Scuba experience. This is not an actual scuba certification. During the Discover Scuba experience, you will learn how to use scuba equipment in shallow water and get a quick and easy introduction to what it takes to explore the underwater world. During this program, you can earn the Scuba BSA Award.

■ CHALLENGING

Multiday Activity

Open Water Diver certification—Under the direction of a certified scuba instructor, complete all the requirements for Open Water Diver certification. This activity requires five pool dives followed by four open water dives (all conducted over at least two days). Earning your diving certification meets one of the requirements for the Scuba Diving merit badge.

◆ ADVANCED

Weekend Activity

Underwater navigation (orienteering course): In cases where all participants have earned their open water certification, the group sets up an underwater orienteering course under the direction of a certified Divemaster or scuba instructor.






SCUBA DIVING

Meeting Plan: Introduction to Scuba Diving



Week 1 Date _____

ACTIVITY	DESCRIPTION	RUN BY	TIME*
Preopening 15 minutes before meeting	Show introductory diving videos from YouTube, such as "PADI Go Dive" from the PADI channel: https://www.youtube.com/user/PADIProducer/videos .		6:45 p.m.
Opening Ceremony 10 minutes	Flag presentation Oath and Law Uniform inspection		7 p.m.
Group Instruction 5 minutes	Have a certified scuba professional show an introductory scuba video. Review medical requirements for scuba diving. (Those who cannot meet the physical requirements to dive can still participate in weekly meetings. While they will not be able to get into the water, they can still learn about scuba from the classroom sessions.)		7:10 p.m.
Skills Instruction 45 minutes	 Discuss and demonstrate masks, snorkels, fins, exposure suits, scuba cylinders, regulators, buoyancy control devices, and weight systems		7:15 p.m.
	 Review the above information and practice equipment care and maintenance.		
	 Review the above information and discuss scooters, rebreathers, technical diving, dry suits, and night diving.		
Breakout Groups 15 minutes	Work on advancement requirements as needed. Begin planning participation in the main event.		8 p.m.
Game 10 minutes	Play Scuba Gear Relay (described earlier).		8:15 p.m.
Closing 5 minutes	Announcements Leader's minute Closing		8:25 p.m.
Total 90 minutes of meeting			
After the Meeting 15 minutes	Leadership team reviews plans for the next meeting and for the main event.		

*All times are suggested.






SCUBA DIVING

Meeting Plan: Pressure—The Force of Water



Week 2 Date _____

ACTIVITY	DESCRIPTION	RUN BY	TIME*
Preopening 15 minutes before meeting	Set up a show-and-tell of dive equipment. As Scouts arrive, test their knowledge of equipment based on what they learned last week.		6:45 p.m.
Opening Ceremony 10 minutes	Flag presentation Oath and Law Uniform inspection		7 p.m.
Group Instruction 25 minutes	Do the following: <ul style="list-style-type: none"> • Teach about nitrogen and how it builds up while diving. • Discuss the dangers of decompression sickness, nitrogen narcosis, and oxygen toxicity. • Demonstrate dive tables. • Discuss what dive computers do and how they work. 		7:10 p.m.
Skills Instruction 25 minutes	 Have Scouts use a dive table to plan a dive.		7:35 p.m.
	 Have Scouts use dive tables to plan two or more consecutive dives.		
	 Teach Scouts to use an electronic recreational dive planner (such as the PADI Dive Computer) for multilevel dive planning.		
Breakout Groups 15 minutes	Continue advancement work. Plan the group duty roster for upcoming main event.		8 p.m.
Game 10 minutes	Do the Pressure in the Bottle activity (described earlier). Note: Be sure to relate this activity to an understanding of decompression sickness.		8:15 p.m.
Closing 5 minutes	Announcements Leader's minute Closing		8:25 p.m.
Total 90 minutes of meeting			
After the Meeting 15 minutes	Leadership team reviews plans for the next meeting and for the main event.		

*All times are suggested.



