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Section 1
Introduction

The word navigate is taken from the Latin "navagere" meaning navis (ship) and "agere" (move or to direct).

Navigation is the art of directing a vessel at sea.

It can be as simple as paddling a surf ski through shallow water or as complicated as steering an ocean liner across an ocean.

Knowledge and experience

The sea cannot be taken for granted no matter what size or type of vessel you take to sea because the shoreline is littered with the remains of vessels that could not find their way safely.

These wrecks lie as silent reminders of the need for good navigational skills. Even with all our modern navigational aids, over a hundred larger ships are lost at sea each year.

Most of these losses occur through human error, equipment failure, or being caught in natural disasters such as cyclones.

The sea can be a dangerous place, but with basic navigational knowledge it can be a rewarding experience.

It takes many years to train a mariner with many sea time hours logged under the direction of a ship's master to direct the movements of a vessel safely and efficiently from one point to another. Other aspects of navigation such as weather, tides and currents are discussed in other workbooks in this series.

However, having completed the workbook, you should have a basic insight into:

- Some local coastal features shown on a chart
- The use of navigational equipment
- Pilotage and buoyage systems
- Setting and plotting a course
- The importance of modern navigational aids

AMSA

Figure 4.1 Navigation is the art of directing a vessel at sea.

AMSA

Wet Paper

Figure 4.2 The shoreline is littered with the remains of vessels that could not find their way safely.

Worksheet 1 Research and review

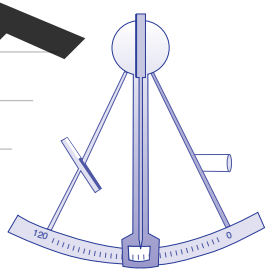
Questions

1. Who was the first person to sail around the world?

   In what century did he complete this feat?

   Why was it such a big deal in those days to accomplish this feat?

2. The figure oppiste shows an early navigation aid. What is it, how was it used and show how it worked.



3. Make a list of modern navigation equipment that is available for inshore navigation.

4. Investigate a major maritime disaster that has occurred in the 20th century. From your investigations suggest the cause of this accident and how it might have been prevented.

5. Would you take up the challenge that Jessey Martin did — to sail alone around the world? Why?

Worksheet 16
Compass courses

In a perfect world Geographical North and Magnetic North would be the same.

When you draw a line on your chart to indicate where you want your boat to go - that is the course to steer, you read off the chart the true bearing of the course to steer.

The course the skipper needs to steer is slightly different because the compass points to Magnetic North and not True North.

Worked example

Calculate the compass course to steer between the Fairway beacon to Paula's light.

Answer

By using parallel or roller rulers, draw a line from the Fairway beacon to Paula's light. Now walk the rulers so that a parallel line passes through the centre of the compass rose and its outside circle.

The true direction is 70°T. The deviation is zero.

Since the variation is 8.00 E in 1990 and increasing 2' annually, the variation in 2001 - 11 years later will be 11 x 2' = 22'

The variation in 2001 = 8°22' (For most navigation exercises this is rounded down to Variation of 8°.

Therefore the compass course is: 70° - 8° = 62° (Error East Compass Least)

Questions

The deviation is zero for Questions 1 - 3.

1. Calculate the true course to steer between

   a. Gregory Light and Paula's light

   b. Trent's Light and Roger's Reef Light

   c. Trent's Light and The Fairway Beacon

   d. Batestown Clubhouse and Richard Light

Figure 50.1 Paula's Light

Wet Paper

Wet Paper

Figure 50.2 The Fairway Beacon

2. Draw lines of position for the following hand bearing compass observations:

a. Marks Light	260°
b. Trent's Light	290°
c. Fairway Beacon	280°
d. Pamela's Light	180°
e. Mouth of Lynch River	270°
f. Paula's Light	160°

3. Calculate the compass course to steer to go between the following places:

   a. Fairway Beacon to Gregory Light

   b. Gregory Light to Richard Light

   c. Batestown Clubhouse to northern tip of Maclean Reef

   d. Pamela's Light to Keid Light

   e. Keid Light to Hamlyn Light