UNIT ONE

THE SHIP AND SHIPBOARD TERMS

The terms we will discuss here are part of the language or jargon used by many of those who "**man**" the merchant ships of the world. To the great extent, the same "**terms**" are used by English-speaking navies.

Since many maritime and naval traditions have been greatly influenced by the traditions and language of the British Navy, English has become the international language of the seas. Every seaman should be familiar with nautical terms and definitions that will be discussed in the following paragraphs.

A ship is a seagoing vessel capable of making extended ocean trips. A boat is smaller and is normally designed for short trips in protected areas.

"Welcome aboard" is the phrase that traditionally greets anyone boarding a ship for the first time.

A deck is that portion of a ship on which one stands or walks, corresponding to the floor of a building. When one crosses the brow and goes through the gangway, he steps onto the main deck.

Brow or Gangplank is a short, straight, flat piece of equipment with one end

Gangplanks

on the ship, the other end on land.

Gangway is an opening in the side of a ship that allows one to go on or off; it sometimes refers to the entire entranceway, including the brow.

Walking toward the front or bow of the ship, one is walking forward; walking toward the rear or stern of a ship, he is walking aft. Amidships refers to the middle of a ship.

Standing on the deck, facing toward the bow, on the right is the starboard side of the ship, and on the left is the port side of the ship.

Some types of stairways are called ladders. They might resemble ladders with rungs and rails, or they might be like conventional stairways with steps and handrails or chains. Descending a ladder, one goes below, and climbing a ladder, one goes topside.

A ladder

A pilot ladder

Cabins are individual rooms in a ship. The walls are called bulkheads; the ceiling is usually called the overhead. There are various openings in a ship such as doors, hatches, portholes, manholes, windows, etc.

Passageways run fore and aft in a ship, connecting spaces; these can also run from one side of the ship to the other, or athwartships.


Two types of hatch covers for cargo ships



Some types of doors


Portholes

Exercise 1

Match the words on the left with definitions on the right according to this unit.

1. Brow or Gangplank	a) Left side of the ship.
2. Bow or stem	b) The back portion of a ship
3. Forward	c) An opening in the deck
4. Stern	d) A short, straight, flat piece of equipment with one end on the ship, the other end on land.
5. Aft	e) Right side of the ship
6. Amidships	f) The front part of a ship
7. Starboard side	g) The direction toward the stern
8. Port side	h) Ladder
9. Hatch	i) The area between the front and back of the ship
10. stairway	j) The direction toward the bow or front of a ship

Exercise 2

Complete the following sentences with the appropriate word or phrase.

Example: The rear of a ship is called .....stem.....

1– A boat is smaller than a .....

2– A cargo hatch is normally found on the main .....

3– ..... is the phrase that traditionally greets anyone boarding a ship for the first time.

4– The back portion of a ship is called .....

5– The direction toward the stem or bow is called .....

Exercise 3

Choose the best answer:

1. In maritime language, "Welcome aboard" means welcome to the .....

   a) class room

   b) ship

   c) sea

2. How can I get to the ....., I need to wash my hands.

   a) water

   b) deck

   c) head

3. In order to board a ship you have to go from the pier onto the .....

   a) deck

   b) cruiser

   c) gangway

4. "Man" used in the second line of the text means.....

   a) not a woman

   b) a strong sailor

   c) supply crew for a ship

5. What does "term" in the third line of the text mean?

   a) time

   b) word

   c) language

6. A "deck" refers to .....

   a) the area between the front and back of the ship

   b) the front part of a ship

   c) the part of the ship on which we can stand or walk.

7. When one faces towards the bow, his right side and left side are called ..... and ..... sides respectively.

a) starboard — port

b) aft — fore

c) stem — amidships

8. Where do sailors sleep?

a) In manholes

b) In cabins

c) In bulkheads

9. Which of the following is not considered as a synonym for "descending"?

a) Ascending

b) Downward

c) Degressive

10. The spaces of a ship are connected by .....

a) portholes

b) passageways

c) hatches

STRUCTURES:

Imperatives

Instructions. ***We can use the imperative to give instructions.***

Remove the bolts on the back lid of the pump.

