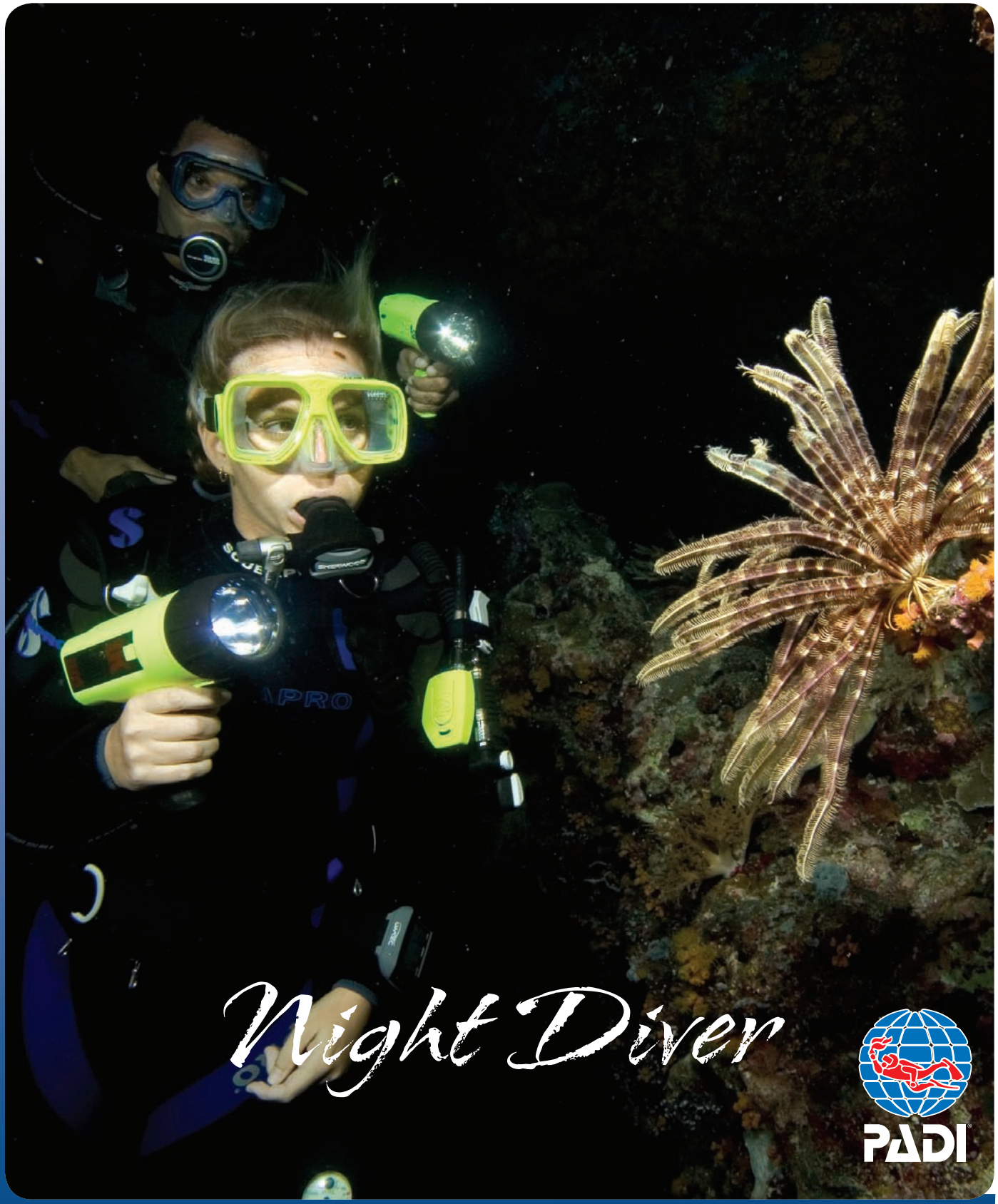

Night Diver

Specialty Course Instructor Guide

Product No. 70226 (Rev. 1/07) Version 2.0

PADI Night Diver
Specialty Course Instructor Guide

Published and distributed by PADI
30151 Tomas
Rancho Santa Margarita, CA 92688-2125 USA

Printed in U.S.A.
Product No. 70226 (01/07) Version 2.0

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Introduction

This section includes suggestions on how to use this guide, an overview of course philosophy and goals, a flow chart to show you how course components and materials work together for success, and ways you can organize and integrate student diver learning.

How to Use this Guide

This guide speaks to you, the PADI Night Diver Specialty Instructor. The guide contains three sections – the first contains standards specific to this course, the second contains knowledge development presentations, the third considers optional confined water and/or surface training and details the open water dives. All required standards, learning objectives, activities, and performance requirements specific to the PADI Night Diver course appear in **boldface** print. **The boldface assists you in easily identifying those requirements that you *must* adhere to when you conduct the course.** Items not in boldface print are recommendations for your information and consideration. General course standards applicable to all PADI courses are located in the General Standards and Procedures section of your PADI *Instructor Manual.*

Course Philosophy and Goals

Is it natural curiosity? Is it getting a new look at the familiar? Could it be the vibrant changing colors of aquatic life? Or, is it just because you can, that night diving is so popular? Whatever the motivation to dive at night - you'll find that the environment is quite different.

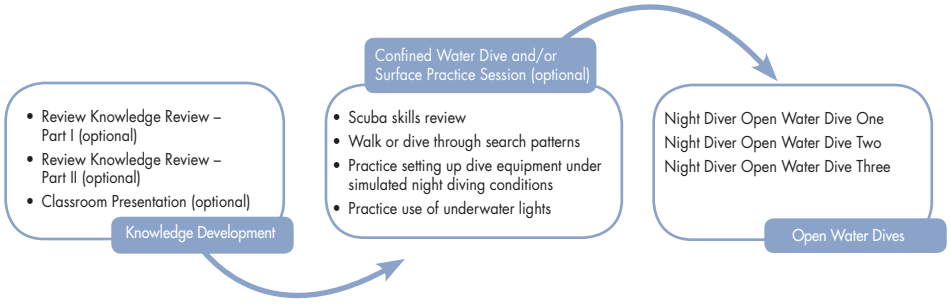
Imagine hovering over a large pumpkin-size brain coral, and watching a group of parrotfish that are easily three to four feet (one to one and a half metres) long, weighing in at 22 to 27 kilograms (50 to 60 pounds) each trying to sleep. The creatures, paying no attention to you, on some secret signal from one of their group, lower their heads under the reef ledge and secrete a mucous sack that envelope their bodies rather like a bubble. Typically, these interesting creatures wouldn't spend the time of day with a diver; however, the cover of night changes their behavior.

Picture your dive light penetrating the cold dark emerald sea. You see her lying there on her side. You feel what the hapless crew must have felt on that cold stormy day – you begin to have that uncomfortable sensation as you descend through the night above her main deck. Suddenly, a slithery wolf eel darts out of the darkness in front of you and you realize the sea has begun to give her new life. What had once been a wheelhouse of a container ship is now a home for marine life. Thousands of cold-water friends scurry out of their hiding places by the unintentional blinding of your light. You move cautiously and slowly to allow the timid nightlife to settle.

Keep that thought, the philosophy of this course is to focus on *seeing in the dark* things you miss seeing, or that appear differently during daylight dives. Thus, the *goal* of this course is to teach student divers a systematic, methodical approach to enjoying diving at night. Student divers will develop the techniques involved in night diving within recreational limits and while avoiding disturbing delicate marine life.

The best way to learn night diving procedures and to apply them is by doing it. This *course philosophy* therefore, expands student diver knowledge about night diving equipment, evaluating dive conditions at night, using and maintaining dive lights, night navigation techniques, and how to interact responsibly with the aquatic life they'll see while night diving. Student divers will apply the knowledge they gain by reading the PADI *Night Diver Manual* and watching the companion video on at least three open water dives practicing and demonstrating the practical aspects of diving at night.

Course Flow Options



Course Flow Options provides a visual representation of how knowledge development and confined water and/or surface practice sessions support open water dives. When possible, it's preferable to have student divers complete and review Knowledge Reviews from the PADI *Night Diver Manual* before participating in the open water dives. Knowledge Review – Part I is the same Knowledge Review that appears in the Night Diver section of *Adventures in Diving.* If you have the first part of the Knowledge Review on file, you may at your discretion, have student divers complete only Knowledge Review – Part II.

Confined water and/or surface practice sessions are not required for the PADI Night Diver course; however, you may choose to have practical sessions that allow student divers to practice skills such as navigating search patterns, setting up their equipment under simulated night diving conditions, and practicing diving with an underwater light.

There are three dives to complete. You may rearrange skill sequences within each dive; however, the sequence of dives must stay intact. You may add more dives as necessary to meet student divers' needs. Organize your course to incorporate environment friendly techniques throughout each dive, to accommodate student diver learning style, logistical needs, and your sequencing preferences. You may choose from one of the approaches from Program Options, or develop your own.

Program Options

Step	Independent Study	Adventure Dive Integration	Instructor-Led
1	Independent study with manual and video (optional)	Independent study with manual and video (optional)	Knowledge Development Classroom Presentation (optional)
2	Review Knowledge Review – Part I and Part II (optional)	Give credit for the Night Adventure Dive and review Knowledge Review – Part I (optional)	Review Knowledge Part I and Part II (optional)
3	Confined Water Dive and/or Surface Practice Session (optional)	Confined Water Dive and/or Surface Practice Session (optional)	Confined Water Dive and/or Surface Practice Session (optional)
4	Open Water Dive One	Review Knowledge Review – Part II (optional)	Open Water Dive One
5	Open Water Dive Two	Open Water Dive Two	Open Water Dive Two
6	Open Water Dive Three	Open Water Dive Three	Open Water Dive Three

Section One:
Course Standards

This section includes the course standards, recommendations, and suggestions for conducting the PADI Night Diver course.

