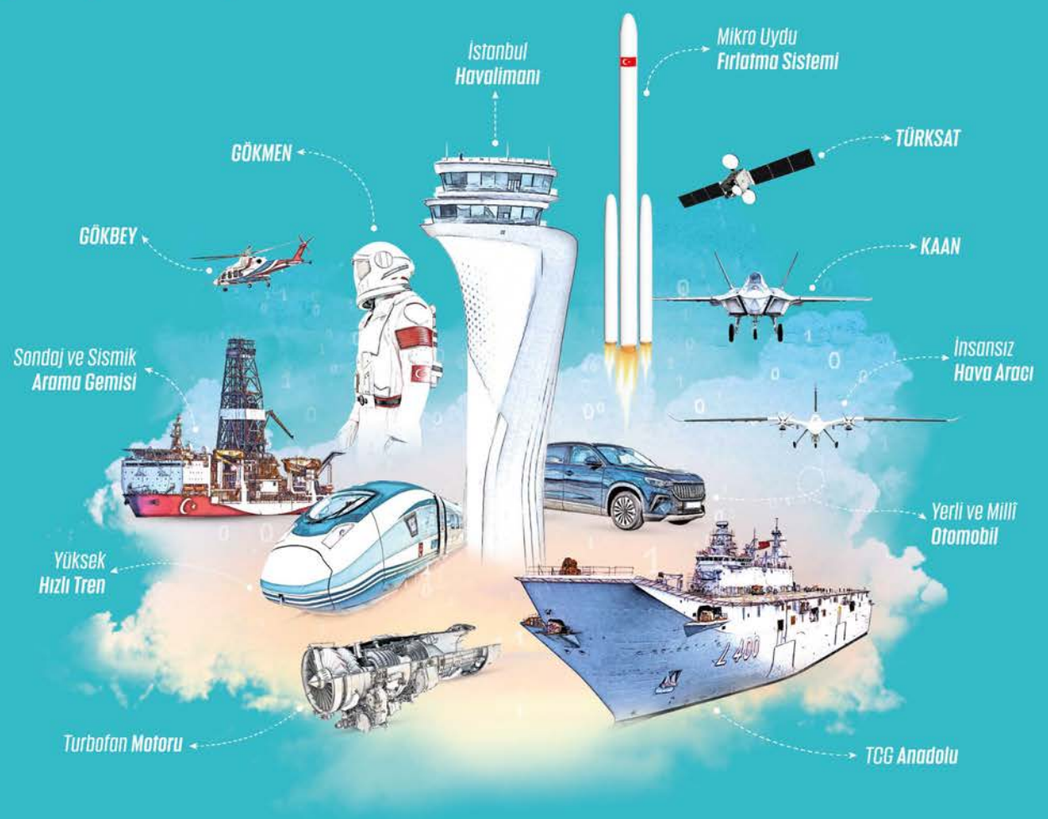
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THE FIELD OF SHIPBUILDING

VOCATIONAL ENGLISH

11th - 12th CLASSES COURSE MATERIAL

# VOCATIONAL AND TECHNICAL ANATOLIAN HIGH SCHOOL
## THE FIELD OF SHIPBUILDING



11
12

COURSE MATERIAL

# VOCATIONAL ENGLISH

MESLEKİ VE TEKNİK ANADOLU LİSESİ

GEMİ YAPIMI ALANI

# MESLEKİ İNGİLİZCE

## 11.-12. SINIF

## DERS MATERYALİ

YAZARLAR

Özgür PARTAL

Tuba ÖNAL

MİLLÎ EĞİTİM BAKANLIĞI YAYINLARI ..... :8726
KAYNAK KİTAPLAR DİZİSİ ..... :2611

Her hakkı saklıdır ve Millî Eğitim Bakanlığına aittir. Ders materyalinin metin, soru ve şekilleri kısmen de olsa hiçbir surette alınıp yayımlanamaz.

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Program Geliştirme Uzmanı
Mine ERÇİN

Rehberlik Uzmanı
Musa KARABEYESER

Görsel Tasarım Uzmanı
Feyza GÜRSOY

ISBN: 978-975-11-6402-5

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# İSTİKLÂL MARŞI

Korkma, sönmez bu şafaklarda yüzen al sancak;
Sönmeden yurdumun üstünde tüten en son ocak.
O benim milletimin yıldızıdır, parlayacak;
O benimdir, o benim milletimindir ancak.

Çatma, kurban olayım, çehreni ey nazlı hilâl!
Kahraman ırkıma bir gül! Ne bu şiddet, bu celâl?
Sana olmaz dökülen kanlarımız sonra helâl.
Hakkıdır Hakk'a tapan milletimin istiklâl.

Ben ezelden beridir hür yaşadım, hür yaşarım.
Hangi çılgın bana zincir vuracakmış? Şaşarım!
Kükremiş sel gibiyim, bendimi çiğner, aşarım.
Yırtarım dağları, enginlere sığmam, taşarım.

Garbın âfâkını sarmışsa çelik zırhlı duvar,
Benim iman dolu göğsüm gibi serhaddim var.
Ulusun, korkma! Nasıl böyle bir imanı boğar,
Medeniyyet dediğin tek dişi kalmış canavar?

Arkadaş, yurduma alçakları uğratma sakın;
Siper et gövdeni, dursun bu hayâsızca akın.
Doğacaktır sana va'dettiği günler Hakk'ın;
Kim bilir, belki yarın, belki yarından da yakın.

Bastığın yerleri toprak diyerek geçme, tanı:
Düşün altındaki binlerce kefensiz yatanı.
Sen şehit oğlusun, incitme, yazıktır, atanı:
Verme, dünyaları alsan da bu cennet vatanı.

Kim bu cennet vatanın uğruna olmaz ki feda?
Şüheda fışkıracak toprağı sıksan, şüheda!
Cânı, cânânı, bütün varımı alsın da Huda,
Etmesin tek vatanımdan beni dünyada cüda.

Ruhumun senden İlâhî, şudur ancak emeli:
Değmesin mabedimin göğsüne nâmahrem eli.
Bu ezanlar -ki şehadetleri dinin temeli-
Ebedî yurdumun üstünde benim inlemeli.

O zaman vecd ile bin secde eder -varsa- taşım,
Her cerîhamdan İlâhî, boşanıp kanlı yaşım,
Fışkırır ruh-ı mücerret gibi yerden na'şım;
O zaman yükselerek arşa değer belki başım.

Dalgalan sen de şafaklar gibi ey şanlı hilâl!
Olsun artık dökülen kanlarımın hepsi helâl.
Ebediyyen sana yok, ırkıma yok izmihlâl;
Hakkıdır hür yaşamış bayrağımın hürriyyet;
Hakkıdır Hakk'a tapan milletimin istiklâl!

**Mehmet Âkif Ersoy**

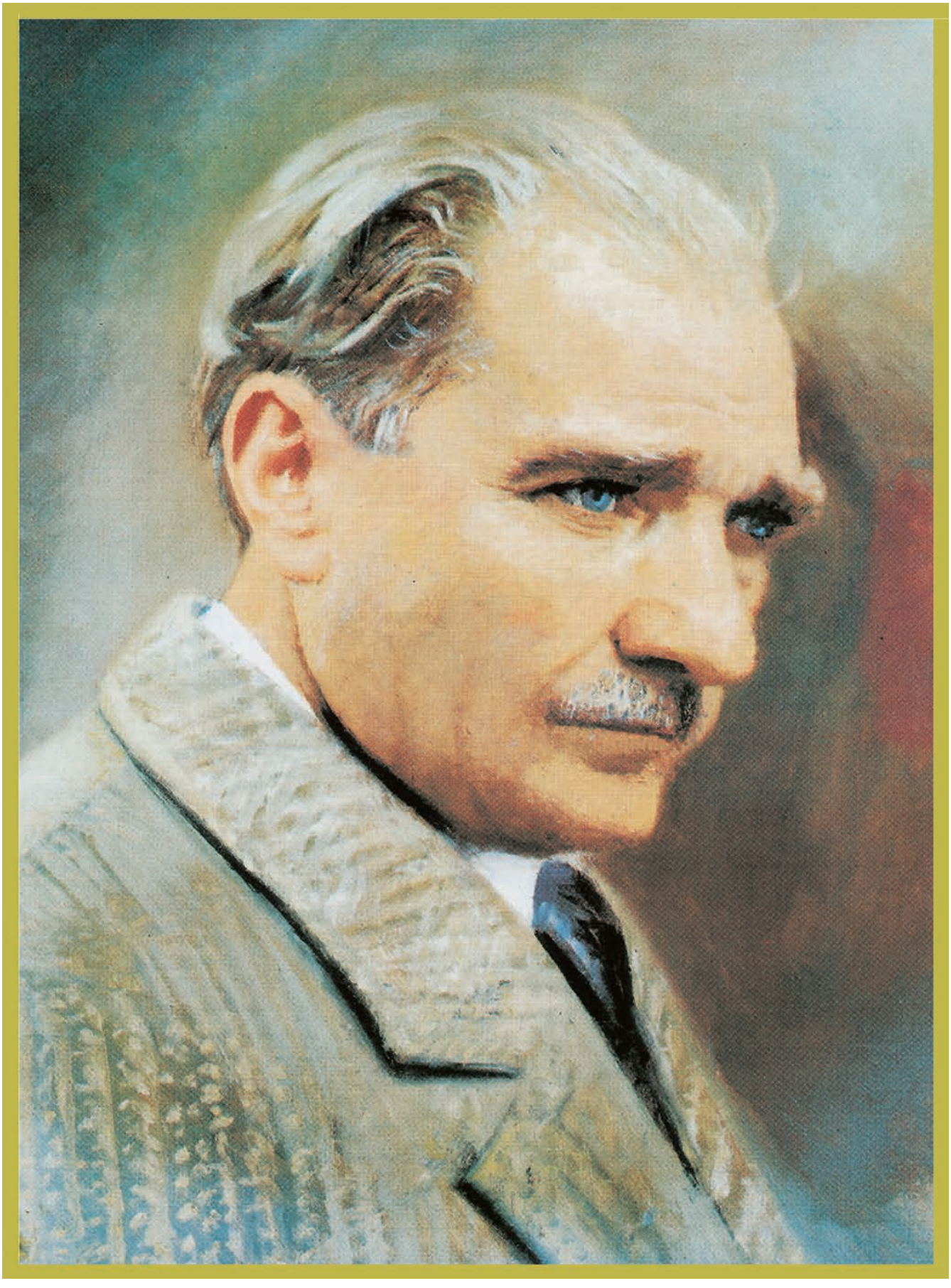
## GENÇLİĞE HİTABE

Ey Türk gençliği! Birinci vazifen, Türk istiklâlini, Türk Cumhuriyetini, ilelebet muhafaza ve müdafaa etmektir.

Mevcudiyetinin ve istikbalinin yegâne temeli budur. Bu temel, senin en kıymetli hazinendir. İstikbalde dahi, seni bu hazineden mahrum etmek isteyecek dâhilî ve hâricî bedhahların olacaktır. Bir gün, istiklâl ve cumhuriyeti müdafaa mecburiyetine düşersen, vazifeye atılmak için, içinde bulunacağın vaziyetin imkân ve şeraitini düşünmeyeceksin! Bu imkân ve şerait, çok namüsait bir mahiyette tezahür edebilir. İstiklâl ve cumhuriyetine kastedecek düşmanlar, bütün dünyada emsali görülmemiş bir galibiyetin mümessili olabilirler. Cebren ve hile ile aziz vatanın bütün kaleleri zapt edilmiş, bütün tersanelerine girilmiş, bütün orduları dağıtılmış ve memleketin her köşesi bilfiil işgal edilmiş olabilir. Bütün bu şeraitten daha elîm ve daha vahim olmak üzere, memleketin dâhilinde iktidara sahip olanlar gaflet ve dalâlet ve hattâ hıyanet içinde bulunabilirler. Hattâ bu iktidar sahipleri şahsî menfaatlerini, müstevlîlerin siyasî emelleriyle tevhit edebilirler. Millet, fakr u zaruret içinde harap ve bîtap düşmüş olabilir.

Ey Türk istikbalinin evlâdı! İşte, bu ahval ve şerait içinde dahi vazifen, Türk istiklâl ve cumhuriyetini kurtarmaktır. Muhtaç olduğun kudret, damarlarındaki asil kanda mevcuttur.

Mustafa Kemal Atatürk



MUSTAFA KEMAL ATATÜRK

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# ORGANIZATION OF THE COURSE MATERIAL



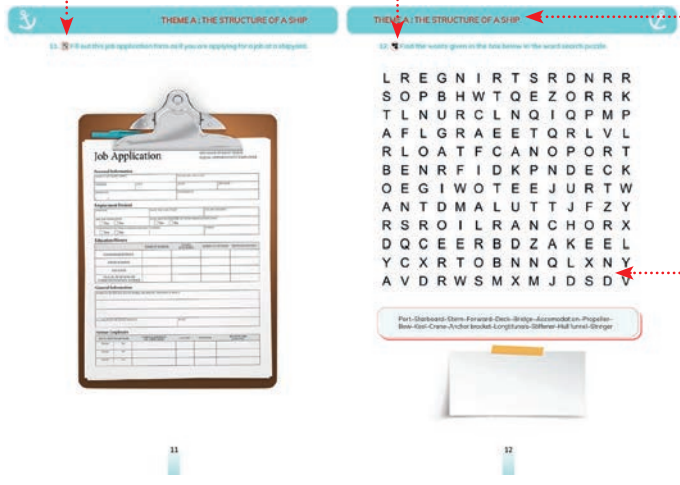

Number and Name of the Unit

QR Code of the Unit

Writing Activity Icon

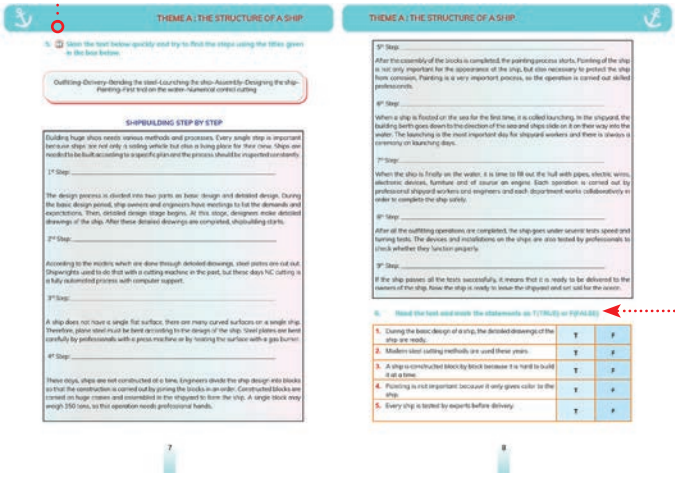
Puzzle Activity Icon

Headline of the Theme




In-class Activities

Reading Activity Icon




Activity Instructions

Listening Activity Icon

## THEME A : THE STRUCTURE OF A SHIP

8. Listen to the audio about job opportunities at a shipyard and fill in the blanks using the words given in the box below.

### JOB OPPORTUNITIES AT A SHIPYARD

There are a lot of jobs when the subject is shipbuilding. There are so many people working on many ships with many different roles. Let's have a look at the types of jobs involved in shipyards.

1. _____ design the ship and make the necessary calculations.
Away from the drawing desk, there are many types of jobs involved in construction.
2. _____ fasten the plates by using rivets or metal pins.
3. _____ carry out sealing and waterproofing operations.
4. _____ assembly or repair metal parts of the ship by using heat.
5. _____ install and maintain boiler systems.
6. _____ install electrical installations and perform electrical wiring.
7. _____ fill the hull of a ship with pipes and perform maintenance of them.
Blacksmiths makes objects out of iron and steel.
8. _____ carry out any woodwork necessary on a ship.
Painters are needed not only outside but also inside of a ship for any painting operations.
9. _____ are responsible for designing, creating and maintenance of a wide range of machinery used on a ship.

Cleaners and 10. _____ make the final touch before a "clean" sea trial.

To sum up, shipbuilding is a complicated process. It involves several different skills and they all work for a common goal. A beautiful ship floating on beautiful seas

Welders–Boilermakers–Plumbers naval architects–Carpenters–
Marine engineers–Electricians–Polishers caulkers–Riveters

Speaking Activity Icon

9. Design a presentation about shipbuilding processes and present it in the classroom.

10. Work with a partner. Design a dialogue about applying for a job. Then, act it out in the classroom.

Group Work Activities



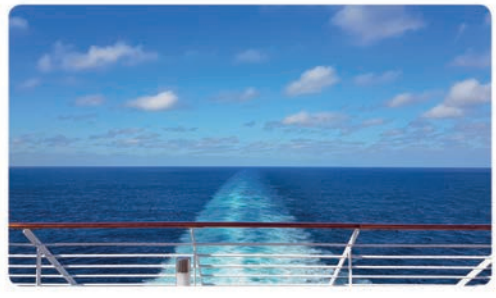
## THEME B : TYPES OF SHIPS

Self-assesment Form

12. **UNIT 1- SELF ASSESSMENT**

Read the outcomes and put a tick (√) into the box appropriate for you.

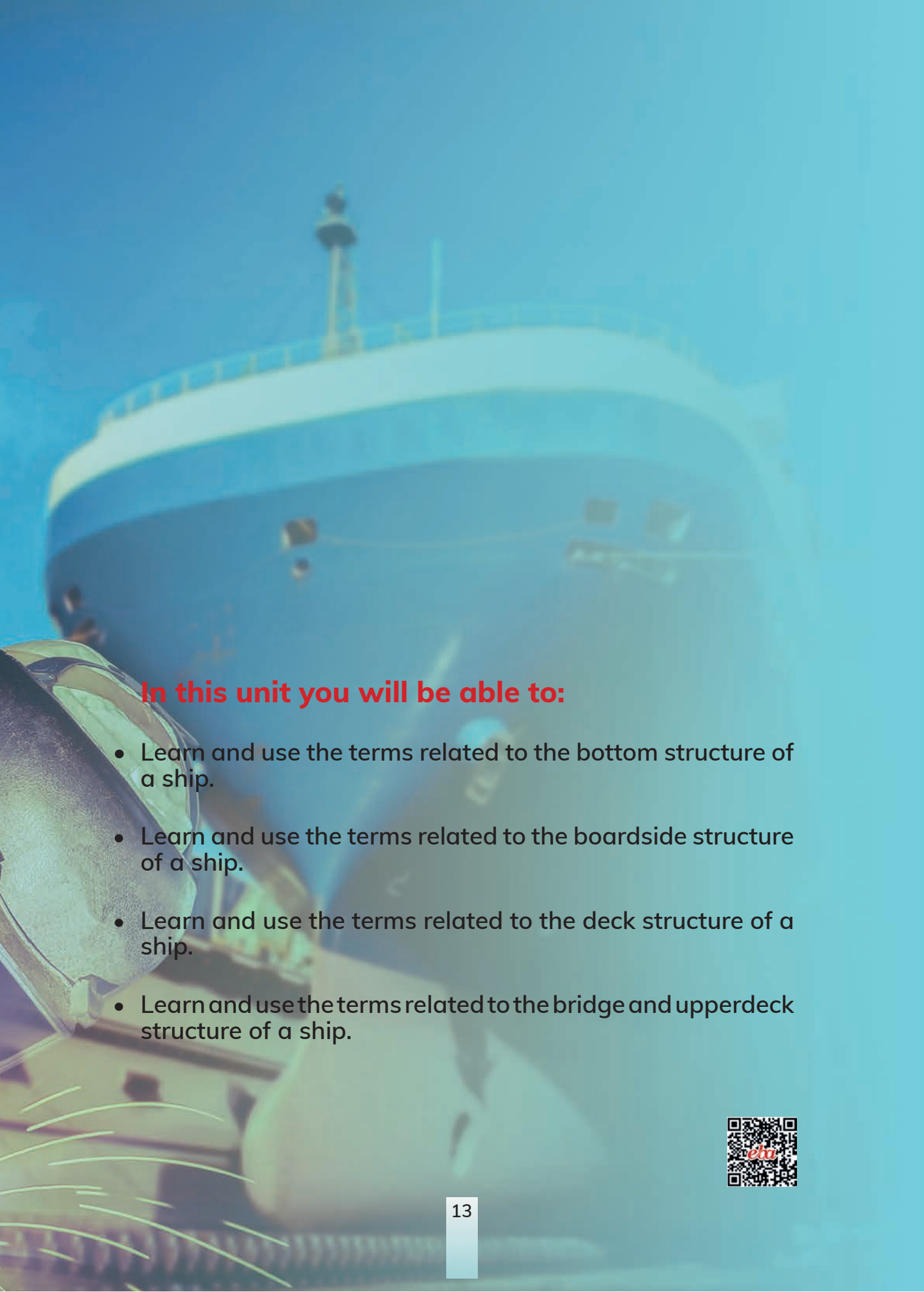
| LEARNING OUTCOMES | YES | WITH HELP | NO |
|---|---|---|---|
| 1) I can understand and use the terms related to the bottom structure of a ship. | | | |
| 2) I can understand and use the terms related to the boardside structure of a ship. | | | |
| 3) I can understand and use the terms related to the deck structure of a ship. | | | |
| 4) I can understand and use the terms related to the bridge and upperdeck structure of a ship. | | | |
| 5) I can understand and use the terms related to the types of ships. | | | |



# UNIT 1

# SHIPBUILDING





## In this unit you will be able to:

- Learn and use the terms related to the bottom structure of a ship.
- Learn and use the terms related to the boardside structure of a ship.
- Learn and use the terms related to the deck structure of a ship.
- Learn and use the terms related to the bridge and upperdeck structure of a ship.

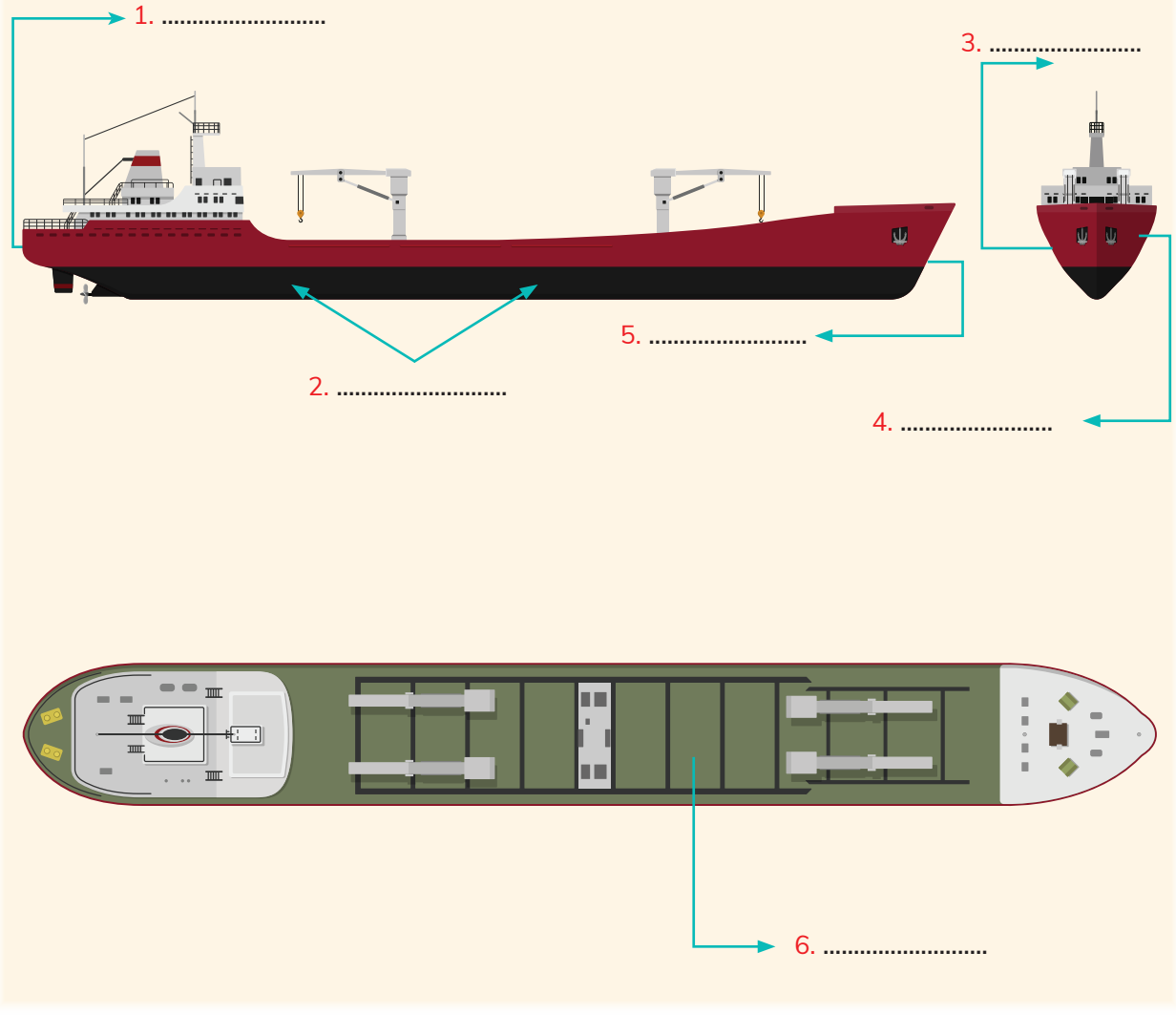
## WARM-UP

**a)** What is the name of the place where ships are built?

**b)** Which countries do you think are famous for their shipbuilding industry? Discuss with your friends.

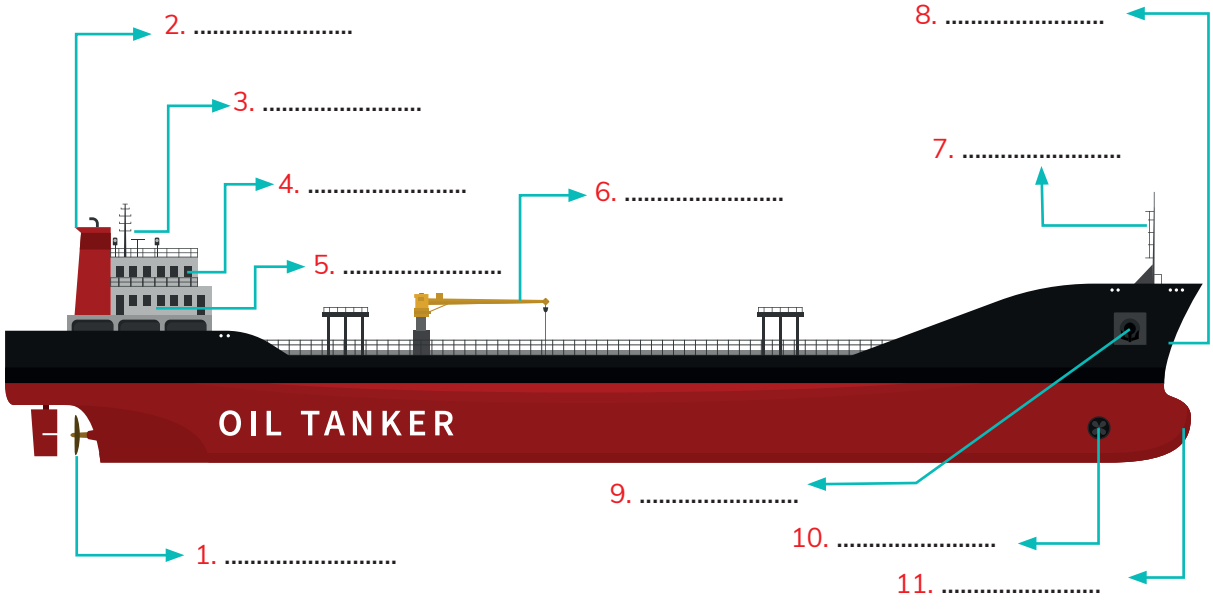
**1. Write the names of the sides of a ship using the words given in the box below.**

