

Ocean Diver

Basic skills

Module objectives

The objective of this module is to introduce more basic skills, while continuing to develop students' level of comfort underwater. Further work on buoyancy and finning action will help make these skills second nature. This module introduces mask and mouthpiece clearing and the use of an alternative supply (AS) to assist a buddy.

Achievement targets

At the end of this module students should:

- Know how to assemble and check their scuba equipment
- Have developed an efficient finning action
- Be able to quickly and effectively operate the buoyancy controls of their BC
- Have developed a basic level of competency in controlling their buoyancy while swimming underwater and while ascending and descending
- Be able to swiftly and confidently retrieve a dropped demand valve and clear it of water
- Be able to remove, refit and clear their mask of water, in shallow water
- Be able to use an AS as both donor and recipient, in shallow water
- Know the 'out of gas' signal

Equipment needed

The instructor and each student will need:

- Basic equipment (mask, fins and snorkel)
- A scuba set comprising a single cylinder, buoyancy compensator (BC) (ensure that a student's BC is a good fit) and regulator fitted with an alternative supply (AS) configured to comfortably provide an effective gas supply to an out-of-gas recipient
- Weight belt and weights if necessary
- Pool suit or shorty wetsuit and boots (optional appropriate to conditions)

Note: Initial training is best completed with simple, standard equipment, so it is best practice to avoid the use of specialised or unusual equipment for Ocean Diver modules if possible.

Module contents

This module teaches students to take more responsibility for their own equipment. It develops students' buoyancy skill and introduces mask and mouthpiece clearing and the use of an AS to assist a buddy who has run out of breathing gas.

This is the first time that students will assemble their own equipment, so it will naturally take longer than normal. Valuable in-water time can be saved if kit assembly is taught in a separate dry session before in-water teaching.

All practical Ocean Diver modules can either be delivered as a single session or broken down into two or more separate sessions, depending on students' progress and the time available.

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 briefing and a buddy check, and end with a debrief.



Using the principle of teaching by demonstrating a practical skill and then asking students to do it (demo/do), you will demonstrate each element of a skill first before asking 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. Check if students are wearing contact lenses and if they are remind them to close their eyes when mask clearing, to prevent their loss. 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, relating them to real diving: improving swimming underwater, buoyancy control and the use of signals, introducing mask and mouthpiece clearing and the use of an AS. Explain that although flooded masks or dropped mouthpieces are rare occurrences, developing skills to deal with them will give students confidence. To minimise any nervousness, inform students that initially they will be performing these underwater skills in standing-depth water. Do not 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 to the instructor while practicing skills.

Note: when practicing ascents, employ a policy of ‘one-up all-up’, to maintain class control and to ensure students can clearly see instructor demonstrations.

- **Signals**

Remind students of the basic diving: ‘OK’, ‘stop’, ‘up’, ‘down’, and teaching signals ‘you watch me’ and ‘you do’. Introduce and demonstrate the ‘out of gas

signal'. Ensure all students understand these and can repeat them. Introduce any new teaching signals needed, such as. 'a little', 'your turn', 'do it again'.



Kit assembly

This exercise introduces students to equipment assembly and the basic functionality checks that should be conducted before using scuba. Make the point that when not being handled the equipment should be laid down to prevent it being knocked over and damaged, unless it is restrained in some sort of rack, for example on a boat.

Valuable in-water time can be saved if kit assembly is taught in a separate dry session before the in-water teaching.

- **Fit BC to cylinder**
 - Slip BC cam band over cylinder, to a height that you judge will enable the student to achieve a good horizontal trim position underwater.
 - Close buckle, ensuring cylinder is firmly secured and cannot slip.

Note: Ensure you demonstrate how to re-thread the cam band into the buckle when it has been completely unthreaded.