Standards at a Glance

Topic	Course Standard	
Minimum Instructor Rating	**PADI Night Diver Specialty Instructor**	
Prerequisites **Minimum Age**	**PADI (Junior) Open Water Diver** **12 years**	
Ratios	**Open Water: 8:1**	
Site, Depths, and Hours	Depth: 6-12 metres/20-40 feet recommended Hours Recommended: 12 **Minimum Open Water Dives: 3**	
Materials and Equipment	Instructor: • ***PADI Night Diver Specialty Course Instructor Guide*** • **Lights/strobes/marker lights for entry/exit, ascent/descent line, and personal use**	Student Diver: • **Dive light, back up light and marker light** • **Compass**

Instructor Prerequisites

To qualify to teach the PADI Night Diver course, an individual must be a Teaching status PADI Open Water Scuba Instructor or higher. **PADI Instructors may apply for the Night Diver Specialty Instructor rating after completing a Specialty Instructor Training course with a PADI Course Director, or by providing proof of experience and applying directly to PADI.** For further detail, reference Membership Standards in the General Standards and Procedures section of your PADI *Instructor Manual.*

Student Diver Prerequisites

By the start of the course, a diver must be:

1. **Certified as a PADI (Junior) Open Water Diver or have a qualifying certification from another training organization.** In this case, a qualifying certification is defined as proof of entry-level scuba certification with a minimum of four open water training dives. Verify student diver prerequisite skills and provide remediation as necessary.
2. **Be at least 12 years.**

Supervision and Ratios

Open Water Dives

A Teaching status PADI Night Diver Specialty Instructor must be present and in control of all activities. If Dive One is the student diver's first night dive, the instructor or certified assistant must accompany the student diver. Otherwise, the Specialty Instructor may *indirectly supervise* all dives. During the Night dives, it is recommended, but not required, that a certified assistant accompany each buddy team. **The Specialty Instructor must ensure that all performance requirements are met.**

The ratio for open water dives is 8 student divers per instructor (8:1), with 4 additional student divers allowed per certified assistant (4:1).

Site, Depths, and Hours

Site

Choose sites with conditions and environments suitable for completing requirements. Shallow dives will provide divers with more time to complete tasks. Use different open water dive sites, if possible, to give students divers experience in dealing with a variety of environmental conditions (incorporate environment friendly techniques throughout each dive) and logistical challenges. Ideally, select sites familiar to student divers – places they have gone diving during daylight hours. Consider conducting a confined water skills practice first to better prepare divers to apply skills in open water later.

Depths

6-12 metres/20-40 feet recommended
30 metres/100 feet limit for Dive 1 (Night Adventure Dive)

Children

6-12 metres/20-40 feet recommended
21 metres/70 feet limit for 12-14 year old if they have taken the Deep Adventure Dive

Hours

The PADI Night Diver course includes three open water dives. Conduct dives at night, between sunset and sunrise. The minimum number of recommended hours is 12.

Materials and Equipment

Instructor Materials and Equipment

Use the PADI Night Diver course materials prescriptively to accommodate various sequencing preferences and teaching and learning styles.

Required

- **PADI *Night Diver Specialty Course Instructor Guide***
- **Specialty equipment needed for student divers to carry out a night dive**
  - **Surface lighting system – lights, strobes or beacons to mark entry/exit location**
  - **Strobe or marker light to mark ascent/descent line location**
  - **Dive light, and back up light**

Recommended

- PADI *Night Diver Manual.* Use the student diver manual for detailed content explanation.
- PADI *Night Diving* video.
- As needed: extra back up lights, compasses, and slates for divers. Marker lights to mark individual student divers.

Student Diver Materials and Equipment

Because night diving is unique and potentially stressful, give special attention to student diver anxiety and stress levels in addition to equipment preparedness.

Required

- **Dive light, and back up light**
- **Compass**
- **Marker light for identification**

Recommended

- PADI *Night Diver Manual*
- PADI *Night Diving* video
- Access to support equipment as necessary, including but not limited to: surface light, strobe, and slate.

Assessment Standards

To assess knowledge you may review the Knowledge Reviews from the student diver's manual with the diver. **The student diver must demonstrate accurate and adequate knowledge during the open water dives and must perform all skills (procedures and motor skills) fluidly, with little difficulty, in a manner that demonstrates minimal or no stress.**

Certification Requirements and Procedures

Document student diver training by completing the PADI Specialty Training Record for Night Diver (see Appendix). **By the completion of the course, student divers must complete *all* performance requirements for Night Diver Open Water Dives One, Two, and Three.**

The instructor certifying the student diver must ensure that all certification requirements have been met. Reference Administrative Procedures of the General Standards and Procedures section of your PADI *Instructor Manual* for detailed information on Referral.

Links to Other Courses

The Night Diver Adventure Dive conducted during the PADI Adventures in Diving program may count as the *first dive* toward this specialty at your discretion. An Open Water Scuba Instructor can conduct the Night dive, which forms part of the PADI Adventures in Diving program.

Similarly, divers who successfully complete Night Diver Open Water Dive One and Knowledge Review Part 1 may receive credit as an Adventure Dive toward the PADI Adventure Diver and Advanced Open Water Diver certifications. They may also credit the specialty certification toward the PADI Master Scuba Diver rating.

Section Two:
Knowledge Development
Conduct

Whether natural curiosity, getting a new look at the familiar, the vibrant changing colors of aquatic life, or just because you can, night diving is popular. Observing marine life behavior under the cover of night, rarely seen by day, is magical. A wreck during a day dive is an artifact on the seabed, but when you revisit it at night, it comes alive and sends shivers down your back. With these examples in mind, the philosophy of this course is to focus on *seeing in the dark* things that appear differently during daylight dives. This includes showing student divers how to use night diving equipment, how to evaluate dive conditions at night, how to use and maintain dive lights, how to navigate, and how to interact responsibly with the aquatic life they'll see while night diving.

Student divers complete independent study of the course by reading the PADI *Night Diver Manual* and by watching the PADI *Night Diving* video. Work hand-in-hand with the student diver manual to address prescriptively student diver misconceptions or for clarification on certain points of interest. If there is a need for instructor-led presentations, use the following teaching outline, which appears in point form, as a road map of the conduct, content, sequence and structure for the PADI Night Diver course.

The result should be student divers with theoretical knowledge and pragmatic experience who can adapt what they've learned to future night diving opportunities. **Regardless of how you conduct knowledge development (independent study, instructor-led or a combination of these instructional approaches), student divers will be able to explain the following learning objectives.**

Knowledge Development

Learning Objectives

By the end of knowledge development, student divers will be able to explain:

Orientation to diving at night and to nocturnal aquatic life.

- **What are five reasons for night diving?**
- **What four diving specialty activities benefit from night diving?**
- **What are three types of nocturnal aquatic life you normally find in salt water? In fresh water?**
- **What are four behaviors that aquatic life displays at night?**
- **How should you interact responsibly with nocturnal aquatic life?**

Night diving equipment, underwater light systems and routine preventative equipment maintenance for diving at night.

- **What personal dive equipment considerations does a night dive require?**
- **What is the recommendation regarding the use of new or unfamiliar equipment at night?**
- **Why is it important to carry at least two lights on a night dive?**
- **What six features should you look for in a dive light?**
- **Why should some dive lights be switched on only underwater?**
- **What are the advantages and disadvantages of rechargeable and non-rechargeable batteries for dive lights?**
- **How do you maintain a dive light?**
- **How do you care for a flooded light?**
- **What are three uses for marker lights?**
- **Where should you attach marker lights?**
- **How can underwater strobes be used?**
- **What are two uses for surface support lights?**

The planning, organization, procedures, techniques, problems, and hazards for diving at night.

- **What should you consider when evaluating and choosing a night dive site?**
- **What six environmental conditions should you try to avoid when planning a night dive?**
- **What are the four general night dive planning recommendations?**
- **How can you minimize and cope with stress during a night dive?**
- **What should you do if your light fails during a night dive?**

Buddy-system techniques, disorientation and emergency procedures for diving at night.

- **What should you do if you become separated from your buddy during a night dive?**
- **What should you do if you become disoriented or lost during a night dive?**
- **What are the procedures for entering and exiting the water from a boat and from shore while night diving?**
- **What techniques should you use during night ascents and descents to avoid disorientation and stress?**
- **How should you signal on a night dive?**
- **What are the procedures for locating an offshore dive site at night?**
- **What natural navigation techniques do you use to avoid disorientation at night?**
- **What compass navigation techniques do you use to avoid disorientation at night?**

Knowledge Development Teaching Outline

Suggestions to *you*, the PADI Night Diver Specialty Course Instructor, appear in note boxes.

A. Course Introduction

1. Staff and student diver introductions

Note:
Introduce yourself and assistants. Explain your background with night diving if your student divers aren't familiar with you.

Have divers introduce themselves and explain why they're interested in night diving. Break the ice and encourage a relaxed atmosphere.

Give times, dates and locations as appropriate for classroom presentations, confined water and/or surface practice sessions, and open water dives.

Review with student divers other skills they'll want as a PADI Night Diver. These opportunities, through additional specialty course training, may include, but are not limited to: PADI Enriched Air Diver, *PADI* Underwater Navigator, *PADI* Peek Performance Buoyancy Diver, *PADI* Dry Suit Diver, *PADI* Digital Underwater Photographer, *PADI* Wreck Diver, *and PADI* Underwater Naturalist.

2. Course goals – this course will help:
   a. Develop your practical knowledge of night diving.
   b. Increase your diving skills.
   c. You plan, organize, and make dives at night.
   d. Improve your diving ability and provide you with additional supervised experience.
   e. Encourage you to participate in other specialty training.

3. Course overview
   a. Classroom presentations and confined water and/or surface practice sessions.
   b. Open water dives. There will be three open water dives.

