ΙΔΡΥΜΑ ΕΥΓΕΝΙΔΟΥ
1954

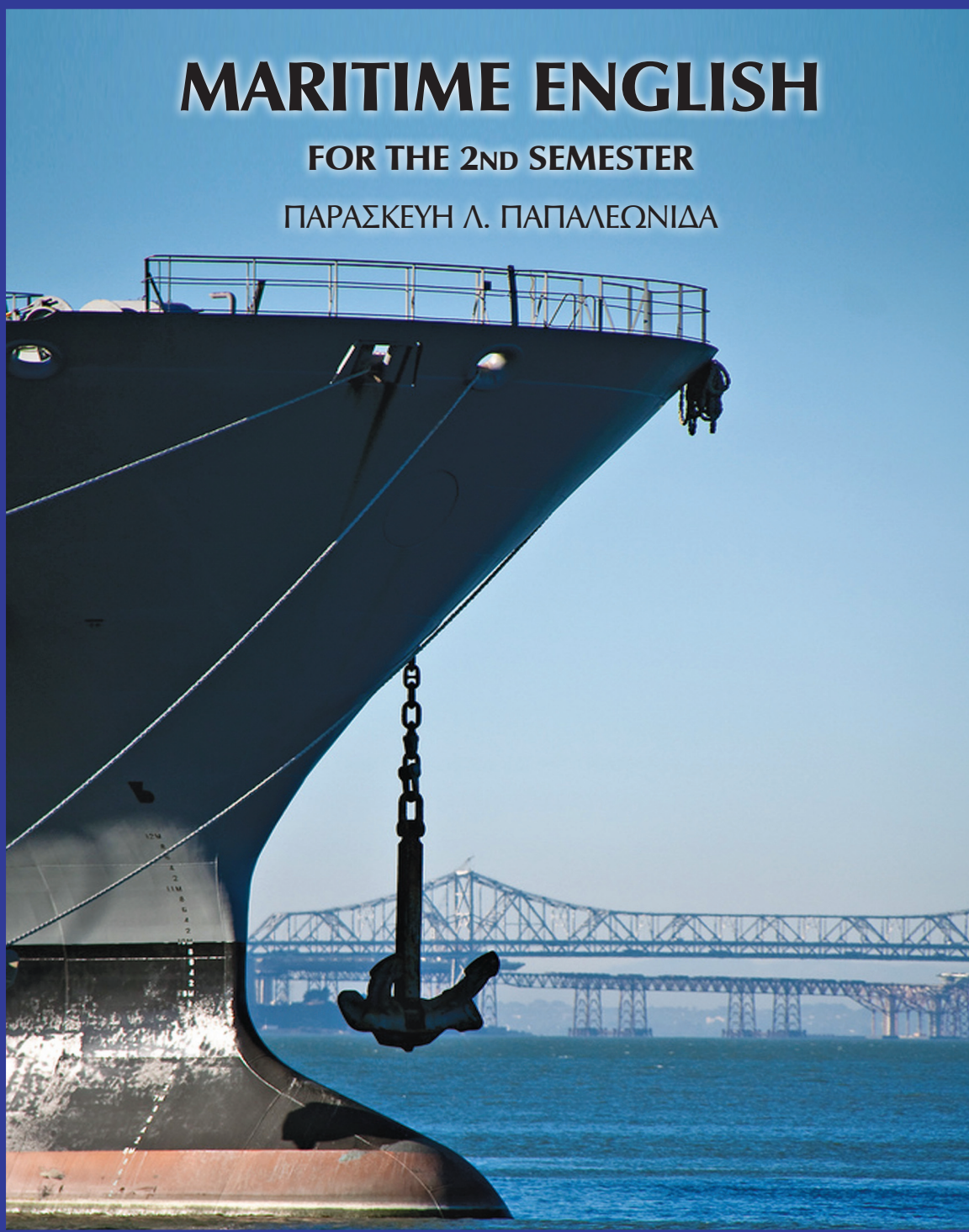
ΧΡΥΣΟΥΝ ΜΕΤΑΛΛΙΟΝ
ΑΚΑΔΗΜΙΑΣ ΑΘΗΝΩΝ

ΕΚΠΑΙΔΕΥΤΙΚΟ ΚΕΙΜΕΝΟ
ΑΚΑΔΗΜΙΩΝ ΕΜΠΟΡΙΚΟΥ ΝΑΥΤΙΚΟΥ

MARITIME ENGLISH

FOR THE 2ND SEMESTER

ΠΑΡΑΣΚΕΥΗ Λ. ΠΑΠΑΛΕΩΝΙΔΑ



ΑΘΗΝΑ 2011

ΙΔΡΥΜΑ ΕΥΓΕΝΙΔΟΥ

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ISBN: SET 978-960-337-095-6
978-960-337-104-5

