

# Chapter 1 Safety

## Suggested workprogram

The following program for approximately 2–3 weeks is based on 4 contact hours (240 minutes) per week. Contact your state's Marine Teachers Association for other resources (videos, worksheets, etc.) as well as updates on Marine Olympics competitions.

### Chapter topics

The hierarchy of topics used in the chapter is given below. Many teachers find this useful when helping their students organise their class-notebooks. In many states, this also assists in LTLTR programs (Learning to learn through reading).

1. Our water culture
2. Some causes of drowning
  - 2.1 Poor supervision
  - 2.2 Surrounding environmental conditions
  - 2.3 Failure to observe signs
  - 2.4 Faulty equipment
  - 2.5 Lack of mariners skills
  - 2.6 Alcohol
3. Water safety issues
  - 3.1 Dangerous situations
  - 3.2 Water safety practices
    - 3.2.1 At home
    - 3.2.2 At rivers, lakes and at sea
  - 3.3 General water skills
    - 3.3.1 Learning to float
    - 3.3.2 Some safety devices and equipment
  - 3.4 Safety in specific sports
    - 3.4.1 Boating and sailing
    - 3.4.2 Surfing
    - 3.4.3 Fishing
    - 3.4.4 Commercial use of the sea

### Week 1

1. Our water culture
  - Read and discuss page 7.
  - State why water safety is an important part of a Marine Studies course.
  - Describe our national water culture.
2. Some causes of drowning
  - Read pages 7–9.
  - State 6 causes of drowning.
  - Draw a graph of the deaths due to drowning table in Figure 8.2.
  - 2.1 Poor supervision
    - Study a table to identify how supervision can affect the chances of drowning.
  - 2.2 Surrounding environmental conditions
    - Describe how lack of knowledge of dangerous sea conditions can affect the chances of drowning.
  - 2.3 Failure to observe signs
    - Make a poster of the dangerous sea creatures sign in Figure 9.2.
  - 2.4 Faulty equipment
    - Give an example of how faulty equipment can cause drowning.
  - 2.5 Lack of mariners skills
    - Give an example of how poor mariners skills can cause drowning.
  - 2.6 Alcohol
    - State the legal blood alcohol level for driving a powerboat.

### Evaluation options

1. Answer questions 1 and 2 on page 12.
2. Mark posters.

### Weeks 2–3

3. Water safety issues
  - Read pages 10–15.
  - **Complete Activity 1.1** on your school's computer Internet system.
- 3.1 Dangerous situations
  - Discuss how dangerous water safety situations can occur in the home.
- 3.2 Water safety practices
  - 3.2.1 At home
    - List 6 ways of supervising children at home near a swimming pool.
  - 3.2.2 At rivers, lakes and at sea
    - Discuss how PFDs, weather, cliffs, slippery rocks and flood situations can affect water safety.
- 3.3 General water skills
  - 3.3.1 Learning to float
    - **Complete Activities 1.2 and 1.3** in the local pool.
  - 3.3.2 Some safety devices and equipment
    - Recall how fire extinguishers, EPIRBs, flares, marine radios, safety lines, first aid kits, signalling devices and compasses are used as safety items on a ship at sea.
    - **Complete Activity 1.4.**
    - Recall how buoyancy vests, leg ropes, helmets, wetsuits, stinger suits, floats and radio beacons can be used as safety items.
    - Research how to join voluntary marine associations.
- 3.4 Safety in specific sports
  - 3.4.1 Boating and sailing
    - Recall the role of the AYF and government agencies in powerboat driver training in your region/state.
  - 3.4.2 Surfing
    - Recall one safety tip for surfers.
  - 3.4.3 Fishing
    - Recall one safety tip for fishers.
  - 3.4.4 Commercial use of the sea
    - Recall the role the Australian Maritime College plays in training mariners.

### Evaluation options

1. Answers to questions and summary question
2. Chapter test
3. Answer questions 3–8 on page 12
4. Select projects/activities from Diving deeper as required
5. Report on Marine Olympics Day

## Activity 1.1 Local state web site

### Aim

To find and download the local state marine safety web site to your computer

### Method

1. Use your search engine to locate the site
2. Follow the instructions to download the web site and complete the activities on it.