4. Certification
    a. Upon successfully completing the course, you will receive the PADI Night Diver Specialty certification.
    b. Certification means that you will be qualified to:
        1. Plan, organize, make, and log open water night dives in conditions generally comparable to or better than, those in which you are trained.
        2. Apply for the Master Scuba Diver rating if you are a PADI Advanced Open Water Diver and a PADI Rescue Diver (or qualifying certification from another training organization) with certification in four other PADI Specialty ratings, and you have 50-logged dives.

Note:
Use the PADI Student Record File. Explain all course costs and materials, and what the costs do and do not include, including equipment use, dive site fees, etc. Explain what equipment student divers must have for the course, and what you will provide. Cover and review points about scheduling and attendance.

5. Class requirements
    a. Complete paperwork.
    b. Course costs.
    c. Equipment needs.
    d. Schedule and attendance.

B. Why Dive at Night?

- ***What are five reasons for night diving?***

1. The appeal of night diving
    a. Natural curiosity – a safe and controlled glimpse of the nighttime aquatic environment.
    b. A chance to observe nocturnal aquatic animals seldom seen during the day.
    c. A new look at old dive sites. Night diving creates a different perspective and offers new adventure at dive sites that have lost their daytime fascination.

d. A chance to view the "true" colors of an environment. At night you will be using your dive light at close range. This will let you see the true colors of the area and its organisms - even more than during the day when sunlight's colors have been selectively filtered out at depth.

e. Extends diving opportunities. The after-work dive is possible when you know how to night dive.

Note:
When discussing nocturnal aquatic organisms give examples such as crayfish, lobsters, some species of crabs, catfish, basket stars, many species of shelled animals, coral polyps, etc. Use parrotfish, squid, octopuses, etc. as examples of organisms that give you the opportunity to approach at night.

- ***What four diving specialty activities benefit from night diving?***

2. Special night diving activities

   a. Underwater Naturalist. Sightseeing and casual observation; there are lots of new animals to see and behaviors to observe while night diving – this will be discussed in detail later. In the nighttime marine environment you may see the phenomenon of bioluminescence – flashes of chemical light emitted by tiny microorganisms (mostly dinoflagellates) when disturbed by a diver, fish, boat or breaking wave.

   b. Digital Underwater Photographer and Underwater Videographer. For the seasoned night diver and underwater photographer or videographer, night diving creates a dramatic backdrop. Night diving allows the underwater photographer and videographer to get pictures and capture video of organisms rarely seen or difficult to approach during the day.

   c. Wreck Diver. For the seasoned wreck diver, wreck diving at night offers a new look at a familiar site.

Note:
Remind student divers interested in fish identification, photography, videography, and wreck diving to take the associated specialty. Also, emphasize that wreck diving at night never involves penetration into the wreck, even if familiar with the wreck during day dives.

C. Nocturnal Aquatic Life

- ***What are three types of nocturnal aquatic life you normally find in salt water? In fresh water?***

Note:
Customize this topic based on the aquatic environment used for the night dives in the course. This presentation may be in the form of a slide show, video presentation, movie, or verbal overview. Provide student divers with an orientation to several species of nocturnal life (fish; sponges; corals, anemones, sea fans, and jellyfish; crustaceans; mollusks; echinoderms; sharks and rays; and marine reptiles and mammals) typically seen locally. When practical, identify for student divers species of active daytime fish often seen resting at night. Be sure to highlight the Encyclopedia of Recreational Diving, Chapter 2, The Ocean Planet as a point of reference for student divers.

1. Local saltwater aquatic life found at night
   a. Fish (i.e., moray and wolf eel, flounder, parrotfish, and red sea squirrel):

      _____

      _____

      _____

   b. Sponges (i.e., azure and yellow tube): _____

      _____

      _____

      _____

   c. Corals, anemones, sea fans, and jellyfish (i.e., soft coral, fire coral, sea anemone, stalked anemone, Portuguese man-of-war, and box jellyfish):

      _____

      _____

      _____

   d. Crustaceans (i.e., shrimp, lobster, and crab): _____

      _____

      _____

      _____

      _____

e. Mollusks (i.e., cuttlefish, squid, and octopus): _____
_____
_____

f. Echinoderms (i.e., sea star, reef crinoids, feather star, brittle star, sunflower star, sea urchins, sand dollar, and sea cucumber:
_____
_____
_____

g. Sharks and rays (i.e., manta and spotted eagle ray): _____
_____
_____
_____

h. Marine reptiles (i.e., turtles, sea snakes, and iguanas): _____
_____
_____
_____

i. Marine mammals (i.e., seals, sea lions, dugongs, and manatees):
_____
_____
_____

j. Other types of aquatic organisms typically found at night in the local saltwater environment:
_____
_____
_____

2. Local freshwater aquatic life found at night
   a. Crustaceans (i.e., crayfish, crawdad): _____
   _____
   _____
   _____

   b. Fish (i.e., catfish, freshwater eel):
   _____
   _____
   _____

c. Other types of aquatic organisms typically found at night in the local freshwater environment:

_____

_____

_____

- ***What are four behaviors that aquatic life displays at night?***

3. Nocturnal behavior

   a. In addition to seeing animals at night that you don't during the day, you'll also see different behavior from creatures you encounter routinely during the day.

   b. During the day, coral appears hard and stone-like, but after dark, the coral polyps open and extend to feed on plankton.

   c. Common freshwater and saltwater fish "sleep" at night. They either rest on the bottom or glide as if in a trance, and some species change color or become pale.

   d. Some species of fish (parrotfish) take unusual steps to ensure an undisturbed sleep by secreting mucus sacks that envelopes it, rather like a bubble.

   e. Your dive light may attract some organisms, including plankton, small crustaceans, worms, and jellyfish to crowd around your light.

Note:
Inform student divers that although sleeping fish usually react little to lights, some react strongly to the lightest touch. Often they bolt away in any direction, running into divers or the reef, oblivious to injuries they inflict on themselves. With this in mind, remind divers to be cautious to avoid touching them.

- ***How should you interact responsibly with nocturnal aquatic life?***

4. Interacting with aquatic life

   a. Take steps to avoid inadvertent injury or damage to the organisms you come across.

   b. With visibility limited by darkness, you may have to be more cautious about bumping into things. At the same time, many organisms are more exposed due to nocturnal behavior and therefore more prone to injury.

c. Be aware that your light can cause harm, too, if you use it to push or prod.

d. Interact by moving cautiously and slowly. Maintain neutral buoyancy. Give animals the option to approach, remain where they are or retreat.

e. The best bet is to avoid touching aquatic animals at all; this prevents injury to either you or the animal.

D. Night Diving Equipment

- ***What personal dive equipment considerations does a night dive require?***

1. Personal equipment needed for night diving
   a. Mask, snorkel and fins
   b. Regulator with submersible pressure gauge
   c. Alternate air source
      1. Must have for night diving
      2. Second stage must be visually identifiable and attached within triangle area between the mouth and lower corners of the rib cage.
   d. Tank
   e. BCD
      1. A BCD used for night diving should have a low-pressure inflator. This allows for one-handed inflation of the BCD. This is necessary since the other hand is holding the underwater light.
   f. Exposure suits and accessories
      1. Exposure suits – should be used while night diving, regardless of the water temperature. Underwater they protect against scrapes and stings (greater chance of this at night); topside they prevent pre- and post-dive cooling due to generally cooler ambient air temperatures. Knees and elbows should especially be covered while night diving.
      2. For physical protection of the hands and ankles, gloves and boots are a must for night diving.
   g. Weight system
   h. Gauges
      1. Use the full complement of gauges – depth gauge, timer and compass.
      2. Place gauges in a console for night diving for convenience and quick reference.

3. Choose gauges with luminous (glowing) markings for easy reference. Electrically lighted gauges are a plus – this includes some digital watches and diving gauges. You may also secure a marker light to your console for convenient gauge reference.

i. Slate and pencil – used for difficult nighttime communications with your buddy, plus noting bottom time and compass headings.

j. Whistle – attach signaling device to the BCD and used for long-distance surface communication.

1. Air horn
2. EPIRB (Emergency Position Indicating Radio Beacon)

k. Primary and backup dive lights (discussed later).

l. Marker light or other battery-operated light device (discussed later).

Note:
At this point, take a few minutes to examine the personal equipment student divers will be using on their night dives. Specifically note whether the exposure suit and weight system complement each other.

Bring to the attention of student divers the various audible devices and the importance of having a redundant signaling system.

Don't spend too much time on dive lights and back up lights as they will be covered in more depth in the next section. Have student divers identify and locate their buddy's alternate airsource.

- ***What is the recommendation regarding the use of new or unfamiliar equipment at night?***

2. General recommendation for night diving equipment

a. Use equipment with which you're familiar and comfortable. If you're using unfamiliar equipment that requires a substantial change in how you use it or where you wear it, get used to it during the day first.

1. For instance, you don't have to think about where to find or how to use a new snorkel, but you may not use a new BCD with a different inflation system automatically until you've made a couple dives with it.
2. Get used to new gear like this and make any adjustments during the day so can night dive more relaxed and efficiently.

E. Underwater Light Systems

- ***Why is it important to carry at least two lights on a night dive?***

1. Light systems used for seeing underwater
    a. Primary dive light – You need to carry at least two dive lights. Although dive light technology has become increasingly reliable, bulbs still burn out, batteries go dead, and improperly maintained lights flood. The primary light is usually the brighter of the two lights. Use your primary light for navigating underwater and for surfacing and exiting the water.
    b. Backup light – Usually a small light of lower power than primary light, used in case the primary fails. Connect this light to a clip on your weight belt or BCD, or place in a BCD pocket.
    c. A third light – to be extra sure you won't have to finish the dive without one. The three light minimum comes from cave diving and other forms of technical penetration diving.