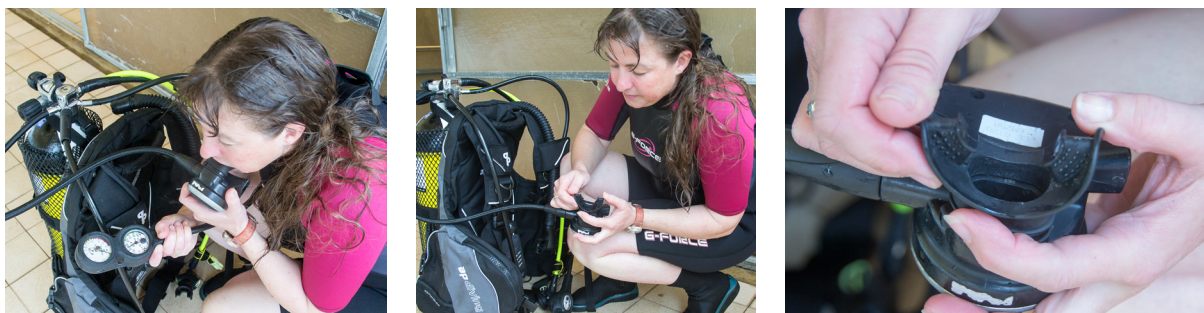
- **Fit regulator to cylinder**
 - Fix first stage to the cylinder valve, checking for O-ring. No need to over-tighten.
 - Ensure regulator is fitted to cylinder with second stage the correct way up for use.
 - Make all necessary connections to BC, including attaching direct feed hose.



- **Carry out functionality checks**

Valuable in-water time can be saved if equipment functionality checks are taught in a separate dry session before the in-water teaching.

- 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, while 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.



Kit up and buddy check, dry run and entry

In the first module, for comfort, kitting up was done in standing-depth water (where available). To develop students' skills and experience, kitting-up should now be done on the pool side, or equivalent.

- **Fit weight belt**

Note: If a pool suit is not used it is unlikely that students will need any additional weight. However, students should be introduced to the idea that additional weight may be required and understand how to fit a weight belt.

- **Fit scuba equipment**

- Demonstrate and then supervise buddies helping each other to kit up.
- Care must be taken to avoid injury when lifting heavy cylinders.

Note: this is especially relevant if a BC with integrated weight systems is being used.

- **Buddy check**

- Conduct a brief but thorough buddy check.
- Use BAR or another appropriate acronym.



- **Dry run, demand valve clear by exhaling**

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

- **Dry run, demand valve clear with purge button**

- Breathe in
- Remove demand valve from mouth, simulate allowing mouthpiece to flood.

- Turn demand valve to point mouthpiece downwards to stop free flow.
- Hold demand valve high, gently press purge button to clear water, bring the gently bubbling mouthpiece down and replace in mouth.



- **Fit mask and regulator**
 - Demist mask with saliva or defogging agent and rinse with water.
 - Position mask on face, ensure correct seal, secure using strap.
 - Place regulator in mouth.
- **Entry**
 - Lead the students, down a ladder or by wading, into waist-deep water.
 - If a ladder is used, then demonstrate the principle of 'three-point' contact (moving only one hand or foot at any one time) to prevent falling from ladder while wearing heavy equipment.
- **Fit fins, standing depth**
 - Lean against buddy or a suitable fixed object for support while fitting fins (remember to make a figure 4 with legs).
 - Only move around by shuffling backwards and sideways once fins fitted.

Surface and underwater swimming, buoyancy control

These finning exercises, which should start and end in standing-depth water, give students a chance to practise finning in different attitudes; develop dexterity with BC controls and strengthen their finning action. The ascents and descents experienced by the students so far have been relatively gentle giving them time to control their buoyancy. The ascent and descent exercises here introduce a more rapid depth change and hence the need to develop a more instinctive control of buoyancy.

- **Swim on back with BC inflated, on the surface**

- Inflate BC fully by mouth, then breathing from demand valve, fin lying back in the water to minimise drag, looking round to check direction. Check finning action.
- Repeat with BC only partly inflated. Check finning action.
- Develop fine control of the BC by venting in short bursts (using both BC mouthpiece and dump valve) until waterline is at chin level, then re-inflate using direct feed.
- Swim about 25m, deflating/inflating BC twice during the distance. Check finning action.

Note: Task loading on students will increase, as they concentrate on buoyancy control, which may cause their finning action to deteriorate. Fin strokes should be long and gentle. Correct ineffective cycling action and excessive knee bending. Where necessary extend the distances to give the students more practice.



- **Swim on front with BC inflated, on the surface**

- Breathing from demand valve, partly deflate BC, re-inflate as necessary using direct feed to establish a comfortable level of inflation for swimming on the front.
- Swim about 25m. Check finning action.

- **Buoyancy check, standing depth**

This recaps the buoyancy check from the previous module.