ΠΡΟΛΟΓΟΣ ΙΔΡΥΜΑΤΟΣ ΕΥΓΕΝΙΔΟΥ

Ο Ευγένιος Ευγενίδης, ιδρυτής και χορηγός του «Ιδρύματος Ευγενίδου», προείδε ενωρίτατα και σχημάτισε τη βαθιά πεποίθηση ότι αναγκαίο παράγοντα για την πρόοδο του έθνους αποτελεί η άρτια κατάρτιση των τεχνικών μας σε συνδυασμό προς την ηθική τους αγωγή.

Την πεποίθησή του αυτή την μετέτρεψε σε γενναία πράξη ευεργεσίας, όταν κληροδότησε σεβαστό ποσό για τη σύσταση Ιδρύματος, που θα είχε ως σκοπό να συμβάλλει στην τεχνική εκπαίδευση των νέων της Ελλάδας.

Έτσι, τον Φεβρουάριο του 1956 συνεστήθη το «Ίδρυμα Ευγενίδου», του οποίου την διοίκηση ανέλαβε η αδελφή του Μαρ. Σίμου, σύμφωνα με την επιθυμία του διαθέτη. Από τη στιγμή εκείνη άρχισαν πραγματοποιούμενοι οι σκοποί που οραματίσθηκε ο Ευγένιος Ευγενίδης και συγχρόνως η εκπλήρωση μιας από τις βασικότερες ανάγκες του εθνικού μας βίου. Το έργο του Ιδρύματος συνέχισε από το 1981 μέχρι το 2000 ο Νικόλαος Βερνίκος-Ευγενίδης· έκτοτε συνεχίζει αυτό ο κ. Λεωνίδας Δημητριάδης-Ευγενίδης.

Κατά την κλιμάκωση των σκοπών του, το Ίδρυμα προέταξε την έκδοση τεχνικών βιβλίων τόσο για λόγους θεωρητικούς όσο και πρακτικούς. Διεπιστώθη πράγματι ότι αποτελεί πρωταρχική ανάγκη ο εφοδιασμός των μαθητών με σειρές από βιβλία, τα οποία θα έθεταν ορθά θεμέλια στην παιδεία τους και θα αποτελούσαν συγχρόνως πολύτιμη βιβλιοθήκη για κάθε τεχνικό.

Ειδικότερα, όσον αφορά στα εκπαιδευτικά βιβλία των σπουδαστών των Δημοσίων Σχολών Εμπορικού Ναυτικού, το Ίδρυμα ανέλαβε τότε την έκδοσή τους σε πλήρη και στενή συνεργασία με τη Διεύθυνση Ναυτικής Εκπαιδεύσεως του Υπουργείου Εμπορικής Ναυτιλίας, υπό την εποπτεία του οποίου υπάγονται οι Σχολές αυτές. Η ανάθεση στο Ίδρυμα έγινε με την υπ' αριθ. 61228/5031, της 9ης Αυγούστου 1966, απόφαση του ΥΕΝ, οπότε και συνεκροτήθη και η αρμόδια Επιτροπή Εκδόσεων.

Αποτέλεσμα της συνεργασίας αυτής ήταν η έκδοση της Σειράς Βιβλιοθήκη του Ναυτικού, όπου εξεδόθησαν: α) Για τους μαθητές των Δημοσίων Σχολών Εμπορικού Ναυτικού 30 τόμοι βιβλίων (1967 – 1979). β) Για τις ΑΔΣΕΝ (Ανώτερες Δημόσιες Σχολές Εμπορικού Ναυτικού) 54 τόμοι (1979 – 2001).