Note:
Explain to student divers that each diver must have their own lights; divers may not share a primary light source on open water night dives. Have available different lights (primary and backup) to show student divers. Take the time to have student divers display their lights, confirm that the lights work, and that divers have become familiar with where they and their buddies will be carrying their lights. Identify those student divers who need to acquire additional lights to participate on the open water night dives. Once you have reviewed the six features they should look for in a dive light assist the divers in their light selection.

- ***What six features should you look for in a dive light?***

2. Dive light features
    a. You may be surprised at the variety of dive lights to choose from. They range from large high intensity discharge lights (HID) for technical (tec) diving to compact backup models used by tec and recreational divers. No matter what the purpose, look for these six features when you buy dive light:
        1. Rugged case. Dive lights are made primarily from aluminum or, most commonly, plastic. Common materials include ABS plastic (acrylonitrile butadiene styrene), polycarbonate (also called

Lexan®), Delrin® (a lightweight, but durable low wear, engineered plastic) and PVC (polyvinylchloride). They need to be strong enough to withstand pressure, and tough enough to endure rough handling and the occasional bump or drop.

2. Dependable switches. Three types: indirect switches (magnetic, screw-down front lenses), o-ring gland switches and rubber boot-covered switches. A locking switch feature is nice.
3. Few o-ring seals. A dive light must have at least one watertight o-ring sealed opening that gives you access to the batteries and the bulb – the fewer the openings the better.
4. Comfortable handle/mount. You can divide dive light handles into pistol grip, lantern grip, torch styles and canister (tec diving) models. Choose one that you can hold comfortably for an extended period.
5. Lanyard or clip. When you buy a dive light, if it doesn't come with a lanyard, get one for it. A lanyard helps you avoid accidental loss, and allows you to release the light when you need both hands for a moment. You may also want a clip on your backup light to make sure it stays secure until you need it.
6. Fresh batteries. A dive light's no better than its batteries, which can be either disposable or rechargeable. You need to be sure you either have fresh disposables or fully charged rechargeables before you go night diving.

3. Choosing a dive light

- ***Why should some dive lights be switched on only underwater?***
    a. The dive light you choose depends on where you plan to use it, the activities you plan to engage in and how often you think you'll need it. For example, in limited visibility many divers prefer a powerful, narrow beam to reduce the fog of suspended particles. In clear water, wide beams are preferred to light as large an area as possible.
    b. Narrow beams also work well for looking into cracks and small areas. Generally a narrow beam is brighter than a wide beam. Many divers prefer to use a narrow beam light as their backup as these lights provide adequate illumination to surface and exit the water. Also, keep in mind that backup lights work well for looking into holes and under ledges during the day.

c. Many lights have a medium wide beam with a bright center – excellent for general application.

d. Tec diving and underwater videography call for special lights. Some of these lights burn so intensely that you should only turn them on in water to keep the heat from damaging the light or worse, causing a fire. Check the manufacturer's guidelines to determine whether you can use a particular dive light out of water, especially if it is high powered HID light.

4. Light and power

   a. When you want to compare dive light specifications, it helps to understand manufacturers' terms.

      1. Candlepower/watts – A light's power/intensity is usually measured in watts, or less commonly, candlepower. A small backup light will be rated two to eight watts, a large primary 12 to 30 watts and a video light between 50 and 100 watts. If you're comparing two lights with the same bulb and reflector types, then watts are helpful. Candlepower measure actual light intensity.

Note:
Explain to student divers that the watt rating only tells part of the story because it only tells you how much power the light uses. A light's reflector and bulb type affect how this translates into light output. A wide beam light and a narrow beam light with the same watts will have different brightness; the wide beam will cover a large area more dimly and the narrow a smaller area more brightly. Different types of bulbs generate light more efficiently than others. A 10-watt HID bulb, for example, generates about the same light as a 50-watt halogen bulb.

Again, this is only part of the picture. A very narrow, low power light can have a higher candlepower than a high power, wide beam light. HID bulbs put out essentially the same amount of light until the batteries get too low, then blink off entirely. LED bulbs hold their brightness a long time, then dim significantly and burn for quite awhile longer.

2. Lamps/bulbs amps – Light bulbs or lamps are rated by volts or amperes. Volts rate the intensity of electrical power and amperes rate the quantity of power. The higher either rating is for a bulb, the greater a power source it needs, and this however, doesn't mean it's brighter.

Note:
Explain to student divers that a bulb for a powerful rechargeable light may draw 1.2 amperes, while one for a disposable battery light draws .5. If the bulbs were switched, the rechargeable batteries might quickly burn out the .5 bulb and the disposable batteries would lack sufficient power to light the 1.2 bulb.

3. Burn time/battery life – This describes the average time fresh batteries will last. Large bright lights used to have relatively short burn times, but this has changed with advances in bulb efficiency and battery capacity. Burn time is an estimate, and varies depending on variations in bulb current requirement, and how you use the light – continuously or turned off and on. Use burn time to gauge approximate duration only.

Note:
Explain to student divers that most primary dive lights now have burn times of four to six hours, though you can still find lower cost models with one to three hour burn times. Small lights (backup size) may have five or six hour burn times.

4. Bulb life – The bulb life rating is based on how long 50 percent of test bulbs last. Use bulb life ratings to compare how often you'll need to replace bulbs in various dive lights, but not to determine how long a particular bulb will last.

Note:
Explain to student divers that if a bulb has a 30-hour rating, which means that after 30 hours of use, 50 percent of the bulbs, were still burning. In short, assuming no other damage, this means you have about a 50 percent chance of a bulb making it through its estimated life. LEDs have the longest life estimates in the 5000 hour range.

5. Bulb types – Bulbs are classified based on the material that generates light within them. Dive lights generally employ the whitest lights possible for the truest colors possible. Most dive lights are equipped with halogen, xenon, LED or HID bulbs.

Note:
Explain to student divers the different bulb types.

1. *Halogen increases a bulb's brightness and it used to be the primary choice for high-powered dive and video lights. Although you still find some lights using halogen, HID lights have largely replaced them. HID lights are, however, the most costly lights.*

2. *Xenon bulbs come in lights of all sizes, and are brighter than krypton and argon bulbs (commonly used in surface lights), offering a good trade between brightness, cost and burn time. Many popular dive lights use xenon bulbs.*

3. *LEDs offer comparable brightness to xenon, but use far less power and therefore give you substantially longer burn times for a given battery supply. They are also the hardiest bulbs with the longest expected life. LEDs are becoming increasingly popular although they're more expensive than xenon (but less than HID).*

4. *HID bulbs are the brightest and provide a lot of light for the power they consume. Their primary drawback is that you cannot turn HIDs off and on repeatedly without excessive battery drain and wear on the bulb. Generally, you turn an HID on immediately before entering the water and leave it on until you're out of the water again.*

6. Reflectors – Besides the bulb, reflector shape greatly affects a light's characteristics. The reflector concentrates or spreads the beam, for greater coverage with less over all brightness, or greater brightness but less over all coverage.

Note:
Explain to student divers that a few models have adjustable bulbs and reflectors so you can vary the beam angle. Reflectors are fragile and easily scratched or marred when handled, so use caution when disassembling your light. Now that you have reviewed the six features divers should look for in a dive light and have explained the light and power of dive lights assist those student divers without lights in their light selection.

5. Batteries

- ***What are the advantages and disadvantages of rechargeable and nonrechargeable batteries for dive lights?***

    a. When choosing a dive light, a major decision is whether to choose one that uses rechargeable or disposable batteries. Each has advantages and disadvantages, applications and maintenance considerations.

Note:
Remind student divers that batteries are not friendly to the environment. One of the primary concerns is that they can leak heavy metals into the environment (especially a concern regarding groundwater). Rechargeable batteries are generally worse in this regard than disposables. However, over its life one rechargeable battery replaces more than 100 disposable batteries. In that light, the disposable batteries are a bigger concern. If you're going to be night diving a lot, rechargeables may be better not just for your wallet, but for the planet you live on. When your batteries reach the end of their useful life, dispose of them properly. It's a simple step that goes a long way toward protecting the environment.

b. Disposable type – Disposable batteries primarily used in dive lights are alkaline and lithium ion batteries. Alkaline batteries are the most common and are available in all the usual sizes for dive lights – C, D, AA, AAA, N or nine volt.

Advantages: Alkaline batteries have the advantage of a long burn time. As the batteries weaken, the light dims slowly, giving you adequate warning that you're getting low on power. Lithium ion batteries have similar performance but have up to six times the burn duration in exchange for costing about twice as much.

Disadvantages: If you're not going to use the light for an extended period, remove the batteries. Although both alkaline and lithium ion batteries have long shelf lives, they can leak and damage your light, even though the risk is minimal over a period of months.

Note:
Caution student divers about battery replacement. When the batteries get weak, replace all the batteries with new, fresh batteries. Never mix weak and fresh batteries because doing so simply drains the new ones, and releases excess hydrogen. Never mix batteries of different types. That is, never use alkaline batteries and lithium ion batteries together, even if they're brand new, nor mix disposable and rechargeable batteries. Although a light may accept all these types, different battery types have differing discharge characteristics and mixing them will at best damage and drain the batteries, and at worst create a fire hazard.

c. Rechargeable type – Rechargeable batteries include nickel-cadmium (NiCad), gel-cell, and nickel metalhydride (NiMH). Their characteristics vary considerably. Most popular battery sizes are available as rechargeables.

   Advantages: Compared to alkaline disposables, rechargeables can power higher wattage bulbs and maintain their power until nearly exhausted. Your light holds its brightness, then drops off quickly when you exhaust the batteries.

   Disadvantages: All rechargeable batteries have specific maintenance requirements that you need to follow to get full performance and life expectancy from them. For one, handle them carefully because dropping them can damage them so they no longer hold a charge. Most batteries heat up while charging and you should allow them to cool before sealing them in your light and using them. Discharging completely or recharging after a partial discharge may damage some rechargeables. Not using them for extended periods may also cause damage. With all rechargeables batteries, if you travel internationally, be careful to recharge using the proper current; the wrong current can ruin your batteries instantly. Always follow the manufacturer's recommendations to assure optimum battery life.

