

Scuba Refresher

Instructor Manual



Supported by:

SUUNTO

Scuba Refresher Session

Performance assessments and standards

Scuba Refresher training includes a number of skill reviews covering basic practical diving.

- **Practical assessments**

By the end of the Scuba Refresher course, students should be able to perform the key skills reliably and repeatedly. Sufficient repetition is built into the syllabus to enable this to be achieved. This is an important element in developing students' confidence in their ability to dive with another diver, independent of an instructor.

Different skills are learned at different points during the training, some of which are prerequisites for further skills to be learned later. For instance, competency at clearing a demand valve of water is a prerequisite for progressing to alternative supply use. For this reason, practical assessment should be carried out as a continuous exercise throughout sheltered training, rather than being conducted as a test at the end.

Skills performance standards are incorporated at the end of the practical module notes. The assessment of key skills requires that students are not only able to perform the skill 'satisfactorily', but also demonstrate an appropriate level of 'confidence' in doing so. To meet a skill performance standard students should have progressed sufficiently to be able to complete the skill without assistance or further demonstration from the instructor.



Course prerequisites

In order to attend this Scuba Refresher, students must do the following:

- Confirm that they are medically fit to dive by filling in their Scuba Refresher medical declaration form in their pack on the day of the refresher.
- Provide evidence of their diving qualification.

Qualifications awarded

A Scuba Refresher is defined as a diver who has:

- Practical skills refreshed up to BSAC Ocean Diver level (excludes Nitrox training).

Certification

Students will be awarded the BSAC Scuba Refresher on achieving the required standard of proficiency. Course certificate will be issued on the day of the Scuba Refresher (in the form of an A5 certificate to be signed by the instructor). Q-Cards can be applied for by following the guidance in the Scuba Refresher participant pack.

Course authorisation

Each student needs a personal copy of the Scuba Refresher participant pack at the time of their session. These can be ordered online at bsac.com/promomaterial by an approved branch or centre officer.

Instructor requirements

Scuba Refresher practical training is to be carried out by, or supervised by, a suitably qualified BSAC instructor as set out here.

- **Assistant Diving Instructors qualified to Sports Diver** – can teach classroom, sheltered-water modules under on-site (present at the venue) supervision and open-water modules under the direct (in-water) supervision of an instructor who holds the minimum qualification of BSAC Open Water Instructor.
- **Assistant Diving Instructors qualified to Dive Leader** – can teach classroom, sheltered-water and open-water modules under the on-site (present at the venue) supervision of an instructor who holds the minimum qualification of BSAC Open Water Instructor.
- **Assistant Open Water Instructors** – can teach classroom, sheltered-water and open-water modules under on-site (present at the venue) supervision of an instructor who holds the minimum qualification of BSAC Open Water Instructor.
- **Practical Instructors** – can teach sheltered-water and open-water modules unsupervised.
- **Open Water Instructors** – can teach all elements of the Ocean Diver course.

Student to instructor ratio

For practical modules, student to instructor ratios should comply with the following guidelines and limits.

- **Sheltered-water modules** – A maximum of two students per instructor will ensure that all students receive effective tuition during the most likely scenario of teaching in a swimming pool, where time constraints often impose a one-hour limit on a session.

This ratio can be reduced to one student to one instructor if time and resource permits.

Scuba Refresher Session

Module objectives

The main objective of the module is to refresh the skills of a qualified diver following a break from diving or if the diver has not practised their skills recently. This session covers the basic diver training skills from the Ocean Diver course. A qualified diver should be competent to perform the skills in deeper sheltered water, however this will depend on the student's confidence and length of time since they last practised their skills so could start in shallow water to build confidence if needed.