SCUBA DIVING

Meeting Plan: Buoyancy



Week 3 Date _____

ACTIVITY	DESCRIPTION	RUN BY	TIME*
Preopening 15 minutes before meeting	Show YouTube videos of especially scenic or challenging dives. A good example is the "tuna tornado" video at https://www.youtube.com/watch?v=D6HdolsLMFg		6:45 p.m.
Opening Ceremony 10 minutes	Flag presentation Oath and Law Uniform inspection		7 p.m.
Group Instruction 10 minutes	Explain the following scuba skills: mask clearing, regulator recovery, and weight belt donning and removal.		7:10 p.m.
Skills Instruction 20 minutes	On dry land, practice the following skills: ear equalization, clearing mask, and regulator recovery.		7:20 p.m.
	Review the above skills, and teach alternate air source assist.		
	Review the above skills, practice compass skills, and use steps to represent kick cycles.		
Breakout Groups 15 minutes	Continue advancement work. Plan the menu for upcoming main event.		7:40 p.m.
Game 30 minutes	Make Cartesian divers (described earlier).		7:55 p.m.
Closing 5 minutes	Announcements Leader's minute Closing		8:25 p.m.
Total 90 minutes of meeting			
After the Meeting 15 minutes	Leadership team reviews plans for the next meeting and for the main event.		

*All times are suggested.



SCUBA DIVING

Meeting Plan: Exploring the Underwater World



Week 4 Date _____

ACTIVITY	DESCRIPTION	RUN BY	TIME*
Preopening 15 minutes before meeting	Set up a slideshow of underwater photos and/or create a display of diving maps, brochures, books, etc.		6:45 p.m.
Opening Ceremony 10 minutes	Flag presentation Oath and Law Uniform inspection		7 p.m.
Group Instruction 10 minutes	Do the following: <ul style="list-style-type: none"> • Teach common hand signals in scuba. • Discuss what fish are in the area where you will be diving. • Discuss Project AWARE (www.projectaware.org). 		7:10 p.m.
Skills Instruction 40 minutes	Practice basic hand signals, and learn fish identification.		7:20 p.m.
	Review the above skills. Discuss other ways to communicate under water, and practice communicating using a slate.		
	Review the above skills, and discuss underwater photography, including how to approach fish.		
Breakout Groups 15 minutes	Continue advancement work. Finalize plans for participation in the main event.		8 p.m.
Game 10 minutes	Play Fish ID Concentration (described earlier).		8:15 p.m.
Closing 5 minutes	Announcements Leader's minute Closing		8:25 p.m.
Total 90 minutes of meeting			
After the Meeting 15 minutes	Leadership team reviews plans for the next meeting and for the main event.		

*All times are suggested.



SCUBA DIVING

Main Event: Discover Scuba Experience



Date _____

Logistics

Location: _____

Departure time: _____

Return time: _____

Duration of activity: Weekend

Budget: Completed _____ Approved _____

Camping: Duty roster _____ Menu _____

Transportation: Group _____ Self _____

Tour and activity plan: Completed _____ Submitted _____

Essential (Tier I)

Discover Scuba experience—Under the direction of a certified scuba instructor or Divemaster, participate in a Discover Scuba experience. This is not an actual scuba certification. During the Discover Scuba experience, you will learn how to use scuba equipment in shallow water and get a quick and easy introduction to what it takes to explore the underwater world. During this program, it's possible for you to earn the Scuba BSA Award.

Equipment List

- Scuba equipment (provided by most Discover Scuba providers)
- Masks
- Appropriate swim attire
- Towels
- Camping gear and food, as appropriate
- Water
- Scout Basic Essentials (Review the list and take what you need.)

Activity

- Contact a scuba instructor or shop to schedule this experience.
- Transport to the location.
- Following BSA Youth Protection guidelines, change into swimming attire.
- Watch introductory video or lecture.
- Complete Discover Scuba activity.
- Return home.

Safety

A certified instructor or Divemaster is required. However, **DO NOT** attempt this activity without properly trained supervision.

- Always use the buddy system.
- Have a cell phone and numbers available in case of emergencies.

Notes

Blank area for notes.



SCUBA DIVING

Main Event: Open Water Diver Certification



Date _____

Logistics

Location: _____

Departure time: _____

Return time: _____

Duration of activity: Multiple days

Budget: Completed _____ Approved _____

Camping: Duty roster _____ Menu _____

Transportation: Group _____ Self _____

Tour and activity plan: Completed _____ Submitted _____

Challenging (Tier II)

Under the direction of a certified scuba instructor, complete all the requirements for Open Water Diver certification. This activity requires five pool dives followed by four open water dives (conducted over at least two days). Earning your diving certification meets one of the requirements for the Scuba Diving merit badge.