Go forward and then turn to the port side.

Take a port and then starboard turn.

First disconnect the electricity,
then remove the old light bulb,
next screw in the new light bulb,
finally switch on the light bulb.

We can also give instruction using words like "must, should, may, etc."

You must first report to the chief officer.
You should go through the gangway, into the ship.
You may take a walk on the deck after your work time.

Orders. We can use the imperative to give a direct order.

Alter your course to starboard!
Don't enter the engine room!
Stop/Avoid interrupting a transmission!
Repeat your distress message please!

Exercise 1

Put the words in order to make complete sentences:

1) instructions/ please/ the/ first/ read.

……

2) to/ turn/ get/ port/ finally/ to/ the/ cabins/ to/ the/ side.

……

3) not/ control room/ do/ enter/ the.

……

4) life/ avoid/ in/ putting/ your/ danger.

……

5) should/ to/ calls/ you/ respond/ always/ distress.

……

6) must/ up/ the/ get/ second/ you/ climb/ to/ ladder/ to/ deck/ the

……

Exercise 2

Match the two halves of the sentences:

1) You must	a) the exam in one hour.
2) Please help	b) after you are done watching.
3) Stop	c) put your things in the cabin.
4) You should finish	d) me replace this light bulb.
5) Finally report	e) interrupting the chief officer.
6) You may rest	f) to the chief officer.

Exercise 3

Complete the following sentences with the proper imperative form of the verbs in parentheses.

1. Avoid …… (interrupt) the chief officer.

2. ……(not/enter) the chief officer's cabin.

3. Everybody shoud …… (respect) their superior.

4. Please ……(try) to remember all the places in the ship.

5. In order to board the ship, ……(pass) through the gangplank.

Sustainable Development

Sustainable development is a means of meeting present needs in ways that do not impair the future generations and other species from meeting their needs. Because the environment is essential to satisfying the needs of present and future generations, environmental protection is a key to its success.

Traditional Decision Making

Decision Making in a Sustainable Society

UNIT TWO

TYPES OF SHIPS

Ships are broadly classified in three groups: naval ships, merchant ships, and sailing ships.

Naval Ships are either warships or auxiliary ships. Warships can be further classified under type and class. The term type distinguishes between ships built for different purposes, e.g. destroyers and frigates. Class distinguishes between different ships of the same type, e.g. Jamaran class destroyer. Auxiliary ships are designed to support warships at sea, e.g. Kharg auxiliary ship.

Jamaran class destroyer

Kharg Auxiliary Ship

Merchant Ships can be classified by their type, e.g. general cargo ships, container ships and tankers. Different types of ships can be recognized by certain distinctive features in their general appearance because the design of a ship depends mainly on the work "she" is required to perform.

Merchant ships are more difficult to classify than naval ships because one type of ship may often be used for different purposes. Generally they belong to one of the following main types:

Passenger Ships:

With the growth of air travel the role of the passenger liner providing a regular service between nominated ports has virtually disappeared except for passenger/car ferries. These ships vary in size and displacement (weight).

Cargo Ships:

1- General cargo ships: These vessels are designed to carry all types of general dry cargo between all ports of the world.

2- Reefer ships (Refrigerated Ships): Some cargo, such as fruit and meat, require refrigeration to maintain their condition during transit. The stowage compartments of ships built for this trade are insulated and refrigerated to the optimum temperature for the particular cargo.

Container Ships:

The container ship has a high freeboard and her super structure is either right aft or three quarters aft. The deck has no sheer or camber, so containers can

be stowed upon it as well as in the holds.

Bulk Carriers:

These are ships specifically designed for the transport of bulk cargo such as grain, sugar, industrial salt, etc., which is stowed in holds having large hatches for access of loading machinery.

OBO Ships (Oil/Bulk/Ore):

To "overcome" the problem of bulk carriers making long return journeys in ballast, a multi- purpose ship has been developed. The OBO ship's hall is subdivided so that the bulk-cargo holds are flanked by liquid-cargo tanks. The OBO can be distinguished from the bulk carrier by more complex deck-fittings, oil pipes and tank vents, and by the hose derricks amidships.