## Activity 1.2 How good are you at staying afloat?

### Aim

To visit a local pool and see if you can float and swim

### Method

1. Study Figures 10.1, 10.2 and 10.3 in your textbook.
2. Take some old clothes, life jackets and everyday objects to the local pool.
3. Put your clothes on over your swimmers and jump into the water.
  - a. See how well you can float and swim.
  - b. Try taking off your clothes, as shown in Figure 14.2 of your textbook, to see if you can make a floatation device.
4. Have someone throw you a life jacket. See how well you can put it on in the water.
5. Now take it off, swim to the side and jump back into the water.
6. Have someone throw you some of the everyday objects and see how well you can float with these.
7. Put on each of the three life jackets shown in Figure 14.1 in turn and see how well you float in each.
8. Finally, have someone blindfold you and give you a life jacket. See how well you can put it on and how long it takes.

### Questions

1. Write a report on how well you floated in each of the activities you did today.
2. Which was the best floatation device and which was the worst?

## Activity 1.3 Water safety rules

### Aim

To devise a safety poster that could be hung at the beach or at a pool

### Method

1. Collect two poster sheets from your newsagent, some coloured pens, glue, scissors and paper.
2. Read the section on water safety practices on pages 13–15.
3. Select from the list or brainstorm new ideas for some rules that could go on the poster.
4. When you have finished, write them out neatly, colour the posters in and hang them around the wall of your classroom during the weeks you study this chapter.

## Activity 1.4 Marine safety day

1. This activity must be done with suitably qualified officers and must not be attempted alone.
2. Acknowledgement is given to the Marine Teachers Association of Australia (MTA), its members and the Department of Transport for the creative ideas of this activity. All the ideas for the marine safety day come from the marine olympics manual. A full copy of the Marine Olympics manual can be purchased from [www.marineteachers.org.au](http://www.marineteachers.org.au)

### Event 1 RFD inflation display

#### Aim

To inflate a liferaft (RFD) as shown in Figures 16.4

#### Method

This event usually takes place right at the beginning of the day and provides a spectacular start. The RFD is introduced as a piece of safety equipment that will be used during the day and that it will be let off onshore to maximise viewing.

1. Carry RFD to centre of group.
2. Get Department of Transport officer to give a short address to assembly indicating that this is usually done at night, in bad weather and in appalling conditions.
3. Ask for volunteers to throw RFD out, pulling the cord to inflate the life raft.

4. Make observations of what happens.
5. When the life raft is inflated, indicate what is missing and how the life raft should be boarded. Give some background about survival at sea.
6. Have students take it out and moor it beside the boat they are going to jump off.
7. Do not labour the point as assembled crowds need to be entertained, not talked to, so proceed to next event without delay.

### Event 2 PFD activity

#### Aim

To put on a life jacket, swim out to a life raft and get into the life raft.

#### Method

1. Have students put on life jackets (PFD 1) and take them out to a moored boat near the inflated life raft.
2. Show them how to hold the life jacket before they jump into the water so they don't hurt themselves. Now instruct the students to jump and swim out to the life raft and get in.

### Event 3 Flare display

#### Aim

To let off smoke flares as shown in Figure 16.3. The flare display gives students a chance to let off a flare and to see the effects.

#### Method

1. Ask for volunteers and have assistants hand out flares.
2. Students must wear goggles and protective gloves for the demonstration and be briefed by an assistant as they follow the instructions on the packet to light the flare.
3. When the first flare is alight, get other volunteers until about six or seven flares are going.
4. Have the flare assistant supervise each student and dispose of the flare in the rubbish bin full of water provided.
5. The display will be well received if there are plenty of flares. Do not assume that all flares you bring will light. Have student supervisors on hand at all time.

### Event 4 Ambulance display

#### Aim

To see basic rescue equipment and meet an ambulance officer

#### Method

Students can learn basic first aid and resuscitation procedures from local ambulance officers. The ambulance officer may like to explain emergency procedures and give advice.

Suggested briefing for officer:

1. Ask the ambulance officer to give a talk on what equipment is in an ambulance.
2. Allow students to run the siren and flash the lights to create interest.
3. Do not make the event too long.

### Event 5 Radio operation demonstration

#### Aim

To see basic radio equipment as shown in Figure 17.1 and meet a marine radio operator

#### Method

Students learn from your local Volunteer Marine Rescue Group how to use VHF and 27MHz radios including finding channels, showing correct calling procedures and when to use them. A possible activity could be to give students a scenario and ask them to give the correct calling procedure: 'mayday', 'pan pan' and 'securitee'. This is clearly a land-based event and is great for involving people who are a bit water shy.

Suggested briefing for officer:

1. Ask the officer to explain the radios they have brought. Make sure they all work and are tuned into the day's traffic.
2. Allow students the chance to talk over the radio to the base. Have a message written out for them to read, such as a simple radio check or request for weather forecast.
3. Do not make the event too long.

## Event 6 Firefighting

### Aim

To see basic firefighting equipment and have a go at putting out a fire

### Method

Marine Olympics events are an excellent opportunity to involve local marine-related businesses. Find out how many resources they can commit to the day so you can organise your schedule accordingly.