Port–Starboard–Stern–Forward–Deck-Hull



**2. Write the names of the parts of a ship from the words given in the box below on the ship picture.**

Funnel–Bridge–Bow thruster–Accommodation–Propeller–Bow–Main mast–Keel–Crane–Anchor–Front mast




**3. Write short definitions for the words given below.**

**a)** Port side: _____

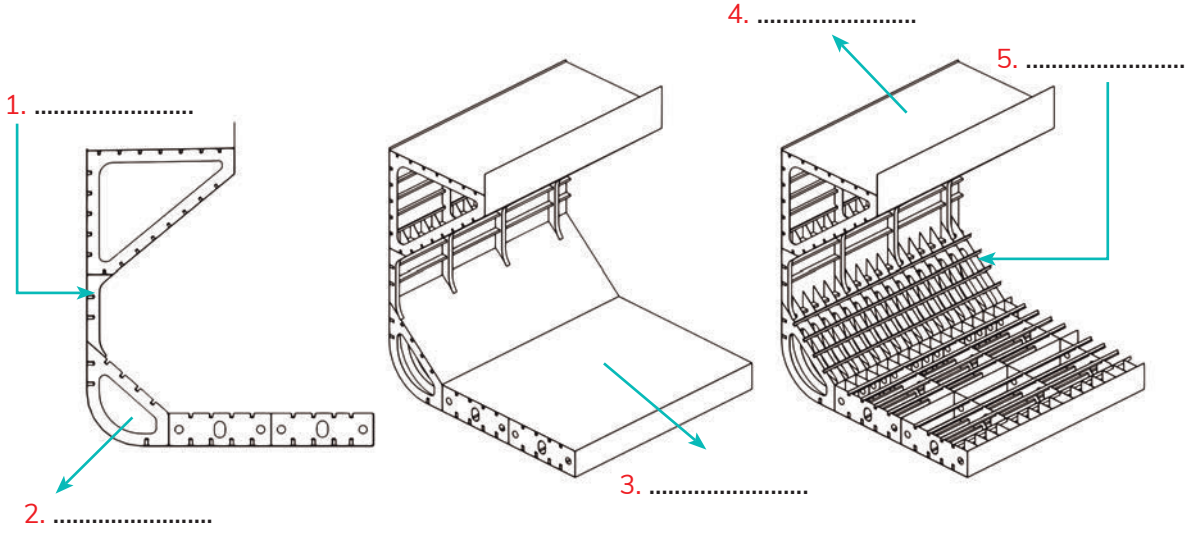
**b)** Starboard side: _____

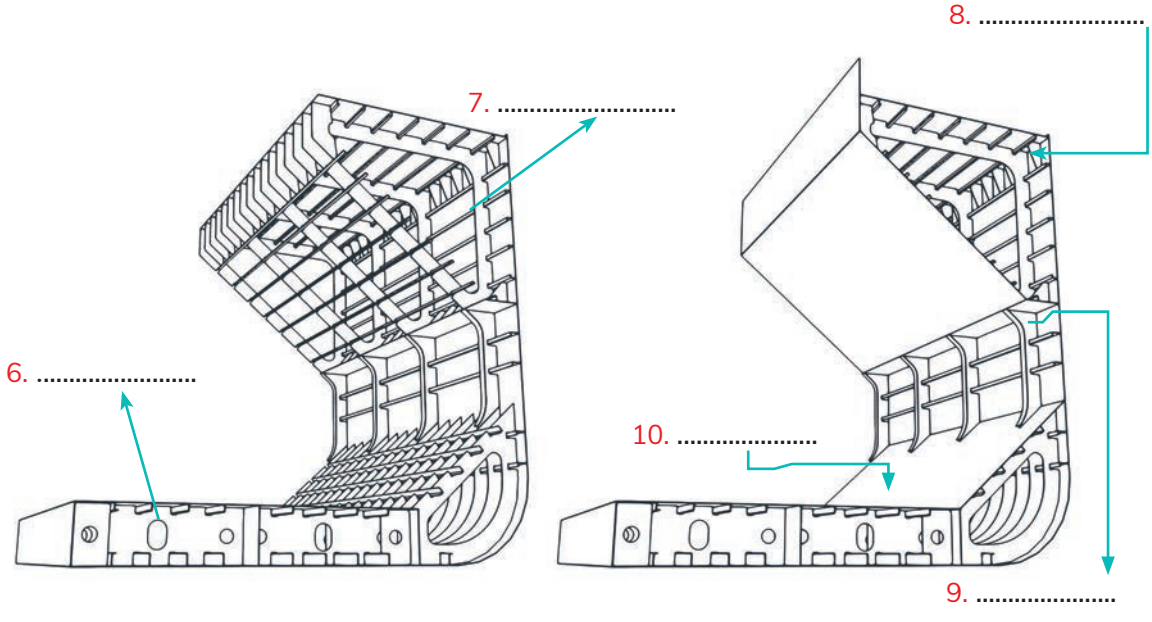
**c)** Accommodation: _____

**d)** Propeller: _____

**4. Write the names of the parts of a hull of a ship on the pictures using the words given in the box below.**

Bracket–Deck plating–Longtitunals–Inner bottom plating–Stiffener–
Stringer–Bilge–Shell plating–Margin plate–Gusset plate



5. Match the names of the jobs with the pictures given.



a) .....



b) .....



c) .....



d) .....

1. Welding
2. Pipefitting
3. Electrical wiring
4. Carpentry
5. Iron cutting
6. Painting
7. Machinery
8. Grinding



e) .....



f) .....



g) .....



h) .....

**6. Skim the text below quickly and try to find the steps using the titles given in the box below.**

Outfitting–Delivery–Bending the steel–Launching the ship–Assembly–Designing the ship–Painting–First trial on the water–Numerical control cutting

## SHIPBUILDING STEP BY STEP

Building huge ships needs various methods and processes. Every single step is important because ships are not only a sailing vehicle but also a living place for their crew. Ships are needed to be built according to a specific plan and the process should be inspected constantly.

1st Step: _____

The design process is divided into two parts as basic design and detailed design. During the basic design period, ship owners and engineers have meetings to list the demands and expectations. Then, detailed design stage begins. At this stage, designers make detailed drawings of the ship. After these detailed drawings are completed, shipbuilding starts.

2nd Step: _____

According to the models which are done through detailed drawings, steel plates are cut out. Shipwrights used to do that with a cutting machine in the past, but these days NC cutting is a fully automated process with computer support.

3rd Step: _____

A ship does not have a single flat surface. Yet, there are many curved surfaces on a single ship. Therefore, plane steel must be bent according to the design of the ship. Steel plates are bent carefully by professionals with a press machine or by heating the surface with a gas burner.

4th Step: _____

These days, ships are not constructed at a time. Engineers divide the ship design into blocks so that the construction is carried out by joining the blocks in an order. Constructed blocks are carried on huge cranes and assembled in the shipyard to form the ship. A single block may weigh 150 tons, so this operation needs professional hands.

5th Step: _____

After the assembly of the blocks is completed, the painting process starts. Painting of the ship is not only important for the appearance of the ship, but also necessary to protect the ship from corrosion. Painting is a very important process, so the operation is carried out by skilled professionals.

6th Step: _____

When a ship is floated on the sea for the first time, it is called launching. In the shipyard, the building berth goes down to the direction of the sea and ships slide on it on their way into the water. The launching is the most important day for shipyard workers and there is always a ceremony on launching days.

7th Step: _____

When the ship is finally on the water, it is time to fill out the hull with pipes, electric wires, electronic devices, furniture and of course an engine. Each operation is carried out by professional shipyard workers and engineers and each department works collaboratively in order to complete the ship safely.

8th Step: _____

After all the outfitting operations are completed, the ship goes under several tests such as speed and turning tests. The devices and installations on the ships are also tested by professionals to check whether they function properly.

9th Step: _____

If the ship passes all the tests successfully, it means that it is ready to be delivered to the owners of the ship. Now the ship is ready to leave the shipyard and set sail for the ocean.

## 7. Read the text and mark the statements as T(TRUE) or F(FALSE).

| | | |
|---|---|---|
| **a)** During the basic design of a ship, the detailed drawings of the ship are ready. | **T** | **F** |
| **b)** Modern steel cutting methods are used these years. | **T** | **F** |
| **c)** A ship is constructed block by block because it is hard to build it at a time. | **T** | **F** |
| **d)** Painting is not important because it only gives color to the ship. | **T** | **F** |
| **e)** Every ship is tested by experts before delivery. | **T** | **F** |

**8. Read the definitions and match the words with their definitions by drawing lines.**

| | |
|---|---|
| 1. BRIDGE | **a)** _____ It is the place where crew members live. It has not only the bedrooms of crews but also a lot of facilities like offices, gym, laundry room, hospital and kitchen. |
| 2. STERN | **b)** _____ It is a mechanical part which has blades on it. When the engine turns these blades, it pushes the water to the back and the ship moves forward. |
| 3. FUNNEL | **c)** _____ It is used to lift and carry the cargo on the ship. |
| 4. PROPELLER | **d)** _____ It is a ship's body. It may have several decks and it consists of girders, stringers and longitudinal parts. |
| 5. ACCOMMODATION | **e)** _____ It is the commanding station of a ship. It controls the speed and navigation of the ship. It is also the control center of machinery, main engine and monitoring systems |
| 6. RUDDER | **f)** _____ It is a chimney which discharges smoke generated from the engine of the ship and boilers. |
| 7. HULL | **g)** _____ It is the back part of the ship. Rudders and propellers are installed to it. |
| 8. CRANE | **h)** _____ It is a flat structure placed in the aft of the propeller. It is the part that steers the ship. Without it, it is impossible to move the ship in the correct direction. |
| 9. CARGO HOLD | **i)** _____ It is the covering over a hull of a ship. It holds the hull together and it is a working surface which may be used for carrying cargo. |
| 10. DECK | **j)** _____ It is a closed area under the ship's deck and it may have a holding capacity of 200000 tons on some ships. |

**9. Listen to the audio about job opportunities at a shipyard and fill in the blanks using the words given in the box below.**

## JOB OPPORTUNITIES AT A SHIPYARD

There are a lot of jobs when the subject is shipbuilding. There are so many people working on many ships with many different roles. Let's have a look at the types of jobs involved in shipyards.

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**b)** _____ fasten the plates by using rivets or metal pins.

**c)** _____ carry out sealing and waterproofing operations.

**d)** _____ assembly or repair metal parts of the ship by using heat.

**e)** _____ install and maintain boiler systems.

**f)** _____ install electrical installations and perform electrical wiring.

**g)** _____ fill the hull of a ship with pipes and perform maintenance of them.
Blacksmiths makes objects out of iron and steel.

**h)** _____ carry out any woodwork necessary on a ship.
Painters are needed not only outside but also inside of a ship for any painting operations.

**i)** _____ are responsible for designing, creating and maintenance of a wide range of machinery used on a ship.
Cleaners and **j)**_____ make the final touch before a "clean" sea trial.

To sum up, shipbuilding is a complicated process. It involves several different skills and they all work for a common goal. A beautiful ship floating on beautiful seas.

Welders–Boilermakers–Plumbers–Naval architects–Carpenters–
Marine engineers–Electricians–Polishers–Caulkers–Riveters

**10. Design a presentation about shipbuilding processes and present it in the classroom.**

**11. Work with a partner. Design a dialogue about applying for a job. Then, act it out in the classroom.**

**12. Fill out this job application form as if you are applying for a job at a shipyard.**



# Job Application

PRE-EMPLOYMENT FORM
EQUAL OPPORTUNITY EMPLOYER

**Personal Information**

| NAME (LAST NAME FIRST) | | SOCIAL SECURITY NO. | |
|---|---|---|---|
| ADDRESS | CITY | STATE | ZIP CODE |
| PHONE NO. ( ) | | REFERRED BY | |

**Employment Desired**

| POSITION | DATE YOU CAN START | SALARY DESIRED |
|---|---|---|
| ARE YOU EMPLOYED? ☐ Yes ☐ No | IF SO, MAY WE INQUIRE OF YOUR PRESENT EMPLOYER? ☐ Yes ☐ No | |
| EVER APPLIED TO THIS COMPANY BEFORE? ☐ Yes ☐ No | WHERE? | WHEN? |

**Education History**

| | NAME OF SCHOOL | YEARS ATTENDED | SUBJECTS STUDIED | DIPLOMA/DEGREE |
|---|---|---|---|---|
| GRAMMAR SCHOOL | | | | |
| HIGH SCHOOL | | | | |
| COLLEGE | | | | |
| TRADE, BUSINESS OR CORRESPONDENCE SCHOOL | | | | |

**General Information**

| SUBJECTS OF SPECIAL STUDY, WORK, OR SPECIAL TRAINING & SKILLS | |
|---|---|
| | |
| | |
| | |

**Former Employers**

| DATE, MONTH & YEAR | | NAME & ADDRESS OF EMPLOYER | SALARY | POSITION | REASON FOR LEAVING |
|---|---|---|---|---|---|
| FROM | TO | | | | |
| FROM | TO | | | | |
| FROM | TO | | | | |

**13. Find the words in the word search puzzle and complete the list with the words you find.**

L R E G N I R T S R D N R R
S O P B H W T Q E Z O R R K
T L N U R C L N Q I Q P M P
A F L G R A E E T Q R L V L
R L O A T F C A N O P O R T
B E N R F I D K P N D E C K
O E G I W O T E E J U R T W
A N T D M A L U T T J F Z Y
R S R O I L R A N C H O R X
D Q C E E R B D Z A K E E L
Y C X R T O B N N Q L X N Y
A V D R W S M X M J D S D V

| | | |
|---|---|---|
| **a)** P_____ | **g)** A_____ | **m)** B_____ |
| **b)** S_____ | **h)** P_____ | **n)** L_____ |
| **c)** S_____ | **i)** B_____ | **o)** S_____ |
| **d)** F_____ | **j)** K_____ | **p)** H_____ |
| **e)** D_____ | **k)** C_____ | **q)** F_____ |
| **f)** B_____ | **l)** A_____ | **r)** S_____ |

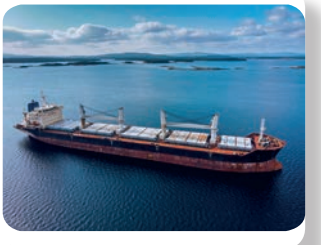
## WARM-UP

**a)** Which types of ships do you know? Try to make a list with your classmates.

**b)** What kind of a ship would you like to have or travel on? Share your ideas with your friends.

### 1. Match the names of the types of ships with the pictures given

Hovercraft–Pipe laying ship–Fishing vessel–Dredger–Boat–High speed craft–Ferryboat–Offshore oil rig–Roll on roll off(RoRo)ships–Jet Ski–Tanker ship–Gas carrier–Container ship–Ice breaker ship–Research ship–Fire fighting ship–Hydrofoil–Canoe–Yacht–Tugboat–Sailboat–Bulk carrier ship–Cruiser ship–Barge



1. .....



2. .....



3. .....



4. .....



5. .....



6. .....



7. .....



8. .....



9. .....



10. .....



11. .....



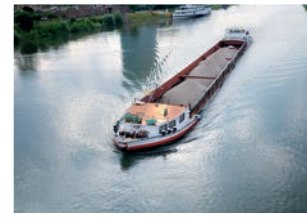
12. .....



13. .....



14. .....



15. .....



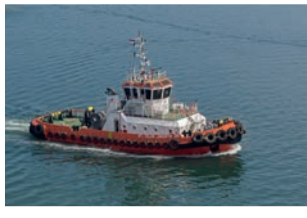
16. .....



17. .....



18. .....



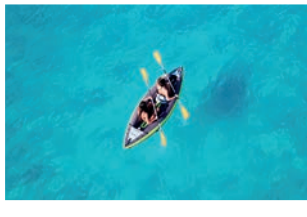
19. .....



20. .....



21. .....



22. .....



23. .....



24. .....

**2. Read the text and answer the questions given.**

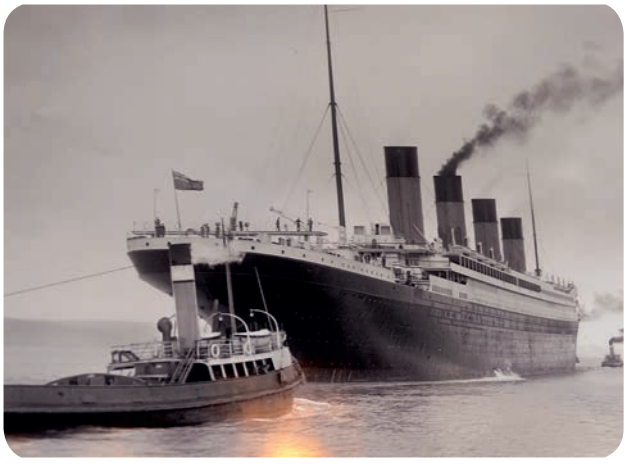
## THE MOST FAMOUS SHIPS IN HISTORY

### SANTA MARIA



This famous 36-meter cargo ship is known for its historical explorations of Cristopher Columbus. It was built in 1460 in Spain and travelled across the oceans until 1492 when it ran aground. The ship had a deck, a forecastle, a stern castle, and three masts. It was also armed with fireballs. The ship Santa Maria is globally famous because it played an important role in linking the two worlds and changed the history with the discovery of America.

### BRITISH LUXURY LINER RMS TITANIC



The world-famous RMS Titanic was a British cruise ship that sank on the 15th of April in 1912, during its first voyage from England to New York. Because of this tragic accident, more than 1,500 people died. When the Titanic was built, it was the largest ship in the world. It was 269 meters long, over 32 meters tall, and had ten levels. It was so large and strong that it was accepted as being "unsinkable." Because the Titanic was considered one of the safest ships ever built. All kinds of safety features were taken. Its hull had two layers of steel for leak protection. It also had 16 compartments which had steel doors to make them waterproof. In case of a leak, the doors would close and that would save the ship from sinking. The Titanic had the best technology of the time including two giant steam engines and a turbine that provided 46,000 horsepower. It took more than two years and 15,000 workers to build that gigantic ship. The Titanic was big enough to host up to 2,453 passengers and 900 crew. The first-class section of the ship was decorated more like a luxurious hotel than a ship. There was a swimming pool, gym, hairdresser's, library, many cafes, and even a squash court.

## BANDIRMA

It was a steam mixed-freight ship which was launched in 1878 in Britain. After several owners, the ship was eventually bought by Ottoman Empire and took the name of Bandırma. The 47,7 meter ship had a width of 6,83 meters and a height of 4.27 meters. It had a 50hp two-cylinder steam engine. The ship has historic significance in Turkey because the founder of The Republic of Turkey, Mustafa Kemal Atatürk, arrived in Samsun with his comrades beginning the War of Independence on the 19th of May, 1919. The historical Bandırma Ferry which carried Atatürk was destroyed in 1925 when it no longer had duty. A replica of this ship was completed in 2001 and has been visited by people as a museum since then.




| |
|---|
| **a)** What is the length of Santa Maria? |
| **b)** How long did the ship Santa Maria serve? |
| **c)** Why is the ship Santa Maria so famous all around the world? |
| **d)** What are the dimensions of RMS Titanic? |
| **e)** What is the type of RMS Titanic? |
| **f)** How many people could get on RMS Titanic? |
| **g)** When did RMS Titanic sink? |
| **h)** What is the classification of Bandırma? |
| **i)** What are the dimensions of Bandırma? |
| **j)** When did the ship Bandırma become a museum? |

### 3. Match the definitions and the pictures with the types of Naval Ships.

1. 

a SUBMARINE I

A small fast warship used especially to support larger vessels and usually armed with guns, depth charges, torpedoes, and often guided missiles.

2. 

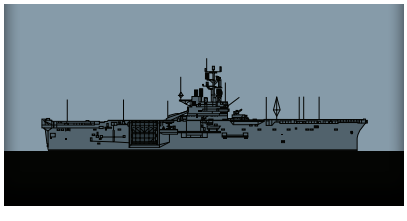
b AIRCRAFT CARRIER II

A warship with a streamlined hull designed to operate completely submerged in the sea for long periods, equipped with a periscope and typically armed with torpedoes or missiles.

3. 

c AMPHIBIOUS ASSAULT SHIP III

A highly maneuverable armed escort ship that is smaller than a destroyer.

4. 

d DESTROYER IV

A type of amphibious warfare ship employed to land and support ground forces on enemy territory by an amphibious assault.

5. 

e CORVETTE V

A warship with a flight deck on which aircraft can be launched and landed.

## 4. Read the text and mark the statements given as T(TRUE) or F(FALSE).

### THE SUEZ CANAL CRISIS

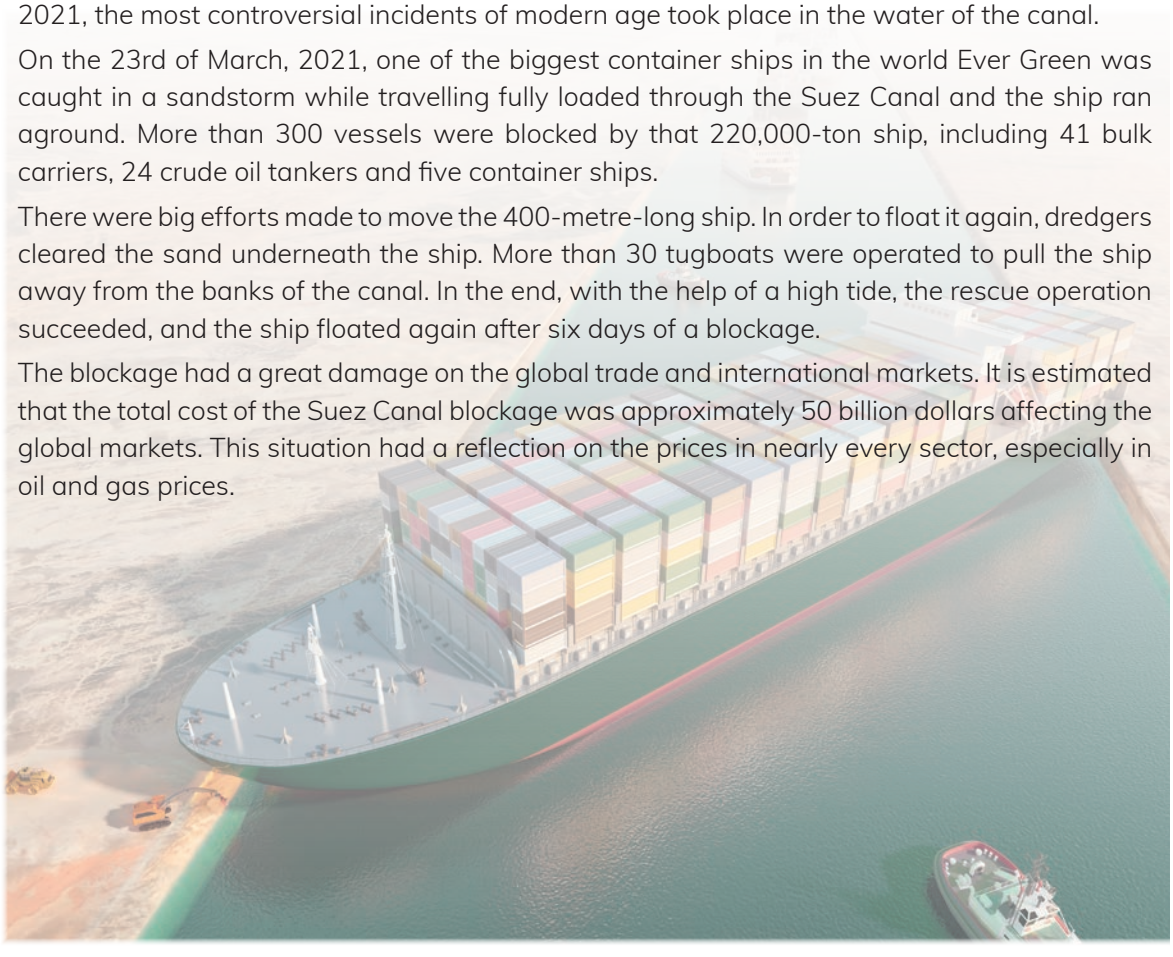
The Suez Canal, located in Egypt, is one of the most important points in the world as a trading route. It was opened in 1869 and since then, it has been a popular gate opening to the global trade.