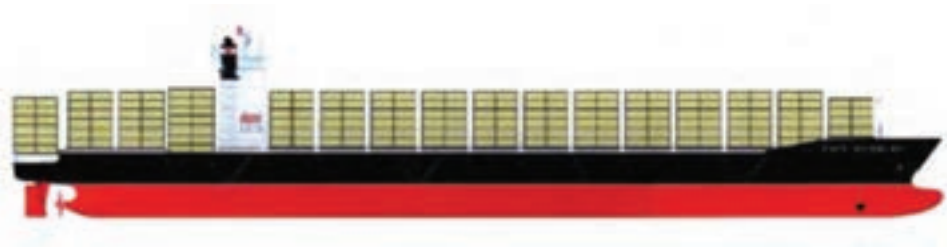
Tankers:

These are ships used to transport crude oil from the oil terminals or used to transport refinery products to commercial ports for distribution to the consumer.

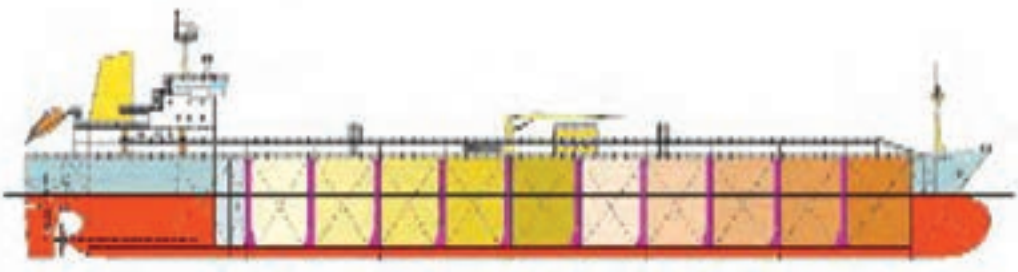
The general classification of the tanker covers a wide variety of vessels which fall into four categories:

- Crude carriers are built to transport cargo up to 175,000 deadweight tons;
- (VLCC)Very Large Crude Carriers are designed to carry cargo from 175,000 to 350,000 deadweight tons;
- (ULCC) Ultra Large Crude Carriers are capable of carrying cargo over 350,000 deadweight tons;
- Product carriers are normally smaller than crude carriers and are used to carry refinery products. Their sizes depend on types of products and the distance they travel between the departure and destination ports.

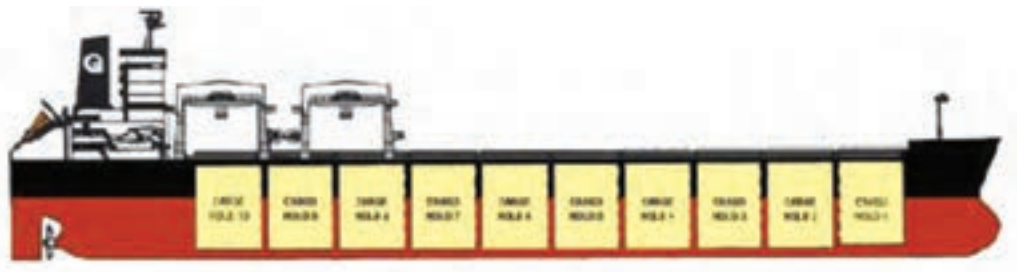
A Multi-purpose Vessel



A Container Vessel



An Oil Tanker



A Bulk Carrier

Exercise 1

Match the words on the left with definitions on the right.

1. Bulk carriers	a) These are ships used to transport refinery products
2. General cargo ships	b) These are ships used to transport crude oil from the oil terminals
3. Very large crude carriers	c) The ships designed for the transport of grain, cement, sugar, …

4. Ultra large crude carriers	d) This term distinguishes between ships built for different purposes
5. Products carriers	e) This term distinguishes between different ships of the same type
6. Class	f) Tankers from 175,000 to 350,000 deadweight tons
7. Crude carriers	g) These ships are designed to carry fruit and meat
8. Type	h) Tankers over 350,000 deadweight tons
9. Reefers	i) These ships are designed to carry all types of general dry cargo

Exercise 2

Complete the following sentences with the appropriate word or phrase.