Achievement targets

At the end of this module students should:

- Be able to assemble SCUBA equipment
- Be able to conduct a Buddy Check
- Be able to clear and replace a mask
- Be able to clear and replace a demand valve
- Have a good finning action
- Have good buoyancy control skills – have achieved a horizontal trim position underwater
- Have good rescue skills – full AS Ascent and CBL with tow
- Have good buddy skills
- Be confident with deeper entry and exit techniques
- Know the signals for 'OK', 'stop', 'up', 'down', 'you watch me', 'you do' and 'something wrong'
- Be able to dismantle and wash down a scuba unit

Equipment needed

The instructor and each student will need:

- Full SCUBA
- Mask, fins and snorkel
- Weight belt and weights if necessary
- Pool suit or shorty wetsuit and boots (optional appropriate to conditions)

Module contents

The following sections are intended as a guide on how to deliver the skills. The sequence can be varied to suit local conditions and the needs of individual students. However, each session should begin with a short brief and a buddy check, and end with a debrief. Using the principle of teaching by demonstrating a practical skill and then inviting students to do it (demo/do), you will demonstrate each element of a skill first before inviting students to copy your demo. Correct any errors by repeating the demo-do sequence emphasising the correct action.

SEEDS brief

Cover all elements of a SEEDS brief in a logical sequence appropriate to the local conditions. Reassure students that less haste at this point in training will mean more speed overall.

- **Safety**
Remind students of the importance of ear clearing, mask equalisation, checking gas consumption and breathing normally at all times when using scuba, taking particular care on ascent. Stress the importance of controlling buoyancy very carefully during rescue exercises and avoiding breath-hold injuries. Also point out any relevant hazards of the venue.
- **Equipment**
List the equipment required for the lesson: basic equipment, scuba and weight belt.
- **Exercise**
Very briefly outline the main elements of the lesson as stated in the lesson objectives: forward roll entry, consolidation of all skills. Relate this to real diving, so that students



understand why they are practicing these drills and understand when they would become relevant, for example a forward roll can be used to protect delicate camera equipment. There is no need to talk through each skill in detail; this will be covered by demonstrating in the water.

- **Discipline**

Ensure students understand the importance of watching each of your demonstrations and only attempting to repeat a skill when prompted by you. Emphasise the importance of keeping close together while practising skills, and adopting a one-up-all-up policy when practising AS ascents and CBL.

- **Signals**

Remind students of the basic diving signals 'OK', 'stop', 'up', 'down'. Introduce the surface version of the 'help/I am not OK' signal. Ensure all students understand these and can repeat them. Remind students of the teaching signals 'you watch me', 'you do', 'faster', 'slower', 'do it again'. Introduce any new teaching signals needed, such as 'be rescuer' and 'be casualty'.



Assemble scuba

- **Supervise the student assembling their equipment and guide them as necessary:**
 - Fit BC to cylinder.
 - Fit regulator to cylinder.
 - Connect BC direct feed, secure contents gauge and AS. Stress the need to keep hoses tidy and out of the way.
- **Carry out functionality checks**
 - Physical check: Check that all hoses are free from damage. Check that the mouthpieces of both main and AS demand valves are firmly attached and are free from splits or tears that could allow water in.
 - Contents check: Turn cylinder valve on slowly, holding the contents gauge facing the cylinder. Check gauge to ensure cylinder has adequate contents.

- Operational check: Take several breaths from both main and AS demand valves, whilst observing the contents gauge. Ensure valves breathe smoothly and contents gauge operates correctly (no fluctuations).
- Leak check: Turn cylinder valve off and check for leaks by both listening and observing the contents gauge (leave for a few minutes).
- Breathe down: Purge the air pressure, while cylinder valve is closed, and attempt to breathe from both main and AS demand valves to check for inward leaks. Before use, open cylinder valve, slowly as usual.



Basic skills

- **Kit up and buddy check**
 - Supervise buddies helping each other to kit up and their buddy check.
 - Encourage the use of BAR or another appropriate acronym.
 - Dry run, action for BC inflator stuck open. This description of actions is correct if BC hose comes over the left shoulder, otherwise reverse the hands.
 - Grip the BC inflator mouthpiece with the right hand.
 - Grip the collar of the direct feed with the thumb and forefinger of the left hand.
 - Wrap the remaining fingers of the left hand around the hose.
 - To disconnect, push the hose forward whilst pulling the collar valve backwards.
 - The above sequence is reversed to reconnect the hose.
 - Once connected, check that the inflator is working by pressing the inflate button and then venting the gas. Note: this dry run should be carried out with the direct feed hose pressurised.

