6. Merchant Vessels

– *Vocabulary assessment.*

Use the vocabulary development scale to rate the following words:

5 can explain and use in different contexts
4 use in a limited way in speaking/writing
3 understand the "gist" of it
2 recognise but don't understand
1 unknown to me

Decline	Container securing	Routes
Collision	Pipeline	Massive
Edible	Replaced	Convenient
Cargo shifting	Removable	Bunkering
Prevent	Rapidly	Grounding
Available	Installed	Maintained

Which of these words are definitely part of Maritime English terminology?

Types of merchant vessels



– The bulk carrier

Today, modern commercial vessels are highly specialized, designed to carry specific types of cargo. The names of ships tell us what type of cargo they are designed to carry. As their name suggests, bulk carriers, also known as "Bulkers" or "Bulkies", transport their cargo in bulk. They carry bulk cargo, "loose" cargo, either "dry bulk" such as coal, grain, iron ore, fertilisers, cement, sugar, light minerals or "liquid bulk" such as a range of chemicals including petroleum products.

Dry bulk carriers

- have huge under-deck specialized holds where the bulk products are poured and stored.
- come in different sizes, from the so-called "handysize" bulk carriers of about 25,000 to very large carriers of up to 220,000 dwt, with a typical speed of no more than 15 knots.
- can have deck cranes or simply deck hatches
- have longitudinal and cross walls, called bulkheads.

– The tanker

The tanker is one of the most important vessels in the world's merchant fleets today. Tankers carry liquid cargo in tanks. Their size is growing rapidly in recent years. The best known are the oil tankers. They come in two kinds: the crude carrier, which carries crude oil, and the clean-product tanker, which carries refined products such as petrol, gasoline, aviation fuel, kerosene and paraffin.

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Tankers range in all sizes from small bunkering tankers of 1,000 dwt, used for refueling larger vessels, to the real giants, the VLCC of 200,000 - 300,000 dwt and the ULCC of over 300,000 dwt., the biggest ships afloat. The most common type of tankers today are the VLCCs, accounting for 50% of the world tanker fleet. Their large draught limits their sailing routes. There are only a few ports that supertankers can enter and so they are mostly loaded and unloaded from off-shore pumping stations. They operate at normal speeds of around 16 knots.

LNG carriers carry Liquefied Natural Gas at temperatures below minus 160°C in free standing spherical tanks with domes visible above the deck. This means that they carry extremely hazardous cargo, so safety measures on board have to be very strict. The LPG is designed to carry liquid petroleum gas at very low temperatures.

- Tankers have pipelines on deck.
- For safety and ease of walking a catwalk is provided.
- The cargo space is divided into tanks with transverse and longitudinal bulkheads.
- Tankers must have large pumps to move the cargo out of the tanks.
- Some of them have double hulls to prevent pollution in case of a collision.

– The general cargo ship

Until a few decades ago, the most important cargo ship was the break-bulk carrier, sometimes called the general cargo ship or freighter. The cargo is carried in break bulk form i.e. it is loaded into and broken out of the ship piece by piece. General cargo ships are different from bulk carriers as they can transport cargo in various shapes and sizes, for instance packaged products, heavy machinery items, etc.

- The size of these ships is between 10 to 20,000 dwt, and normally they operate at speeds between 16 to 20 knots.
- They have double bottom tanks, which are used for storage of fuel and water.
- The hull is divided by transverse bulkheads to form holds, typically four to six.
- The holds are further divided by one or two 'tweendecks with hatch ways that may be folded on sides.
- The general cargo ships may sometimes have one or two holds as "reefer holds" to carry refrigerated cargo.

Even though it still takes a lot of time to load and unload general cargo ships, over the years there are changes in the cargo handling equipment. Cranes and heavy lifting equipment have replaced the derricks. Also, the design and operation of hatch covers is now much better and this makes operations easier and faster.

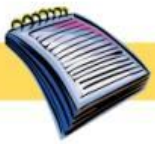
– The container ship

The first container ship was built in the 1960s and since then it has revolutionized shipping. Container vessels are designed to carry cargo placed inside containers of a uniform size. The TEU (twenty-foot equivalent) unit is used to measure container volume and it refers to a container with external dimensions of 8×8×20. Volume is sometimes measured by FEUs, forty-foot equivalents (8×8×40), as well. In the past couple of years, the largest container vessels have grown in capacity up to 19,500 TEU. Fully containerized vessels (cellular vessels) have permanently installed cell guides which not only guide the containers in stacking one on top of the other, but also provide adequate securing.

Containers can be filled with just any type of cargo, from refrigerators to fruit or meat. They are usually stowed on the deck of the ship or inside. At the container terminals these ships can quickly load and discharge by means of large quay-side cranes called gantry cranes. The cranes lift the containers off or onto the quay or trucks and off or onto the ship's deck. While a

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conventional dry cargo vessel may take 3-4 days to load or discharge, a container ship can do the same in a matter of hours. Also, the higher speed of around 26 knots is the main advantage of container vessels over other cargo ships.



Glossary

rapidly	quickly
bunkering	supplying a ship with fuel
operate	work, do business / control the working of a machine
strict	following carefully and exactly a set of rules
longitudinal	placed lengthwise, in the direction of the length
refrigerated	made / kept cold by refrigeration
revolutionise	change radically, cause a transformation
uniform	always the same, having the same characteristics
adequate	enough, sufficient
conventional	following accepted standards, traditional

A. ***Form four groups. Each group chooses one of the types of ships in the following chart. Fill in the information you can find in the text about the characteristics of the type of ship you chose. Then, one person of each group will present this information in class.***

Type of ship	Cargo	Cargo is carried in/on…	How loaded/ unloaded	Special structural features	(Max.) Speed	Size(s)
General cargo ship						
Dry bulk carrier						
Container ship						
Tanker						

As you listen to the other groups present their type of ship, keep notes of their basic characteristics by filling in the chart. Then, read about the other types of ships to check this information.

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A. ***Read the following statement and say which of the three pictures above it goes with.***

> ***Tugs might look like small, harmless ships but they can have more power than a medium-sized cargo vessel and can manoeuvre in any direction with ease. In this way they make sure that the big ocean-going vessels reach their berth quickly and safely.***

B. ***Listen to a lecture on three types of auxiliary vessels. Fill in the chart and match the pictures on the previous page to the three types of vessels.***



1. _____ 2. _____

a. *seagoing* _____ 3. _____ *boat*

b. _____

c. _____

C. ***Read the following sentences from the lecture. Find synonyms to the words below.***

1. *Seagoing tugs* are used for: salvage, towing, anchor handling in the offshore industry.
2. Tugs can tow to a position at sea any floating object, like partly completed ships, floating wrecks.
3. *Escort tugs* operate in confined coastal waters and are small seagoing tugs that can push or pull a large ship away from a dangerous area when its own propulsion is not sufficient.
4. *Harbour tugs* are used for fighting fires and environmental disasters.
5. A Vessel Traffic Service (VTS) controls the shipping using a shore-radar system and radio communication. A shore-based controller informs the ship's crew and/or the pilot of possible hazards and other traffic.

– Rescue = ...

– Pulling along through the water (by a rope) = ...

– Not on land = ...

– Staying on the surface of the sea, not sinking = ...

– Limited, where movement is restrained = ...

– Enough = ...

– Catastrophe = ...

– Dangers = ...



Piraeus VTS Tower

D. ***Review: What is the name of the vessel which...***

- assists other vessels to enter or leave the port? _____
- assists with the pilotage of another vessel? _____
- opens a way through ice? _____

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