Example: …Merchant ships… are more difficult to classify than naval ships.

1– Warships can be classified under …….and ……

2– …… ……ship has a high freeboard and the super structure.

3–The design of a ship depends mainly on the work she is required to ……

4– General cargo ships vary considerably …….

5– The first Jamaran class …… is built by Islamic Republic of Iran Navy (IRIN).

Exercise 3

Choose the best answer.

1. According to the text, It is not easy to classify merchant ships because they
   a) perform different works.
   b) are made in different sizes.
   c) are different from naval ships.
2. What are auxiliary ships designed to do?
   a) They're designed to carry passengers and cars.
   b) They're built to support warships at sea.
   c) They're specifically designed for the transport of bulk cargo.

3. Naval ships can be classified into two types. What are these two types?

a) Merchant ships and sailing ships

b) Warships and passenger ships

c) Warships and auxiliary ships

4. What does "she" refer to in the third paragraph?

a) A passenger

b) A ship

c) A sailor

5. What does "overcome" mean in paragraph 9?

a) To succeed in dealing with or controlling a problem.

b) To be affected by something.

c) To defeat somebody.

6. …… doesn't have any sheer or camber.

a) Bulk carriers

b) OBO ships

c) Container ships

7. Why are OBO ships built?

a) To transport crude oil from the oil terminals more easily

b) To deal with the problem of bulk carriers making long return journeys

c) To transport all types of bulk cargo

8. Crude carriers are …… than product carriers.

a) bigger

b) smaller

c) more effective

9. What are product carriers used to carry?

a) Large cargo

b) Auxiliary weapons

c) Refinery products

10. What do product carriers' sizes mainly depend on?

a) Types of products carried by these kinds of carriers

b) The distance between ports

c) Both a and b

STRUCTURES:

Quantifiers

A quantifier is a word or phrase which is used before a noun to indicate the amount or quantity:

'some', 'many', 'a lot of ' and 'a few' are examples of quantifiers.

Some quantifiers can be used with both countable and uncountable nouns.

Examples:

There are some engineers working here.

He's got only a few personnel in the engine room.

How much money have you spent on your last travel?

There is a large quantity of fish in this river.

He's got more friends than his brother.

Some important quantifiers:

With Uncountable Nouns

- Much (in negative and interrogative sentences)
- a little/little/very little *
- a great deal of
- a large amount of
- a large quantity of

With Countable Nouns

- many (in negative and interrogative sentences)
- a few/few/very few **
- a number (of)
- several
- a large number of
- a great number of

- either/ neither (Nouns with either and neither have a singular verb)
- each/ every ***
- both

With Both Countable and Uncountable Nouns

- all
- enough (enough+ a noun/ an adj.+ enough)
- more/most
- less/least
- no (with an affirmative verb)
- none of ****
- not any
- any (in negative and interrogative sentences)
- a lot of (in affirmative, negative and interrogative sentences)
- lots of (in affirmative sentences)
- plenty of (in affirmative sentences)

NOTES:

* little, very little mean that there is not enough of something. a little means that there is not a lot of something, but there is enough.

** few, very few mean that there is not enough of something.a few means that there is not a lot of something, but there is enough.

*** We use every or each with a singular noun to mean all:

e.g. Every navy personnel has to wear a uniform.

**** None is a pronoun and doesn't need a noun. It can be used for zero quantity in short answers. e.g.

– How much money do you have?

–None.

–How many people attended the meeting?

– None.

EXERCISE 1

In the following sentences, fill in the blanks with one of the quantifiers in parentheses.