- **Forward-roll entry, into deeper water**

This type of entry can be appropriate from some types of boat and when conditions preclude delicate equipment, such as cameras, being handed down from the boat after entry.



- Partly inflate BC. Stand at edge of entry point breathing from demand valve. Bend knees, bend at the waist and tuck in head.
- With one hand press mask and regulator against head, to secure.
- Collect up other hoses and gauges with other hand, to secure.
- Fall forward headfirst into the water.
- Once on surface, turn to face other divers, and signal 'OK' (or 'not OK').



- **Controlled descent into deeper water**

- Signal to all to descend together as a group, buddy pairs face each other and exchange signals.
- Hold BC hose above shoulder and vent gas in small bursts to begin descent. Ensure students actively control their rate of descent by inflating their BC in small bursts. Hold a hover in mid descent, using a visual reference as a guide.
- Use breathing control to feather buoyancy in the final stage of the descent and stop descent just clear of the bottom. Rapid descents and heavy landings should be corrected.

- Adjust for neutral buoyancy.
- Confirm neutral buoyancy with a hover in horizontal position.



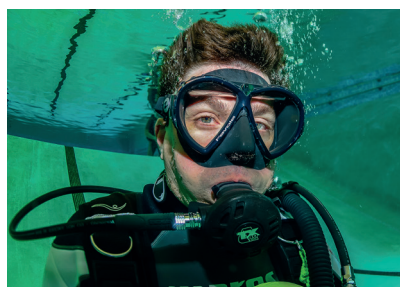
• Buddy-diving techniques and monitor instruments

- Conduct regular gas checks throughout lesson.
- Check in with buddy. Exchange 'OK' signals, to confirm OK to proceed. Use 'something wrong' signal if there are any problems, such as leaky mask or gas leaks, bubbles from hoses.



• Full mask flood and clear

- Lift top of mask to allow mask to fill with water.
- Gently press top of mask frame against forehead.
- Breathe out steadily (but not forcibly) through nose to clear mask of water whilst simultaneously tilting head backwards. (Smiling so there is a small gap either side of the nose to allow water out may help.)



- **Remove and replace mask**

- Identify nose pocket to check mask is correct way up.
- Place strap in front of mask lens.
- Clear hair from face and replace mask on face.
- Gently press top of mask frame against forehead, breathe out steadily (but not forcibly) through nose to clear mask of water whilst simultaneously tilting head backwards. (Smiling so there is a small gap either side of the nose to allow water out may help.)
- Once the mask is completely clear, pull the mask strap over the head to secure the mask in place. Note: The above technique may need adapting depending on the style of mask used although the progressive sequence will remain the same. Masks fitted with drain valves will require the head to be tilted forward rather than back.



- **Finning without mask**

This exercise is a confidence booster so that, in the rare event that a mask is lost underwater, the student will be able to continue breathing whilst swimming to the surface. It also develops buddy responsibilities.

- When ready to begin, student without mask signals 'OK' and guiding buddy leads a 25m swim. Note: Concentrate on seeing their breathing rhythm is maintained.
- Buddy signals 'stop' by gentle squeeze of the hand.
- Mask replacement in stages as per previous section.

- **Demand valve clearing by exhaling**

- Breathe in.
- Remove demand valve from mouth, allowing mouthpiece to flood.
- Turn demand valve to point mouthpiece downwards to avoid free flow.
- Replace demand valve in mouth and exhale to clear.