Note:
Review with student divers the various types of rechargeable batteries.

1. *NiCads can power higher wattage bulbs and maintain their power until nearly exhausted. However, they hold much less power per charge compared to fresh alkaline batteries. Do not recharge NiCads after a partial discharge. Instead, burn the light until it gets dim, and then recharge it. If you partially discharge and recharge NiCads repeatedly, they develop a "memory" and will only hold a partial charge.*

2. *Lead-acid gel-cell batteries are common in some high intensity video lights and canister lights. They can drive high-powered bulbs for long durations but tend to be heavy. They have no memory issues – you can recharge after a partial discharge without affecting their performance. Avoid discharging gel-cells too deeply, because this can damage them, reducing their capacity or killing them altogether.*

3. *NiMH are replacing both NiCads and gel-cell. They have similar characteristics to NiCads, but for a given size, last longer than NiCads, alkaline disposables or gel cells. In addition, they have little or no memory. They are available in AAA, AA, C, D and nine volt and are rated by milliamp hours (mAH). The higher the rating, the more power the batteries hold and the longer the burn time. The higher mAH batteries cost more, and they accept fewer charge cycles, so they have a shorter useful life. NiMHs are the most trouble free with regard to charging because they're not damaged by deep discharge and they don't suffer from memory problems. Brand new NiMH batteries (depends upon size) do not hold a full charge until you've cycled them a few times. It may take as many as five or six cycles before the batteries reach full performance. Even if you have not used them and don't plan to, you should recharge your NiMH batteries monthly.*

F. Dive Light Maintenance

- ***How do you maintain a dive light?***
  1. Routine preventative maintenance

a. Wash light thoroughly with fresh water. Better still, allow light to soak in warm water for a few hours – this will dissolve the remaining salt crystals.

b. Dry and open light. Remove batteries in case of leakage. Store disposable batteries in a refrigerator for longer life. If rechargeable type, charge them before storage.

c. Clean o-rings. Remove sand, lint or any foreign material, and check for cuts and nicks. Lightly lubricate with silicone grease. Clean area where o-ring seats, also lightly lubricate.

d. Inspect battery and bulb contacts. Clean with extra-fine sandpaper or a pencil eraser

e. Store away from heat or sun.

How do you care for a flooded light?

2. Caring for a flooded dive light

a. Act fast, turn off light immediately

b. Open and drain water from interior. Rinse interior including bulb and rechargeable batteries with fresh water (throw disposable batteries away). Drain fresh water. Wipe off/dry bulb and reflector and set aside.

c. Using a very mild heat or blowing source (blow-dryer) dry the light quickly.

e. Return light to professional dive store or manufacturer for servicing.

Note:
Explain to student divers that wet batteries emit gas that can build up pressure inside the light so that it may pop apart. As a precaution, remind divers to wear their mask or other eye protection when opening a flooded light. Advise student divers that after caring for their flooded light, that it needs to be serviced by a PADI Dive Center or Resort or the manufacturer. Explain to divers that one reason many lights need manufacturer service is that they have a platinum catalyst that absorbs hydrogen gas released by the batteries. This catalyst is damaged by water and must be replaced to avoid dangerous gas buildups in the light.

G. Lights for Navigation and Orientation

1. Besides your primary and backup lights, you'll find several other lights useful for night diving. These include marker, strobe and surface support lights. You use these for orientation to your entry/exit point, your buddy, and other locations.

- ***What are three uses for marker lights? Where should you attach marker lights?***

2. Marker lights
   a. Marker lights are typically inexpensive, disposable battery models, so it's not much of a problem for you and your buddy to have one or more each to use as needed. You can attach marker lights with rubber bands, tape, string or cable ties, and several come with their own attachment devices.
   b. You can apply marker lights in three basic ways to help you and your buddy remain oriented.
      1. Use to mark each diver. Attach the marker light to your snorkel or cylinder valve, so you can be seen more easily from the rear.
      2. Secure marker lights to the dive boat or your surface float so you can spot it easier when you surface. It also alerts boaters to your presence. Attach the light about one metre/three feet up on the flagstaff.
      3. Mark your ascent/descent line or anchor line with them so you can locate it easily. Attach several along the lines length, with a different color at 5 metres/15 feet to mark the safety stop depth.

Note:
Remind divers to attach marker lights securely so they don't come loose and litter the reef or beach.

- ***How can underwater strobes be used?***

3. Strobe lights
   a. Strobe lights produce high intensity flashes at short intervals, making them visible much farther away than marker lights.
   b. Typically placed a few metres/feet underwater below floats and boats to mark their location. You can put strobes on the boat or float for easy identification at the surface.

Note:
Suggest to divers they should be careful placing any bright light, underwater or just above the surface, next to the descent/ascent or entry/exit area. Some species of small stinging marine organisms are attracted to the bright light causing problems for divers. The problem may be seasonal or local. When in doubt, check with local divers for more information before using bright surface or underwater lights. Point out that there is also a concern with shore lights where sea turtles nest. Suggest to divers to check with their local PADI Dive Center or Resort about local policies and recommendations that apply during nesting season in areas where turtles lay eggs.

- ***What are two uses for surface support lights?***

4. Surface support lights
    a. Along with your dive lights, you'll want several surface lights when you night dive. You'll use surface lights as you gear up, and as you slide out of your kit after the dive. They help orient your entries and exits, and they spare your dive light's batteries for the actual dive.
    b. Types: 1) gas lanterns, 2) boat or car lights, 3) street lights, 4) roadside barricade flashers and 5) strobe beacons.
    c. Label surface lights as needed to prevent their removal from shore (e.g., "Do not remove – divers in the water"). Leave a nondiver on the beach to tend the lights.

Note:
Suggest to divers they should check with the local Coast Guard or Harbor Patrol concerning proper use of shore/boat lights. Make sure divers do not use red, white or green flashing lights. These lights could be mistaken by vessels as navigation beacons or harbor entrances.

H. Planning Night Dives

- ***What should you consider when evaluating and choosing a night dive site?***

1. Choosing a dive site
    a. Review general dive planning considerations.

1. Advance planning
2. Preparation
3. Last-minute preparation
4. Predive planning

b. Choose an underwater area you are familiar with. If possible, dive or snorkel the proposed location during the actual day of the night dive.

c. Evaluate water conditions: visibility, surge, currents, water temperature and surf. Check tide tables – it's best to dive at high, slack tide in most areas.

d. Reference your compass often and write down important details to help you find a specific reef, wreck, etc., during the night dive.

e. If shore diving, note specific locations of entries and exits.

f. If it is not possible to dive a location during the actual day of the night dive, choose a location you have dived in the past. Reference your logbook for important dive data on the location.

g. Always evaluate the environmental conditions at the dive site prior to the dive – just before sunset if possible.

Note:

Inform student divers that as a general recommendation, it's preferable to avoid diving in an unfamiliar site at night. Under a few circumstances, it may be acceptable to night dive at an unfamiliar site. Under ideal conditions in a type of environment you're familiar with, it may be reasonable to night dive on a site you've never visited before. For example, if you've been diving all week on coral reefs around an island in clear, calm water, a night dive on a part of the reef you haven't seen would probably be acceptable. You may never have seen that exact part of the reef, but provided you evaluate the site, locate your planned entrance and exit points and so on, you'd be adequately familiar with the environment to have a fun, safe night dive. Similarly, it may be reasonable to visit a site for the first time with a professional dive guide or instructor who is familiar with the site. Recommend to divers to check with the local PADI Dive Center or Resort and about their Discover Local Diving night experiences.

- ***What six environmental conditions should you try to avoid when planning a night dive?***

2. Evaluating conditions for a night dive doesn't differ from any other dive. What does differ, however, is where you draw the line between "acceptable" and "unacceptable" conditions. Try to plan night dives when a full moon is present (unless your planned activity requires complete darkness). A full moon provides ambient light for suiting up, swimming to and from the dive site and finding your way underwater if both lights burn out (this will only be possible if the visibility is good and/or you are in shallow water).
3. When planning a night dive, choose the location and time that provides the best environmental conditions. You want conditions for a night dive to be a bit better than the worst conditions you would consider acceptable for a day dive. The better the environmental conditions, the more enjoyable the night dive.
    a. Avoid these conditions at anytime, but especially at night:
        1. Moderate to high surf – it's difficult at best to judge changes in the surf at night as you can't see the waves coming.
        2. Moderate to strong currents – if you're thrown off course and end up down current, you may not be able to see your exit point, and when boat diving, you may be hard to spot for pick up.
        3. Bad visibility – visibility that complicates navigation or reduces the possibility of seeing anything interesting is not worth diving in.
        4. Thick kelp, fishing nets or anything you could become tangled up in – in restricted visibility it is harder to avoid potential entanglement so steer clear of these areas.
        5. Heavy surge – night surge can swing you into something before you see it making disorientation and vertigo likely.
        6. Overhead environments – even if you're equipped and trained for overhead environments, stay outside them at night.

- ***What are the four general night dive* planning recommendations?**

5. General night dive planning recommendations
    a. Planning considerations for all night diving activities:
        1. Prepare your equipment in the daylight. Pay particular attention to your dive lights. Change or recharge batteries as necessary. Secure your marker lights, but don't activate them until you're about to get into the water.

2. Eat a few hours before the dive. Eat a good meal at least three hours before the dive and avoid eating greasy foods. A proper, balanced meal assists in having the energy you need to stay warm. Also, drink plenty of noncaffeinated, nonalcoholic beverages to stay hydrated.
3. Dive with familiar buddies. Plan to make night dives only with buddies you have dived with during the day. A professional dive-master who's familiar with the environment is an exception.
4. Bring a friend. When planning a night dive, invite a nondiving friend along to wait on the shore or boat. This individual can tend the relocation lights, hand or take accessories from you, and provide assistance in case of an emergency. Charter boats usually have someone to do this, which is one reason many divers prefer night diving from charter boats.