Throughout its history, the Suez Canal faced a lot of incidents or accidents. However, In March 2021, the most controversial incidents of modern age took place in the water of the canal.

On the 23rd of March, 2021, one of the biggest container ships in the world Ever Green was caught in a sandstorm while travelling fully loaded through the Suez Canal and the ship ran aground. More than 300 vessels were blocked by that 220,000-ton ship, including 41 bulk carriers, 24 crude oil tankers and five container ships.

There were big efforts made to move the 400-metre-long ship. In order to float it again, dredgers cleared the sand underneath the ship. More than 30 tugboats were operated to pull the ship away from the banks of the canal. In the end, with the help of a high tide, the rescue operation succeeded, and the ship floated again after six days of a blockage.

The blockage had a great damage on the global trade and international markets. It is estimated that the total cost of the Suez Canal blockage was approximately 50 billion dollars affecting the global markets. This situation had a reflection on the prices in nearly every sector, especially in oil and gas prices.



| | | |
|---|---|---|
| **a)** The Suez Canal has been a widely used trading route since the date it was built. | T | F |
| **b)** In 2021, the first accident of the canal history happened. | T | F |
| **c)** Ever Green was carrying containers on the accident day. | T | F |
| **d)** Tugboats cleared the sand from the deeps of the canal. | T | F |
| **e)** The delays caused by the blockage led to a huge financial damage. | T | F |

**5. Listen to the lecture about types of the ships and fill in the blanks with the words given in the box below.**

Tanker–Dry–Refrigerated–Transported–Distance–Oil–Passenger–Cars–Ferries–Container



Good morning students. In today's lesson, I am going to tell some brief information about the types of commercial ships.

Let's start with "1. _____ Ships". As it is clear from the name, these are the vessels which are built specifically for carrying huge quantities of cargo. Container ships are divided into categories based on their sizes, as well. These types are named as "Panamax", "Suezmax", "Post-Panamax", and "Post-Malaccamax". There are also 2. _____ container ships serving in the seas.

In order to transport 3. _____ cargoes in bulk quantities, "Bulk Carrier Ships" are used. Materials such as coal, cement, ores and especially food grains are 4. _____ on this type of vessels.

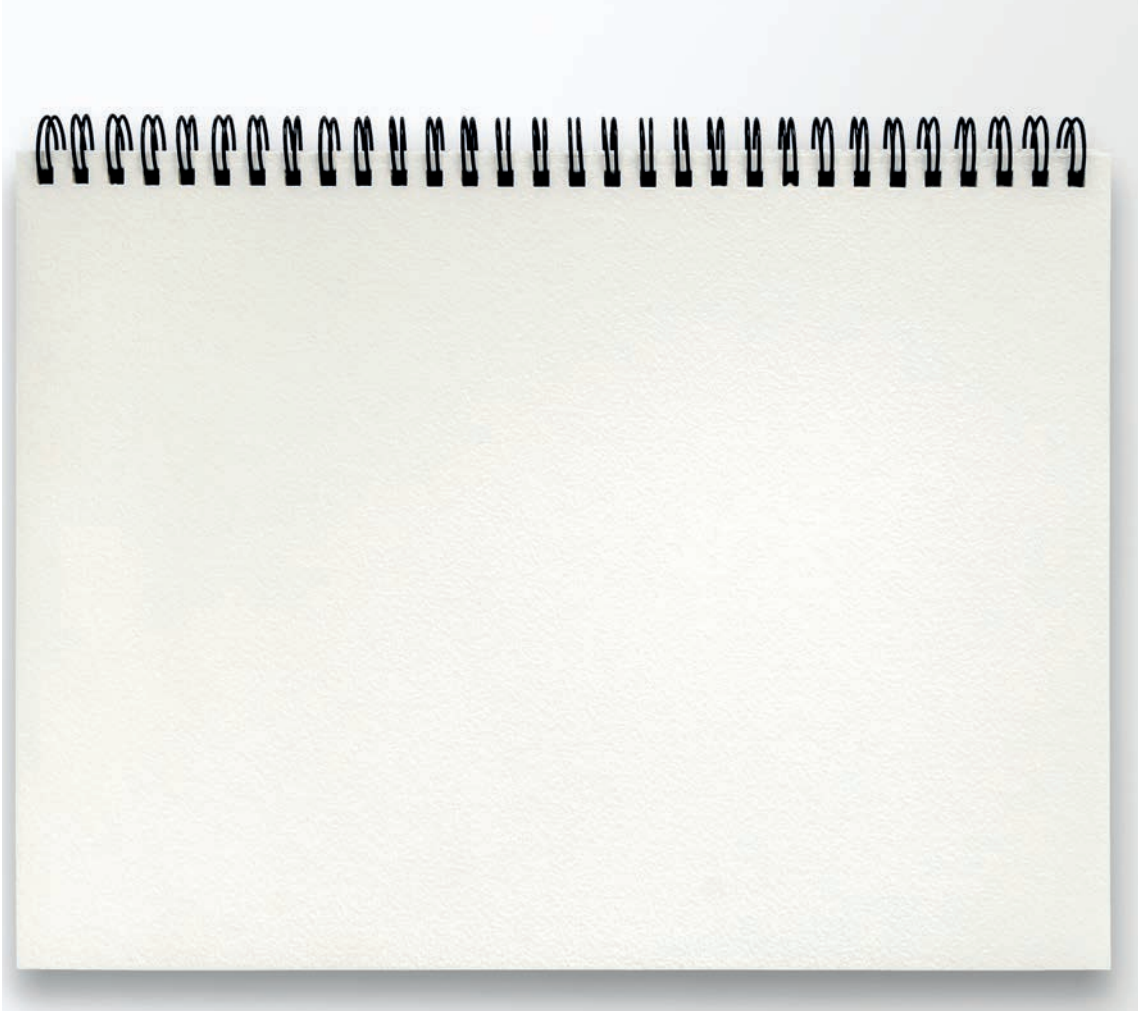
However, if the material to be transported is a large amount of liquid cargo, "5. _____ Ships" are specialized for this task. Tankers are divided into categories according to the type of the cargo they carry. The main types of tanker ships are "6. _____ Tankers", "Liquified Gas Carriers" and "Chemical Tankers".

"Roll-on Roll-off" ships, also known as "Ro-Ro" ships, are the ships which are utilized for carrying wheeled cargoes such as 7. _____, trucks and wheeled containers.

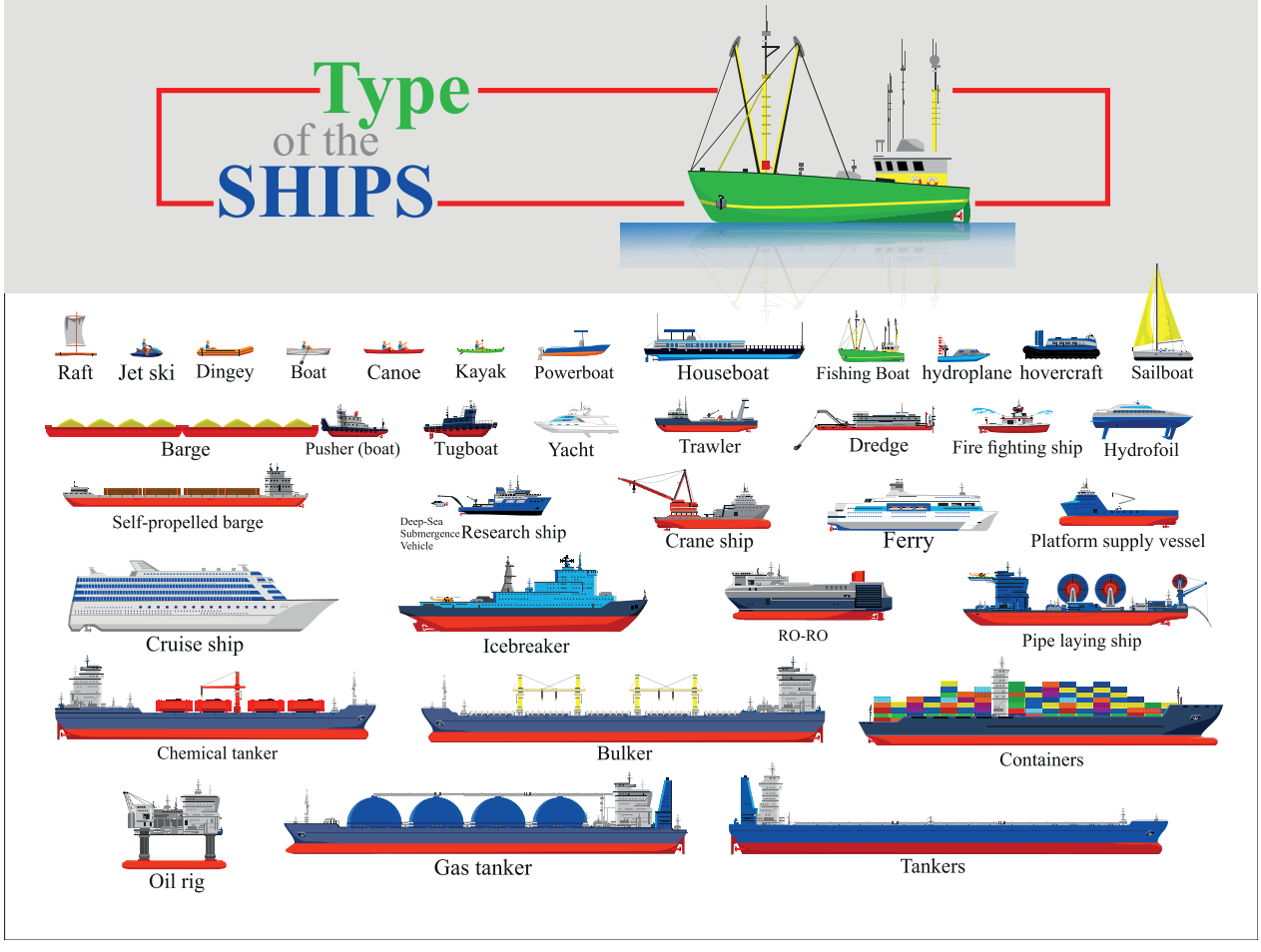
Besides cargo carriers, there are also several kinds of 8. _____ ships at service. Passenger ships are mainly classified as “Ferries” and “Cruise Ships”. 9. _____ are used for carrying passengers on short distance routes. Cruise ships are like floating luxurious hotels with several facilities on board. They usually go long 10. _____-or transatlantic routes.

Yes, students. Now you have learnt the main points about commercial ships. If you have any questions, please do not hesitate to ask. After the questions, I want you to form groups and perform a group work. As groups, you are going to make a list of the types of ships that are used for other purposes. Good luck.

**6. As the lecture suggests, form a group with your classmates and make a list of the types of ships that are used for other purposes. Then share your list with other groups.**



## 7. Choose a type of a ship and write a paragraph describing it.



8. Present your paragraph in the classroom by showing pictures from your book or on the smart board.

9. Ask and answer questions about the paragraphs that students write.



10. Draw a ship and ask your partner to describe it.

**11. Find the words in the word search puzzle and complete the list below.**

F B U L K C A R R I E R S H I P R Z R Y
I N T F A R C D E E P S H G I H R L D L
R M L J P T H V R S R P C H P E X W Y Y
E O J L A I Q O A O I E S A S Z P B Y D
F P F O E M H I V H R G G E N I B N L B
I I B F X S L S S E N O A D H O V T L R
G H G P S B S R R I R R S S E F E R T D
H S N A O H E E Y E C C R H E R T X M J
T R H A S K O A V H S E R R I U D M D N
I E T Y N C L R S G K I R A G P Y B B Z
N N T A D E A H E A N Y U B F R S Y B L
G I T Y P R I R E O B I O R D T Y R L L
S A P I A P O R R O I A H J C E G R A B
H T P T Y C B F A I T L W S I K S T E J
I N Q J Q E H T O J E M R D I N Y R L D
P O X W C G Y T V I Z R W I K F L Z K Y
N C P I J Y R B M J L K Y Z G Q B L G D

| | | |
|---|---|---|
| **a)** H_____ | **h)** O_____ | **o)** I_____ |
| **b)** P_____ | **i)** R_____ | **p)** R_____ |
| **c)** F_____ | **j)** J_____ | **q)** F_____ |
| **d)** D_____ | **k)** T_____ | **r)** H_____ |
| **e)** B_____ | **l)** G_____ | **s)** C_____ |
| **f)** H_____ | **m)** C_____ | **t)** Y_____ |
| **g)** F_____ | **n)** S_____ | **u)** T_____ |

## 12. UNIT 1- SELF ASSESSMENT

**Read the outcomes and put a tick (√ ) into the box appropriate for you.**

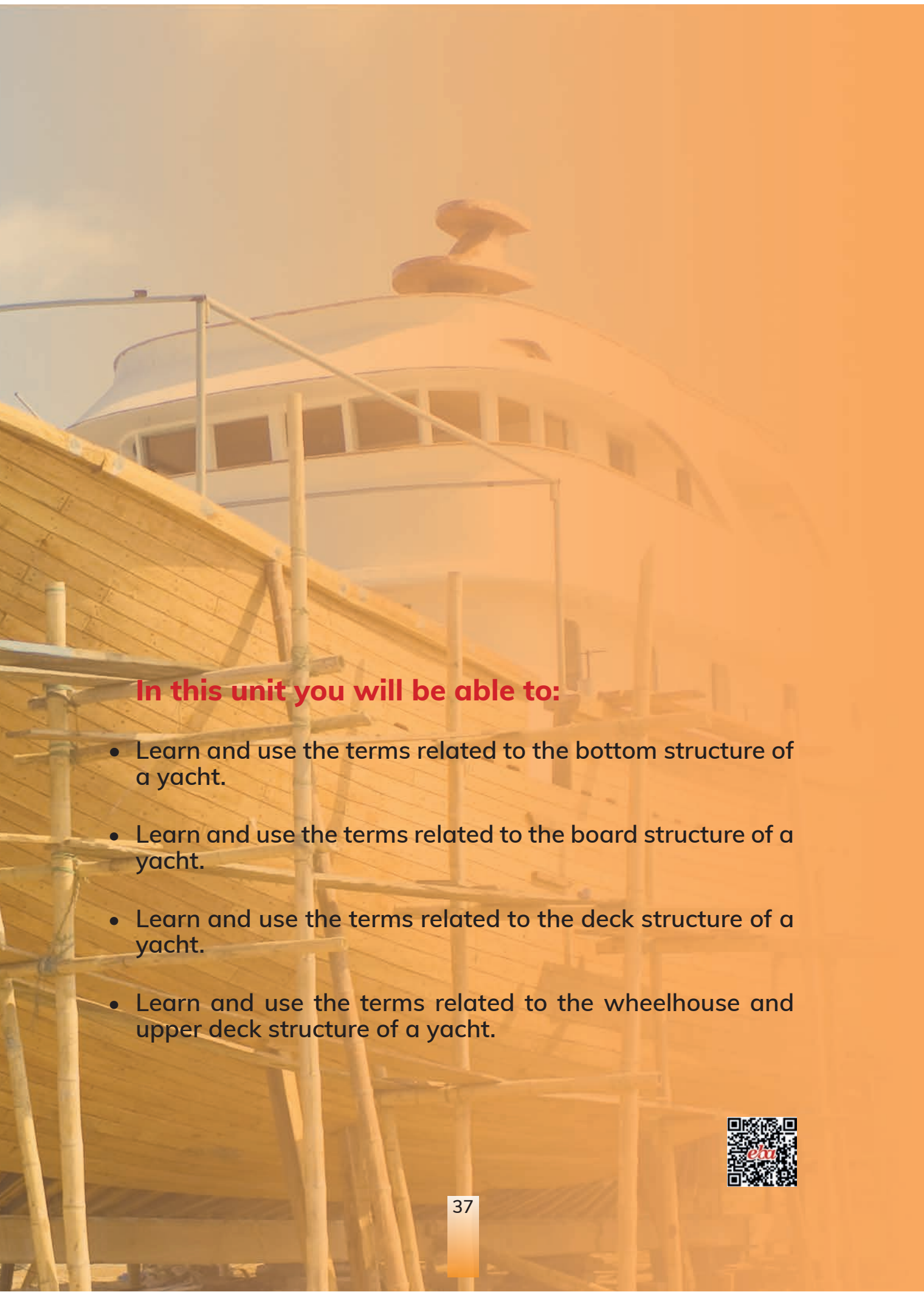
| LEARNING OUTCOMES | YES | WITH HELP | NO |
|---|---|---|---|
| **1)** I can understand and use the terms related to the bottom structure of a ship. | | | |
| **2)** I can understand and use the terms related to the boardside structure of a ship. | | | |
| **3)** I can understand and use the terms related to the deck structure of a ship. | | | |
| **4)** I can understand and use the terms related to the bridge and upperdeck structure of a ship. | | | |
| **5)** I can understand and use the terms related to the types of ships. | | | |





# UNIT 2

# YACHT BUILDING



## In this unit you will be able to:

- Learn and use the terms related to the bottom structure of a yacht.
- Learn and use the terms related to the board structure of a yacht.
- Learn and use the terms related to the deck structure of a yacht.
- Learn and use the terms related to the wheelhouse and upper deck structure of a yacht.

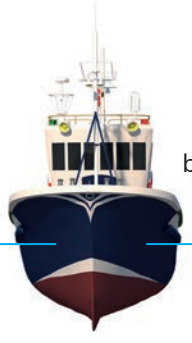
## WARM-UP

1. Where are wooden yachts mostly constructed in the world and Turkey?
2. What are the elements that affect the size of wooden yachts?

**1. Below are the nautical terms and definitions of the sides of a yacht. Study them and label the parts using the words in the box.**

Bow: Front of a boat
Stern: Back of a boat
Starboard: Right side of a boat
Port: Left side of a boat

a) .....



b) .....

c) .....



d) .....



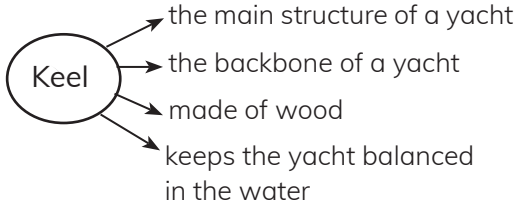
**2. Read the text below. Then, write True(T) or False(F) next to the sentences.**

Welcome to the world of yachting. The multistage process of building a new yacht is a long journey with an experienced team. Building a new wooden yacht is an amazingly interesting process starting with the construction of the hull. The hull is briefly the body of a wooden yacht.



The hull of a wooden boat usually consists of planking fastened to frames.

The construction of a yacht starts from the keel and all other building elements are built on it.






The basic structural element that extends along the hull and on which the hull structural elements are built is called the keel. The keels are primarily manufactured from a single piece of wood.

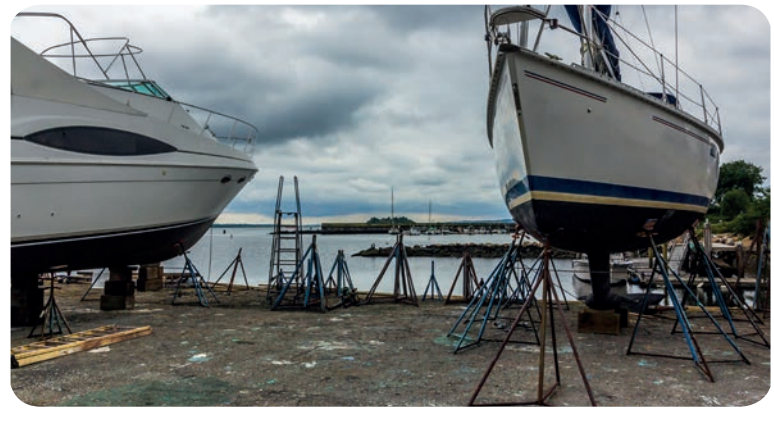
1. It takes a short time to build a wooden yacht. _____
2. There are several stages of building a yacht. _____
3. A yacht building begins first with the building of a hull. _____
4. A keel is the skeleton of a yacht. _____
5. The hull of a yacht is a place where the building elements are found on. _____

### 3. Read the definitions of the two types of keel: 'Drop Keel' and 'False Keel'. Then fill in the blanks with the words in the box.

Stable–Below–Hull–External–Up

**Drop keel (Centreboard):** The drop keel is located just 1._____ the main keel. It is in the form of a metal plate. It can be moved 2._____ and down. It is used in yachts to avoid overturning or falling into the wind while sailing. The drop keel keeps the yacht 3._____ and on course. It differs in terms of placement and structure according to the characteristics of the yacht.

**False keel:** The false keel is a timber, forming part of the 4._____. It is placed under the main keel to protect the wooden boat from 5._____ effects such as impact, friction and wear (damage).



**4. Wooden boats and yachts have two parts: visible and invisible. Write the words in the box in the correct column.**

Knee–Rudder–Wheelhouse–Deck–Frame–
Floor–Deadwood–Bow–Mast–Cabin

| A- Visible parts | B- Invisible parts |
|---|---|
| 1. | 1. |
| 2. | 2. |
| 3. | 3. |
| 4. | 4. |
| 5. | |
| 6. | |

**5. Listen to Tom, a boat builder, and his curious neighbour, Tim. Then fill in the blanks using the words in the box.**

Strength–Knee–Deadwood–Sternpost–Bottom–Supporting



**Tim:** Hi, Tom. I think you have started building a new wooden yacht.

**Tom:** Yes, you're right. I have been building the keel since morning.

**Tim:** What are you going to do next?

**Tom:** I am going to build the stem and the 1._____. They are the basic structural elements that are manufactured perpendicular to the keel in the front and back of the boat. The one built in the front (bow) is called the stem, and the one built at the back (stern) is called the sternpost. I will connect them to the main keel at the 2._____.

**Tim:** I see. How will you combine them?

**Tom:** First, since the propeller shaft and rudder blade are assembled on the sternpost, the keel and sternpost connection must be made very well. The part that combines the keel and sternpost is called the 3._____. The knees are the L-shaped 4._____ pieces. They are placed upside down and form the brackets that carry the belt and the seat board. Furthermore, the stem is the first part to meet the water. The element that combines the keel and stem is 5._____.

**Tim:** What are the functions of the knees and deadwood, Tom? I am not familiar with these terms.

**Tom:** They both provide additional 6._____ to the hull of the yacht.

**Tim:** I'd love to stay and help you, but I have to go. See you. Bye!

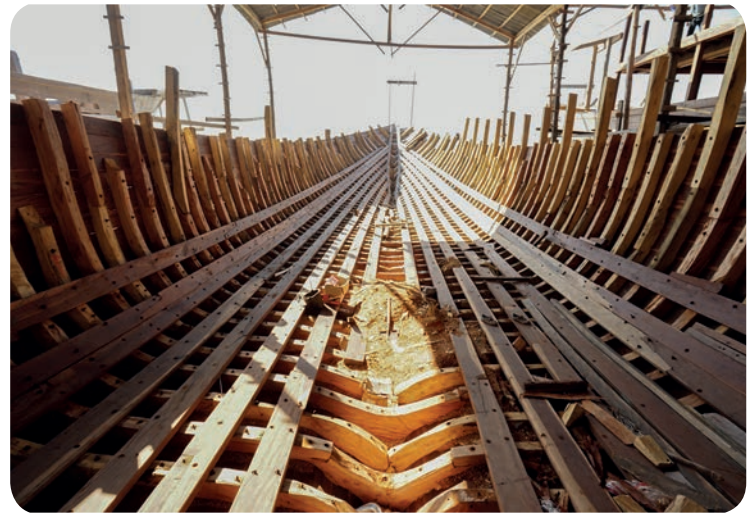
**Tom:** See you.

## 6. Read the text. Then fill in the blanks with the words in the text.

A wooden boat has side structural elements. They are frames, floors and supporting elements. They increase the strength of the hull. The frames consist of two symmetrical parts: port and starboard.



Frames are attached to the keel from the lower part and to the deck from the upper part. Frames form the hull in cross section and are like ribs. They are assembled after the keel and make up the skeleton. They are attached to the keel with glue and screws. Some clamps and angle brackets are used to create a frame. They form the underwater form of the boat. Frames support the hull and give the boat its shape and strength. The tighter the frame intervals, the stronger the boat will be.