1. I am having …… of trouble repairing this oil pump. (a lot– most – some – many)
2. Bulk carriers can carry (many – much – large numbers of – large amounts of) bulk cargo such as grain.
3. With the growing role of air travel, there are (much – most – little – a large quantity of) passenger ships providing regular service between ports.
4. We're close to the project's deadline, but there is still (much – enough – several – many) time left.
5. Although there are (a little – a few – a large quantity of – a large number of) brilliant seamen working aboard, some others are giving service ashore.
6. Seaman Ghavam and Seaman Fardid have taken (plenty of – a lot of – much – a great deal) of navigation courses, but they have not taken (much – some – any – more) engineering ones.
7. I'm sorry, I can't buy those shoes, I have (little – less – few – a little) money with me.
8. Our ship has got (a little – little – much – enough) space for hundreds of passengers.
9. There isn't (much – a little – more – little) fuel left in the fuel oil tank.
10. Seamen get (a little – little – enough – much) money to live comfortably.

EXERCISE 2

Are the following sentences right or wrong? Correct the wrong sentences.

a) The chief officer shook hands with every seamen.

b) Both my parents work full time.

c) There are a little seamen still working on the deck.

d) My brother doesn't spend much money on clothing.

e) Neither of the books contains what I need to know to perform my duty.

f) If you've got a few time, I can show you how this engine works.

g) I have few interest in geography.

h) There have been several officers working in this type of ship recently.

i) We don't have enough of information about bulk carriers.

j) How many gallons of paint do we have in the stowage?

– None of.

k) You'd be surprised how many types of general dry cargo these ships can carry.

l) We want every officers to report to the deck officer by tomorrow morning.

EXERCISE 3

Choose the best answer.

a) There is …… need to be worried about tomorrow's test.

- no
- none
- any

b) He has ……. time to study.

- few
- little
- many

c) I have to work …….. aboard, at least fourteen hours a day.

- much
- a lot
- a lot of

d) −Do you speak French?

−Yes, ……

- a little
- a few
- many

e) There are …… for the crew.

- Compartments enough
- enough compartments
- enough cabins

f) −How many seamen work with you?

(−) ……

- Any
- None
- Much

g) Can you give me …… books for the exam?

- a couple of
- a bit of
- a lot

h) When we got there, …… ships had left the jetty.

- both
- both of
- the both

i) Can you give me …… advice?

- an
- some
- many

Recycling

Recycling is the process of gathering and reusing discarded or waste materials. We throw away a great amount of scrap or waste material. Many of these materials can be recycled. They include metals, plastics, glass and paper. Recycling gives manufacturers another valuable resource for raw materials. Recycled waste can be processed using less energy than required to process new raw materials.

a) Linear Production System

b) Cyclic Production System: The industrial ecosystem

UNIT THREE

NAVIGATION

Marine navigation blends both science and art. Methods of navigation have changed throughout history. One of the most important judgments the navigator must make involves choosing the best methods to use. Navigation can be divided into six classifications: dead reckoning (DR), piloting, celestial navigation, radio navigation, radar navigation and satellite navigation.

Dead Reckoning (DR): The term is derived from the "deduced reckoning" of sailing ships, which was abbreviated as "dead reckoning". Dead reckoning (DR) determines position by advancing a known position for courses and distances. A position so determined is called dead reckoning (DR) position. In basic application of dead reckoning, projections are made from planned courses and speeds without allowance for wind or current. Correcting the DR position for leeway, current effects, and steering errors result is an estimated position (EP).

Courses are determined from the magnetic or gyro compass, and distance is taken from a log, a count of engine revolution, or a multiplication of speed and time. The plot of DR positions can be done either manually or by dead reckoning tracer that automatically analyzes directions and distances and plots a continuous track.

Piloting: Piloting involves navigating in restricted waters with frequent or constant determination of position relative to nearby natural land features and structures and other objects ashore. The specific aids to navigation such as lights, buoys, day beacons, and fog signals; and measurement of the water depth also guide the mariners for piloting. Under normal circumstances, piloting will

establish a vessel's position with precision and accuracy.