Students to have a turn at putting out a mock fire under the instruction of the local fire authority. This event also gives students an opportunity to look over the fire truck and ask questions.

## Event 7 Outrigger canoe race

### Aim

To have some fun racing outrigger canoes as a team

### Method

Outrigger canoeing is a popular sport in many areas. This activity requires a significant amount of teamwork and cooperation between team members. Send the canoes out around a moored boat and back — the first to return to the beach is the winner.

## Event 8 Personal water craft

### Aim

To use personal water craft under supervision

### Method

This event gives the students a chance to ride the wave runners under the supervision of water police or boating patrol officers, shows that law enforcers enjoy fun and at the same time explains the rules. PWCs are more popular than ever on our waters, particularly among younger boaties. Providing PWCs at marine Olympics is an opportunity to teach students how to operate PWCs responsibly and safely. Students should be made aware of the differences between jet and outboard power. PWCs may be provided by a state authority (for example, the Department of Transport) or a dealer may see the event as an excellent promotion opportunity.

Check state regulations regarding licensing, safety equipment and supervision.

## Event 9 Driving skills

### Aim

To drive a powerboat and carry out a series of manoeuvres as directed by the instructor

### Method

Students have the opportunity to drive a powerboat and carry out a series of manoeuvres. Depending on the area, this could be through locally placed navigation marks and speed restricted areas, past anchored craft and passing other vessels either head-on or overtaking.

Other exercises could be to retrieve an object from the water, berth the vessel alongside a jetty and have each person answer a question on safety regulation and procedures.

A course using miniature navigation marks can be set up including speed zones and moored vessels where adequate local navigation marks are not present.

A sample course is shown in the MTA Marine Olympics manual. Examples of typical event times are outlined in the manual.

## Event 10 Navigation Skills

### Aim

To use compass and navigation skills as used in night navigation

### Method

Students run a series of compass bearings using a hand-bearing compass that will bring them back to a specific point if followed correctly and steered accurately. Students navigate through a course in a dinghy/powerboat by using the light colours, rhythms and sequences.

1. Red, green, white and yellow marks are placed in the water and a chart is given to the students outlining the light sequences of each mark.

2. As the students approach a mark they must consult the chart to obtain the flashing sequence and navigate through the course accordingly.

## Event 11 Life raft procedures

### Aim

To capsiz and right a life raft and climb aboard while wearing a life jacket

### Method

Using the RFD inflated at the beginning of the day, students try capsizing and righting the life raft and climbing aboard while wearing a lifejacket. You may be able to find a raft due for servicing to use in this event

Students are ferried to an anchored vessel adjacent to the life raft. This is a timed event during which students must don a PFD 1 or coastal life jacket, complete a safety jump from the vessel into deep water, swim to the life raft, climb aboard and display a V-sheet. The procedure simulates a real-life situation of abandoning a vessel at sea.

## Event 12 Swamped dinghy

### Aim

To capsiz and right a dinghy

### Method

Students have the opportunity to practice capsizing a dinghy and then righting it as they might in a real-life situation. The dinghy will require a set of oars and two buckets that should be tied to the boat with lanyards. Students should be warned that as the dinghy flips over, they must beware of the gunwale hitting their heads.

As an event, the students row out to a nominated position, capsize, then right the boat and return to the beach. A predetermined mark (possibly the chine) would be indicated as to the amount of water allowed in the boat. Initiative is the name of the game!

The winner is the boat which returns to the beach first with all gear (buckets and oars) and no more than the allowed amount of water in the boat.

## Event 13 Troubleshooting

### Aim

To maintain an outboard motor and solve common running problems

### Method

Students have the opportunity to be guided by a local marine mechanic in maintaining outboard motors and troubleshooting common problems that can happen at sea.

To be competitive, you need several outboards. Each motor needs to be disabled with 4–5 faults that must be fixed before the motor will start. Students are timed to find the faults, replace the cowling correctly, start the motor and leave it to run for 1 minute.

The disabling problems can be disconnected fuel line, closed air vent, choke stuck on, plug lead off, etc. The troubleshooting can be expanded upon consultation with competing schools.

## Event 14 Iron mariner

### Aim

To compete a course using physical skills necessary for marine safety

### Method

The iron mariner may be run as a single-participant event or team event involving 2–3 participants. However, if the iron mariner is run as a single-participant event, the responsibility for winning the day's competition can rest with this student alone. If run as a team event, the students must work together to achieve a result. The winning student(s) must complete a course in the fastest time without assistance.