- Demand valve recovery with purge button

- Breathe in.
- Remove demand valve from mouth, allowing mouthpiece to flood.
- Turn demand valve to point mouthpiece downwards to avoid free flow.
- Release demand valve and recover by tilting head first, sweeping the right arm close to the body and around to catch the hose, use the other arm to locate the demand valve hose.
- Hold demand valve high, gently press purge button to clear water, bring the gently bubbling mouthpiece down and replace in mouth.



- Breathing from a free-flowing regulator

- Begin simulated free flow, whilst breathing normally from the demand valve, by slowly depressing the purge button so the valve passes gas continuously.
- Breathe in and out against the flow of gas. Tilting head to one side will stop bubbles rising directly in front of face.
- Gradually depress the purge button more to increase the rate of flow until the maximum flow rate is achieved. As the flow rate increases more effort will be required to breathe out against the flow.

- Hover clear of bottom

- Release BC controls and keep hands still in front of you.
- Avoid touching the bottom with hands, avoid sculling with hands.
- Hold the hover clear of the bottom, using breathing for fine control as before.

- Check trim

- Ensure students are reasonably horizontal in the water.
- Excessive head down or feet down orientations should be corrected by either adjustment of cylinder position in BC or repositioning of weights.

- Swim at constant depth, develop finning action.
- Swim for a minimum of 20m maintaining same depth with minimal use of hands/arms (extend as necessary if corrective action is required).
- Check that finning action is from hips with no excessive cycling from the knees. Adjust buoyancy if needed but avoid continually holding controls whilst swimming, so that students develop the skill of finding them quickly when needed.
- Check trim.
- **Forward rolls in deeper water**
 - Start to ascend from kneeling position, by breathing in and straightening legs to move upwards and forwards.
 - Once clear of the bottom control the ascent by breathing out.
 - Place both arms straight out in front, sweep them around to rotate the body forward whilst bending at the waist.
 - Complete forward roll by keeping the arms rotating, breathing in on the 'downward' side of the roll to control buoyancy.
- **Efficient underwater swimming (changing depth)**
 - Swim approximately 25m in deep water without touching bottom.
 - Check buoyancy control and finning action.
- **Frog kick**
 - Start in a horizontal position clear of the bottom, bend the knees so that the fin blades are pointing upwards on a steep diagonal.
 - Develop frog kick by twisting the ankle/lower leg at a right angle and pushing back with the feet. Keep the upper legs horizontal throughout the action.
 - Extend distance of swim, once students have achieved the basic action.

Alternative-supply skills (AS)

Teach for the most stressful of emergency situations requiring AS, where the recipient takes the donor's AS from its stowage location and doesn't wait for the donor to remove it and offer it. Teach the realistic situation that the recipient will have no gas with which to inflate their BC at the surface. To minimise the number of ascents and to build up the lesson in a progressive manner it helps to begin by recapping the surface actions.

- **Surface actions, following AS ascent**

- At the surface, simulating following an AS ascent, donor fully inflates own BC using direct feed and supports recipient.
- Recipient inflates their own BC by mouth or emergency cylinder (if fitted), whilst treading water. Note: For BCs where the pull dump is routed through the corrugated BC hose take care to ensure that gas is not accidentally dumped by pulling on the hose.

- **Use of AS on horizontal swim**

- Starting from a normal swimming position, to reflect a realistic situation, repeat the AS exercise with the donor and recipient swimming side by side.
- Follow the usual steps to establish AS use, reaching across to take donor's AS and making positive contact by holding shoulder strap or other convenient hand-hold.
- Swim 10m, disengage by retrieving recipient's main demand valve. The horizontal swim may be required to ascend the slope when shore diving or to return to a shotline to provide a reference for a safe ascent.

- **AS ascent, student as recipient then donor, with surface actions**

In deeper water, ask students to carry out an AS ascent, including surface actions, with each other, one by one. Indicate who should be the donor and who should be the recipient. Each student should have a turn as donor and recipient. If necessary the instructor may need to demonstrate the complete sequence. During any ascent the whole group should remain together to ensure that any demonstrations/corrections can be clearly observed and to help maintain group control. Stay close to the students in case you need to offer your AS.