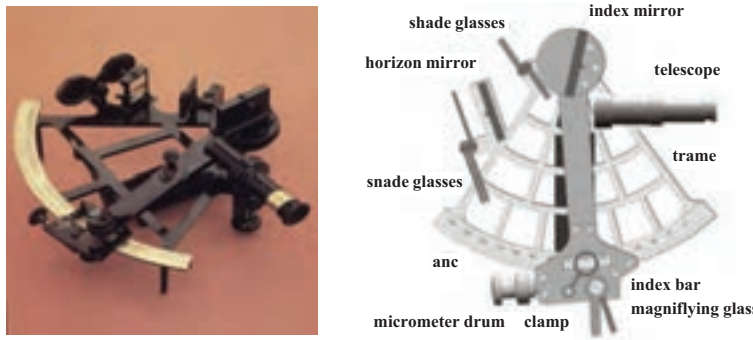
Celestial Navigation: celestial navigation is the determination of position by observing the celestial bodies– the sun, the moon, planets, and stars. Navigators, recognizing the "deficiencies" of dead reckoning when carried on for days without knowing the effects of wind and current, soon developed the techniques for observing heavenly bodies. The angle of elevation above the horizon for a heavenly body is first measured with an observational instrument which is called sextant. The observed angle is then compared with a mathematical calculation of that angle for the position of that heavenly body at that time. The difference between the observed angle and the mathematical angle is used to determine the location of the observer.

Radio Navigation: Radio navigation uses radio waves to determine the position through a variety of electronic devices.

Radar Navigation: Radar navigation uses radar to determine the distance from or bearing of objects whose position is known. This process is separate from radar's use in collision avoidance.

Satellite Navigation: Satellite navigation uses radio signals from satellite for determining position, for example GPS and GLONASS.

Although the study of navigation is the learning of how to measure and use position, direction, distance, time, and speed, the practice of navigation, in any of its forms, is the application of this knowledge to ensure the safe and "expeditious" passage of a vessel.



A Sextant

A Gyro Compass

Two Types of Radars

Exercise 1

Match the words on the left with definitions on the right.

1. Radar navigation	a) Navigating in restricted waters with frequent or constant determination of the position relative to nearby natural land features.
2. Celestial navigation	b) The projection of a present position, from a previous known position
3. Piloting	c) Using radio signals from satellite for determining position

4. Sextant	d) Using the radar to determine the distance from or bearing of objects whose position is known
5. Satellite navigation	e) Determination of position by observing the celestial bodies
6. DR	f) Determining the position through a variety of electronic devices.
7. Radio navigation	g) An observational instrument for measuring the angle of elevation above the horizon for a heavenly body.

Exercise 2

Complete the following sentences with the appropriate word or phrase.

Example: …Celestial navigation… is the determination of position by observing the celestial bodies.

1– The study of …… is the learning of how to measure and use position, direction, distance, time, and speed.

2– Courses are determined from the ……, magnetic or gyro.

3– The angle of elevation above the horizon for a heavenly body is first measured with …… .

4– The sun, the moon, planets, and stars are …… bodies.

5– The plot of DR positions can be done either manually or by …… …… tracer.

Exercise 3

Choose the best answer:

1. How does dead reckoning (DR) determine position?

a) By making use of specific aids of navigations such as fog signals.

b) By advancing a known position for courses and distances.

c) By measuring the depth of water.

2. How can we determine courses?

a) With making use of a log.

b) By multiplying time and speed.

c) With the help of a magnetic or gyro compass.

3. What does an automatic dead reckoning tracer analyze?

a) Direction and distance

b) Direction and speed

c) Direction and time

4. Piloting involves …

a) navigating in restricted waters with continuous determination of position of natural land features.

b) navigating in unrestricted areas with frequent estimating of position of near land features.

c) navigating in restricted waters without determination of position of nearby land features.