Κύριος σκοπός των εκδόσεων αυτών, των οποίων το περιεχόμενο είναι σύμφωνο με τα εκάστοτε ισχύοντα αναλυτικά προγράμματα του ΥΕΝ, ήταν η παροχή προς τους σπουδαστές των Ναυτικών Σχολών ΑΔΣΕΝ και Ναυτικών Λυκείων των αναγκαίων τότε εκπαιδευτικών κειμένων, τα οποία αντιστοιχούν προς τα μαθήματα που διδάσκονται στις Σχολές αυτές.

Επίσης ελήφθη ιδιαίτερη πρόνοια, ώστε τα βιβλία αυτά να είναι γενικότερα χρήσιμα για όλους τους αξιωματικούς του Εμπορικού Ναυτικού, που ασκούν το επάγγελμα ή εξελίσσονται στην ιεραρχία του κλάδου τους, χωρίς αυτό να σημαίνει ότι επέρχεται μεταβολή στη στάθμη του περιεχομένου τους.

Με την υπ. αρ. Μ 2111. 1/2/99/28-05-1999 (ΦΕΚ 1168Β/14-6-99) υπουργική απόφαση, όπως τροποποιήθηκε με την Κ.Υ.Α. των υπουργών Οικονομίας και Οικονομικών και Εμπορικής Ναυτιλίας αρ. Μ 3611.2/05/05/16-12-2005 (ΦΕΚ 1942 Β/30-12-2005 και ΦΕΚ 169 Β/13-02-2006), το ΥΕΝ ανέθεσε στο Ίδρυμα Ευγενίδου την συγγραφή και έκδοση των διδακτικών εγχειριδίων των Ναυτικών Ακαδημιών· ήδη το ΥΠ.ΟΙ.Α.Ν.

προεκήρυξε την συγγραφή 27 βιβλίων προς κάλυψη των αναγκών των σπουδαστών βάσει των ισχυόντων αναλυτικών προγραμμάτων.

Οι συγγραφείς και η Επιτροπή Εκδόσεων του Ιδρύματος καταβάλλουν κάθε προσπάθεια, ώστε τα βιβλία να είναι επιστημονικώς άρτια αλλά και προσαρμοσμένα στις ανάγκες και τις δυνατότητες των σπουδαστών. Γι' αυτό έχουν προσεγμένη γλωσσική διατύπωση των κειμένων τους και η διαπραγμάτευση των θεμάτων είναι ανάλογη προς τη στάθμη της εκπαιδεύσεως, για την οποία προορίζονται.

Με την προσφορά στους καθηγητές, στους σπουδαστές των ΑΕΝ και σε όλους τους αξιωματικούς του Εμπορικού Ναυτικού των εκδόσεών του, το Ίδρυμα συμβάλλει στην πραγματοποίηση του σκοπού του ιδρυτή του Ευγενίου Ευγενίδου.

ΙΔΡΥΜΑ ΕΥΓΕΝΙΔΟΥ
ΒΙΒΛΙΟΘΗΚΗ ΤΟΥ ΝΑΥΤΙΚΟΥ

MARITIME ENGLISH

for the 2nd Semester

ΠΑΡΑΣΚΕΥΗΣ Λ. ΠΑΠΑΛΕΩΝΙΔΑ
Καθηγήτριας Αγγλικής ΑΕΝ/Μακεδονίας

ΑΘΗΝΑ
2012

ΙΔΡΥΜΑ ΕΥΓΕΝΙΔΟΥ
1954

ΠΡΟΛΟΓΟΣ ΣΥΓΓΡΑΦΕΑ

Το βιβλίο αυτό σχεδιάστηκε ώστε να αποτελέσει διδακτικό βοήθημα για το μάθημα «Ναυτικά Αγγλικά» Β΄ εξαμήνου στις Ακαδημίες Εμπορικού Ναυτικού. Έχει ως στόχο να βοηθήσει τους/τις σπουδαστές/ήριες να αποκτήσουν τις γλωσσικές δεξιότητες εκείνες (κατανόηση και χρήση του προφορικού και γραπτού λόγου) που θα τους επιτρέψουν να επικοινωνούν με ευχέρεια στο επαγγελματικό τους περιβάλλον, δηλαδή να ανταποκρίνονται σε γενικότερες και ειδικότερες καταστάσεις επικοινωνίας ως Αξιωματικοί (Πλοίαρχοι και Μηχανικοί) του Εμπορικού Ναυτικού.