- In standing depth water, use BC vent control to descend and hover 30-40cm clear of the bottom in a horizontal attitude.
- Inflate/vent BC in small bursts, with BC control held high when venting.
- If necessary, adjust a student's weight by adding or removing weight from weight belt or purpose-designed weight pouches.
- Practice use of breathing to make fine adjustments to buoyancy. Try to avoid touching the bottom.
- Check for trim. If necessary, adjust students' trim by adjusting the height of cylinder in BC or position of weights.



- **Swim underwater to deeper water**

- Maintain neutral buoyancy and horizontal trim.
- Swim approximately 25m into deeper water.
- Remind students to equalise ear and mask airspaces when changing depth.
- Conduct a gas check with each student and develop a habit of routinely and regularly demonstrating the importance of instrument monitoring.

Note: Use this positioning manoeuvre for the next exercise, to further check buoyancy control, trim and finning action. Fin strokes should be long and gentle and avoid ineffective cycling action with excessive knee bending.

- **Consolidate underwater use of BC controls, deeper water**

- In a kneeling position, hold BC controls above shoulder, introducing gas in a single short burst and then immediately vent the BC.

- 'Mini' ascent/descent, deeper water

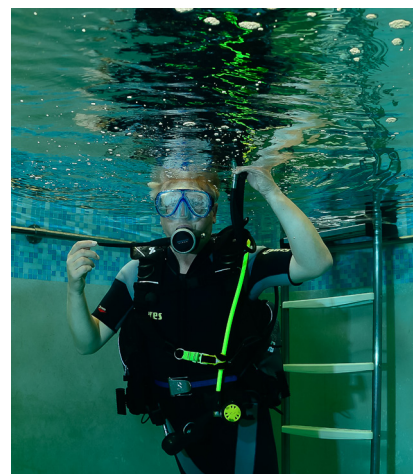
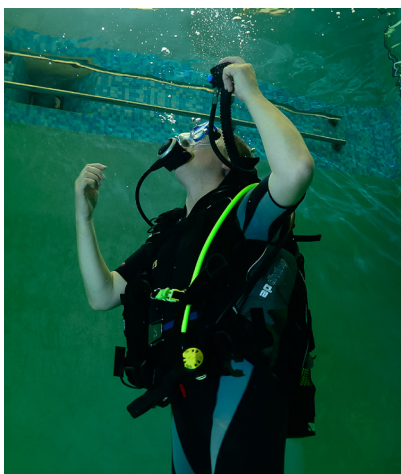
- Introduce gas in short bursts until slight positive buoyancy achieved.
- Once knees are clear of bottom, vent air in bursts to gently lower back onto knees.



- Ascend to surface, deeper water

- Start as for mini ascent.
- Continue to surface venting air in bursts to maintain controlled rate of ascent.
- Demonstrate that normal breathing is maintained throughout.
- Inflate BC fully on surface.

Note: Where the depth of water exceeds 2m, a further intermediate ascent should be included before ascending completely to the surface. During any ascent the whole group should remain together to ensure that any demonstrations can be clearly observed and to help maintain group control.



- **Descend to bottom, deeper water**
 - Vent air from BC in bursts to initiate a controlled descent. (Remind students to equalise ear and mask airspaces when changing depth.)
 - Inflate BC in bursts during descent to control descent and to gently lower onto knees.
- **Swim underwater to standing depth**
 - Although a positioning manoeuvre for the next exercise, use the opportunity to further check buoyancy control, trim and finning action.

Mask and demand-valve clearing – in standing depth

Many students will experience anxiety or apprehension about these exercises. To allay these fears break the skills down into small steps, ensuring success before advancing to the next stage.

- **Breathing without mask, nose submerged**
 - As a precursor to later mask clearing, this exercise gives the students confidence that they can easily breathe through their mouth while their nose is submerged.
 - Inhale/exhale through demand valve, in standing depth water, masks removed.
 - Slowly submerge until the nose is below the water level.
 - Inhale and exhale through demand valve.
 - Once a comfortable breathing rhythm has been established, practice inhaling from the demand valve and gently exhaling via the nose.

Note: Some people find this instinctively difficult to do, putting the tongue to the roof of mouth will assist.



- **Mask clearing, face partially submerged (no strap fitted)**

Consider using the double demonstration technique to show the skill from the side (shows mask tilt) and front facing (shows grip and clear). Repeat each stage until performed correctly.

- Stand with mask removed, breathe in from the demand valve.
- Slowly submerge until the nose is below the water level and gently allow a slow stream of bubbles to flow from the nose.
- Brush back hair and slowly place the mask on the face, ensuring the top of mask makes contact with the head first.
- Continue to gently exhale through the nose until the mask is completely free from water.