Another important part is the floor. The floors carry the vessel's ribs. The floor timbers are essential structural members that tie the backbone to the rest of the boat. They form the overall shape and structure. The woods of floors are generally made of a single piece of wood or laminated wood. They vary in size and are attached to the keel with glue and screws.
Frames and floor timbers are found at regular intervals along the keel. The symmetrical frames give the hull shape while the floors distribute the loads from the ballast keel out over even more of the planking.

1. _____ _____ and _____ , _____ are side structural parts of a wooden boat.
2. There are _____ parts of a wooden yacht.
3. There are _____ kinds of floor timbers.
4. _____ are like connections between the keel and the hull.
5. _____ are like ribs, and form the body of the wooden boat.

**7. There are three supporting elements of the hull: the keelson, stringers and brackets. Read the definitions, then write the correct headings in the boxes.**

| A) _____ | B) _____ | C) _____ |
|---|---|---|
| They are used to increase the strength of the corners. They are frequently used in deck, frame, beam and frame corner connections. | To connect the frames to the keel more tightly with the help of frames, it is a second keel piece in the interior that extends from the bow to the stern. | They are longitudinal forms that are laid in line with the keel. They surround the inside of the boat to increase the strength of the skeleton and to make the boat more resistant to external impacts. |

**8. It is time to put on the ribbands. Match the words with the definitions of ribbands.**



| | |
|---|---|
| **1.** Definition | a) _____ as specified in the project |
| **2.** Function | b) _____ flexible and soft |
| **3.** Location | c) _____ long narrow strip or bar |
| **4.** Features | d) _____ a long, flexible piece of wood or metal fastened across the ribs of a ship |
| **5.** Type of wood | e) _____ assemble on a straight line starting from the sternpost and extending towards the stem at the intervals |
| **6.** Shape | f) _____ to hold the ribs in place while the outside planking or plating is being put on |

**9. Write a paragraph about what the ribbands are. Use the information in Exercise 8.**

_____

_____

_____

_____

_____

_____

**10. Fill in the blanks with the words in the box about the beams. There are two extras.**

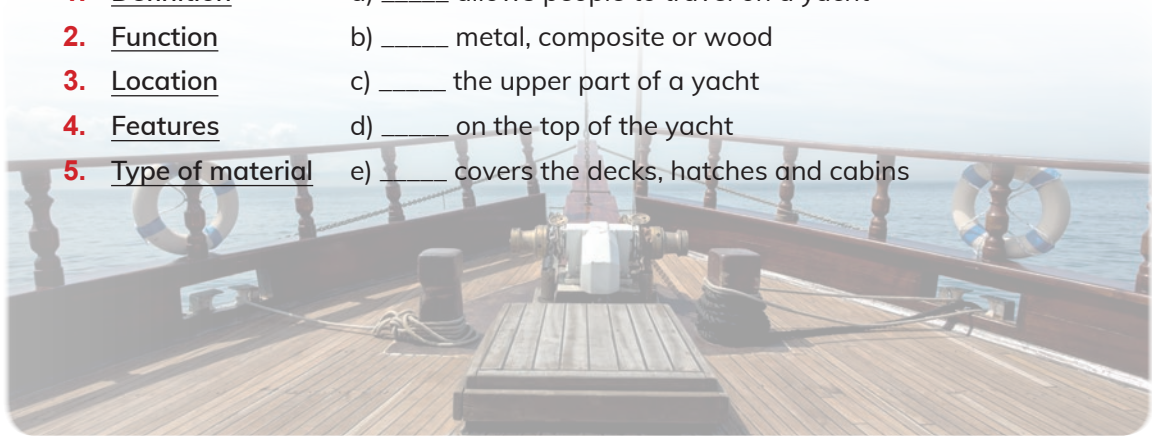


Floors–Curved–Scupper–Hatches–
Ceiling–Vertically–Frames

Beams form the deck and the 1_____ of the cabins. They connect the opposing 2_____. They are manufactured in a 3_____ structure to transfer the water accumulated on the deck due to factors such as rain and waves to the 4_____. Beams are cut when they come across openings in the deck, such as 5_____. They are called half beams.

**11. Deck is one of the most important elements of yachts. Match the words with the definitions of the deck.**

| | | |
|---|---|---|
| **1.** | Definition | a) _____ allows people to travel on a yacht |
| **2.** | Function | b) _____ metal, composite or wood |
| **3.** | Location | c) _____ the upper part of a yacht |
| **4.** | Features | d) _____ on the top of the yacht |
| **5.** | Type of material | e) _____ covers the decks, hatches and cabins |



**12. Below are some pictures of boat/yacht deck equipment. Look at the pictures and fill in the blanks with the suitable equipment.**



Handrails



Gangway



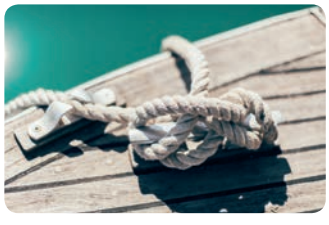
Bowsprit



Mast

1. _____ is a portable bridge used to get to the pier or quay or to get to the ship from the pier or quay. It can be made of wooden materials as well as metal, aluminium and composite materials or a mixture of them.
2. A _____ is a tall pole on a boat or ship that supports its sails.
3. _____ are essential safety features on any boat. They not only keep you and your crew from going overboard, but also prevent falls and generally keep you from sliding around.
4. _____ is a long piece of wood or metal that sticks forward at the front of a ship.

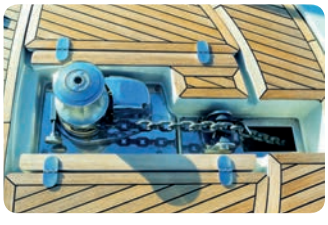
**13. Match the definitions with the pictures.**



a) .....



b) .....



c) ..... and d) .....

1. A **windlass** is a mechanical device, usually located near the center of the foredeck that grasps the anchor chain and pulls it out of the water.
2. A **fairlead** is a device to guide a line, rope or cable around an object, out of the way or to stop it from moving laterally.
3. The chambers or partitions located in the bow of the ship and built on the deck or below decks in a special compartment are called **chain lockers**.
4. A **bitt** is a wooden or metal deck member for tying the ropes. It is also called a bollard. Bills are made of wood in wooden boats. Metal bitts are generally used in yachts in terms of aesthetics and durability.

## 14. Fill in the blanks with the words in Exercise 13.

1. _____ deposit the chain.
2. A _____ prevents the handrails from being damaged due to the movement of the boat when the boat is moored.
3. A _____ is a kind of fairlead and often is bolted or welded to the deck or hull of a boat.
4. When it's time to retrieve the anchor, a _____ can make the job easier.

## 15. Tick (√) the correct information about the wheelhouse and cross out (X) the wrong ones.



1. _____ The wheelhouse is the place where the captain and his crew manage the direction and speed of the yacht.
2. _____ On large ships, the wheelhouse is also called the bridge.
3. _____ The wheelhouse is an open area.
4. _____ Mechanical, electronic and communication systems are found in the wheelhouse.
5. _____ There is generally furniture such as a helm cabinet, chart table, captain chair and lockers.
6. _____ The wheelhouse should be near the cabins.

## WARM-UP

1. What are the reasons for the development of the yacht building industry in Turkey in recent years? Discuss your ideas with your friends.
2. What is the importance of marinas in terms of a country's economy?

### 1. Write the names of the Turkish traditional wooden yachts under the pictures using the words in the box.

Gullet–Tirhandil–Aynakic



a) .....



b) .....



c) .....

### 2. Answer the questions.

1. Which one is the most popular traditional wooden yacht for the 'Blue Cruise'?

   _____

2. Which one is a traditional boat type with a single mast, long bow, pointed stern and a large hull?

   _____

3. Which one is the oldest style in the Aegean Sea?

   _____

4. Where are these traditional wooden yachts mainly built in Turkey?

   _____

## 3. Read the texts. Then fill in the chart.

**Gullet**

A gullet is the most popular cruising yacht among domestic and foreign tourists. Tourists prefer it mostly for the 'Blue Cruise'.

It is a pleasure yacht with a wide, rounded stern that is optimally designed for comfortable dining and lounging. Gullets usually have ketch(marconi) or schooner-rigging, with one, two or three sails. Their length is between 15 to 33 meters.

Gullets accommodate 6 to 32 people. They have 3 to 8 cabins with double bed and private bathrooms.

**Aynakic**

Aynakic has a square or transom stern that allows space for additional cabins compared to a gullet. There may be a large master cabin at the stern.

It accommodates 8 to 24 people. It has 4 to 12 cabins with double bed and private bathrooms. They have generally ketch(marconi) and their length is between 18 to 33 meters.

**Tirhandil**

It is the oldest type of the traditional wooden boat. It has a pointed stern and suitable for sailing in the Aegean Sea. It is suitable for small groups or families.

It accommodates 6 to 8 people. It has 3 to 4 cabins with double bed and private bathrooms. Its length is 11 to 18 meters.

| | Boat Type | Passenger Capacity | Number of Cabins | Boat Length |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |

4. Talk about the advantages or disadvantages of the boats mentioned in Exercise 2.

5. Write the names of the boats under the pictures using the words in the box.

Catamaran–Mega yacht–Sailing yacht–Motor yacht–
Speedboat–Recreational boat



a) .....



d) .....



b) .....



e) .....



c) .....



f) .....

**6. Fill in the blanks with a suitable vessel in Exercise 5. You can use the name of the vessel more than once.**

1. The best example of two hull boat is _____ .
2. _____ are usually large enough to have some form of sleeping quarters (cabin) on board for overnight trips as well as a kitchen (galley) and a bathroom (head).
3. _____ can vary enormously in size, price, facilities and performance.
4. _____ is a small boat with a powerful engine that travels very fast.
5. _____ consume more fuel than gullets due to their powerful engines.
6. It is not possible for a _____ to manoeuvre in narrow waters.
7. _____ are generally used for passenger transportation between boats and shore.
8. _____ are suitable for daily excursions.

## 7. UNIT 2- SELF ASSESSMENT

**Read the outcomes and put a tick (√ ) into the box appropriate for you.**

| LEARNING OUTCOMES | YES | WITH HELP | NO |
|---|---|---|---|
| 1. I can understand and use the terms related to bottom structure of a yacht. | | | |
| 2. I can understand and use the terms related to the board structure of a yacht. | | | |
| 3. I can understand and use the terms related to the deck structure of a yacht. | | | |
| 4. I can understand and use the terms related to the wheelhouse and upper deck structure of a yacht. | | | |
| 5. I can understand and use the terms related to the types of yachts. | | | |



# UNIT 3

# OUTFITTING

## In this unit, you will be able to:

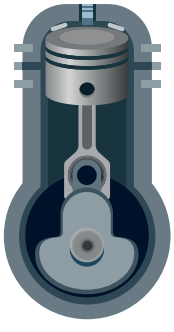
- Learn and use the terms related to the main engine structure of a ship.
- Learn and use the terms related to the auxiliary engines of a ship.

## WARM-UP

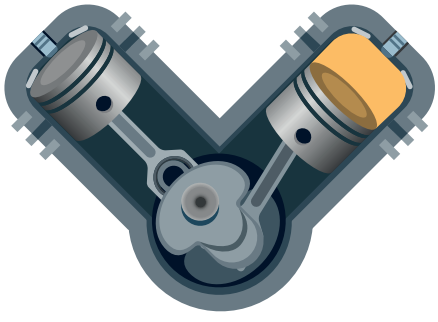
1. Make a list of vehicles or instruments that have at least one engine on with your friends.
2. Does every ship have an engine? Discuss with your class.

**1. Match the pictures with the names of the engine types given in the box below.**

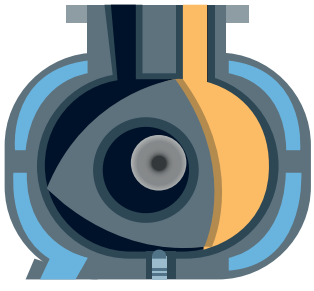
Boxer engine–V engine–Inline engine–Rotary engine–X engine



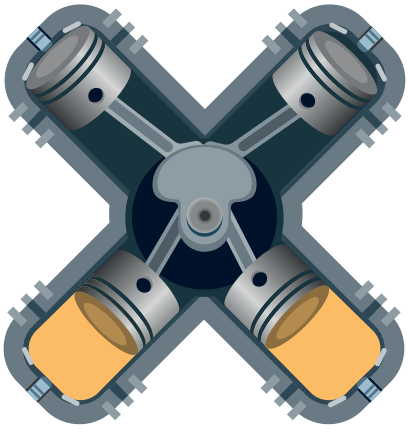
1. .....



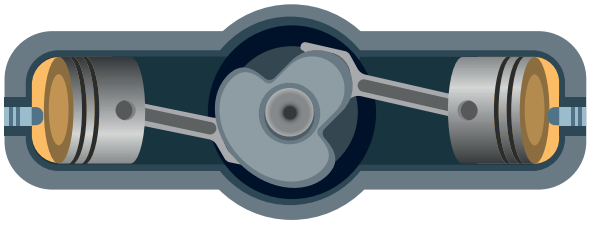
2. .....



3. .....



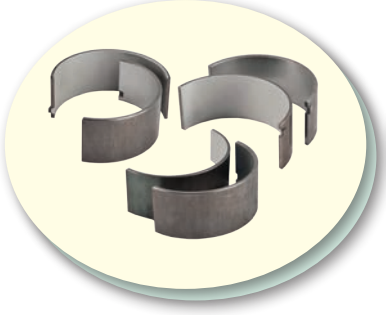
4. .....



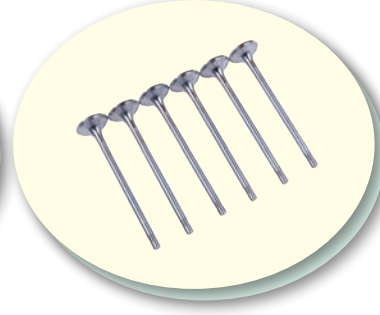
5. .....

## 2. Match the pictures with the names of the engine parts given in the box below.

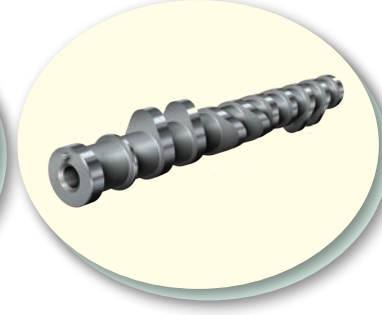
Cylinder block–Cylinder head–Crank shaft–Pistons–Piston ring–
Connecting rods–Bearing–Camshaft–Valve



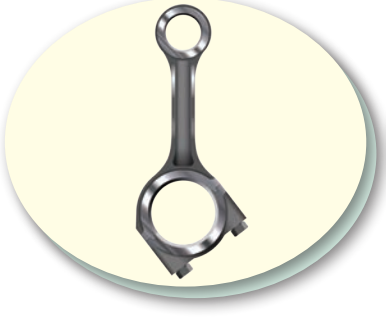
1. .....



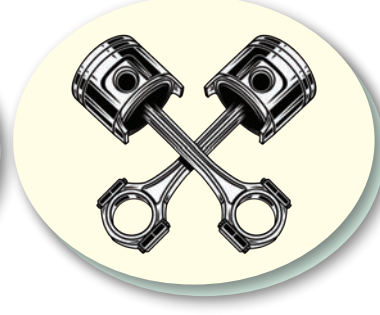
2. .....



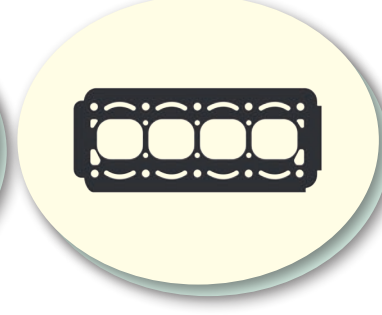
3. .....



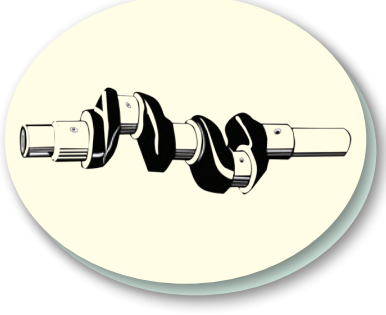
4. .....



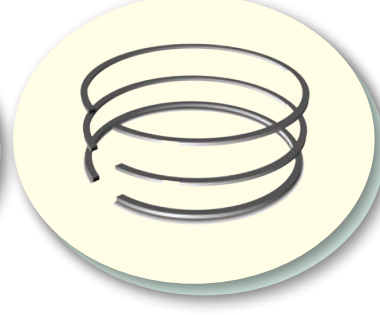
5. .....



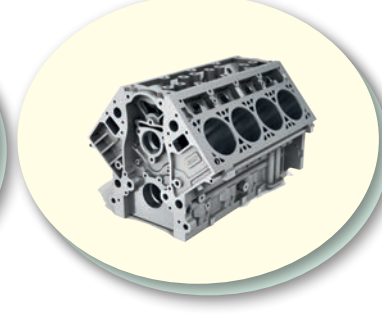
6. .....



7. .....



8. .....

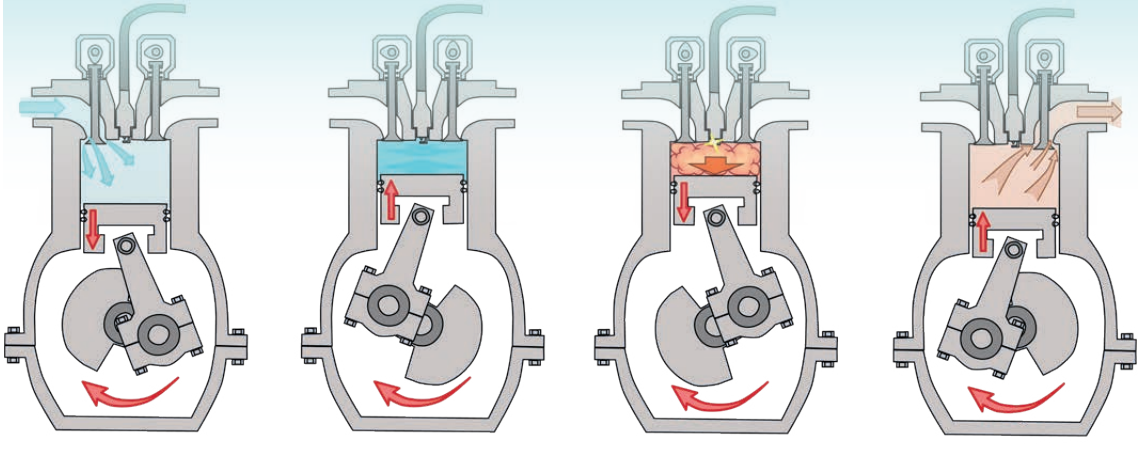


9. .....

**3. Read the descriptions and match them with the correct strokes of a four-stroke engine working cycle.**

| | |
|---|---|
| | Suction stroke for taking the fresh air inside the chamber, which is the downward movement of the piston |
| | Compression stroke to compress the air-fuel mixture., which is an upward movement of the piston |
| | Power stroke, in which the explosion takes place, and the piston is pushed downwards |
| | Exhaust stroke, which is an upward movement of the piston to release used gases |

# FOUR-STROKE ENGINE WORKING CYCLE



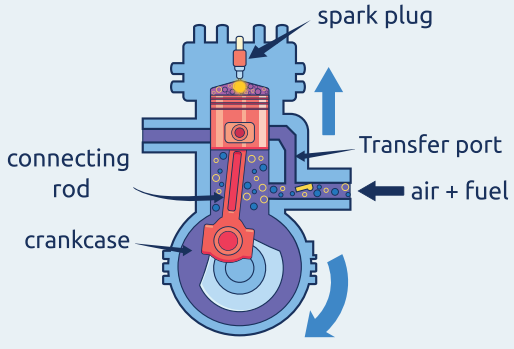
1 2 3 4

**4. Read the descriptions and match them with the correct strokes of a two-stroke engine working cycle.**

| | |
|---|---|
| | Suction and compression stroke, which is the upward movement of the piston to draw fresh air inside and to compress the air-fuel mixture. |
| | Power and exhaust, which is the downward movement of the piston due to an explosion inside the chamber followed by removal of exhaust through the exhaust valve fitted on the top of the cylinder. |

## TWO - STROKE CYCLE
## INTERNAL COMBUSTION ENGINE

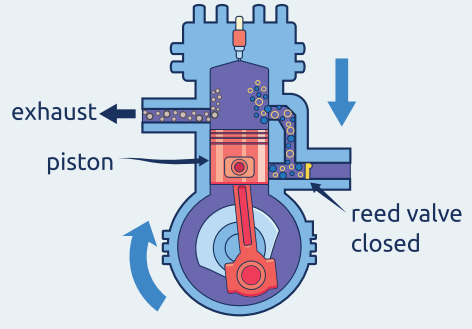
1




### COMPRESSION STROKE

- air+fuel mixture is drawn in to crankcase
- reed valve open
- spark plug ignited

2

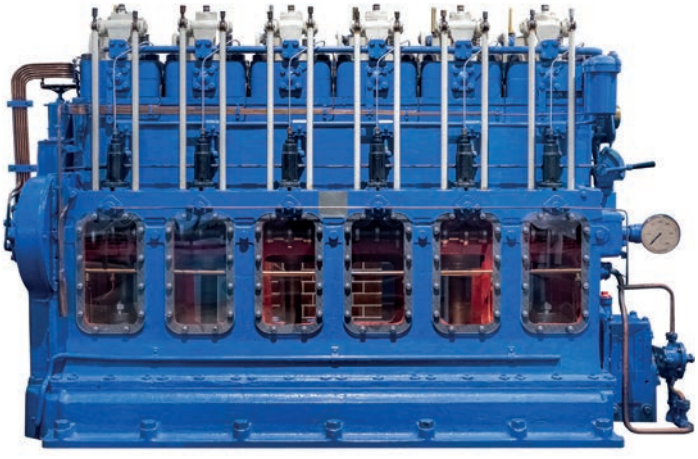



### POWER STROKE

- burned fuel push out
- reed valve closed
- air + fuel mixture forced in to cylinder

**5. Read the text and mark the statements as TRUE or FALSE according to the text.**

## HOW DOES A SHIP'S ENGINE WORK?



Whether a small ship working between coastal ports or a massive ship voyaging international waters, a four-stroke or two-stroke marine engine is fitted onboard for the propulsion of the ship. These huge vessels need enormous amounts of power to travel in water. Here is a brief view of how this enormous power is generated by these engineering masterpieces.

Marine engines are heat engines which are used for converting heat into mechanical energy. Engines used on ships are mainly internal combustion engines. These engines are used both for propulsion and power generation purposes.

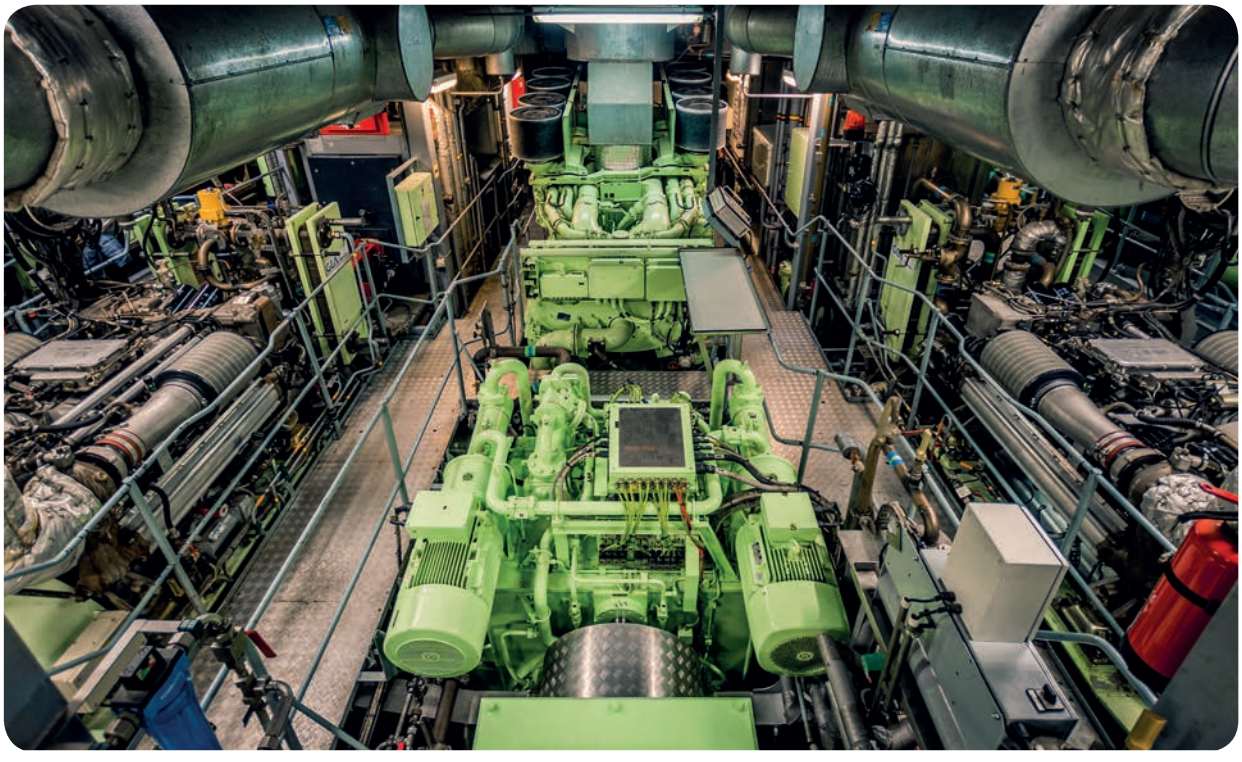
The operation of a marine engine can be described by these steps:

Firstly, the fuel is injected in a specific amount at high pressure. A mixture of fuel and air is compressed inside the engine cylinder with the help of pistons. This creates an explosion of the mixture due to compression. Generated heat is released, and this increases the pressure of the burning gas. This sudden increase in the pressure pushes the pistons downwards and moves the crankshaft using connecting rods. The explosion is repeated constantly for maintaining the power which is needed.