For a suggested course, see the Marine Olympics manual

## Event 15 Knot tying

### Aim

To use knots and rope work useful in the marine environment

### Method

Knots and rope work are essential features of boating. Students should be able to tie knots to secure vessels and equipment as well as for towing and joining ropes. This event has to be supervised by a person familiar with knots and ropes.

1. Students will have 3–4 pieces of rope and a bar to start the knots.
2. Students are to tie a series of 5 knots, for example: bowline, single and double sheet bend, figure of eight, reef knot, round turn and two half hitches and clove hitch.

## Textbook questions: suggested answers

1. What is the second greatest killer in our country?  
Ans. Drowning
2. What percentage of people drowned while swimming, paddling or wading in 1995?  
Ans. 21 per cent
3. Why should rules such as no running, no bombs and no ducking be part of swimming pool rules?  
Ans. So you do not slip over and injure yourself. Slipping beside a pool can often lead to broken bones or badly bruised tissue.
4. What are the differences between the three different types of PFD?  
Ans. They are designed for use in different areas and under different conditions, for example, PFD 3 is used for water-skiing.
5. How are marine radios used in safety situations?  
Ans. To send urgency messages such as 'mayday'. They are also used to obtain weather forecasts.
6. What are flares used for?  
Ans. To attract attention at sea. Anyone who sees a flare should report it and then go to the place where the flare was set off to give assistance.
7. Why do sailors use special lines at night?  
Ans. So that if they fall overboard they can return to the vessel.
8. Why should you not ride your body board or surfboard in floods?  
Ans. So you do not get washed down into stormwater drains

## Diving deeper: suggested responses

This information is also published for students on the web site <http://www.wetpaper.com.au>.

1. Visit the [www.anzsbeg.org.au](http://www.anzsbeg.org.au) web site and learn about the Kids in Boats Program.  
Suggestions:  
This page is being developed for a Junior Mariners program in Australia and New Zealand.
2. Find out where you can do a boating or sailing course.  
Suggestions:  
The Australian and New Zealand Yachting Federation have courses. Also there are voluntary coast guard courses as well as TAFE courses.
3. Visit a marine retail shop and make a list of all safety equipment necessary to take a small boat out to sea in your area. Are there different types of safety equipment required for different vessels?  
Suggestions:  
Some things in the list could include: anchors, flares, signalling mirror, radio or life jackets. Collect a brochure from the marine retailing shop and make up a scrapbook for your project.
4. Make up a list of safety rules for a home swimming pool.  
Suggestions:

Examples could include: 'No bomb diving, no running, don't pee in my pool'. Also make a copy of the chart in Chapter 3 (Figure 27.1) and laminate it for beside the pool.

5. Learn to tie some knots used by mariners, such as the bowline.  
Suggestions:  
Go to your library and borrow the Wet Paper books *Mariners Skills* or *Marine Studies*. Locate the how to tie knots section and learn to tie the round turn and two half hitches, sheet bend and bowline. Get other books out on knots and have a go at learning to tie more complicated knots.
6. Visit a shop that sells sailboards. What safety equipment is necessary for this sport?  
Suggestions:  
Some safety equipment you may see is an arm rope, life jacket or helmet.
7. What is a dan buoy and how is used in sailing?  
Suggestions:  
A dan buoy is a life ring tied to a pole with a coloured flag. It is found at the rear of a vessel and is thrown into the water when a mariner goes overboard. A good description of how it is used can be found in the Wet Paper book *Marine Studies*.
8. What is a heliograph and how is it used as a safety device?  
Suggestions:  
A signalling device using the sun and a mirror. See the Wet Paper book *Marine Studies*, page 84, Figure 42.
9. What types of fire extinguishers are used to fight different types of fires?  
Suggestions:  
Look in the Wet Paper book *Marine Studies*, Chapter 3. Why not copy the table in Figure 36?
10. Research the different types of flares used by mariners at sea. Describe each one and how they work.  
Suggestions:  
Go to the marine retail shop and ask for a brochure on flares or find someone with a boat.
11. Research what an RFD is, what it contains and how it is used.  
Suggestions:  
A TAFE college or marine centre will have a demonstration RFD. It is the white round container in Figure 10.3. Alternatively, go and see the skipper of a local charter vessel and get him or her to tell you what one contains and how it is used.
12. Find out the international regulations for prevention of collisions at sea.  
Suggestions:  
These can be found in *Marine Studies*, Chapter 3. They are basically the rules of the road at sea.
13. What types of signals are used by water a skier?  
Suggestions:  
See Chapter 3 of *Marine Studies* published by Wet Paper.
14. Make a collection of boating safety pamphlets and report on how they are used to improve water safety.  
Suggestions:  
Your boating patrol or water police will have these.
15. Find out about how to get out of a car accidentally driven into deep water.  
Suggestions:  
The Royal Life Saving Society has a good booklet on safe swimming and life saving. Chapter 1 has your answer. Most school Physical Education departments will have a copy.