- From a position of neutral buoyancy establish AS use. The recipient should be breathing comfortably from the AS and positive contact (that is a firm hold) should be made between donor and recipient.
- Donor signals clearly to recipient the intention to ascend and waits for a response.
- Donor initiates the ascent, by finning up. Donor and recipient ascend at normal rate to the surface. Both should be ready to vent expanding gas from their own BC to slow the ascent rate as necessary.
- At the surface, donor fully inflates own BC using direct feed and supports recipient.
- Recipient inflates their own BC by mouth, or emergency cylinder (if fitted).
- Note: For BCs where the pull dump is routed through the corrugated BC hose take care to ensure that gas is not accidentally dumped by pulling on the hose.

Controlled buoyant lift (CBL)

Some entry level diver qualifications do not include CBL Rescue and other agency techniques for this rescue skill can vary. You should check with the refresher student if they have conducted this skill before, if they have or this is a BSAC refresher use the instructor notes below. If the student has not been taught CBL Rescue previously, is unsure or has used a different technique the instructor should teach this as a new skill and use the Instructor Manual sections in Ocean Diver (2017) OS5 Safety Skills pages 6-12 covering the CBL, Surface Tow and CBL Rescue sections.

To minimise the number of ascents and to build up the lesson in a progressive manner it helps to start the teaching of this skill with the surface actions that follow a CBL.

- **Surface actions**
 - Provide surface support by gripping casualty's BC strap, face to face, and, holding BC controls above shoulder, fully inflating the BC.
 - Secure casualty by rolling them onto their back and ensuring face is clear of water.
 - Signal to surface cover/boat using distress signal, whistle or shouting. Note: many public pools will not allow the use of distress or alarm signals (such as shouting for help) in training exercises in case they are confused with real emergency situations. In these cases, it may be necessary to employ a suitable training signal.
- **Underwater**
 - Place the casualty and rescuer approximately 3m apart, in deeper water, casualty face down on bottom.
 - Rescuer swims to casualty, turns casualty onto back.
 - Establish positive hold on 'casualty' (avoid harness quick release buckles). Raise casualty's BC controls sufficiently to enable venting when required and introduce gas in short bursts until slight positive buoyancy achieved.
 - Continue to the surface.
 - Vent BC in bursts to maintain a controlled, normal rate of ascent – venting will need to be done more frequently as you near the surface.
 - At the surface, fully inflate casualty's BC first then rescuer's, whilst maintaining a firm grip of the casualty.
 - Take actions necessary to secure casualty at the surface, and signal for help.
 - Tow casualty for approximately 25m.

- **Ascent in buddy pairs from deeper water**

This exercise provides consolidation of maintaining buddy pair contact during the ascent and surfacing drill.

- Buddy pairs face each other, hold BC controls above shoulder, inflate in short bursts until slight positive buoyancy achieved to initiate ascent.
- Vent in bursts to maintain controlled rate of ascent.
- Look up towards surface above/behind buddy's head.
- Raise free hand above head when nearing surface.
- Fully inflate BC at surface.
- Exchange 'OK' signals.

Exit from deeper water and de-kit

This provides practice exiting from the water as if on to a jetty or large boat. On the surface refrain from talking, if possible, and encourage students to keep demand valves and masks in place until they have exited the water.

- **Remove fins and exit**

- All should hold onto a secure point to the side of the ladder.
- Use figure 4 position and remove fins.
- Exit water. Climb the ladder, one by one (instructor last) using the principle of three point contact.
- Ensure students in water stay well clear in case someone falls from ladder.
- Ensure students on pool side are positioned a safe distance from the water's edge.

- **De-kit**

- Remove weight belt, securing the free end to prevent weights sliding off, or remove integral weights.
- Take care to place weights down carefully and not drop on toes or pool tiles.
- Buddies help each other to remove scuba kit.
- Ensure kit is laid down on the pool side, demand valves placed on top.