Equipment List

- Full scuba equipment
- Appropriate swim attire and cold-water protection (i.e., wetsuits)
- Towels
- Camping gear and food, as appropriate
- Water
- Scout Basic Essentials (Review the list and take what you need.)

Activity

- Under the direction of a certified instructor, participate in the required checkout dives.
- If overnight stay is required, have appropriate menus and duty roster.
- Provide appropriate thank you notes for dive instructor (especially important if the instructor provided a discount for Scouts).

Safety

- A certified instructor is required. However, **DO NOT** attempt this activity without properly trained supervision.
- Always use the buddy system.
 - Have a cell phone and numbers available in case of emergencies.

Notes



SCUBA DIVING

Main Event: Underwater Navigation (Orienteering Course)



Date _____

Logistics

Location: _____

Departure time: _____

Return time: _____

Duration of activity: Weekend

Budget: Completed _____ Approved _____

Camping: Duty roster _____ Menu _____

Transportation: Group _____ Self _____

Tour and activity plan: Completed _____ Submitted _____



Advanced (Tier III)

Underwater navigation (orienteering course)—
In cases where all participants have earned their
open water certification, the group sets up an
underwater orienteering course under the direction
of a certified Divemaster or scuba instructor.

Equipment List

- Open Water Diver certification card
- Full scuba equipment
- Enough tanks for multiple dives
- Access to air refills
- Appropriate swim attire and cold-water protection (i.e., wetsuits)
- Towels
- Camping gear and food, as appropriate
- Water
- Scout Basic Essentials (Review the list and take what you need.)

Activity

- Before considering this activity, make sure all participants are open water certified.
- Do appropriate dive planning in a location that meets the skills of the group.
- Make practice dives on the site to become familiar with the area before planning the orienteering course.
- From a fixed location underwater, have each set of dive buddies plan a simple set of compass directions in order to find an object.
- On the next dive, have them exchange directions with other divers and find their object.
- If overnight stay is required, have appropriate menus and duty roster.

Safety

In order to participate in this main event, every participant needs to have open water certification. Also, the *Guide to Safe Scouting* states that recreational diving activities by BSA groups must be supervised by a responsible adult currently certified as a Divemaster or assistant instructor or have a higher rating from a recognized agency.

- Always use the buddy system.
- Have a cell phone and numbers available in case of emergencies.

Notes



REFERENCES

Books

Fish and Wildlife Management, Oceanography, Scuba Diving, Sustainability, Swimming, and Water Sports merit badge pamphlets

Brylske, Alex. *The Complete Diver: The History, Science, and Practice of Scuba Diving*. Dive Training LLC, 2012.

PADI. *Encyclopedia of Recreational Diving*, 3rd ed. PADI, 2005.

———. *Open Water Diver Manual*. PADI, 2010.

Shreeves, Karl. *Life on an Ocean Planet*. Current Publishing, 2010.

Periodicals

Dive Training

Website: www.dtmag.com

Scuba Diving

Website: www.scubadiving.com

Sport Diver Magazine

Website: www.sportdiver.com

Organizations and Websites

Historical Diving Society

Website: <http://www.hds.org>

International Diving Educators Association (IDEA)

Website: www.ideascubausa.com

National Association of Underwater Instructors (NAUI)

Website: www.nauai.org

Professional Association of Diving Instructors (PADI)

Website: www.padi.com

Professional Diving Instructors Corporation (PDIC)

Website: www.pdic-intl.com

Scuba Diving International (SDI)

Website: www.tdisdi.com

Scuba Schools International (SSI)

Website: www.divessi.com

(World) Recreational Scuba Training Council (RSTC)

Website: www.wrstc.com

Project Aware

<http://www.projectaware.org>

PADI Information for Scoutmasters

<http://www.padi.com/scuba/special-offers/special-offers-americas/Boy-Scouts-of-America-Scoutmasters/>

Related Program Features

Camping, Orienteering, and Swimming

Photo and Illustration Credits

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Acknowledgments

We are grateful to Brad Smith, Rancho Santa Margarita, California, PADI training manager, and Jim Virgin, Vancouver, Washington, PADI Dive Master/Public Safety Diver, for helping to develop the Scuba Diving program feature.