I. Special Night Diving Situations

- ***How can you minimize and cope with stress during a night dive?***

1. Night diving stress – some stress makes night diving exciting, but too much takes the fun out of it.
   a. The causes of stress while night diving:
      1. Darkness – the lack of ambient light (lack of light in general, light failure and using a light without adequate output) can cause stress. For some, darkness conjures "imaginary" thinking (that something is following you, watching you or ready to grab you) and this can cause stress.
      2. Adverse environmental conditions combined with darkness (such as strong currents, rough waves and limited visibility) may cause undue stress while night diving. As stated previously, the better the environmental conditions are at the dive site, the more enjoyable your night dive will be. Avoid night diving when conditions are poor.
      3. Using unfamiliar equipment.
      4. Task loading – trying to accomplish too many objectives.
   b. How to cope with night diving stress
      1. Complete this class. Night diving for the first time can cause stress, so it is nice to know you will be making your first few night dives under the supervision of a professional PADI Instructor. Completing all three dives in this course will help you eliminate much of the stress you may have otherwise experienced if you had

tried night diving on your own. This class will give you confidence, and that alone is an excellent stress reducer.

2. Make sure you are physically and psychologically prepared to night dive – maintain physical fitness, over-learn basic skills through practice and repetition (until they're automatic), know your physical limits and always stay with your buddy.
3. In the unlikely event a problem occurs while you are night diving – Stop, Breathe, Think and then Act. Do not react to the problem. Breathe continuously and deeply; doing so will help reduce stress while night diving. Dive in areas that are familiar to you (those locations you've dived by day).

- ***What should you do if your light fails during a night dive?***

2. Failure of underwater lights
   a. If your light fails, simply stop, switch to your backup light and signal your buddy. At this point, head for the boat or shore – don't continue a night dive on your backup, because if it fails, you don't have a light.
   b. Borrow your buddy's backup light if both of your lights fail. In the very unlikely circumstance that it doesn't work either, leaving the two of you with only one light, conditions allowing, ascend together immediately.
   c. Make an ascent without a light. If both you and your buddy had a quadruple light failure/light loss (very unlikely), or that you separated from your buddy and had a double light failure/light loss (also unlikely) discontinue the dive and make a direct ascent. Begin by taking a moment to let your eyes adjust. If you're near a reference line, use it to guide and control your ascent. Listen for your dive computer's audible ascent rate warning, if it has one, to help you ascend at 18 metres/60 feet per minute or slower, or as specified by your dive computer.

Note:
Reinforce to student divers that a backup light should only be used for the purpose of safely ascending and exiting the water - not for continuing a dive. When you have to resort to a backup light, end the dive.

- ***What should you do if you become separated from your buddy during a night dive?***

3. Buddy separation
    a. First, look for a glow from your buddies' lights. If you can't see other lights, hold your light up against your exposure suit or put your palm over the lens to dim the light. If you still don't see one, shine your light straight out from you and rotate, so that perhaps they will find you.
    b. If after a one-minute search you can't find your buddy, surface cautiously, inflate your BCD and wait for your buddies to do the same. You and your dive team should agree to this plan before the dive. Once you and your buddy have surfaced, regroup and descend together – time and air supply permitting.

Note:
Remind divers that devices used to gain attention at the surface should be a standard piece of equipment for every diver, regardless of certification level. Audible devices like whistles or air horns (devices that attach to the low-pressure inflator of the BCD) can be easily heard at night or in limited visibility conditions. For daytime use, include a visual signaling device like a signal mirror or surface marker buoy (safety sausage) in your equipment. Familiarize student divers with the latest devices on the market. The best way to do this is to have samples of these devices for divers to handle.

- ***What should you do if you become disoriented or lost during a night dive?***

4. Disorientation and loss of direction
    a. During descents and ascents:
        1. Whenever possible, use a reference line for orientation and control. Also, make all descents in a head-up, feet-down position. Remember the five-point ascent/descent from the Open Water Diver course.
        2. If disorientation occurs in mid-water (you can't see the surface or bottom) without a reference line - watch bubbles to determine up and down, and grasp your buddy or hug yourself until the disorientation passes. If the disorientation doesn't pass, discontinue the dive and follow your bubbles upward at a rate of 18 metres/60 feet per minute or slower.
    b. On the bottom:

1. Check your compass and depth gauge frequently. Dive your plan.
2. Return to the surface with your buddy for orientation to boat or shore. With time and air allowing, agree on a new direction of travel, descend and continue the dive on your new heading.

J. Night Diving Techniques

- ***What are the procedures for entering and exiting the water from a boat and from shore while night diving?***

1. Night diving entries
   a. Boat entry
      1. Turn on your primary light and secure its lanyard (in case you lose it as you enter the water).
      2. Check the area below with your light.
      3. Make your entry as you normally would with your regulator in your mouth.
      4. Signal "okay" once in the water, clear the entry area, and wait for your buddy. Don't shine your light up to the boat, which can blind those aboard.
   b. Shore entry
      1. Turn on your primary light and secure its lanyard (in case you lose it as you enter the water).
      2. Check the entry area with your light for rocks or obstructions.
      3. If you're entering through light surf, time your entry for a lull in the waves. Watch for waves frequently with your light as you enter.
      4. Make your entry as you normally would.
      5. Stay close to your buddies, and be careful not to shine your light in their eyes.
   c. When exiting, use similar techniques. Turn your light on so you can see, and in case you drop it, but be careful not to shine it up into the boat or shore tender's eyes. When exiting through surf, time your exit for a lull and keep an eye out for waves as you go.

- ***What techniques should you use during night ascents and descents to avoid disorientation and stress?***

2. Descents and ascents – If you're diving from shore, you can often use the bottom as your reference. If you're diving from a boat, or with a float, a reference/anchor line provides a good reference.
   a. Night diving descents

1. Turn your light on just before you begin to make your descent. Check the time, take a compass reading on the shore or boat lights, signal your buddy and slowly vent the air from your BCD.
2. When possible, use a reference line. This can be a buoy or boat-anchor line.
3. Hold on to the line with your free hand. Your other hand, the hand holding your light, may be used to vent air from your BCD, adjust loose equipment, etc. (the light may be released, since a lanyard connects it to your wrist).
4. Descend slowly in a head-up, feet-down position. Adjust for neutral buoyancy often and stay close to your buddy.
5. Point your light downward as you descend. Watch for the bottom. Continuously reference your gauges during the descent.

b. Night diving ascents

1. Try to find your buoy or boat-anchor line before you ascend. Signal your buddy, and note the time of your direct departure to the surface. Remember to breathe continuously.
2. Use the reference line for a slow, controlled ascent. Stay close to your buddy and maintain neutral buoyancy while looking up and around with your light.
3. Hold on to the line with the hand that grasps your light. The other hand should always be above your head, alternating between venting air from your BCD and holding your gauges in front of your light to reference your ascent rate.
4. Ascend no faster than 18 metres/60 feet per minute. Be a S.A.F.E. diver – Slowly Ascend From Every dive.
5. While ascending, shine your light upward to watch for obstructions and reference your ascent rate.
6. Once at the surface, inflate your BCD and signal "okay" to the boat or shore tender. If necessary, take a moment to rest before heading to the exit.

- ***How should you signal on a night dive?***

3. Communication – you use the same hand signals at night as you do during the day, but you need to be sure your buddy can see your signal. You also need to be sure you don't accidentally blind your buddy with your light in the process of signaling.

a. Gaining your buddy's attention underwater

1. Rap on your tank

2. Rapid waving of your light (up-and-down, side-to-side or any other rapid movement) is an attention-getting signal that alerts another diver to something of interest, to when something is wrong and to an emergency.
3. Gently touch your buddy. Be careful doing this at night, your buddy may be startled by your touch!

b. Gaining your buddy's attention at the surface

1. Wave your light back and forth to get attention and to signal for help.
2. Use a whistle attached to your BCD for long-distance communication.

c. Using hand/light signals

1. Use the standard hand signals and any others agreed upon before the dive.
2. Shine your light on the hand signal – it's best to signal at waist level.
3. Large circular motions with your light indicate everything is okay.
4. Since night dives take place when other people may be going to bed, give some thought to common courtesy. Speak softly and keep your light off windows, cars, boats, tents and out of people's eyes.
5. In the water, be courteous of your buddies and other divers who may be there. Don't shine your light in their eyes; point at leg level when you're trying to identify or locate a diver. When passing another group of divers, point your light to the side away from them.

Note:
Remind student divers to avoid shining their light directly into their buddy's eyes because this will temporarily blind their buddy by destroying their night vision. Suggest locating their buddies by shining their light on their fins. Also, because quick, jerky light motions are attention-getting signals, try to keep normal light movements slow and steady. If they see a rapidly waving or jerky dive light beam don't ignore it. Determine the source and cause because someone may need help.

K. Night Diving Navigation

- ***What are the procedures for locating an offshore dive site at night?***

1. Locating an offshore dive site. When night diving from shore, you may want to visit a specific spot away from shore. A few techniques make finding the spot easier.
    a. Follow a previously determined compass course to the dive site. The course heading and approximate distance information could be obtained from another diver, a previous day dive of the area (consult your logbook) or a dive made during the day of the night dive. To determine the distance to the dive site, try using kick cycles.
    b. If the water's clear enough, use your light to look for familiar features on the bottom. Otherwise, check above-water landmarks.