## Summary questions: answers

### First edition

- |                |                                  |
|----------------|----------------------------------|
| 1. tourism     | 5. economic                      |
| 2. fisheries   | 6. personal floatation devices   |
| 3. territorial | 7. resuscitation                 |
| 4. law         | 8. licence                       |
|                | 9. international rules           |
|                | 10. elements of shipboard safety |

## Second edition

1. commerce
2. recreation
3. understanding
4. rocky headland
5. drown
6. alcohol limit
7. award
8. leash
9. cancer
10. training
11. Australian Maritime College
12. seafarers
13. rips
14. ramps
15. consider

## Revision sheet

1. How many Australians drown each year?
2. Where does drowning 'rate' in the cause of accidental death in Australia?
3. What causes the most accidental deaths in your country?
4. What problems have been identified as being important in these drownings?
5. Draw a pie chart of figure 8.3 to show the location of accidental drownings in Australia.
6. Are there any differences between number of males and females who drown?
7. Between age groups?
8. Suggest some situations where drownings may have occurred when the victim did not mean to go into the water
9. Identify the dangers around a home swimming pool.
10. What items should be at every poolside?
11. Suggest a set of helpful owner rules of pool items/design that may help cut down drownings.
12. List one danger for each of the following
  - a. rock fishers
  - b. young children at the pool
  - c. surfers
  - d. water skiers
13. What are some key elements which might be considered in a study of water safety?
14. Answer these questions on specific dangers.
  - a. What dangers would you look for in rivers, creeks and streams?
  - b. How could each of these pose a danger to you?
  - c. What dangers should you look for in lakes?
  - d. How could these pose a danger to you?
15. What dangers should you look for in the sea? How could these pose a danger to you?
16. What are the dangers around the home?
17. List the safe practices you would follow when body surfing.
18. List the safe practices you would follow when board riding.
19. List the safe practices you would follow for sailboarding.

## Chapter test

1. What are the dangers you would face if you jumped off your local bridge?
2. What is the 'golden rule' with young people (i.e. less than 3 years old) around water?
3. What is one dangerous area of water around the home, other than a pool?
4. List four ways water can be made safe around the home.
5. List three important safety rules for swimming.

6. How correct are these statements? Write T for True or F or False on your answer sheet.
  - a. Sharks are our number one killers.
  - b. Faulty equipment can cause drowning.
  - c. It is OK to drink alcohol and fish.
  - d. Never go out in a the surf alone.
  - e. Always scuba dive with a buddy.
  - f. Do not fish while wearing gum boots.
  - g. Babies have drowned in the dog's drinking bowl.
  - h. If caught in weeds, avoid sudden violent movements.
  - i. PFDs are not necessary in boats.
7. When swimming at the beach you should be careful of:
  - a. rips
  - b. dumping waves
  - c. longshore currents
  - d. all of these
8. Around the home:
  - a. Pools should be fenced with childproof gate latches.
  - b. Nappy buckets should be fitted with snap-on lids.
  - c. Garden fish ponds should have a mesh cover.
  - d. All of the above
9. Flares are used for
  - a. setting shark nets
  - b. making repairs to boat hulls
  - c. catching fish at night
  - d. attracting attention in an emergency
10. Which of the following trains mariners for life at sea?
  - a. The Australian Maritime College
  - b. The Surf Life Saving Association
  - c. The Surfrider Foundation
  - d. Greening New Zealand

## Chapter test: suggested answers

1. You could hit your head on a rock underneath the water and drown.
2. Constant visual supervision or teach them to swim or both
3. Bath, wading pool, fish pond, buckets full of water
4.
  - Always stay with children at bathtime.
  - Never leave toddlers alone in a paddling pool.
  - Empty paddling pools when children get out.
  - Cover and fence swimming pools.
  - Cover inground fish ponds with heavy steel mesh.
  - Do not leave buckets, tubs or large bowls around the house with water in them.
  - Teach young children to swim.
5.
  - Check the depth markers, exit points (usually steps) and the people in the pool before getting in.
  - Stay in a depth zone that is comfortable.
  - Avoid running, bomb-diving or dunking.
6.
  - a. F
  - b. T
  - c. F
  - d. T
  - e. T
  - f. T
  - g. T
  - h. T
  - i. F
7. d
8. d.
9. d
10. a