The crankshaft is connected to the propeller of the ship with a flywheel. In order to keep the continuous rotation of the crankshaft, this explosion is supposed to be repeated continuously. The gas used in the cylinder is drawn out of the cylinder through an exhaust valve with the help of the movement of pistons, and it also provides fresh air for the next combustion process.

Though it seems simple in many ways, marine engines are quite sophisticated machines. Since the engines themselves and their parts may be enormous in size, they require qualified engineering skills from the very first moments of their designing process to the installation stages while building a ship. They also need to be operated by professional hands to keep those parts rolling smoothly.



| | | |
|---|---|---|
| **1.** External combustion engines are generally used on ships. | **T** | **F** |
| **2.** An engine on a ship is only used for propulsion purposes. | **T** | **F** |
| **3.** An explosion in a cylinder creates the necessary movement. | **T** | **F** |
| **4.** The propeller of a ship is rotated by the movement of the crankshaft. | **T** | **F** |
| **5.** The used gas stays inside the engine during the cycle. | **T** | **F** |

## 6. Read the text and answer the questions given below the text.

### ENGINE ROOM

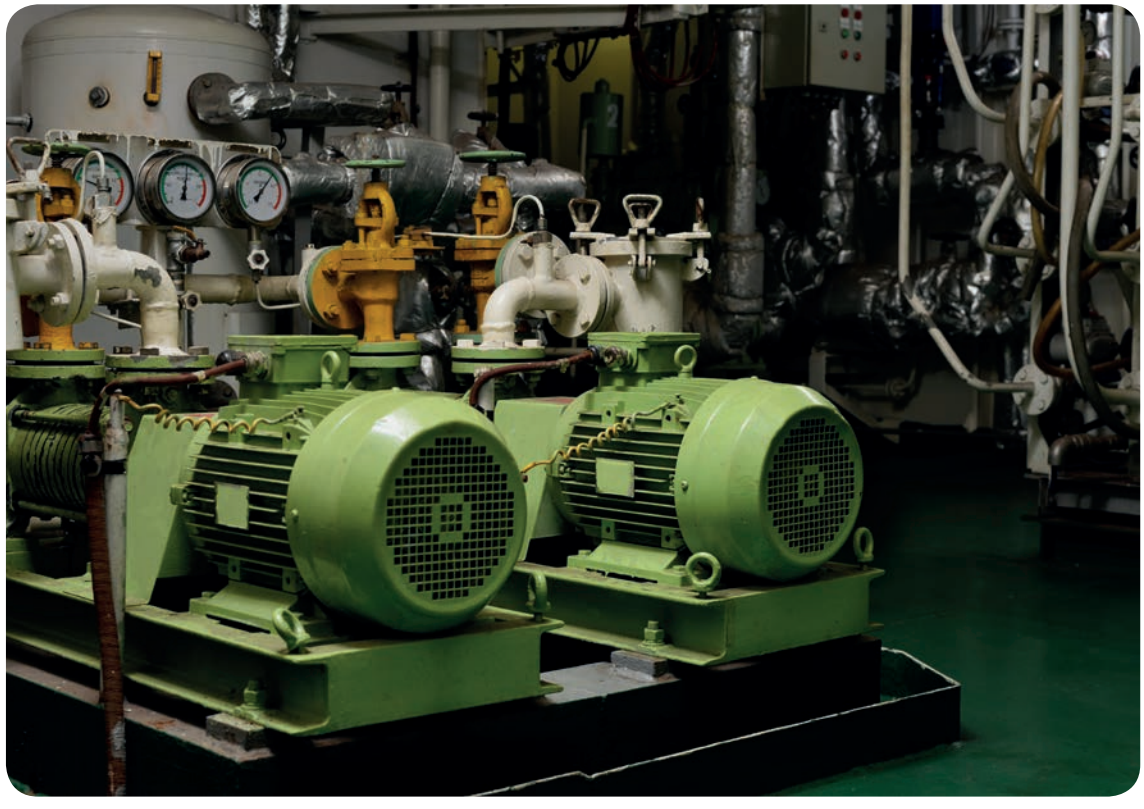
The engine room of a ship is the compartment in which the machinery for propulsion is installed. Considering safety measures in case of any damage which may occur during a voyage, the machinery of a ship can be distributed into various places onboard. An engine room is generally the biggest part of the space specified for machinery. A ship's prime power source is located in the engine room. On some ships, there may be more than one single engine room, such as forward and aft or port and starboard engine rooms.



In order to create more space for cargo carrying capacity and to place the engine close to the propeller, an engine room is generally located at the rear or aft end of the ship near the bottom.

The engine room of a ship usually contains several engines for different purposes. The most important one is the main engine which is used to turn the ship's propeller enabling the ship to move through the water. Main engines typically use diesel oil.

Besides moving in the water, a ship also needs power for its electrical systems. Therefore, there are several engines that function as electrical generators. There may be three or more synchronized generators on some large ships.



To provide the necessary cooling for the engine, an engine cooling system is also located in the engine room. The heat exchangers connected to the main engine constantly pump fresh seawater through the tanks in the engine room.

Since they use internal combustion engines, engine rooms are supposed to have some installations to provide air for the operation of the engines. Through ventilation machinery, engines pull sufficient air into the engine room in order to keep working.

1. Where is the main power source of a ship located?

   _____

2. Where is an engine room generally located on a ship?

   _____

3. What kind of fuel do main engines typically use?

   _____

4. How is the electric power generated on a ship?

   _____

5. What are the machineries found in an engine room besides the main engine?

   _____

**7. Listen to the audio about ship engine maintenance and fill in the blanks with the words given in the box below.**

Periodic–Cylinder–Engineers–Box–Crankshaft–Fuel–Starting–Exhaust–Pistons–Rods

## SHIP ENGINE MAINTENANCE



A basic ship engine maintenance should be a well-planned operation and it includes overhauling of important static and moving parts of the engine.

These are some of the most common marine engine maintenance steps:

- Overhauling and measurement of 1._____, rings and piston rods.
- Overhauling and measurement of the 2._____ liner.
- Overhauling and measurement of the 3._____ valve.
- Overhauling and measurement of the stuffing 4._____.
- Overhauling and measurement connecting 5._____ and crosshead bearings.
- Overhauling and measurement of main bearings.
- Measurement of 6._____ deflection.
- Checks and measurement of 7._____ pump timing.



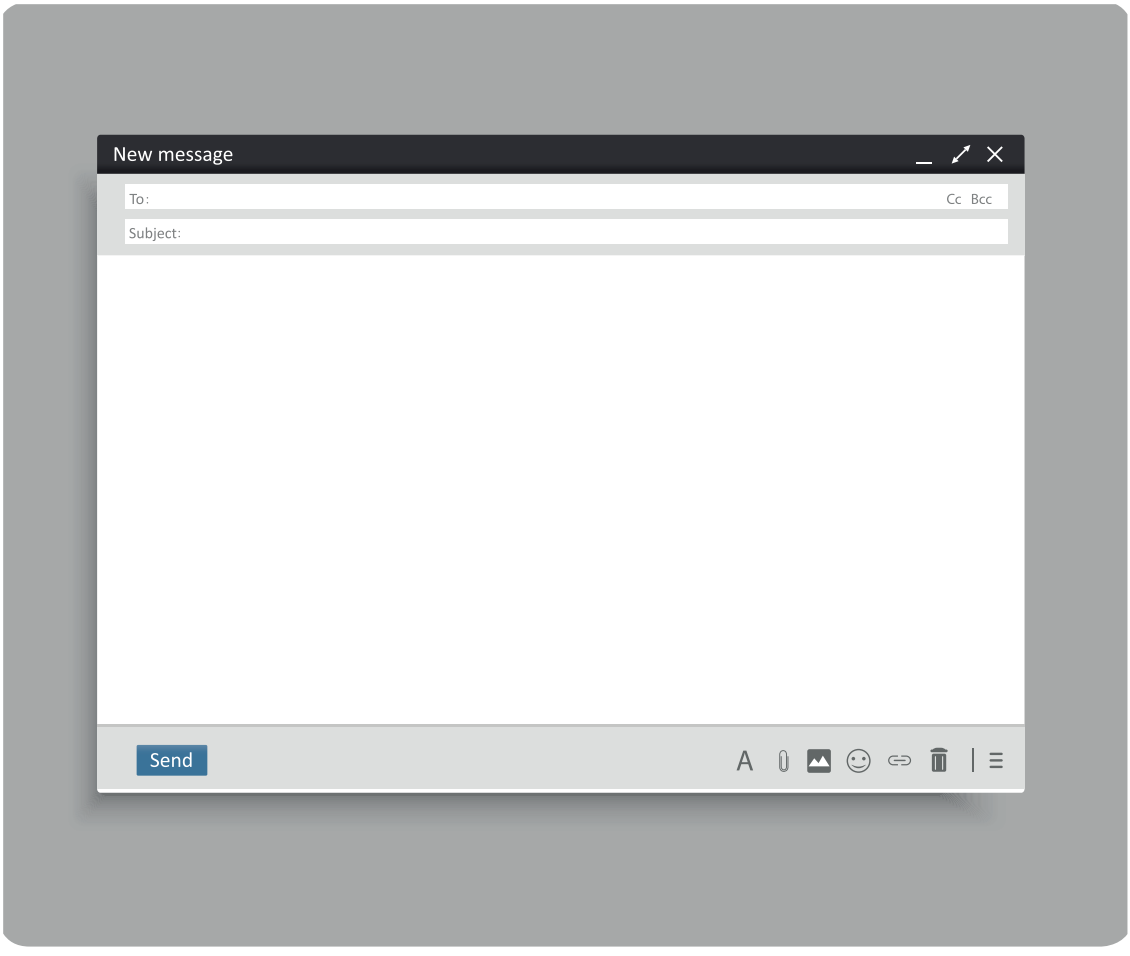
- Checks and overhauling of 8._____ air system.

The maintenance period of the various parts of an engine is determined by the manufacturer of the engine and maintenance stuff is given information about this subject.

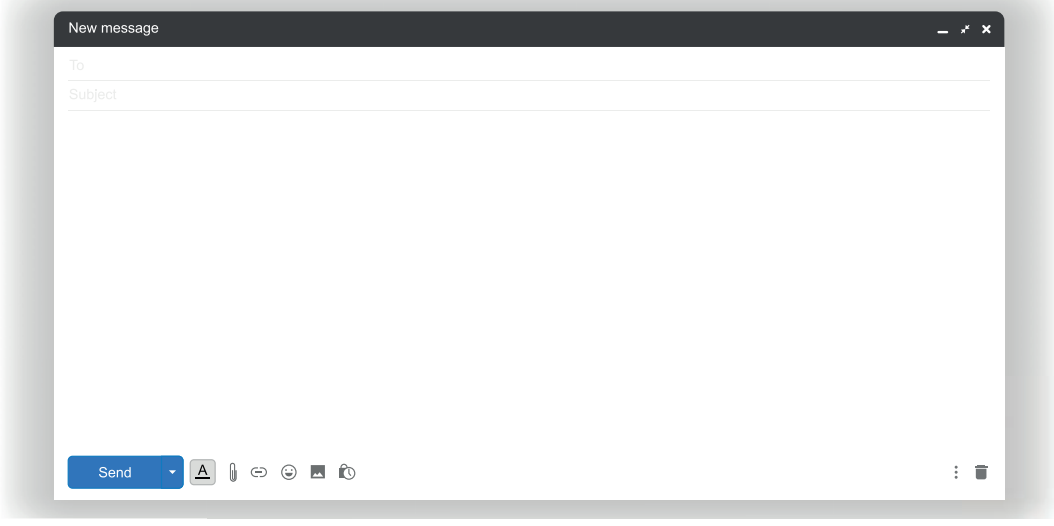
Along with 9._____ maintenance, the engine power and ratings need to be checked on the digital power indicator.

Marine engines used on ships are very sophisticated and complicated pieces of engineering. In order to take care of these masterpieces, marine 10._____ take the responsibility for taking specific training for operating, maintaining, and troubleshooting on board.

8. There is a problem with the engine, and you have to report it to your supervisors. Write a short e-mail explaining the situation.




9. Exchange your e-mails with one of your friends and answer the e-mail.



10. Work with a partner. Design a phone call between an engineer and a spare parts dealer. The engineer needs some parts for the broken engine and the shop assistant gives information about the products and prices.





11. Work with a partner. Design and draw a sketch of an engine room with your partner and present it in the classroom.

PROJECT:
DATE:

**12. Find the words given in the box below in the word search puzzle.**

M E X H A U S T P I S T O N L Y M
A M J T B P J L R T P Y C Q Y G B
I R J Y R P B B E I K R R Y V O L
N Y N Y L E N B N N A B N K X T D
T Y V W R X E L N N I O R E D Y D
E G C N L N I N K P I R R Q F B P
N M A G E N K S I T W L A U Q G S
A J M J E N H N S G N Y E M N T L
N R S L V A G U J C N L Q R R Z G
C E H M F A B I D Y Y E L O D N Q
E L A T L M L L N Z R L K P P M Z
K L F L O E R V D E Q E I X T N N
L E T C T E S O E R R T Y N L T D
Z P T T W D R E T Y K O N Q D X N
D O R O L B N R I J R T O R W E D
K R P P D K W Y P D V T L M B L R

Boxer–Inline–Engine room–Cylinder–Crankshaft–Propeller–Piston–Camshaft–Valve–Rod–Combustion–Stroke–Exhaust–Power–Engineer–Marine–Maintenance–Fuel–Diesel

## WARM-UP

1. What type of machinery is used on a ship besides main engine? Try to make a list with your friends.
2. What kind of machinery is a must on a ship in your opinion? Share your ideas with your friends.

### 1. Match the pictures with the words given in the box below.

Engine Room–Deck





a) .....  b) .....

### 2. How many types of machinery can be found on a large ship? Make a quick search online and make a list of your findings below.

_____

_____

_____

_____

_____

### 3. Match the names of the auxiliary machinery with their correct definitions.

| | |
|---|---|
| 1. Coolers | **a)** ____ It is a machine that raises or drops the anchor quickly and easily. |
| 2. Oil purifier | **b)** ____ It is a kind of small winch used on deck for anchoring and mooring. |
| 3. Oily water separator | **c)** ____ It is used to burn the waste products generated on the ship. |
| 4. Incinerator | **d)** ____ It converts seawater to fresh water. |
| 5. Emergency generator | **e)** ____ It is the equipment which changes the direction of the ship during sailing or maneuvering. |
| 6. Refrigeration compressor | **f)** ____ It gets rid of the pollutants from the lubrication oil or fuel oil. |
| 7. Fresh water generator | **g)** ____ It supplies the electric power for emergency load in the event of a main power supply failure. |
| 8. Windlass | **h)** ____ They provide cooling for engines and hydraulic oil. |
| 9. Steering gear | **i)** ____ It provides air conditioning, heat pumping, and refrigeration for the ship and the cargo. |
| 10. Capstan | **j)** ____ It is used to clear the water that is accumulated in bilges. |

## 4. Match the pictures with the words given in the box below.

Valve–Water purifier–Tube heat exchanger–Plate type heat exchanger–Boiler–Refrigeration compressor–Oily water separator–Incinerator–Pump–Air compressor



1. .....



2. .....



3. .....



4. .....



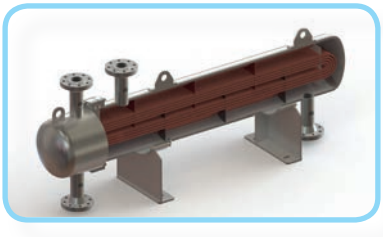
5. .....



6. .....



7. .....



8. .....



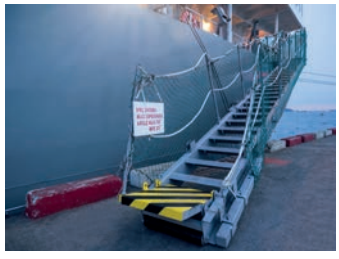
9. .....



10. .....

## 5. Match the pictures with the words given in the box below.

Windlass–Mooring winch–Deck crane–Gangway–Horn–Funnel–
Steering gear–Chain stopper–Capstan–Tugger winch



1. .....



2. .....



3. .....



4. .....




5. .....



6. .....



7. .....



8. .....



9. .....



10. .....

**6. Read the text and mark the statements as TRUE, FALSE or NOT MENTIONED.**

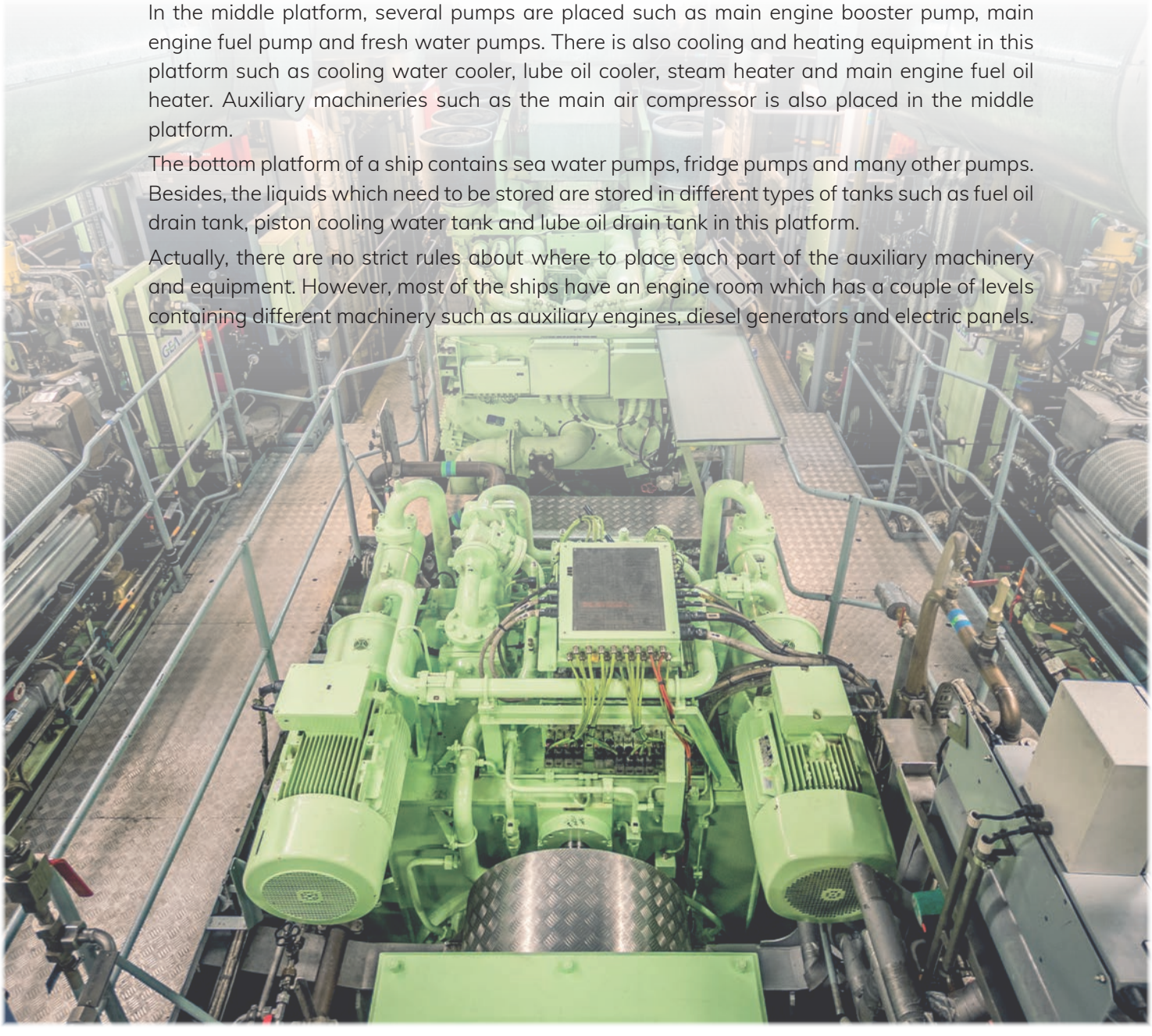
## AUXILIARIES OF AN ENGINE ROOM

There are three platforms in the engine room of a ship. These are called, top, middle and bottom. The top platform includes spare parts of the main propulsion engine, auxiliary machineries and pumps. There are also several tanks with different purposes such as lube oil tank, cooling water tanks. Auxiliary machinery consists of electricity generators, exhaust boiler,s fresh water generator,s sanitary hydrophores and incinerators.

In the middle platform, several pumps are placed such as main engine booster pump, main engine fuel pump and fresh water pumps. There is also cooling and heating equipment in this platform such as cooling water cooler, lube oil cooler, steam heater and main engine fuel oil heater. Auxiliary machineries such as the main air compressor is also placed in the middle platform.

The bottom platform of a ship contains sea water pumps, fridge pumps and many other pumps. Besides, the liquids which need to be stored are stored in different types of tanks such as fuel oil drain tank, piston cooling water tank and lube oil drain tank in this platform.

Actually, there are no strict rules about where to place each part of the auxiliary machinery and equipment. However, most of the ships have an engine room which has a couple of levels containing different machinery such as auxiliary engines, diesel generators and electric panels.



**1.** There are several spare parts of different equipment of a ship in an engine room.

| TRUE | FALSE | NOT MENTIONED |
|---|---|---|

**2.** You can find a crane in an engine room.

| TRUE | FALSE | NOT MENTIONED |
|---|---|---|

**3.** The liquids to be used on the ship are stored in tanks.

| TRUE | FALSE | NOT MENTIONED |
|---|---|---|

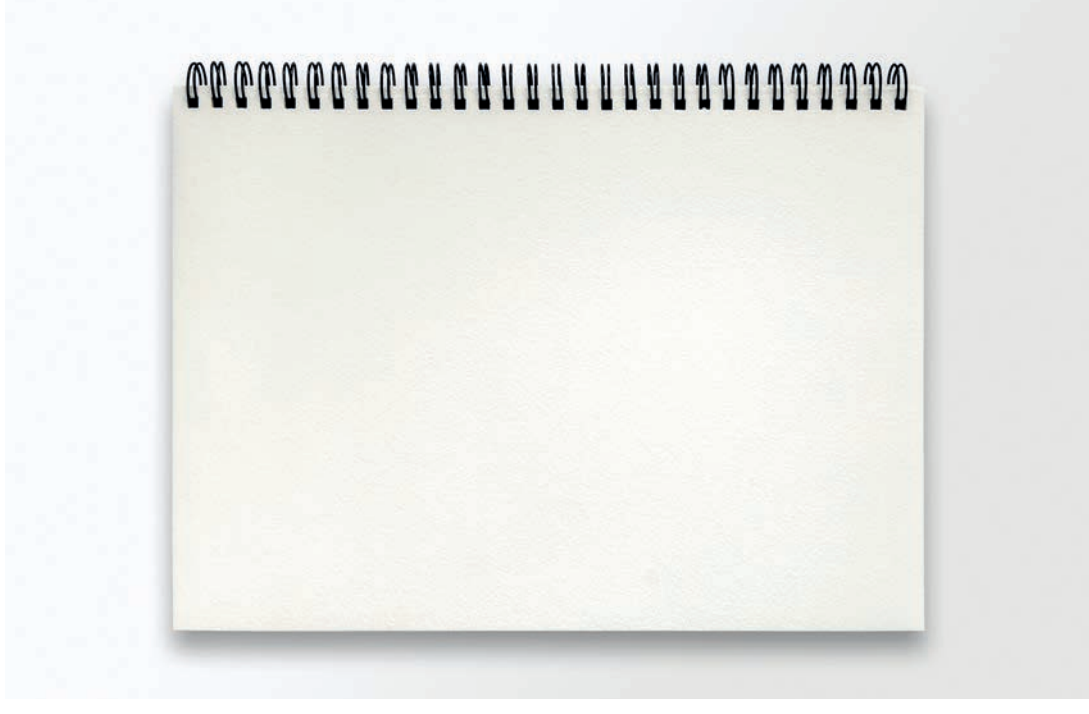
**4.** Only the captain of the ship can go down below the engine room.

| TRUE | FALSE | NOT MENTIONED |
|---|---|---|

**5.** Each machinery must be placed in the same place on every ship.

| TRUE | FALSE | NOT MENTIONED |
|---|---|---|

**7. Read the text again and make a list of engine room auxiliary machinery according to the text.**



**8. Skim the text and fill in the blanks in the text using the names of the machinery given in the box below.**

Capstan–Mooring winch–Windlass–Deck crane

## DECK AUXILIARY MACHINERY

Auxiliary machinery on deck is varied extensively but it can be simply divided into three categories as:

– Anchor handling such as windlasses and capstans
– Mooring such as winches and capstans
– Cargo handling such as winches and cranes

All these three functions basically require controlling loads associated with a chain or wire rope. Though each piece of equipment has its own way of operating, certain points of design and operation are common.