- ***What natural navigation techniques do you use to avoid disorientation at night?***

2. Natural navigation relies on maintaining a mental picture of where you are based on features and navigation clues that surround you. For more precision, you can map your course on a slate to find your way back. Look for obvious landmarks and other distinct features that keep you oriented. Pay particular attention to these:
    a. Water movement – can help you detect near-shore areas or offshore rocks by the back-and-forth movement of surge. The direction of a current may also be used to detect your location, but remember currents can change direction unexpectedly.
    b. Sand or mud ripples – run roughly parallel to shore and are excellent natural navigational aids.
    c. Rock or reef formation – coral or rock reefs often form long natural lines. One of the easiest ways to navigate is to follow a reef edge out and back.
    d. Depth – note your depth relative to the bottom contour and your exit point. As you return, depth helps you judge how close you are to your exit.
    e. Light – especially in clear water, light – from the boat or shore, a strobe or along your reference line – helps you keep your bearings.

Note:
Natural navigation techniques may be a new topic for student divers only certified to the Open Water level. Expand on this topic as necessary. Remind divers that natural navigation on a night dive is most effective when you're familiar with the dive site, having visited the area during the day. Choose a dive site familiar to you, reference your logbook for information about the dive site or dive the same location during the day.

- ***What compass navigation techniques do you use to avoid disorientation at night?***

3. Compass navigation techniques
    a. Use compass navigation techniques to avoid disorientation at night. Consider the following techniques:
        1. Always have a compass while night diving.
        2. Before descending, take a compass reading on the boat or exit area on the shore. Write this heading down on a slate for reference underwater. Now you can navigate away from, parallel to or toward the boat or shore.
        3. If the area is somewhat new to you, choose a single compass heading away from the reference line and try to swim in a straight line. It is okay to stop and look at things, but try to stay on the chosen heading. Once you or your buddy have reached a predetermined air supply limit, swim the reciprocal course back to the reference line. If you still have enough air to continue the dive after relocating the reference line, tour the area close to the line and try to keep it in sight until you are ready to ascend.
        4. In lower visibility, follow several short courses to and from the exit area. Starting, for instance, at the anchor line, follow a compass heading out and back a short distance. After you relocate the anchor line, choose another heading and repeat the process. You'll see a good deal, while remaining oriented and close to the boat.
4. Navigating to the exit – plan night dives so that you return to your exit, or as close as possible, underwater.
    a. Before you descend. Look back toward the boat or shore while you're still oriented and note what your exit looks like from the water.
    b. At the end of your dive, if you must return to your exit on the surface, cover your dive light and let your eyes adjust. Look for your boat or shore lights; use your compass to show you which way to look.
    c. Swim slowly, take your time and watch for obstructions. Use your light to check the area as you exit.

Section Three:
Open Water Dives
Conduct

There are no required confined water and/or surface practice sessions for the PADI Night Diver Specialty Diver course, however, developing student diver abilities in conditions that doesn't add complexity to learning new skills such as using and maintaining dive lights, and night navigation techniques before progressing to more challenging conditions, is sound instruction. Some of the underwater skills, such as efficiently locating the dive exit point, using a dive light, signaling, and navigation, are much easier to learn if you have student divers practice them in a confined water session or on the surface first. You may add confined water and/or surface practice sessions at your discretion. The confined water session may also include a scuba skills review. After completing the course, suggest to divers to dry-rehearse night diving navigation techniques before commencing night dives.

On the first dive, student divers mainly work on adjusting to the night environment, using their diving equipment, communicating underwater, maintaining neutral buoyancy, and using their navigation skills. On the second dive, student divers continue to practice their navigation skills and take note of the nocturnal aquatic life while on the tour part of their dive. On the third dive, student divers experience a portion of their dive without the beam of their light. Divers who finish exercises with sufficient air remaining may continue to dive for pleasure and experience, at your discretion. Bottom time on each dive should not exceed the no decompression limits of the Recreational Dive Planner or each diver's computer, if used. **Regardless of how you conduct the open water dives, student divers must demonstrate the following performance requirements.**

Performance Requirements

By the end of the open water dives, student divers will be able to:

Night Diver Open Water Dive One

- **Execute a descent using a line or sloping bottom as a reference.**
- **Demonstrate how to communicate with hand signals and dive lights while night diving.**
- **Demonstrate the proper use of a personal dive light, submersible pressure gauge, compass, timing device and depth gauge at night.**
- **Navigate to a predetermined location using a compass/natural features and return to within 8 metres/25 feet of the starting point, surfacing for orientation only if necessary.**
- **Demonstrate proper buddy procedures by maintaining buddy contact throughout the night dive.**
- **Perform an ascent using a line or sloping bottom as a reference.**

Night Diver Open Water Dive Two

- **Execute a descent using a line or sloping bottom as a reference.**
- **Demonstrate how to communicate with hand signals and dive lights while night diving.**
- **Demonstrate the proper use of a dive light, submersible pressure gauge, compass, timing device and depth gauge at night.**
- **Using a compass for navigation, return to the shore or boat underwater with at least 35 bar/500 psi remaining in your scuba tank.**
- **Identify nocturnal aquatic life discussed during the academic portion of the course.**
- **Demonstrate proper buddy procedures by maintaining buddy contact throughout the night dive.**

Night Diver Open Water Dive Three

- **Execute a "free descent" using the line or sloping bottom as a visual guide only.**
- **Demonstrate how to communicate with hand signals and dive lights while night diving.**
- **Demonstrate the proper use of a personal dive light, submersible pressure gauge, compass, timing device and depth gauge at night.**
- **Remain in a stationary position for three minutes, on the bottom, with no dive lights on.**
- **Demonstrate proper buddy procedures by maintaining buddy contact throughout the night dive.**

Open Water Guidelines for Night Dives

A. General Open Water Considerations

1. Involve student divers in dive-planning activities. Have students prepare training buoys, reference lines, shore surface lights and underwater orientation lights (strobe, marker lights and/or beacons). Since this activity takes place in a unique and potentially stressful environment, give special attention to student diver anxiety and stress levels, in addition to student diver equipment preparedness.
2. Conduct a thorough briefing. The better the briefing, the more smoothly the night dive will proceed. Assign buddy teams according to ability (weak with strong) and establish a check-in/check-out procedure.
3. Staff support saves valuable time:
    a. Assist with organizing the group of student divers at the descents/ascent reference line.
    b. Supervise buddy teams during night dive execution.
4. You can determine student diver performance on dives from the surface by observing the beams of each teams underwater dive lights. Because buddy teams enter and exit at the same point, you will know if they've mastered the objectives.

B. Night Diver Open Water Dives

Dive One

- **Execute a descent using a line or sloping bottom as a reference.**
- **Demonstrate how to communicate with hand signals and dive lights while night diving.**
- **Demonstrate the proper use of a personal dive light, submersible pressure gauge, compass, timing device and depth gauge at night.**
- **Navigate to a predetermined location using a compass/natural features and return to within 8 metres/25 feet of the starting point, surfacing for orientation only if necessary.**
- **Demonstrate proper buddy procedures by maintaining buddy contact throughout the night dive.**
- **Perform an ascent using a line or sloping bottom as a reference.**

a. Briefing
   1. Dive sequence – review Dive One tasks

b. Predive procedures

c. Dive One Tasks
   1. Help assemble/position surface lighting systems.
   2. Before descent, take compass bearing on shore/boat. Descend reference line or down sloping bottom.
   3. Underwater – adjust to the night diving environment.
   4. Discuss the navigation exercise for this dive. Explain how to perform the exercise and return to within 8 metres/25 feet of the starting point.
   5. Tour the immediate area.

d. Post-dive procedures

e. Debriefing
   1. Student divers discuss the adjustment to the night diving environment and the techniques used for the navigation exercise. Guide discussions to address what worked, what didn't work, and how things may be done differently the next time. Discuss the nocturnal aquatic life seen on the dive.

f. Log dive (instructor signs log)

Dive Two

- **Execute a descent using a line or sloping bottom as a reference.**
- **Demonstrate how to communicate with hand signals and dive lights while night diving.**
- **Demonstrate the proper use of a dive light, submersible pressure gauge, compass, timing device and depth gauge at night.**
- **Using a compass for navigation, return to the shore or boat underwater with at least 35 bar/500 psi remaining in your scuba tank.**
- **Identify nocturnal aquatic life discussed during the academic portion of the course.**
- **Demonstrate proper buddy procedures by maintaining buddy contact throughout the night dive.**

a. Briefing
    1. Dive sequence – review Dive Two tasks

b. Predive procedures

c. Dive Two Tasks
    1. Help assemble or position surface lighting systems.
    2. Before descent, take a compass bearing on the shore or boat. Descend the reference line or bottom contour.
    3. Underwater – adjust to the night diving environment.
    4. Discuss the navigation exercise for this dive. Explain how to perform the exercise and return to the boat or shore underwater using a compass.
    5. Tour the immediate area.

d. Post-dive procedures

e. Debriefing
    1. Student divers discuss the techniques used for the navigation exercise and the nocturnal aquatic life seen on the tour on the completion of the navigation exercise. Guide discussions to address what worked, what didn't work, and how navigation may be done differently the next time. Discuss the nocturnal aquatic life seen on the dive.

f. Log dive (instructor signs log)

Dive Three

- **Execute a "free descent" using the line or sloping bottom as a visual guide only.**
- **Demonstrate how to communicate with hand signals and dive lights while night diving.**
- **Demonstrate the proper use of a personal dive light, submersible pressure gauge, compass, timing device and depth gauge at night.**
- **Remain in a stationary position for three minutes, on the bottom, with no dive lights on.**
- **Demonstrate proper buddy procedures by maintaining buddy contact throughout the night dive.**

a. Briefing
   1. Dive sequence – review Dive Three tasks

b. Predive procedures

c. Dive Three Tasks
   1. Help assemble or position surface lighting systems.
   2. Before descent, take a compass bearing on the shore or boat. Descend the reference line or bottom contour.
   3. Explain how to perform the "lights-out" exercise. Lights-out for three minutes while remaining in a stationary position on the bottom.
   4. Student divers are to conduct their own night dive, returning to the boat or shore with at least 35 bar/500 psi in their tanks.

d. Post-dive procedures

e. Debriefing
   1. Student divers discuss how they dealt with the lights-out exercise, and how they fared with conducting their own night dive. Guide discussions to address what worked, what didn't work, and how they may conduct their night dive differently the next time. Discuss the nocturnal aquatic life seen on the tour part of the dive.

f. Log dive (instructor signs log)

Appendix

Table of Contents

Night Diver
Knowledge Review Part I Answer Key

Note:
To assess knowledge you may review the Knowledge Review from the student diver's manual with the diver, ideally prior to participating in skill practice. Prescriptively teach answers to questions student divers may have missed or have answered incorrectly or incompletely. Ensure student divers understand what they have missed.