5. Which kind of navigation uses sextant to measure the angle of elevation above horizon for a heavenly body?

a) Radio navigation

b) Satellite navigation

c) Celestial navigation

6. In order to determine the position, mariners use different kinds of …… to study radio waves.

a) satellites

b) electronic devices

c) radars

7. What kind of navigation can we use when the positions of objects are known?

a) Piloting

b) Celestial navigation

c) Radar navigation

8. Choose a proper synonym for deficiency:

a) shortage

b) sufficiency

c) adequacy

9. GPS and GLONASS are the examples of ……

a) Dead Reckoning

b) Satellite navigation

c) Piloting

10. "expeditious" in the last line of text means ……

a) fast and efficient

b) slow

c) safe

STRUCTURES:

Prepositions

A preposition comes before a noun (or a pronoun) to show the noun's relationship to another word in the sentence.

Prepositions of Time

English prepositions	Usage	Example
on	days of the week	▪ on Monday
in	months / seasons time of day year after a certain period of time (when?)	▪ in August / in winter ▪ in the morning ▪ in 2006 ▪ in an hour
at	for night for Weekend a certain point of time (when?)	▪ at night ▪ at the weekend ▪ at half past nine
by	in the sense of at the latest up to a certain time	▪ I will be back by 6 o'clock. ▪ By 11 o'clock, I had read five pages.

Prepositions of Place (Position and Direction)

English prepositions	Usage	Example
in	room, building, street, town, country book, paper etc. car, taxi picture, world	■ in the kitchen, in London ■ in the book ■ in the car, in a taxi ■ in the picture, in the world
at	meaning next to, by an object for table for events place where you are to do something typical (watch a film, study, work)	■ at the door, at the station ■ at the table ■ at a concert, at the party ■ at the cinema, at school, at work, at sea
on	being on a surface for a certain side (left, right) for a floor in a house, ship for public transport for television, radio	■ on the table, the picture on the wall ■ on the left ■ on the first floor, on the main deck ■ on the bus, on a plane, on a ship ■ on TV, on the radio
by, next to, beside	left or right of somebody or something	■ He is standing by / next to/ beside the car.
under	on the ground, lower than (or covered by) something else	■ The bag is under the table
over	covered by something else meaning more than getting to the other side	■ put a jacket over your shirt ■ over 16 years of age ■ walk over the gangplank
above	higher than something else, but not directly over it	■ I sleep on the bunk over yours.
through	movement from one side and out of the other	■ walk through the passageway
to	movement to person or building movement to a place or country	■ go to the port ■ go to Tehran / Iran
into	enter a room / a building	■ go into the kitchen / the house

Exercise 1

Put in the proper preposition. (There might be more than one correct answer.)

1. We live ..... Noshahr.
2. Would you like to go ..... the port now?
3. No, thanks. I was ..... the port yesterday.
4. We are going ..... a holiday next week.
5. There are many paintings..... my wall.
6. Who is this person ..... the picture?
7. Come ..... my cabin, we want to practice tying different knots.
8. The first officer is the one standing ..... the wheel.
9. How far is it from here ..... the port.
10. A bird flew ..... the cabin ..... a porthole.
11. He stepped ..... the table to remove the old light bulb.
12. I am going to see one of my friends ..... Friday ..... 10: 30.
13. Kharg is one of the largest auxiliary ships ..... the world.
14. Everybody has to finish the test ..... an hour.
15. This merchant ship will be back ..... the port ..... next month.

Exercise 2

Look at the pictures below and complete the following statements. (There might be more than one correct answer.)

a) You have to pass ..... the manhole, down the ladder ..... the second deck and walk aft.

b) You can sleep …… the bunk …… mine.

c) There is a picture …… the wall and a book …… the coffee table.

d) …… the cabins of a cruise, there are two bunks, curtains, a sofa, a chair, a dresser, and a mirror.

e) There is a big sofa …… the bunk …… the right.

f) There are six officers standing …… this submarine.

Recycling Saves Energy

Recycling is an important way of reducing energy consumption. Recycling takes scrap materials and reprocesses them to make new materials. Many manufacturing industries, especially the producers of standard metals, plastics, and glass, recycle to reduce energy costs. The amount of energy saved by recycling can be very dramatic. For example, making steel from raw materials uses almost four times as much electricity as making steel from scrap.

Making steel from	Electricity used
Raw materials, Ores	2/700 Kilowatt – hours
Scrap steel	700 Kilowatt – hours