A1. _____ is a machine, usually equipped with a winch and wire ropes or chains. It is used to lift and move the cargo or other materials onboard. A ship crane is widely used in transportation sector to load and unload cargo on a ship. Ship cranes are varied into several types according to their lifting purposes.

2. _____ is a piece of deck auxiliary machinery to hold a vessel in place. The winch has a drum that is divided into a storage section and a working section. A mooring winch has functions, such as holding and positioning for loading and unloading of a ship. Some mooring winches are electric, hydraulic or operated with fuel generators.





3. _____ is a machine which is used to pull up equipment such as a ship's anchor. It can also be used for fishing purposes such as pulling a fishing trawl. An anchor windlass restrains and manipulates the anchor chain or rope on a boat, allowing the anchor to be raised and lowered. A brake is provided for control and a windlass is usually powered by an electric or hydraulic motor. Windlasses are available in vertical and horizontal positions.

A 4._____is a mechanical device that is used to move heavy weights. This is done by means of cables, ropes or chains. The drum of a capstan can be driven either manually or by electricity, causing it to rotate around a vertical axis.



## 9. Read the text and answer the questions according to the text.

1. For what purposes can deck auxiliaries be used?

_____

2. What is a deck crane?

_____

3. What is the function of a mooring winch?

_____

4. How can a windlass be controlled?

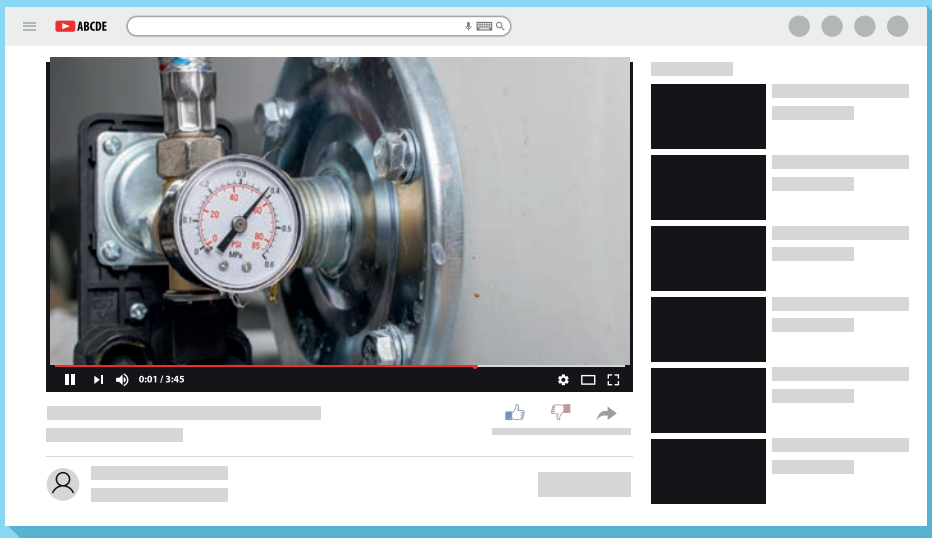
_____

5. How is a capstan rotated?

_____

**10. Listen to the audio about pumps and match the types of the pumps with their definitions.**

## PUMP TYPES USED ON SHIPS




| | | | |
|---|---|---|---|
| 1. | Cintine pump | a) | It is used to pump the fresh water which is stored in high capacity hydrophore tanks necessary for the toilets or showers. |
| 2. | Balance pump | b) | It is used to transfer the diesel fuel from the service tanks to the injector pumps. |
| 3. | Hydrophore pump | c) | It is used to drain the leaked water and the liquids such as lubricant or fuel oil accumulated in the bottom parts of a ship. |
| 4. | Lubrication oil pump | d) | It is used to cool the cylinders of the main engine and auxiliary machinery. |
| 5. | Fuel feed pump | e) | It is used to deliver the water which is taken from the sea to the necessary spots in case of a fire or for cleaning purposes. |
| 6. | Fire pump | f) | It is used to exchange water between the balance tanks or to fill or to drain these tanks. |
| 7. | Cooling water pump | g) | It is used to transfer the pure lube oil to the main engine. |

**11. Choose an auxiliary machine and write a short paragraph describing it and explaining its functions.**

**12. Make a short presentation of the paragraph you have written in the Activity 11.**



13. Find the words given in the box below in the word search puzzle.

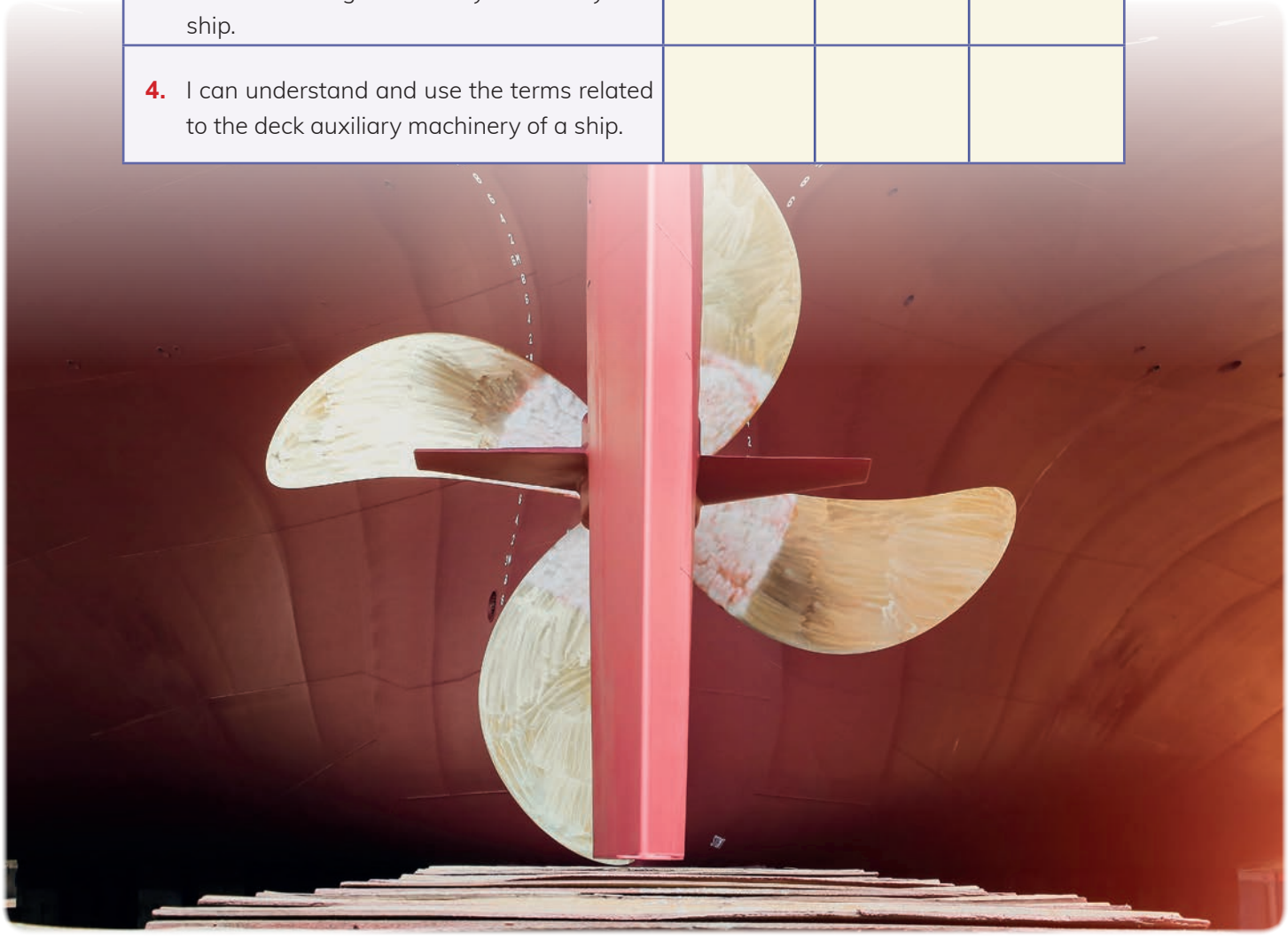
C L V R O T A R E N I C N I
R O L E N N U F R C S I J Q
E W M M B P Z O R S A N N H
I I M P B Y T A A H Q X E Q
F N C W R A N L C M N A L E
I C R O R E D K G L T R V Z
R H N A O N S E B E T L O V
U T P A I L N S R O A K Y H
P E U W T E E J O V I N Z B
S D M R R S T R Y R B L G D
Z D P A L D P Z Y L P K E P
P D T L R Q L A T Y T Q G R
D O Y B T W K G C B M D L D
R M D D X V P P K V T D N L

Cooler–Heater–Purifier–Separator–Incinerator–Generator–Compressor–Windlass–
Capstan–Valve–Boiler–Pump–Winch–Crane–Horn–Funnel–Chain

## 14. UNIT 3- SELF ASSESSMENT

**Read the outcomes and put a tick (√ ) into the box appropriate for you.**

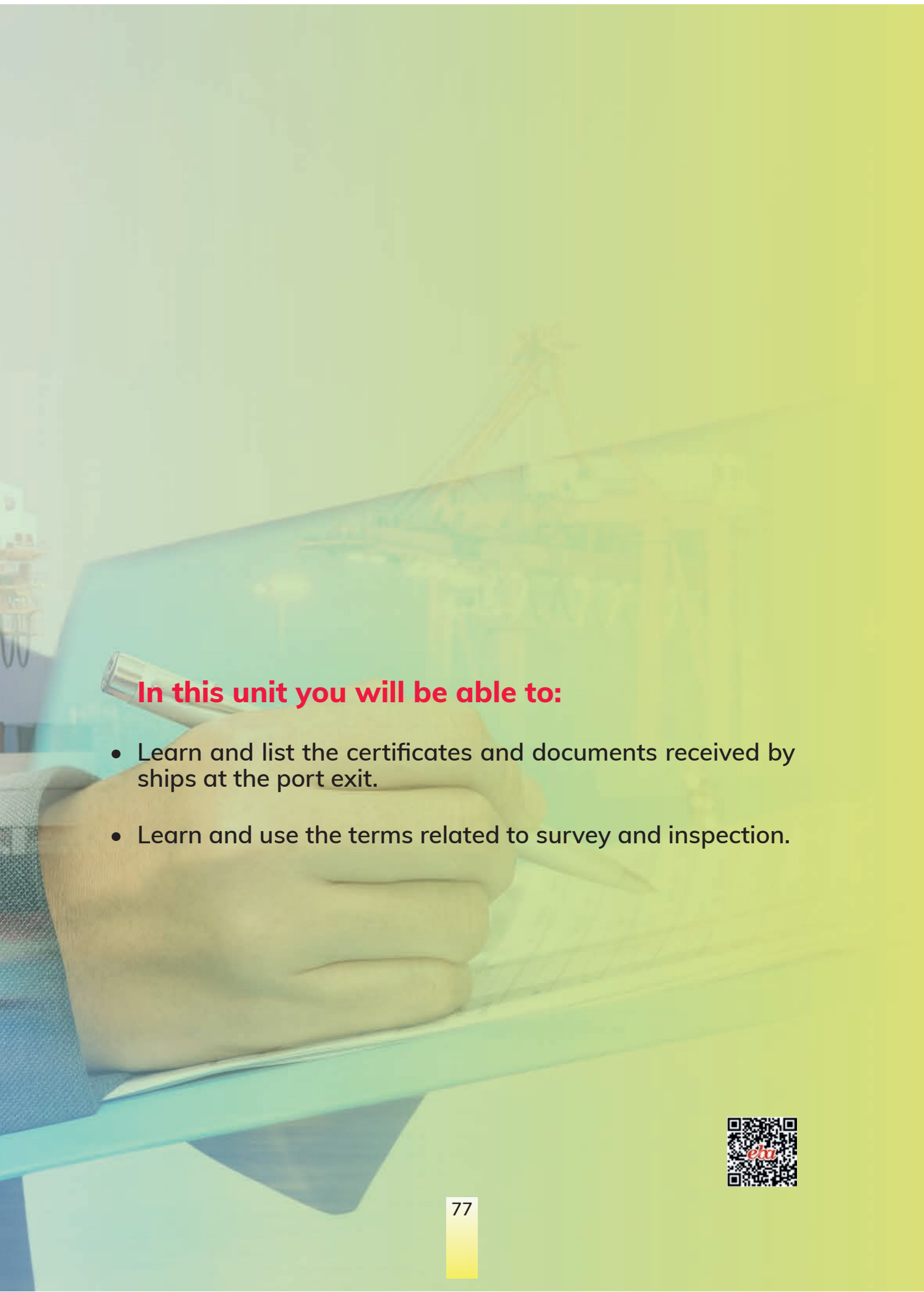
| LEARNING OUTCOMES | YES | WITH HELP | NO |
|---|---|---|---|
| **1.** I can understand and use the terms related to the main engine types of a ship. | | | |
| **2.** I can understand and use the terms related to the main engine parts of a ship. | | | |
| **3.** I can understand and use the terms related to the main engine auxiliary machinery of a ship. | | | |
| **4.** I can understand and use the terms related to the deck auxiliary machinery of a ship. | | | |





# UNIT 4

# MARITIME MANAGEMENT AND SHIP INSPECTION



## In this unit you will be able to:

- Learn and list the certificates and documents received by ships at the port exit.
- Learn and use the terms related to survey and inspection.

## WARM-UP

1. What is the name of the classification society in Turkey?
2. Do you have any certificates? If so, what are they?

### 1. Match the words with their definitions.

| | |
|---|---|
| 1. certificate | **a)** _____ to put information into an official list or record |
| 2. document | **b)** ___ a line on the side of a ship that shows the level below which the ship must not sink into the water when it is carrying goods, passengers, etc. |
| 3. classification | **c)** _____ decided, controlled, or required by law |
| 4. register | **d)** _____ an official document that states that the information on it is true |
| 5. foul | **e)** _____ the size of a ship or the weight of goods that a ship can carry |
| 6. load line | **f)** _____ the process of checking a ship's condition and equipment to make certain that they are safe and meet the official standards of the shipping industry |
| 7. tonnage | **g)** _____ to spoil or damage something by making it dirty |
| 8. statutory | **h)** _____ a paper or set of papers with written or printed information, especially of an official type |

### 2. Read the sentences about the certificates and documents. Then, fill in the blanks with the words in the box.

Unseaworthy–Operate–Impossible–Flag state (x2)–On board

1. Ships must carry various certificates and documents on board to _____ legally and to trade freely both nationally and internationally.
2. It is _____ to sail a ship on high seas without valid certificates.
3. All these original certificates need to be _____ at all times.
4. The specific documents a ship should carry must meet the requirements of the vessel's _____.
5. The absence of any of these certificates makes a ship _____.
6. Every ship must be registered in a country, and it is called _____. Therefore, a ship must follow the laws of its flag state.

## 3. Read the text and answer the questions.




The International Maritime Organization (IMO) is responsible for measures to improve the safety and security of international shipping and to prevent pollution from ships. Its main purpose is to develop and maintain a comprehensive regulatory framework for shipping. It includes maritime safety, environmental concerns, legal matters, technical cooperation, maritime security and the efficiency of shipping.

The International Maritime Organization has 175 Member States in 2022 and Turkey is the member of it.

The objectives of the International Maritime Organization can be summarized under the following headings:

- safety in shipping
- security in shipping
- efficient shipping
- cleanliness of oceans

1. What is the International Maritime Organization?

   _____

2. What is the goal of IMO?

   _____

3. In which fields does IMO set rules in maritime?

   _____

4. Is Turkey a member of IMO?

   _____

## 4. Match the words with their definitions.

| | | |
|---|---|---|
| 1. | **improve** | **a)** _____ controlling |
| 2. | **comprehensive** | **b)** _____ connected with or allowed by the law |
| 3. | **regulatory** | **c)** _____ complete and including everything that is necessary |
| 4. | **legal** | **d)** _____ the good use of time and energy in a way that does not waste any |
| 5. | **efficiency** | **e)** _____ to make something better |

## 5. Match the certificates to the definitions.

| | |
|---|---|
| 1. Certificate of Classification | **a)** ___ It points out that the freeboards have been assigned and load lines have been marked. |
| 2. Certificate of Registry | **b)** ___ It certifies a vessel is structurally sound and verifies the reliability and function of the propulsion and steering systems, power generation and auxiliary systems. |
| 3. SOLAS Certificates | **c)** ___ It aims to minimize pollution from dumping, oil, air pollution and other harmful substances. |
| 4. MARPOL Certificates | **d)** ___ It states the gross and net tonnages of a ship. |
| 5. International Anti-Fouling System Certificate | **e)** ___ It certificates for proving the safety of the ship and crew. |
| 6. International Load Line Certificate | **f)** ___ By requiring this certificate, the ILO Convention addresses a wide variety of labour and social issues, including employment policies, wages, employee contracts and industrial relations. |
| 7. International Tonnage Certificate | **g)** ___ This certificate verifies a ship's anti-fouling system does not contain harmful organotin compounds. |
| 8. Certificates for Masters, Officers and Ratings | **h)** ___ It contains essential information about the vessel and the owner of the vessel. |
| 9. Maritime Labour Certificates | **i)** ___ All crew, including officers, masters and watch personnel must meet qualification standards for training, certification and watchkeeping, as outlined in the STCW. |

**6. Listen to Captain Metin talking about the boat on which he is working and fill in the blanks according to the information he has mentioned. (Some information is not mentioned.)**

**BAĞLAMA KÜTÜĞÜ RUHSATNAMESİ**
**(Certificate Of Registry)**

| | |
|---|---|
| SERIAL NUMBER: | DOCUMENT NUMBER: |
| NAME OF SHIP | |
| TYPE OF SHIP | |
| PORT OF REGISTRY / NR | |
| REGISTERED LENGTH / BREADTH / DEPTH (M) | |
| GROSS TONNAGE / NET TONNAGE | |
| PLACE AND DATE OF BUILD | |
| CONSTRUCTION MATERIAL | |
| POWER OF ENGINE / QUANTITY | |
| ENGINE SERIAL NUMBER | |

5897 sayılı Kanun kapsamında Bağlama Kütüğüne kayıt olunduğu tasdik olunur.

**7. Imagine you are working on one of the stunning Bodrum gullets. Write a short paragraph describing gullet.**

**e.g.** My name is .... I have been working on a cargo ship named ...

**8. Look at some abbreviations and their definitions below. Then, fill in the blanks with the appropriate abbreviations.**

1. **IMO:** International Maritime Organization
2. **SOLAS:** International Convention for the Safety of Life at Sea
3. **MARPOL:** The International Convention for the Prevention of Pollution from Ships
4. **STCW:** The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers
5. **ILO:** International Labour Organization

1. _____ requires all seafarers serving on merchant vessels and yachts to maintain and carry proper certificates.
2. _____ sets labour standards, develops policies and devises programmes promoting decent work for all women and men.
3. _____ covers not only accidental and operational oil pollution but also pollution by chemicals, goods in packaged form, sewage, garbage and air pollution.
4. _____ is a United Nations agency that sets standards for the international shipping community.
5. _____ establishes the least safety measures in the construction, equipment and operation of merchant ships.

**9. Match the six SOLAS Certificates with their meanings.**

1. International Ship Safety Equipment Certificate
2. Minimum Safe Manning Certificate
3. International Ship Construction Certificate
4. International Ship Safety Radio Certificate
5. Safety Management Certificate (SMC)
6. International Ship Security Certificate (ISSC)

**a)** _____ This certificate verifies safe and secure ship construction including construction drawings, damage control plans and a coating technical file.

**b)** _____ It outlines standards for the safe operation and management of vessels while at sea.

**c)** _____ This certificate mentions how many minimum crew need to be on board to run the ship.

**d)** _____ Cargo and passenger ships should carry appropriate radio equipment that is in good working condition.

**e)** _____ It certifies that the security system and any associated security equipment of a ship have been verified and are compliant.

**f)** _____ It gives the detail of each piece of safety equipment that need to be on board.

## 10. Write the types of pollution that ships cause under the pictures.

**1.** Air pollution **2.** Water pollution **3.** Noise pollution **4.** Oil pollution

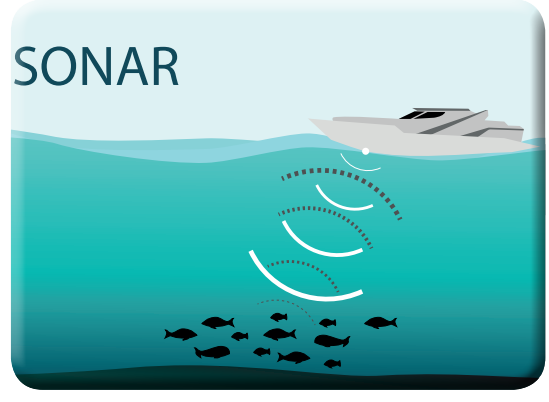




a) .....

b) .....






c) .....

d) .....

## 11. Fill in the blanks with the words in the box.

Exhaust gases–Greywater–Oil spill–Noise

1. _____ is the release of a liquid petroleum hydrocarbon into the environment that causes oil pollution.
2. The _____ produced by ships can cause noise pollution because it travels long distances, and marine species can be harmed by this sound pollution.
3. _____ from ships is the main source of air pollution.
4. Blackwater and _____ are the types of wastewater that causes water pollution.

**12. Read the text about what MARPOL is. Then, write the highlighted words in the text next to their definitions.**

MARPOL is short for 'maritime pollution'. The purpose of the International Convention for the Prevention of Pollution from Ships is to minimise pollution from sewage, oil, air pollution and harmful substances. The MARPOL Convention statutory certificates are:

International Oil Pollution Prevention (IOPP) Certificate

International Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in Bulk

International Sewage Pollution Prevention Certificate

International Air Pollution Prevention Certificate

International Energy Efficiency Certificate (IEEC)

1. _____ : poisonous and harmful
2. _____ : meeting
3. _____ : waste matter, such as water or human urine or solid waste
4. _____ : large size or mass
5. _____ : to reduce something to the least possible level or amount

**13. Read the text between Tom and the interviewer and mark the statements as TRUE, FALSE or NOT MENTIONED.**

**Interviewer:** Good morning, Mr Walter. Thank you for accepting our invitation.

**Tom:** Good morning. It is a pleasure for me.

**Interviewer:** Today our topic is the relationship between ship painting and the prevention of marine pollution. In this context, could you tell us about the painting of ships which is the last step of shipbuilding?

**Tom:** Of course. The main purpose of the paints used on ships is protection. It protects metal from corrosion and wooden surfaces from rotting.

**Interviewer:** So, what exactly do you mean by corrosion?

**Tom:** Corrosion is an unavoidable fact of ships made mainly of steel. When steel reacts with oxygen, steel turns into iron oxide. This is the first reason. The other reasons are seawater, microbial action, corrosive cargoes and even the sulphur within the fuel used in main and auxiliary engines. Furthermore, a ship encounters many challenges during her journey at sea. Biofouling is one of the main problems faced by every type of ship at sea. It means the accumulation of various aquatic organisms on the ship's hull, such as plant life and barnacles, as well as worms that eat hulls.

**Interviewer:** Harmful organotin compounds?

**Tom:** Well, organotin compounds are chemical compounds. One of the most effective and commonly used anti-fouling paints developed in the 1960s, but unfortunately, it was containing organotin tributyltin (TBT). As a result of its serious toxic effects on marine life, it was banned.

**Interviewer:** And then?

**Tom:** The International Convention on the Control of Harmful Anti-fouling Systems on Ships, which was adopted on October 5, 2001, prohibited the use of harmful organotin compounds in anti-fouling paints used on ships. The Convention entered into force on September 17, 2008.

**Interviewer:** Then, as far as I understand, the best way to prevent marine pollution is by developing international regulations, isn't it, Mr Walter?