- **Mask clearing, face submerged (no strap fitted)**

- Repeat exercise with whole face submerged.
- Once the mask is completely clear, pull the mask strap over the head to secure the mask in place.

- **Mask clearing, standing depth (no strap fitted)**

- Descend into standing-depth water and kneel on the bottom with head just beneath the water surface.
- Flood and remove 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.
- Clear mask of water by bubbling air gently out of the nose. Smiling so there is a small gap either side of the nose to allow water out may help.
- Repeat a few times as practice before replacing the strap.



Note: The above technique may need adapting depending upon the style of mask used although the progressive sequence will remain the same. Masks fitted with drain valves may require the head to be tilted forward while large masks with a deep front section may require tilting the head back.

- **Partial-flood mask clearing, standing depth (strap fitted)**

Once students have mastered mask clearing without the strap fitted, move on to the more normal diving practice of clearing a small amount of water from the mask with the strap fitted.

- Lift lower skirt of mask from face (can use a single finger to point out the level of water required) to allow a small amount of water to enter.
- Hold top edge of mask against forehead.
- Breathe out steadily (but not forcibly) through nose and clear mask of water as above.
- Smiling so there is a small gap either side of the nose to allow water out may help.



- **Progressive-flood mask clearing, standing depth (strap fitted)**

- Lift lower skirt of mask from face (can use a single finger to point out the level of water required) to increasing amounts of water to enter.
- Clear mask as above.

- **Full-flood mask clearing, standing depth (strap fitted)**
 - Lift lower skirt of mask from face to fully flood mask.
 - Clear mask as above.



- **Demand valve clearing by exhaling**
This exercise picks up on the dry run conducted before entering the water.
 - 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.
 - Perform twice.

Note: When students attempt these exercises for the first-time, instructors should have an AS demand valve ready, in case a student has difficulty recovering their own.

- **Demand valve clearing 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.
 - Hold demand valve high, gently press purge button to clear water, bring the gently bubbling mouthpiece down and replace in mouth.
 - Perform twice.



- **Switch to own AS demand valve**

- Remove AS from stowage.
- Breathe in.
- Remove main demand valve from mouth, while slowly exhaling a small stream of bubbles.
- Place AS demand valve in mouth and exhale to clear.
- Repeat twice ensuring that AS is correctly stowed between repeats.

Note: instructor should ensure demand valve mouthpiece is in the correct orientation for the student to use.



- **Demand-valve retrieval**

- Breathe from AS demand valve.
- Hold main demand valve out to side and drop.
- Roll body sideways and lean right shoulder forwards (assuming demand valve comes over right-hand shoulder).
- Sweep arm back close to side of cylinder and then outwards and forwards to encircle demand valve hose to recover it.
- Repeat until performed correctly.



- **Demand-valve retrieval and switch**

- Repeat retrieval exercise, above, this time switching back to main demand valve.
- Clear using purge button.
- Return AS to stowage location.

- **Full demand-valve retrieval and clear**
 - Breathe in and remove main demand valve from mouth, while slowly exhaling a small stream of bubbles.
 - Hold main demand valve out to side and drop.
 - Lean forward, roll towards demand-valve side.
 - Sweep arm back close to side and then outwards and forwards to encircle main demand-valve hose.
 - Replace main demand valve and exhale to clear.
 - Repeat until performed correctly.

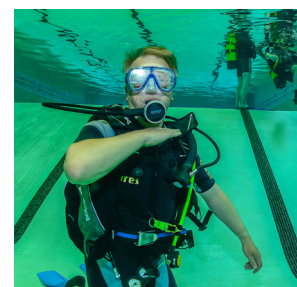


Note: At the end of this exercise students must be able to recover and clear the demand valve of water and resume normal breathing without fumbling or any signs of panic. Students have learnt to always point the mouthpiece downwards (to prevent free flow) and to continually exhale a small stream of bubbles while the demand valve is not in the mouth.

Use of alternative supply – in standing depth

This exercise requires the participation of each student in turn in the instructor's demonstrations. Initially students should only act as donor, which allows them to retain their own demand valve throughout. It also means the demonstrations are not dependent upon action by them. Students should not be expected to carry out this exercise with each other until they have each acted as a donor with the instructor.

- **Underwater use of 'out of gas' signal**
 - Demonstrate out of gas signal.
 - Ask students to repeat.