- **Equipment care**

The students should be able to wash and disassemble their own equipment, without assistance, at the end of the previous lesson. Further monitor their performance during this lesson.

REAP debrief

Conduct a brief but thorough debrief using the REAP format, making sure that everyone has enjoyed their lesson and highlighting the areas of progress that they have made. Offer constructive feedback and explain how they will further develop their skills using the BSAC diver training programme.

- **Review**

- Briefly playback the skills covered in the lesson and remind students of the lesson objectives.
- Ensure that the students note the configuration of equipment that they have used, particularly the amount and location of any additional weight required, when preparing their equipment for future lessons. This should also include cylinder size, BC size and position of BC straps.

- **Encourage**

- Praise good performance.
- Provide support and console if things haven't gone so well.

- **Assess**

- Offer constructive feedback to enable students to identify areas for improvement.

- **Preview**

- The students have mastered all the basic skills and will now go on to get in Open Water with confidence following the refresher. Answer any questions that the students have and this is a good opportunity to introduce them to your club/centre activities.

Skills performance standards

At the end of this module, students should be sufficiently competent to achieve the following skill performance standards without supervision, in the water conditions that they have experienced.

Assemble and check equipment Students should be able to assemble their equipment unaided, conduct visual checks for damage and conduct functional and leak tests to ensure all equipment is ready for use.

Buddy check Students should be able to assist a buddy to kit up and then conduct a buddy check covering BC controls and function, breathing gas supply contents and function and BC harness and weight system releases. Students should be able to assess how to access their buddy's AS and how they would carry out a CBL on their buddy.

Deep water forward roll entry Students should be able safely to enter the water with a forward roll entry. Prior to entry they should ensure they will be positively buoyant by adding gas into their BC, check for potential obstructions, secure their masks and regulator with one hand, gather gauges and hoses with the other to secure and roll forward into the water. On surfacing they should give an OK signal to their buddy and instructor.

Basic skills Students should demonstrate good buddy awareness on descent, underwater and ascent by buddy monitoring and regular gas checks. The student should be able to achieve neutral buoyancy and manage buoyancy in changing depth. Horizontal trim should be maintained. The student should be able to fin using multiple finning techniques. They should demonstrate that they can clear and replace a mask, clear and replace a demand valve, recover a demand valve and breathe from a free flowing regulator without any difficulty.

Rescue: AS ascent as donor Starting from normal swimming, students should be able to correctly and safely carry out an AS ascent acting as donor. The donor should provide clear access to an AS for the recipient, take secure hold of the recipient and allow them to establish a stable breathing rhythm. After an exchange of 'OK' signals, the donor should initiate an ascent, venting their own buoyancy device as necessary to control the ascent. At the surface, the donor should maintain a secure hold of the recipient and provide surface support, whilst the recipient orally inflates their BC.

Rescue: AS ascent as recipient Starting from normal swimming, students should be able to correctly and safely carry out an AS ascent acting as recipient. The recipient should swiftly remove the donor's AS from stowage without fumbling, clear it of water and establish a stable breathing rhythm, taking secure hold of the donor. After an exchange of signals ('OK' and then 'up'), when ready, the recipient

ascends with the donor, venting their own buoyancy device as necessary to control their ascent. On the surface, whilst supported by donor, the recipient should orally inflate their BC.

CBL Students should be able to correctly and safely carry out a rescue CBL. The rescuer should take a secure hold of the casualty, inflate the casualty's buoyancy device to produce adequate positive buoyancy to begin to lift the casualty, then manage the casualty's and their own buoyancy to achieve a controlled ascent. At the surface, the rescuer should fully inflate the casualty's buoyancy device and signal for help.

TOW Students should be able to correctly and safely carry out a surface tow. The rescuer should remove the casualty's demand valve/mask from face, establish a secure hold and tow the casualty 25m, maintaining control of direction and keeping the casualty's face clear of the water. The rescuer should maintain a continual grip of the casualty throughout and fin at a reasonable pace, kicking from the hip with the knees kept relatively straight (no excessive cycling motion).