**Tom:** Yes, you are right.

**Interviewer:** Thank you very much for the information you have given, Mr Walter.

**Tom:** Thank you, too.

1. The text is between an interviewer and an owner of a paint company.

| TRUE | FALSE | NOT MENTIONED |
|---|---|---|

2. The text is about maritime pollution.

| TRUE | FALSE | NOT MENTIONED |
|---|---|---|

3. One of the purposes of ships' paintings is to protect them from corrosion.

| TRUE | FALSE | NOT MENTIONED |
|---|---|---|

4. There are many causes of corrosion.

| TRUE | FALSE | NOT MENTIONED |
|---|---|---|

5. Anti-Fouling System Certificate is a kind of certificate that ships must have.

| TRUE | FALSE | NOT MENTIONED |
|---|---|---|

**14. Fill in the blanks with the verbs in the box.**

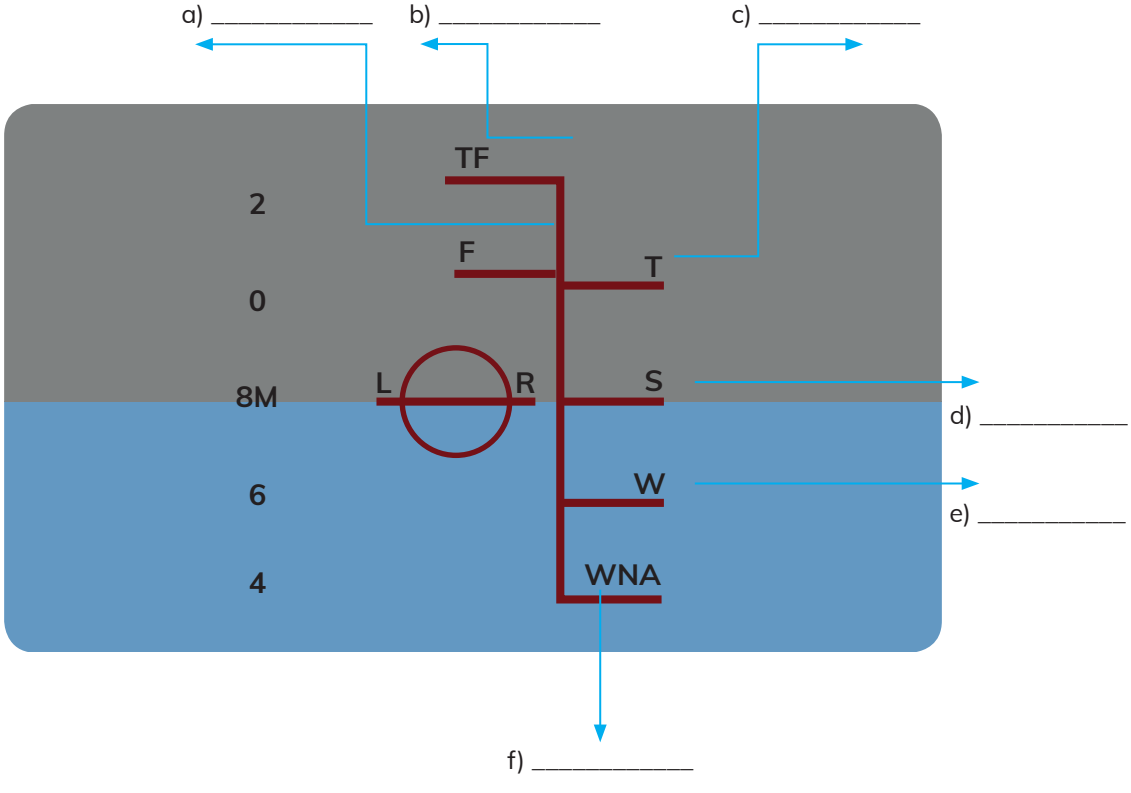
Improve(x2)–Act–Decrease–Ensure

Advantages of the anti-fouling systems

1. _____ ships performance.
2. _____ as a barrier against corrosion on metal hulls.
3. _____ the fuel usage.
4. _____ the durability and overall performance of the vessel.
5. _____ cost efficiency.

**15. Look at the six load lines that must be marked on some vessels. Then, label the load lines with their meanings using the words in the box.**

Summer–Tropical fresh water–Winter north atlantic–Winter–Tropical–Fresh water



### 16. Match the halves to make sentences about load lines.

1. The purpose of load lines is
2. A load line is also
3. A ship's waterline is the line
4. Load lines are painted
5. Tonnage of ships, density of the water, different climate zones, seasonal
6. There are fixed values related to

**a)** _____ conditions and saltiness of the water affect the load line levels.
**b)** _____ called Plimsoll mark.
**c)** _____ where its hull meets the surface of the water.
**d)** _____ the thickness and width of the lines used in marking.
**e)** _____ in the middle and both sides of a ship.
**f)** _____ to ensure that a ship has sufficient freeboard.

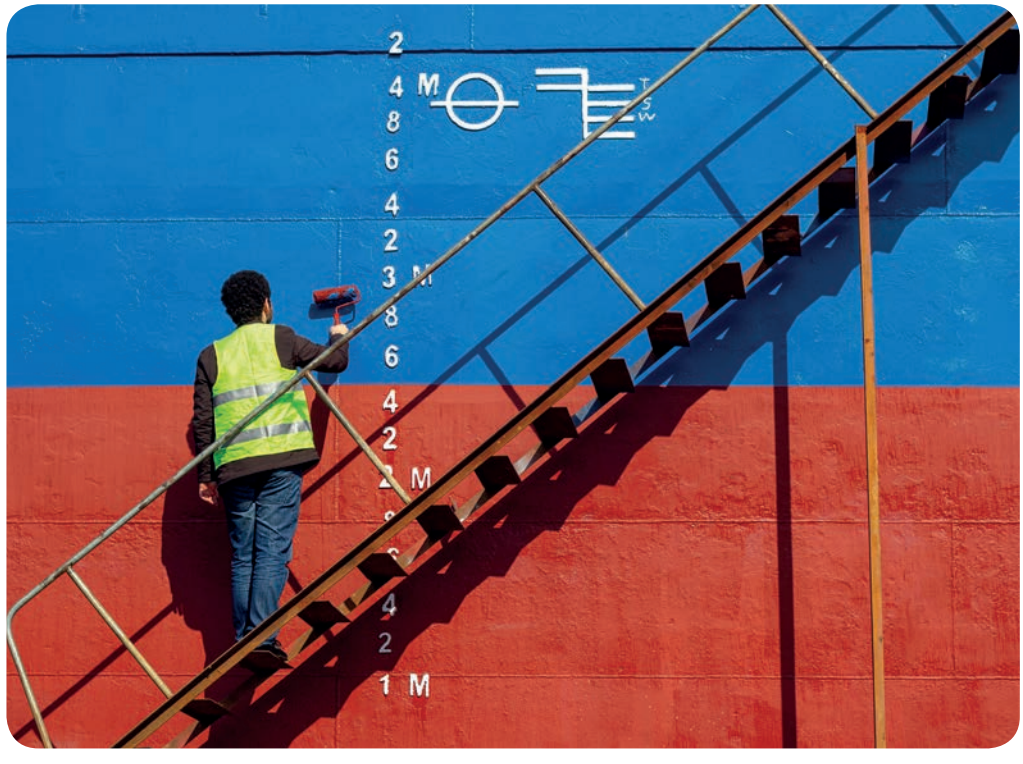
### 17. Answer the questions below.

1. What is the boy doing?

   _____

2. What do you think the numbers on the ship's hull stand for?

   _____



**18. Read the answers about International Tonnage Certificate and write the correct questions above the answers.**

- ✓ What is net tonnage?
- ✓ What is gross tonnage?
- ✓ For which ships is the International Tonnage Certificate mandatory?
- ✓ What is International Tonnage Certificate?
- ✓ What is the purpose of tonnage measurement?

1. _____?

   It is a certificate stating the gross and net tonnages of a ship.

2. _____?

   Both gross and net tonnages are used to calculate port dues.

3. _____?

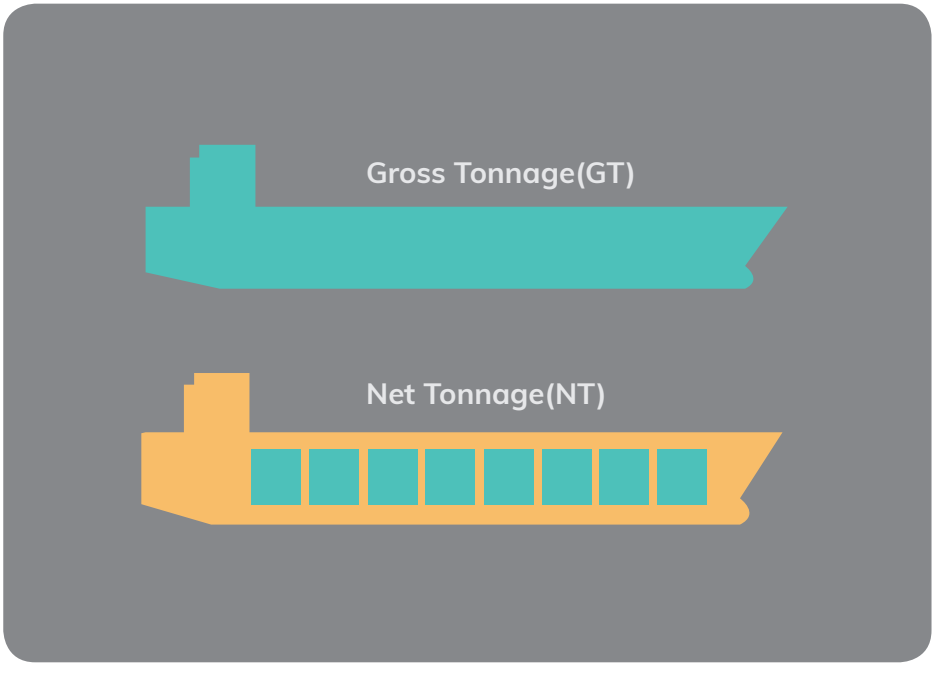
   It is the calculation of all enclosed areas of the ship.

4. _____?

   It is the calculation of the cargo-carrying spaces of the ship from keel to funnel.

5. _____?

   It is for all seagoing ships of 24 m in length and above.




**19. Research the enclosed areas of a ship and prepare a poster showing them.**

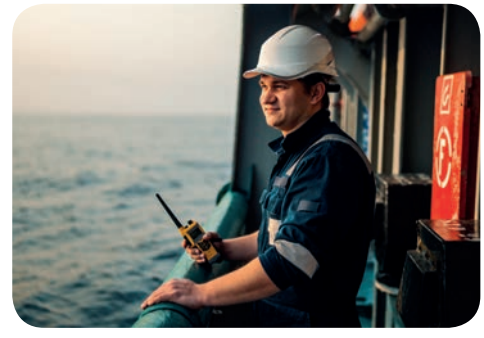
## 20. David wants to attend an online STCW course. Read the details of the course and answer the questions.

*Approved STCW online courses for seafarers. Learn online and offline and get a certificate. All courses comply with the IMO/STCW Regulations.*

### WHO NEEDS A BASIC TRAINING COURSE?

This is for all seafarers who want to work on commercial vessels. All seafarers must have five basic STCW certificates.

### WHAT IS INCLUDED IN THE COURSE?



There are five modules: Elementary First Aid (EFA), Fire Prevention and Fire Fighting (FPFF), Personal Survival Techniques (PST), Personal Safety and Social Responsibility (PSSR), and Proficiency in Security Awareness (PSA).

**Course Name:** Basic Safety Training Course

**Course Type:** Online

**Duration:** 5 days/ 6 hours a day

| Name of Certificate | Course description / You will be taught: |
|---|---|
| Elementary First Aid | vital basic 1st aid and life-saving skills. |
| Fire Prevention and Fire Fighting | necessary precautions to minimize the risk of fires aboard ship, how fires are caused and the first means of extinguishing them. |
| Personal Survival Techniques | how to leave the ship using life rafts and how to wear life jackets correctly. |
| Personal Safety and Social Responsibility | essentials of basic safety. |
| Proficiency in Security Awareness | raise awareness about the different security threats and how seafarers can maintain security on board. |

1. How many basic STCW certificates are there? _____
2. Is it mandatory for all seafarers? _____
3. What are the courses that require practice? _____

## 21. Fill in the blanks using the words in the box about what Maritime Labour Convention is.

wages–trade–operators–regulatory–medical

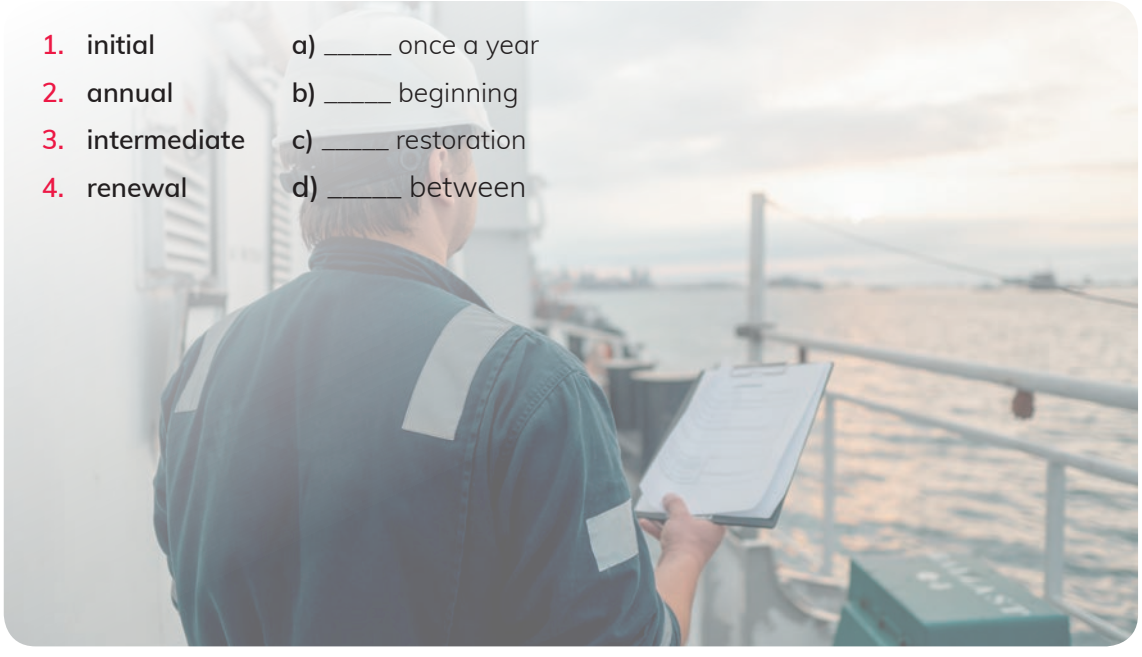
All commercial ships in international [1]_____ must carry a Maritime Labour Certificate issued by the International Labour Organization (ILO) and the IMO. The MLC, 2006 lays out requirements for payment of [2]_____, leave, repatriation and [3]_____ care of seafarers, creating [4]_____ obligations for States, ship owners and [5]_____.

## WARM-UP

1. Where are surveys done?
2. Would you like to be a marine surveyor? Why? Why not?

### 1. Match the words with their synonyms.

| | |
|---|---|
| 1. initial | a) _____ once a year |
| 2. annual | b) _____ beginning |
| 3. intermediate | c) _____ restoration |
| 4. renewal | d) _____ between |



### 2. Look at the chart and write T(True) or F(False) next to the sentences.

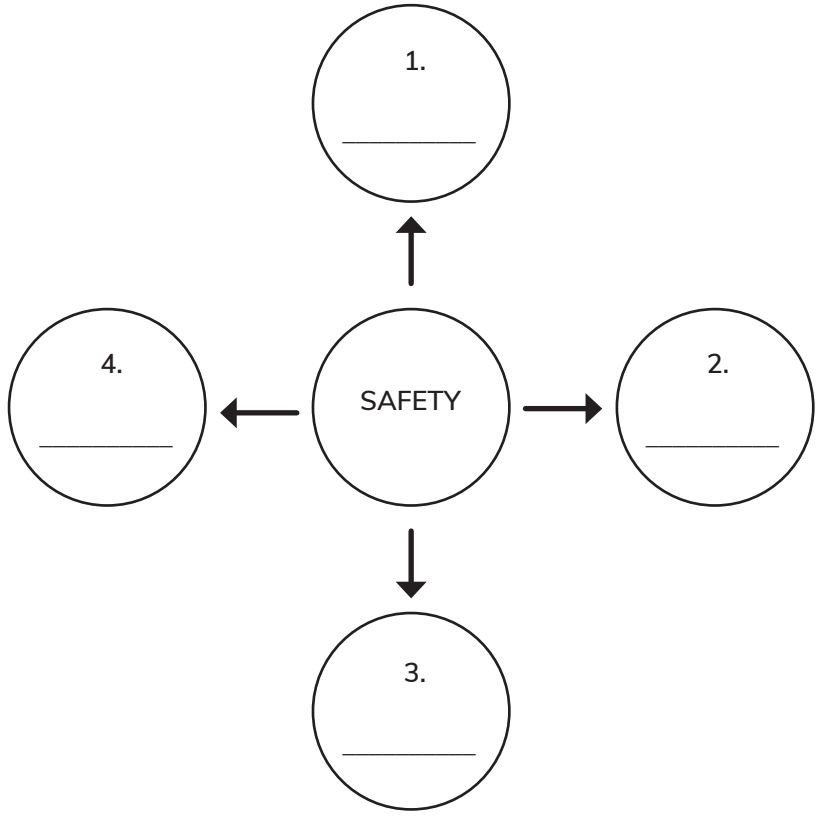
| Types of Surveys | When? | Description |
|---|---|---|
| Initial Survey | Before a ship is put into service | General and complete inspection of the ship |
| Annual Survey | Within 3 months before or after each anniversary date of the certificate | General inspection of the structure, machinery and equipment of the ship as referred to under the initial survey |
| Intermediate Survey | 3 months before the second-anniversary date to 3 months after the 3rd-anniversary date | Inspection of the items mentioned in the initial survey |
| Renewal Survey | 5-year intervals | Inspection of the structure, machinery and equipment to verify compliance with the applicable regulations and maintain satisfaction to be fit for the service |

1. Initial survey is the first survey of a ship. _____
2. Annual survey is done once a year. _____
3. Intermediate survey is carried out at a time when annual surveys take place. _____
4. Renewal survey is done every three years. _____

**3. Why is a ship survey important and necessary? Read the text and fill in the blanks using the words in the text related to safety.**

There are international standards that all ships in the world must comply with, and safety comes first. The International Maritime Organization (IMO) is the most effective organization in the formation of international rules on maritime safety.

A ship survey includes the safety of life and property, environmental cleanliness and safety, commercial safety of ship operators and freight owners, legal responsibilities, training of seafarers and occupational safety. Moreover, these subjects should be updated with IMO standards.




**4. Write as many words as possible that need to be safe on maritime other than those mentioned above.**

_____

_____

## 5. Read the text and answer the questions.

The Paris Memorandum of Understanding (Paris MoU) is established as the first port state control mechanism. Port State Control (PSC) is the inspection of foreign ships in national ports to verify that the condition of the ship and its equipment comply with the requirements of international regulations and that the ship is manned and operated in compliance with these rules.

There are several provisions for the inspection of ships. When ships visit foreign ports, they have to meet IMO requirements. First, these inspections aimed to support the Flag State application. Later, it is thought that these applications could be even more effective by adopting IMO regulations in national ports. Inspections are done cooperatively and coordinately following the provisions of IMO. So, these inspections enable states to focus on substandard ships and avoid multiple inspections.

Setting standards for the ships is the flag state's responsibility. Flag State Inspections (FSI) are used by flag states to ensure satisfactory standards are being maintained on board vessels flying their flag. Flag State Inspections are carried out by approved Flag State inspectors and include verification of statutory documentation and a general examination of the vessel's structure, machinery, equipment testing of firefighting equipment, life-saving appliances and safety equipment. On the other hand, port state control provides a "safety net" to catch substandard ships.

1. Does Port State Control carry out national or international rules?

   _____

2. What kind of inspections are done by Port State Control?

   _____

3. What is the function of Flag State Inspections?

   _____

4. What kind of controls do Flag State Inspections include?

   _____

5. What is the name of the organization that sets international inspection standards?

   _____

## 6. Complete the sentences with the information mentioned in Exercise 5.

1. _____ is the inspection of foreign ships in national ports.
2. _____ are responsible for ships flying their flags.
3. _____ is the inspection of the condition of the ship and its equipment.
4. _____ follows international regulations.
5. _____ consist of the examination of some papers.

**7. Who is a marine surveyor? And what does he/she do? Fill in the blanks with the words in the box.**

Reactive–Ensure–Officer–Third–Party–Examinations–Primary–Official

1. A surveyor is the _____ inspector in maritime.
2. The _____ responsibility of a marine surveyor is to conduct full and extensive surveys of a ship.
3. A surveyor conducts surveys or _____ of marine vessels.
4. There are many certificates required to be kept on board and need to be submitted to the port state _____ when asked for.
5. Another responsibility of a marine surveyor is to _____ that machinery and equipment are functioning as required.
6. Protection and Indemnity (P&I) insurance companies can also employ these marine surveyors as _____ specialists for investigating damage compensation.
7. There can be two main types of surveyors: proactive and _____ surveyors. Proactive surveyors aim to identify problems before they occur. On the other hand, reactive surveyors are called in after some incident has occurred.



**8. Write a paragraph about what a surveyor does. Do some research and add more information about them.**

**9. Below are the pictures of some main survey headings. Write the missing letters.**



1. H_ _L



2. S _ F _ T _



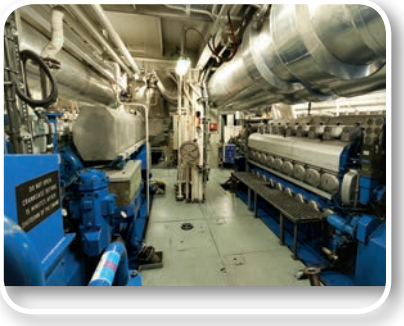
3. N _ V _ _ AT _ O _



4. CO _ M _ N _ C _ TIO _



5. _ AR _ OWO _ TH _ NE _ _ (D_Y CA _ G _)



6. MA _ H _ NE _Y



7. CA _ _ O _ OR _ IN _ SS ( TAN _ E _ )

**10. Put the steps of an online inspection request in the correct order.**

**a)** _____ After submitting, you will see the confirmation page and an email will be sent to the technical manager's email address.

**b)** _____ Then fill out all the required details in the inspection request form.

**c)** _____ Finally after an inspection has been concluded, an updated badge will be shown on the vessel overview page.

**d)** _____ First to submit an inspection request, search for the vessel and navigate to the vessel overview page.

**e)** _____ These details cover vessel information, details of the port, the agent and any relevant invoicing information.



**11. What kind of information is needed about the ship before a survey? Tick (√) the ones that are needed and cross out (X) the ones that are unnecessary.**



1. Vessel's Name and Flag _____
2. Vessel Type _____
3. IMO number _____
4. Survey Company _____
5. Number of the Crew _____
6. Date Of Survey _____
7. Hull Material _____
8. Gross Tonnage Dimensions (L x B x D) _____
9. Owner's / Manager's Name _____
10. Internal shell plating _____

**12. Match an inspection result coding of a survey report with the meanings.**

| | |
|---|---|
| 1. Yes | a) _____ Inspected & not found satisfactory |
| 2. No | b) _____ Not Inspected |
| 3. N/A | c) _____ Inspected & found satisfactory |
| 4. NI | d) _____ Item not applicable to this vessel |

**13. Look at the control list of Fire Safety. Fill in the blanks with the words in the box. There are two extras.**

Emergency–Beam–Extinguishing–Detection–Exits–Firefighting–Hazardous–Switchboards–Fire–Oxygen–Bottles–Lockers–Apparatuses

| Fire Safety | | | | | | |
|---|---|---|---|---|---|---|
| | | Y | N | NA | NI | Remarks |
| 1. | Is the fire _____ system in apparent satisfactory condition? | | | | | |
| 2. | Are _____ pumps, mains, hydrants and monitors in apparent satisfactory condition? | | | | | |
| 3. | Are fire stations in tidy condition and is it evident that the _____ equipment has been tested in connection with firefighting drills? | | | | | |
| 4. | Are there sufficient self-contained breathing apparatus and spare _____? | | | | | |
| 5. | Are self-contained breathing _____ in good condition, sufficiently charged and cylinders within the test date? | | | | | |
| 6. | Are _____ escape sets provided? | | | | | |
| 7. | Are fire extinguishers and fire hose _____ in apparent satisfactory condition? | | | | | |
| 8. | Are fixed fire _____ systems in apparent satisfactory condition with release instructions posted? | | | | | |
| 9. | Are combustible and _____ liquids stored in designated spaces and provided with Material Safety Data sheets? | | | | | |
| 10. | Are acetylene and _____ bottles stored in well-ventilated and securely, signed designated places? | | | | | |
| 11. | Are main and emergency _____ clearly marked and unobstructed? | | | | | |

**14. Write the letter of the questions in the correct headings.**

| A) MACHINERY SPACES | | | | | | |
|---|---|---|---|---|---|---|
| | | Y | N | NA | NI | Remarks |
| 1. | e.g. H | | | | | |
| 2. | | | | | | |
| 3. | | | | | | |
| 4. | | | | | | |
| B) NAVIGATION AND MANAGEMENT | | | | | | |
| | | Y | N | NA | NI | Remarks |
| 1. | | | | | | |
| 2. | | | | | | |
| 3. | | | | | | |
| 4. | | | | | | |
| 5. | | | | | | |
| C) CARGOWORTHINESS(Dry Cargo Vessels) | | | | | | |
| | | Y | N | NA | NI | Remarks |
| 1. | | | | | | |
| 2. | | | | | | |
| 3. | | | | | | |
| 4. | | | | | | |

**a)** Are deck officers familiar with the navigational equipment?

**b)** Are bilges clean and free from previous cargoes/debris?

**c)** Are the bilges clean?

**d)** Are the vessel's Statutory and Class Certificates valid?

**e)** Are compass errors checked and recorded on a regular basis?

**f)** Is the steering gear fully operational?

**g)** Are hold ladders and platforms in an acceptable condition?

**h)** Is the condition of the electrical wiring throughout the ship in safe condition?

**i)** Are navigational and radio publications as required by Flag State onboard and updated?

**j)** Is there evidence that the cargo is secured in accordance with the CSM?

**k)** Is machinery guarded where appropriate?

**l)** Does the vessel have the ISM Safety Management Certificate?

**m)** Are cranes/derricks and cargo gear, blocks and wires well maintained, tested and marked with SWL?

## 15. Match the halves to form a Flag State Inspection Checklist about Lifesaving Appliances

The following items have been surveyed and found/dealt with as noted:

1 I 2

**Lifesaving Appliances**

| | | | | |
|---|---|---|---|---|
| 01 | | | 1. Rescue | a) ____ rescue boat |
| 02 | | | 2. Lifeboat | b) ____ boat |
| 03 | | | 3. Stowage of | c) ____ inventory |
| 04 | | | 4. Inflatable | d) ____ flares |
| 05 | | | 5. Immersion | e) ____ suits |
| 06 | | | 6. Distress | f) ____ life rafts |

**Codes of the survey**

(1) X: Examined / Tested / Carried out N: Not applicable

D: Dispensed with at Surveyor's discretion

(2) X: Found in order R: Recommendation set up

F: Repaired / Renewed (Details to be described in Survey Report)

## 16. Listen to Eric and the surveyor, Frank. Then, fill in the blanks using the words in the box.

Vessel–Flag–Mentally–Pyrotechnics–Critical–Inspection

**Eric:** Good morning, Frank. Can you talk about yourself, please?

**Frank:** Good morning, Eric. I'm Eric from 1 _____ State Control. I have been working as an inspector for about seven years and I love my job although it is a physically and 2 _____ difficult job.