Το παρόν εγχειρίδιο βασίζεται στο ισχύον αναλυτικό πρόγραμμα διδασκαλίας των ΑΕΝ, το οποίο με τη σειρά του ακολουθεί τις προδιαγραφές του Διεθνούς Ναυτιλιακού Οργανισμού (IMO), όπως αυτές καταγράφονται στο Model Course 3.17 για τα Ναυτικά Αγγλικά. Η μεθοδολογία που προτείνεται από το Model Course ως κατάλληλη για τη διδασκαλία του μαθήματος είναι η επικοινωνιακή προσέγγιση, μέθοδος που συναρμονίζεται με μια από τις βασικές απαιτήσεις της Συμβάσεως STCW (όπως τροποποιήθηκε το 1995), δηλαδή την ανάγκη για πρακτική «επικοινωνιακή επάρκεια» των Αξιωματικών Φυλακής στην Αγγλική. Η έμφαση στην «επικοινωνιακή επάρκεια», που βρίσκεται στον πυρήνα των απαιτήσεων της STCW από την ειδική Ναυτική Εκπαίδευση γενικότερα, αντικατοπτρίζεται στον προσανατολισμό του παρόντος βιβλίου. Χρησιμοποιώντας σύγχρονα αυθεντικά κείμενα ναυτικού ενδιαφέροντος, τονίζοντας την αλληλεπίδραση με την προώθηση της κατανόησεως του λόγου κατά ζεύγη και ομάδες, εφιστώντας την προσοχή σε στρατηγικές αυτοδιαχείρισης της μάθησης, και μέσα από δραστηριότητες που (κατά το δυνατό) προσομοιώνουν αυθεντικές διαδραστικές καταστάσεις και επιτρέπουν στους σπουδαστές/ήριες να ασκούνται ως εν δυνάμει πομποί και δέκτες σε πραγματικά επικοινωνιακά γεγονότα, το βιβλίο γενικά λειτουργεί μέσα σε ένα πλαίσιο θεματικής και επικοινωνιακής προσεγγίσεως της διδασκαλίας της Αγγλικής για Ειδικούς Σκοπούς.

Το βιβλίο απευθύνεται σε τάξεις μεικτής ικανότητας και καταβλήθηκε προσπάθεια ώστε να προσφέρει στο διδάσκοντα την ευελιξία να επιλέγει, ανάλογα με το επίπεδο της τάξεως, από μια ποικιλία διδακτικού υλικού. Το υλικό αυτό παρουσιάζεται σε 6 ενότητες. Υπάρχουν επίσης 2 επαναληπτικές ενότητες με ολοκληρωμένες δραστηριότητες αποτελούμενες από ασκήσεις που βοηθούν στην εμπέδωση της σχετικής ορολογίας και την επέκταση ειδικών θεμάτων.

Οι γλωσσικές δεξιότητες που εξασκούνται σε κάθε άσκηση, καθώς και ο κεντρικός της άξονας επισημαίνονται με ειδικά σύμβολα στην αρχή κάθε ασκήσεως, ως εξής: α) Ομιλία, β) Ανάγνωση, γ) Γραπτός Λόγος, δ) Κατανόηση Προφορικού Λόγου – Συζήτηση στην τάξη, ε) Αυτοαξιολόγηση, στ) Εργασία κατά ζεύγη, ζ) Εργασία σε Ομάδες, η) Πληροφορίες και θ) Κατανόηση ακουστικού κειμένου.

α) *β)* *γ)* *δ)* *ε)* *στ)* *ζ)* *η)* *θ)*

Ιδιαίτερη προσοχή δίνεται στις Τυποποιημένες Ναυτικές Φράσεις Επικοινωνίας (IMO SMCP), και επιχειρείται παρουσίαση και εξάσκηση των φράσεων στις επιμέρους ενότητες του βιβλίου.

Κάθε ενότητα περιέχει υποενότητες με τίτλο «Γλωσσική Ευαισθητοποίηση» (Language Awareness), όπου παρουσιάζονται οι γραμματικές δομές που υπάρχουν ενσωματωμένες στα επιμέρους θέματα. Επίσης, μετά από κάθε κείμενο δίνεται ένα «Γλωσσάριο» (Glossary) όπου παρατίθενται συνώνυμα ή ορισμοί για το λεξιλόγιο του κειμένου, ώστε να αποτελέσει σημείο αναφοράς για την εξάσκηση και επανάληψη του λεξιλογίου και να ενθαρρύνει τους/τις σπουδαστές/ήριες να κρατούν τις δικές τους Άγγλο-Αγγλικές σημειώσεις λεξιλογίου με παρόμοιο τρόπο.