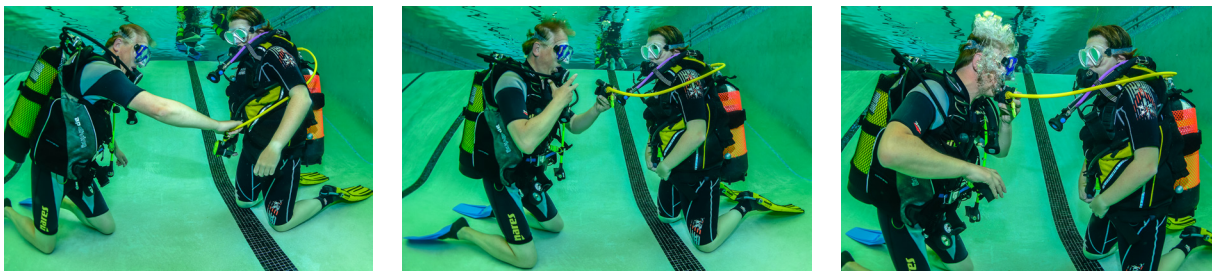
- **Use of AS, student as donor**

This exercise teaches 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.

- Instructor/recipient signals 'out-of-gas'.
- Instructor/recipient takes student's/donor's AS from stowage.
- Instructor/recipient removes own mouthpiece and replaces with purged donor's AS. Establish comfortable breathing.
- Instructor makes positive contact with student by holding shoulder strap (avoiding quick-release buckles) or other convenient handhold.
- Exchange 'OK' signals.
- Disengage by retrieving your own main demand valve.

Repeat the above exercise with each student, one by one.

Note: don't remove own demand valve until a replacement is at hand.



- **Use of AS, student as recipient**

Ask students to repeat the steps above with each other, one by one. Indicate who should be the donor and who should be the recipient.



Note: The relative positioning of the donor and recipient should be such that, in later modules, they can ascend to the surface while being able to see each other's faces and without getting in the way of each other's finning action. The flexibility of position offered by the length of the AS hose should be used to the full to achieve this. At all times stay close to the students in case you need to intervene to ensure a gas source can be provided (either help recover the students own demand valve or offer your AS).

Exit and de-kit

On surfacing refrain from talking, if possible, and encourage students to keep demand valves and masks in place until they have exited the water.

- **Remove fins**
 - Lean on buddy or other suitable fixed object for support.
 - Use figure 4 position for stability.
- **Exit water**
 - Leave the water by wading out.
 - Or if using a ladder, demonstrate climbing the ladder using the principle of three-point contact.
 - Return to the water and ask each student in turn to climb the ladder and wait beside it, positioned a safe distance from the water's edge.
 - Ensure you and other students stand well back in case a student falls from ladder.
- **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 it 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**
 - Rinse all dive kit in fresh water.
 - Turn off gas, purge regulator and disassemble scuba.
 - Fit regulator dust caps.
 - Store items in a way that they can dry out.

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 in the next module.

- **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 comfort if things haven't gone so well.
- **Assess**
 - Offer constructive feedback to enable students to identify areas for improvement.
- **Preview**
 - Explain how students will further develop their skills in the next module.

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.

Kitting-up Students should be able to assemble and functionally check scuba kit before diving in a sheltered water environment. Students should also be able to safely and correctly fit their scuba gear and conduct a simple buddy check using BAR or similar.

Underwater stability Students should be able to swim underwater with a good finning action, while maintaining control of their buoyancy and trim. It's not expected that students will be able to hold a completely level attitude for very long, but they should be able to avoid continual bumping into the bottom or unexpected/uncontrolled ascents.

Mask clearing Students should be able to flood, remove, refit and clear their mask of water. At this stage of their training students may need several attempts to achieve a full clear. One or two hands maybe used to hold the mask while clearing. The mask should be replaced without signs of panic. The seal should be checked to ensure it is flat and that no hair is trapped.

Demand-valve clearing Students should be able to successfully drop, flood, recover, clear and replace their demand valve and recommence normal breathing. When the demand valve is removed, it should be orientated with mouth piece down. When the demand valve is not in the mouth, the student should be slowly exhaling a small continuous stream of bubbles. The demand valve should be recovered calmly without signs of panic.

Static AS In standing depth, students should be able to act as both donor and recipient in a static alternative supply exercise. They should also know the significance of the 'out of air' signal and the importance of being able to quickly find an AS.