**Eric:** Thank you. So, what are we going to do today?

**Frank:** Today, we will be carrying out a PSC 3 _____ onboard XX02STAR. On the ship, we will be inspecting whether the 4 _____ and the documents are in order.

**Eric:** You mean document inspection?

**Frank:** Yes, I will check the records containing certificates and management plans. It takes too much time. Besides, it is required for us to check the 5 _____ machines of the ship. One of them is the emergency fire pump. The other one is emergency lifeboats. Let's go to the deck and check one of the emergency lifeboats.

(Two minutes later)

**Frank:** Let me show you some lifeboat equipment. They are emergency drinking water, emergency food, 6 _____, rocket parachutes, a first aid kit, etc. Now, what about going to the engine room and checking the general and physical condition of the generators?

**Eric:** Ok.

.....

**17. Answer the questions about the dialogue in Exercise 16.**

1. What is Frank's job?

   _____

2. What does Frank think about his job?

   _____

3. Which parts of the ship are Eric and Frank visiting?

   _____

4. Why does checking certificates take too much time for Frank?

   _____

**18. Talk about the certificates that a surveyor inspects.**

**19. Make a list of items in a ship's engine room and then prepare a survey control list.**

**20. UNIT 4- SELF ASSESSMENT**

**Read the outcomes and put a tick (√) into the box appropriate for you.**

| LEARNING OUTCOMES | YES | WITH HELP | NO |
|---|---|---|---|
| 1. I can understand and use the terms related to ship surveys. | | | |
| 2. I can understand and use the terms related to vessel surveyors. | | | |
| 3. I can prepare a survey control list. | | | |

## UNIT 1 THEME A-ACTIVITY 9

### JOB OPPORTUNITIES AT A SHIPYARD

There are a lot of jobs when the subject is shipbuilding. There are so many people working on many ships with many different roles. Let's have a look at the types of jobs involved in shipyards.

Naval architects design the ship and make the necessary calculations.

Away from the drawing desk, there are many types of jobs involved in construction.

A riveter fastens the plates by using rivets or metal pins.

A caulker carries out sealing and waterproofing operations.

Welders assemble or repair metal parts of the ship by using heat.

Boilermakers install and maintain boiler systems.

Electricians install electrical installations and perform electrical wiring.

Plumbers fill the hull of a ship with pipes and perform maintenance of them.

Blacksmiths make objects out of iron and steel.

Carpenters carry out any woodwork necessary on a ship.

Painters are needed not only outside but also inside of a ship for any painting operations.

Marine engineers are responsible for designing, creating and maintenance of a wide range of machinery used on a ship.

Cleaners and polishers make the final touch before a "clean" sea trial.

To sum up, shipbuilding is a complicated process. It involves several different skills and they all work for a common goal. A beautiful ship floating on beautiful seas.

## UNIT 1 THEME A-ACTIVITY 5

### TYPES OF COMMERCIAL SHIPS

Good morning, students. In today's lesson, I am going to give you some brief information about the types of commercial ships.

Let's start with "Container Ships". As it is clear from the name, these are the vessels which are built specifically for carrying huge quantities of cargo. Container ships are divided into categories based on their sizes, as well. These types are named as "Panamax", "Suezmax", "Post-Panamax", and "Post-Malaccamax". There are also refrigerated container ships serving in the seas.

In order to transport dry cargoes in bulk quantities, "Bulk Carrier Ships" are used. Materials such as coal, cement, ores and especially food grains are transported on this type of vessel.

However, if the material to be transported is a large amount of liquid cargo, "Tanker Ships" are specialized for this task. Tankers are divided into categories according to the type of the cargo they carry. The main types of tanker ships are "Oil Tankers", "Liquified Gas Carriers" and "Chemical Tankers".

"Roll-on Roll-off" ships, also known as "Ro-Ro" ships, are the ships which are utilized for carrying wheeled cargoes such as cars, trucks and wheeled containers.

Besides cargo carriers, there are also several kinds of passenger ships at service. Passenger ships are mainly classified as "Ferries" and "Cruise Ships". Ferries are used for carrying passengers on short distance routes. Cruise ships are like floating luxurious hotels with several facilities on board. They usually go long distance or transatlantic routes.

Yes, students. Now you have learnt the main points about commercial ships. If you have any questions, please do not hesitate to ask. After the questions, I want you to form groups and perform a group work. As groups, you are going to make a list of the types of ships that are used for other purposes. Good luck.

## UNIT 2 THEME A-ACTIVITY 5

**Tim:** Hi, Tom. I think you have started building a new wooden yacht.

**Tom:** Yes, you're right. I have been building the keel since morning.

**Tim:** What are you going to do next?

**Tom:** I am going to build the stem and the sternpost They are the basic structural elements that are manufactured perpendicular to the keel in the front and back of the boat. The one built in the front (bow) is called the stem, and the one built at the back (stern) is called the sternpost. I will connect them to the main keel at the bottom.

**Tim:** I see. How will you combine them?

**Tom:** First, since the propeller shaft and rudder blade are assembled on the sternpost, the keel and sternpost connection must be made very well. The part that combines the keel and sternpost is called the knee. The knees are the (L) shaped supporting pieces. They are placed upside down and form the brackets that carry the belt and the seat board. Furthermore, the stem is the first part to meet the water. The element that combines the keel and stem is deadwood.

**Tim:** What are the functions of the knees and deadwood, Tom? I am not familiar with these terms.

**Tom:** They both provide additional strength to the hull of the yacht.

**Tim:** I'd love to stay and help you, but I have to go. See you. Bye!

**Tom:** See you.

## UNIT 3 THEME A-ACTIVITY 7

A basic ship engine maintenance should be a well-planned operation and it includes overhauling of important static and moving parts of the engine.

These are some of the most common marine engine maintenance steps:

1. Overhauling and measurement of pistons, rings and piston rods.
2. Overhauling and measurement of the cylinder liner.
3. Overhauling and measurement of the exhaust valve.
4. Overhauling and measurement of the stuffing box.
5. Overhauling and measurement of connecting rod and crosshead bearings.
6. Overhauling and measurement of main bearings.

7. Measurement of crankshaft deflection.
8. Checks and measurement of fuel pump timing.
9. Checks and overhauling of starting air system.

The maintenance period of the different parts of an engine is determined by the manufacturer of the engine and maintenance stuff is given information about this subject.

Along with periodic maintenance, the engine power and ratings need to be checked on digital power indicator.

Marine engines used on ships are very sophisticated and complicated pieces of engineering. In order to take care of these masterpieces, marine engineers take responsibility for taking specific training for operating, maintaining and troubleshooting on board.

## UNIT 3 THEME B-ACTIVITY 10

### TYPES OF PUMPS VIDEO

Hello friends! Welcome to my shipbuilding education video channel. You know, there are several parts and equipment to learn in the shipbuilding sector. As you know, we have seen some important machinery in my previous videos. Today I am going to talk about main types of pumps used on ships.

Cintine pumps are used to drain the leaked water and the liquids such as lubricant or fuel oil accumulated in the bottom parts of a ship. Balance pumps exchange water between the balance tanks or to fill or drain these tanks. Hydrophore pumps are utilized to pump the fresh water which is stored in high capacity hydrophore tanks necessary for the toilets or showers. Fuel feed pumps transfer the diesel fuel from the service tanks to the injector pumps. Lubrication oil pumps are used to transfer the pure lube oil to the main engine and its components. Among the mostly used ones, fire pumps are used to deliver the water which is taken from the sea to the necessary spots in case of a fire or for cleaning purposes. Finally, cooling water pumps are utilized to for cooling operations of the cylinders of the main engine and auxiliary machinery.

Well, friends. Today, we have seen the types of pumps widely used on ships. If you want to see more content like this, don't forget to like this video and please subscribe to my video channel. Thanks.

## UNIT 4 THEME A-ACTIVITY 6

Hello! My name is Metin. I am the captain of Deep Deep Blue. The owner of the ship is Mr Demir. I have been working on the yacht for about eight years and I am like one of the Demir family. Mr Demir likes spending most of his time on the yacht. While spending time in the hidden bays of Turkey, he enjoys the sea and the sun. By the way, he is very sensitive to nature and the environment.

Now, let me introduce you the boat. It is a recreational craft. The port of registry of Deep Deep Blue is Bozcaada. It was built in 2010 in France and has a fiber hull. It is an 11.70 m motor yacht, and has a gross tonnage of 14.15.

As the boat is an 11.70 m, motor yacht, it has 40 BHP engine and has a gross tonnage of 14,15. This motor yacht can accommodate six guests in three cabins.

## UNIT 4 THEME B-ACTIVITY 16

**Eric:** Good morning, Frank. Can you talk about yourself, please?

**Frank:** Good morning, Eric. I'm Eric from Flag State Control. I have been working as an inspector for about seven years and I love my job although it is a physically and mentally difficult job.

**Eric:** Thank you. So, what are we going to do today?

**Frank:** Today, we will be carrying out a PSC inspection onboard XX02STAR. On the ship, we will be inspecting whether the vessel and the documents are in order.

**Eric:** You mean document inspection?

**Frank:** Yes, I will check the records containing certificates and management plans. It takes too much time. Besides, it is required for us to check the critical machines of the ship. One of them is the emergency fire pump. The other one is emergency lifeboats. Let's go to the deck and check one of the emergency lifeboats.

(Two minutes later)

**Frank:** Let me show you some lifeboat equipment. They are emergency drinking water, emergency food pyrotechnics, rocket parachutes, a first aid kit, etc. Now, what about going to the engine room and checking the general and physical condition of the generators?

**Eric:** Ok.

## THEME A- THE STRUCTURE OF A SHIP

### 1.A.1.

**1.** Stern **2.** Hull **3.** Starboard **4.** Port **5.** Forward **6.** Hull

### 1.A.2.

**1.** Propeller **2.** Funnel **3.** Main mast **4.** Bridge **5.** Accommodation **6.** Crane
**7.** Front mast **8.** Bow **9.** Anchor **10.** Bow thruster **11.** Keel

### 1.A.3.

Students' own answers.

### 1.A.4.

**1.** Shell plating **2.** Stiffener **3.** Inner bottom plating **4.** Deck plating **5.** Longitudinals
**6.** Margin plate **7.** Stringer **8.** Gusset plate **9.** Bracket **10.** Bilge

### 1.A.5.

**a)** 2 **b)** 5 **c)** 4 **d)** 7 **e)** 3 **f)** 8 **g)** 6 **h)** 1

### 1.A.6.

**1.** Designing the ship. **2.** Numerical Control Cutting. **3.** Bending the steel. **4.** Assembly.
**5.** Painting. **6.** Launching the ship. **7.** Outfitting. **8.** First trial on the water. **9.** Delivery.

### 1.A.7.

**1.** F **2.** T **3.** T **4.** F **5.** T

### 1.A.8.

**1.** e **2.** g **3.** f **4.** b **5.** a **6.** h **7.** d **8.** c **9.** j **10.** i

### 1.A.9.

**1.** Naval architects **2.** Riveters **3.** Caulkers **4.** Welders **5.** Boilermakers
**6.** Electricians **7.** Plumbers **8.** Carpenters **9.** Painters **10.** Polishers

### 1.A.10.

Students' own answers.

### 1.A.11.

Students' own answers.

### 1.A.12.

Students' own answers.

### 1.A.13.

Students' own answers on the puzzle.

## THEME B- TYPES OF SHIPS

### 1.B.1.

| | | | |
|---|---|---|---|
| **1.** Bulk carrier ship | **2.** Container ship | **3.** Dredger | **4.** Fishing vessel |
| **5.** Gas carrier | **6.** High speed craft | **7.** Offshore oil rig | **8.** Cruiser ship |
| **9.** Roll on roll of ship | **10.** Tanker ship | **11.** Pipe laying ship | **12.** Ice breaker ship |
| **13.** Ferry | **14.** Research ship | **15.** Barge | **16.** Fire Fighting ship |
| **17.** Hydrofoil | **18.** Yacht | **19.** Tugboat | **20.** Sailboat |
| **21.** Hovercraft | **22.** Canoe | **23.** Boat | **24.** Jet ski |

### 1.B.2.

Students' own answers.

### 1.B.3.

**1.** b-V **2.** e- III **3.** a- II **4.** c- IV **5.** e- I

### 1.B.4.

**1.** T **2.** F **3.** T **4.** F **5.** T

### 1.B.5.

| | | | | |
|---|---|---|---|---|
| **1.** Container | **2.** Refrigerated | **3.** Dry | **4.** Transported | **5.** Tanker |
| **6.** Oil | **7.** Cars | **8.** Passenger | **9.** Ferries | **10.** Distance |

### 1.B.6.

Students' own answers

### 1.B.7.

Students' own answers.

### 1.B.8.

Students' own answers.

### 1.B.9.

Students' own answers.

### 1.B.10.

Students' own answers.

### 1.B.11.

Students' own answers on the puzzle.

| THEME A- THE STRUCTURE OF A YACHT |
|---|
| **2.A.1.** |
| **a)** Starboard **b)** Port **c)** Stern **d)** Bow |
| **2.A.2.** |
| **1.** F **2.** T **3.** T **4.** T **5.** F |
| **2.A.3.** |
| **1.** Below **2.** Up **3.** Stable **4.** Hull **5.** External |
| **2.A.4.** |
| **A-** Visible parts<br>**1.** Bow **2.** Rudder **3.** Mast **4.** Cabin **5.** Wheelhouse **6.** Deck<br>**B-** Invisible parts<br>**1.** Frame **2.** Floor **3.** Knee **4.** Deadwood |
| **2.A.5.** |
| **1.** Sternpost **2.** Bottom **3.** Knee **4.** Supporting **5.** Deadwood **6.** Strength |
| **2.A.6.** |
| **1.** Frames, floors and supporting elements **2.** Two **3.** Different **4.** Floors **5.** Frames |
| **2.A.7.** |
| **a)** Brackets **b)** Keelson **c)** Stringers |
| **2.A.8.** |
| **1.** d **2.** f **3.** e **4.** a **5.** b **6.** c |
| **2.A.9.** |
| Ss' own answers |
| **2.A.10.** |
| **1.** Ceiling **2.** Frames **3.** Curved **4.** Scupper **5.** Hatches |
| **2.A.11.** |
| **1.** c **2.** e **3.** d **4.** a **5.** b |
| **2.A.12.** |
| **1.** Gangway **2.** Mast **3.** Handrails **4.** Bowsprit |
| **2.A.13.** |
| **a)** A fairlead **b)** A bitt **c)** A windlass **d)** Chain lockers ( A. 2 B. 4 C. 1, 3 ) |
| **2.A.14.** |
| **1.** Chain lockers **2.** Fairleada **3.** Bittc **4.** Windlass |
| **2.A.15.** |
| **1.** √ **2.** √ **3.** X **4.** √ **5.** √ **6.** X |

## THEME B- TYPES of YACHTS

**2.B.1.**

**a)** Aynakic **b)** Gullet **c)** Tirhandil

**2.B.2.**

1. Gullet is the most popular traditional wooden yacht for the 'Blue Cruise'.
2. Tirhandil is a traditional boat type with a single mast, long bow, pointed stern and a large hull.
3. Tirhandil is the oldest style in the Aegean Sea.
4. They are mainly built in some main places of the Black Sea, Aegean and Mediterranean Region in Turkey.

**2.B.3.**

| | Boat Type | Passenger Capacity | Number of Cabins | Boat Length |
|---|---|---|---|---|
| 1 | Gullet | 6 to 32 people | 3 to 8 cabins | between 15-33 meters |
| 2 | Aynakic | 8 to 24 people | 4 to 12 cabins | between 18-33 meters |
| 3 | Tirhandil | 6 to 8 people | 3 to 4 cabins | between 11-18 meters |

**2.B.4.**

Ss' own answers

**2.B.5.**

**a)** Mega yacht **b)** Speedboat **c)** Recreational boat
**d)** Catamaran **e)** Sailing yacht **f)** Motor yacht

**2.B.6.**

**1.** Catamaran **2.** Mega yachts **3.** Mega yachts **4.** Speedboat
**5.** Motor yachts **6.** Catamaran **7.** Speedboats **8.** Recreational boats

| THEME A-MAIN ENGINES |
|---|
| **3.A.1.** |
| **1.** Inline engine **2.** V engine **3.** Rotary engine **4.** X engine **5.** Boxer engine |
| **3.A.2.** |
| **1.** Bearing **2.** Valve **3.** Camshaft **4.** Connecting rod **5.** Pistons<br>**6.** Cylinder head **7.** Crank shaft **8.** Piston ring **9.** Cylinder block |
| **3.A.3.** |
| 1-2-3-4 |
| **3.A.4.** |
| 1-2 |
| **3.A.5.** |
| **1.** F **2.** F **3.** T **4.** T **5.** F |
| **3.A.6.** |
| Students' own answers. |
| **3.A.7.** |
| **1.** Pistons **2.** Cylinder **3.** Exhaust **4.** Box **5.** Rod<br>**6.** Crankshaft **7.** Fuel **8.** Starting **9.** Periodic **10.** Engineers |
| **3.A.8.** |
| Students' own answers. |
| **3.A.9.** |
| Students' own answers. |
| **3.A.10.** |
| Students' own answers. |
| **3.A.11.** |
| Students' own answers. |
| **3.A.12.** |
| Students' own answers on the puzzle. |

## THEME B- AUXILIARY MACHINERY

**3.B.1.**

**1.** Engine room **2.** Deck

**3.B.2.**

Students' own answers.

**3.B.3.**

**1.** h **2.** f **3.** j **4.** c **5.** g **6.** i **7.** d **8.** a **9.** e **10.** b

**3.B.4.**

**1.** Plate type heat exchanger **2.** Oily water separator **3.** Refrigeration compressor
**4.** Valve **5.** Pump **6.** Boiler **7.** Incinerator **8.** Tube heat exchanger
**9.** Air compressor **10.** Water purifier

**3.B.5.**

**1.** Gangway **2.** Horn **3.** Funnel **4.** Chain stopper **5.** Capstan
**6.** Steering gear **7.** Tugger winch **8.** Crane **9.** Mooring winch **10.** Windlass

**3.B.6.**

**1.** TRUE **2.** FALSE **3.** TRUE **4.** NOT MENTIONED **5.** FALSE

**3.B.7.**

Students' own answers.

**3.B.8.**

**1.** Deck crane **2.** Mooring winch **3.** Windlass **4.** Capstan

**3.B.9.**

Students' own answers.

**3.B.10.**

**1.** c **2.** f **3.** a **4.** g **5.** b **6.** e **7.** d

**3.B.11.**

Students' own answers.

**3.B.12.**

Students' own answers.

**3.B.13.**

Students' own answers.

## THEME A- CERTIFICATES AND DOCUMENTS

**4.A.1.**

**1.** d **2.** h **3.** f **4.** a **5.** g **6.** b **7.** e **8.** c

**4.A.2.**

**1.** Operate **2.** Impossible **3.** On board **4.** Flag state **5.** Unseaworthy **6.** Flag state

**4.A.3.**

**1.** It is an organization that is responsible for improving the safety and security of international shipping and preventing pollution from ships.
**2.** Its main goal (purpose) is to develop and maintain a comprehensive regulatory framework for shipping.
**3.** It sets rules about maritime safety, environmental concerns, legal matters, technical cooperation, maritime security and shipping.
**4.** Yes, it is.

**4.A.4.**

**1.** e **2.** c **3.** a **4.** b **5.** d

**4.A.5.**

**1.** b **2.** h **3.** e **4.** c **5.** g **6.** a **7.** d **8.** i **9.** f

**4.A.6.**

Name of the ship: Deep Deep Blue
Type of ship: Recreational Craft
Port of registry: Bozcaada
Registered length: 11.70
Gross Tonnage: 14,15
Place and Date of Build: France/2010
Construction Material: Fiber
Power of Engine: 40 BHP

**4.A.7.**

Ss' own answers

**4.A.8.**

**1.** STCW **2.** ILO **3.** MARPOL **4.** IMO **5.** SOLAS

**4.A.9.**

**a)** 3 **b)** 5 **c)** 2 **d)** 4 **e)** 6 **f)** 1

**4.A.10.**

**a)** Oil pollution **b)** Water pollution **c)** Air pollution **d)** Noise pollution

## THEME A- CERTIFICATES AND DOCUMENTS

**4.A.11.**

**1.** Oil spill **2.** Noise **3.** Exhaust gases **4.** Greywater

**4.A.12.**

**1.** Noxious **2.** Convention **3.** Sewage **4.** Bulk **5.** Minimise

**4.A.13.**

**1.** NOT MENTIONED **2.** TRUE **3.** FALSE **4.** TRUE **5.** TRUE

**4.A.14.**

**1.** Improve **2.** Act **3.** Decrease **4.** Improve **5.** Ensure

**4.A.15.**

**a)** Fresh Water **b)** Tropical Fresh Water **c)** Tropical
**d)** Summer **e)** Winter **f)** Winter North Atlantic

**4.A.16.**

**1.** f **2.** b **3.** c **4.** e **5.** a **6.** d

**4.A.17.**

**1.** He is painting the hull of the ship.
**2.** They stand for draught marks.

**4.A.18.**

**1.** What is International Tonnage Certificate?
**2.** What is the purpose of tonnage measurement?
**3.** What is gross tonnage?
**4.** What is net tonnage?
**5.** For which ships is International Tonnage Certificate mandatory?

**4.A.19.**

Ss' own answers

**4.A.20.**

**1.** There are five basic STCW certificates.
**2.** Yes, it is.

**4.A.21.**

**1.** Trade **2.** Wages **3.** Medical **4.** Regulatory **5.** Operators

## THEME B- SURVEYS

**4.B.1.**

**1.** b **2.** a **3.** d **4.** c

**4.B.2.**

**1.** T (True) **2.** T (True) **3.** T (True) **4.** F (False)

**4.B.3.**

**1.** Life and property **2.** Environment **3.** Vessel **4.** Commercial

**4.B.4.**

Ss' own answers

**4.B.5.**

**1.** Port State Control carries out international rules.
**2.** The condition of the ship and its equipment are controlled by Port State Control.
**3.** Its function is to verify the statuary documents and the general examination of the vessel.
**4.** To ensure satisfactory standards.
**5.** Port State Control

**4.B.6.**

**1.** Port State Control **2.** Flag State Inspections **3.** Port State Control
**4.** Port State Control **5.** Flag State Inspections

**4.B.7.**

**1.** Official **2.** Primary **3.** Examinations **4.** Officer
**5.** Ensure **6.** Third-party **7.** Reactive

**4.B.8.**

Ss' own answer

**4.B.9.**

**1.** HULL **2.** SAFETY **3.** NAVIGATION and **4.** COMMUNICATION
**5.** CARGOWORTHINESS (DRY CARGO) **6.** MACHINERY **7.** CARGOWORTHINESS (TANKER)

**4.B.10.**

**a)** 4 **b)** 2 **c)** 5 **d)** 1 **e)** 3

## THEME B- SURVEYS

**4.B.11.**

**1.** √ **2.** √ **3.** √ **4.** X **5.** X **6.** X **7.** √ **8.** √ **9.** √ **10.** X

**4.B.12.**

**1.** c **2.** a **3.** d **4.** b

**4.B.13.**

**1.** Detection **2.** Fire **3.** Firefighting **4.** Firefighting **5.** Apparatuses
**6.** Emergency **7.** Lockers **8.** Extinguishing **9.** Hazardous **10.** Oxygen **11.** Exits

**4.B.14.**

A2. F A3. K A4. C
B1. A B2. I B3. E B4. L B5. D
C1. M C2. J C3. G C4. B

**4.B.15.**

**1.** b **2.** c **3.** a **4.** f **5.** e **6.** d

**4.B.16.**

**1.** Flag **2.** Mentally **3.** Inspection **4.** Vessel **5.** Critical **6.** Pyrotechnics

**4.B.17.**

**1.** He is a Port State Control inspector.
**2.** He loves his job. He thinks it is physically and mentally difficult.
**3.** They are visiting the deck.
**4.** Checking certificates takes too much time for Frank because there are a lot of certificates to be checked.

**4.B.18.**

Ss' own answers

**4.B.19.**

Ss' own answers

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