Το βιβλίο συνοδεύεται από ένα audio CD που περιέχει το υλικό για τις δραστηριότητες κατανόησης προφορικού λόγου. Τα απομαγνητοφωνημένα κείμενα των ασκήσεων παρατίθενται στο παράρτημα "Audio Material Transcripts".

Ένα Παράρτημα για Μηχανικούς περιλαμβάνεται ως συμπλήρωμα του διδακτικού υλικού και έχει ως στόχο να εξοικειώσει τους/τις σπουδαστές/τριες στις σχολές Μηχανικών με την αγγλική ορολογία στο ειδικό γνωστικό αντικείμενο των σπουδών τους, παρουσιάζοντας θέματα που προβλέπονται στην αναλυτική ύλη της ειδικότητάς τους. Συγκεκριμένα το Παράρτημα για το Β΄ εξάμηνο παρουσιάζει τους χρόνους της μηχανής Diesel, τους ναυτικούς αιμολέβητες, τις αιμομηχανές, τα βοηθητικά μηχανήματα πλοίων και τις ανιλίες. Θα ήθελα ολόψυχα να ευχαριστήσω την αγαπητή μου συνάδελφο Κάτια Γρηγόρογλου, Καθηγήτρια Αγγλικής στη Σχολή Μηχανικών της ΑΕΝ Μακεδονίας, που με προθυμία μοιράστηκε μαζί μου υλικό για αυτό το κομμάτι του βιβλίου.

Είναι ιδιαίτερα ευπρόσδεκτα τυχόν σχόλια ή προτάσεις που θα βελτιώσουν την ποιότητα του παρόντος βιβλίου από τους συναδέλφους που διδάσκουν στις Ακαδημίες, καθώς και από τους/τις σπουδαστές/τριες που είναι ο πραγματικός αποδέκτης της δουλειάς αυτής. Ελπίζω το βιβλίο να ανταποκρίνεται στις ανάγκες και προσδοκίες των σπουδαστών/τριών που θα το χρησιμοποιήσουν ως εργαλείο για να γίνουν επαγγελματίες στον ταχύτατα μεταβαλλόμενο χώρο της εμπορικής ναυτιλίας.

Θα ήθελα να ευχαριστήσω την Επιτροπή Εκδόσεων του Ιδρύματος Ευγενίδου για τη συμπαράσταση της κατά την πραγμάτωση αυτού του έργου. Είχα τη μεγάλη χαρά να συνεργαστώ με το εξειδικευμένο προσωπικό του Εκδοτικού Τμήματος του Ιδρύματος, χωρίς την αμέριστη βοήθεια και τις φιλότιμες προσπάθειες του οποίου το βιβλίο δεν θα έπαιρνε την τελική του μορφή, και του ανήκουν ιδιαίτερες ευχαριστίες.

Είμαι ευγνώμων στον επιστημονικό σύμβουλο του βιβλίου, Γεώργιο Δούναβη, καθηγητή Αγγλικής στην ΑΕΝ Σύρου, για την άψογη συνεργασία μας και την αδιάλειπτη παρουσία του ως υποστηρικτή αυτού του έργου και ως πολύτιμου συναδέλφου.

Ευχαριστώ τον κ. Αθανάσιο Καρπώνη, Πλοίαρχο Α' /Ε.Ν. και Διευθυντή Σχολής Πλοιάρχων της ΑΕΝ Μακεδονίας, για το απαραίτητο υλικό και τις συμβουλές που μου παρείχε καθώς και τον κ. Σωτήρη Χατζημανώλη (Μηχανικό Α'/Ε.Ν.) για τη βοήθειά του στο Παράρτημα για Μηχανικούς. Επίσης ιδιαιτέρως ευχαριστώ τους Laurie Drakontis, Νικόλαο Μαύρο και Νικόλαο Τσούλη για την πρόθυμη βοήθειά τους στην ηχογράφηση ακουστικού υλικού και τους Κώστα Καρυαδάκη, Άκη Χαραλαμπίδη και Κώστα Δημάνη για τη γενναιοδωρία με την οποία μου παρείχαν φωτογραφικό υλικό από τις ιδιωτικές τους συλλογές. Τέλος, θα ήθελα να εκφράσω την ευγνωμοσύνη μου σε όλους εκείνους τους συναδέλφους και φίλους στην ΑΕΝ Μακεδονίας που βοήθησαν ηθικά και πρακτικά στην πραγμάτωση του έργου και σε όλους τους/τις σπουδαστές/τριες που έδειξαν ενθουσιασμό και βοήθησαν με πολυάριθμους τρόπους.