1. State the recommendation regarding the use of new or unfamiliar equipment on a night dive.
   When possible, avoid using unfamiliar equipment on night dives.

2. List three uses for marker lights and where they are attached for those uses.
   1. *To mark each diver – attach the marker light to your snorkel or cylinder valve.*
   2. *To mark dive boat or surface float – attach the marker light about one metre/three feet up on the flagstaff.*
   3. *To mark ascent/descent line or anchor line – attach several marker lights along the length of the line, with a different color at 5 metres/15 feet to mark the safety stop depth.*

3 Describe what you will want to consider and evaluate in choosing a potential dive site for night diving.
   Dive familiar sites; try to dive the site the day before the night dive.
   Night dive when conditions are good in a type of environment you're familiar with.

4. What are the six environmental conditions you should avoid when night diving?
   1. *Moderate to high surf*
   2. *Moderate to strong currents*
   3. *Poor visibility*
   4. *Thick kelp – or other entanglements*
   5. *Heavy surge*
   6. *Overhead environments*

5. What are four general night diving planning considerations?
   1. *Prepare your equipment ahead of time in daylight.*
   2. *Eat a proper meal a few hours before the dive.*
   3. *Dive with familiar buddies.*
   4. *Bring a nondiver friend.*

6. Briefly describe what you should do if you experience stress, light failure, buddy separation or disorientation while night diving.
   a. *Stress: Stop, breathe, think and then act; breathe slow, deep and regular.*
   b. *Light failure: Switch to backup light and signal your buddy.*
   c. *Buddy separation: Look for glow of buddy's light; search for one minute, then surface.*
   d. *Disorientation: Without a reference line, hold on to your buddy, hug yourself, watch your bubbles or look for the bottom if the visibility allows.*

7. Briefly describe the procedures for entering the water at night from a boat and from shore.
   Predive safety check: check lights and backups. From boat: check entry area, turn on light, enter water, signal "okay," clear entry area. From shore: check entry area with light, stay close to buddy, move quickly through surf, be cautious where you step. Swim when water is deep enough.

8. Describe the proper techniques for descending and ascending at night so as to avoid disorientation and undue stress.
   Use a reference line for both descent and ascent. Descend feet-first, pointing light downward to watch for bottom. During ascent, point light upward, watching above, swim slowly (18 metres/60 feet per minute or slower).

9. List the methods of communication while night diving.
   Rapping on your tank, waving your light or moving your light in a predetermined pattern, gently touch your buddy, shining your light on hand signals at waist level, using a slate, and by using a whistle on the surface.

10. Briefly describe the navigational techniques used to avoid disorientation and loss of direction while night diving.
    Dive site during the day. Before descent, take a compass heading to shore or back to boat. Keep navigation patterns simple. Don't stray far from entry/exit and reference line.

Adventure Dive: Night Diver

Skills Overview

- Knowledge Review
- Briefing
- Suiting Up
- Predive Safety Check (BWRAF)
- Entry
- Descent
- Acclimatization on the Bottom
- Navigation Exercise
- Guided Tour (time/air pressure permitting)
- Ascent and Safety Stop
- Exit
- Debrief
- Log Dive – Complete Adventure Dive Training Record

Night Diver

Knowledge Review Part II Answer Key

Note:
To assess knowledge you may review the Knowledge Review from the student diver's manual with the diver, ideally prior to participating in skill practice. Prescriptively teach answers to questions student divers may have missed or have answered incorrectly or incompletely. Ensure student divers understand what they have missed.

11. State the rule regarding overhead environments and night dives.
    It's inappropriate to make overhead environment dives at night because locating an exit would be extremely difficult in case of light failure, disorientation, and contact loss with a guideline.

12. List night diving considerations that apply to your personal dive equipment.
    Be able to locate equipment by touch and operate with one hand. Alternate air source should be easily accessible and identifiable. BCD low-pressure inflator should be easy to find. Wear exposure protection. Instrument consoles are convenient to use at night. Carry a slate, audible and visual signaling device for communication. Use equipment with which you're familiar.

13. Explain why it's important to carry at least two dive lights on a night dive.
    In case of light failure, you'll have a backup light.

14. Describe the advantages and disadvantages of rechargeable and non-rechargeable batteries in dive lights.
    Non-rechargeable

    Advantages: long burn time, light dims slowly as batteries weaken.

    Disadvantages: not reusable, can't power high wattage bulbs.

    Rechargeable

    Advantages: may use over again by recharging. Less expensive than non-rechargeables in the long run, power high-wattage bulbs.

    Disadvantages: need careful handling and maintenance, light drops off quickly as battery weakens.

15. Describe how to maintain a dive light.
    Rinse in fresh water. Remove batteries. Inspect and clean battery contacts and o-rings. Lubricate and replace o-rings. Store in a cool, dry place.

16. Describe what to do if your dive light floods.
    Turn light off and exit water. Open carefully, pour water out, dispose of batteries, and rinse light thoroughly with fresh water. Have light serviced.

17. List three uses for marker lights.
    1. *To mark each diver – attach the marker light to your snorkel or cylinder valve.*
    2. *To mark dive boat or surface float – attach the marker light about one metre/three feet up on the flagstaff.*
    3. *To mark ascent/descent line or anchor line – attach several marker lights along the length of the line, with a different color at 5 metres/15 feet to mark the safety stop depth.*

18. Explain how underwater strobes can be used:
    Strobe lights can mark floats, reference lines or a boat, or may be used as an emergency signaling device.

19. List two uses for surface support lights:
    1. *Provide light for assembling equipment and gearing up as well as removing equipment and storing it away.*
    2. *Mark entry and exit point.*

20. Describe how to be courteous while night diving.
    Keep noise down. Keep your light off windows, cars, boats, tents and out of people's eyes.

PADI Adventure Dive Training Record
Adventure Dive:
NIGHT DIVER

Skills Overview

- Knowledge Review
- Briefing
- Suiting Up
- Predive Safety Check (BWRAF)
- Entry
- Descent
- Acclimatization on the Bottom
- Navigation Exercise
- Guided Tour (time/air pressure permitting)
- Ascent – Safety Stop
- Exit
- Debrief
- Log Dive – Complete Training Record

Instructor Statement

"I verify that this student diver has satisfactorily completed the Knowledge Review and Performance Requirements (as described in PADI's Adventures in Diving Program Instructor Guide) for this PADI Adventure Dive. I am a renewed, Teaching status PADI Instructor for the current year."

Instructor Name: _____

Instructor Signature: _____

PADI #: _____ Completion Date: _____
Day/Month/Year

Instructor Contact Information (Please Print)

Instructor Mailing Address: _____

City: _____ State/Province: _____

Country: _____ Zip/Postal Code: _____

Phone/Fax/email: _____

Student Diver Statement

"I verify that I have completed all of the Performance Requirements for this Adventure Dive. I realize that there is more to learn about night diving and that completion of a PADI Night Diver course is highly recommended. I also agree to abide by PADI Standard Safe Diving Practices."

Student Diver Signature: _____ Completion Date: _____
Day/Month/Year

PADI Specialty Training Record
Night Diver

Instructor Statement:

"I verify that this student diver has satisfactorily completed all academic and/or any confined water training sessions as outlined in the PADI Specialty Course Instructor Guide for Night Diver. I am a renewed, Teaching status PADI Instructor in this specialty."

Instructor Name: _____ PADI #:_____

Instructor Signature: _____ Completion Date: _____
Day/Month/Year

Open Water Dives

Dive One

I verify that this student diver has satisfactorily completed Dive One as outlined in the PADI standardized guide for Night Diver, including:

- Assemble/position surface lighting systems
- Take compass bearing on shore/boat
- Adjust to night diving environment
- Using a compass, navigate to a predetermined location and return to within 8 metres/25 feet of starting point
- Tour immediate underwater area

I am a renewed, Teaching status PADI Instructor in this specialty.

Instructor Name: _____ PADI #:_____

Instructor Signature: _____ Completion Date: _____
Day/Month/Year

Dive Two

I verify that this student diver has satisfactorily completed Dive Two as outlined in the PADI standardized guide for Night Diver, including:

- Assemble/position surface lighting systems
- Take compass bearing on shore/boat
- Adjust to night diving environment
- Tour underwater area, note nocturnal aquatic life
- Using compass, return to shore/boat with at least 35bar/500psi remaining

I am a renewed, Teaching status PADI Instructor in this specialty.

Instructor Name: _____ PADI #:_____

Instructor Signature: _____ Completion Date: _____
Day/Month/Year

Dive Three

I verify that this student diver has satisfactorily completed Dive Three as outlined in the PADI standardized guide for Night Diver, including:

- Assemble/position surface lighting systems
- Take a compass bearing on shore/boat
- Lights out for 3 minutes in stationary position on the bottom
- Tour underwater area, note nocturnal aquatic life

I am a renewed, Teaching status PADI Instructor in this specialty.

Instructor Name: _____ PADI #:_____

Instructor Signature: _____ Completion Date: _____
Day/Month/Year

Student Diver Statement:

"I verify that I have completed all performance requirements for this Night Diver specialty. I am adequately prepared to dive in areas and under conditions similar to those in which I was trained. I agree to abide by PADI Standard Safe Diving Practices."

Student Diver Name: _____

Student Diver Signature: _____Date: _____
Day/Month/Year