Η συγγραφέας

UNIT 1

Emergency on board

1. *Welcome back!*

2. *Types of emergency on board*
   Missing person / Sinking / Collision

3. *SMCP Distress communications*

4. *Emergency and Rescue procedures / situations*
   - *I. Person Overboard*
   - *Language Awareness:*
     - *II. Imperative form for urgent commands*
     - *III. this / that, these / those*
     - *IV. "must" (obligation), "must not" (prohibition)*
   - *V. Hypothermia*
   - *VI. Enclosed space entry*
   - *VII. Oil pollution*

5. *SMCP message markers: Instruction, Question, Answer, Information*

Round-up

1. Welcome back!

A. ***Talk about your first training voyage as a deck cadet / engineer cadet. Note down your answers to the following points and mention them in your discussion.***

1. Voyage duration: _____months.
2. Ports / countries you visited: _____, _____, _____.
3. Maximum / minimum stay per port: _____ days / hours.
4. Type of vessel: _____.
5. Age of vessel: _____.
6. Type of cargo: _____.
7. Place of embarkation / disembarkation: _____ / _____.
8. Pay / overtime: _____ euros.
9. Drills: name some drills you took part in. _____.
10. Any accidents or unusual incidents? _____.
11. You practised your English with / at… _____.

B. ***Check the appropriate box in the following table and then discuss in class.***

How would you characterise the experience?	Positive ☐ Extraordinary ☐	Tiring ☐ Life-changing ☐	Negative ☐ Disheartening ☐
Did you like the food on board?	Very much ☐	So and so ☐	Not really ☐
The communication with your family and friends was…	Excellent ☐	Good ☐	Not enough ☐
Who helped you the most with your training?	Chief Mate ☐ 2nd Engineer ☐	Master ☐ Chief Engineer ☐	Other ☐
What nationalities were the rest of the crew?	Officers:	Ratings:	

Glossary

incident	something (significant) that happens, an event
extraordinary	very unusual, remarkable, unusually great
disheartening	discouraging, that causes you to lose determination or confidence, that makes you less enthusiastic
satisfied	happy, pleased, contented

2. Types of emergency on board

A. ***What type of emergency are the following texts about? Look at the small extracts from news articles and then do exercises a - d.***

a) Look at the list of emergencies and say what each text is about.

Grounding	Man Overboard	Fire on board
Sinking	Collision	Oil spill

b) Supply the correct heading and write it in the space provided. There is one extra heading you will not need to use.

– COLLISION, 2,500 mt OIL LEAK
– MISSING PERSONS AT SEA REQUIRE A SEARCH AND RESCUE
– CRUISE SHIP EVACUATION AFTER COLLISION
– A HISTORIC CRUISE SHIP SINKS

c) Match each text to the appropriate picture.

Text A

Heading:
_____
_____

If the person is not quickly found on board the vessel, then the vessel should return to the last location at sea when the person was seen. As an example, if a passenger was last seen at 8 p.m., then the ship needs to back track to the location of the vessel at 8 p.m. to begin a search and rescue operation.

Text B

Heading:
_____
_____

On November 23, 2007, the Explorer, operating in the Antarctic, struck ice. Water started creeping in through a fist-sized hole punched into the ship's starboard. As it flooded the engine room, the power failed. The ship ceased responding. The ship was evacuated. The captain and chief officer stayed to operate the bilge pumps. After hours of listing, the ship went down. The 2,400-ton vessel was carrying 100 tourists in addition to a crew of 50 but no injuries were reported.

Text C

Heading:
_____
_____

(May 25, 2010) An oil tanker and a bulk carrier collided in waters between Malaysia and Singapore, spilling an estimated 2,500 tonnes of oil. The incident happened in the Traffic Separation Scheme (TSS) of the Singapore Strait but traffic in Asia's busiest shipping lane was not affected.

TEXT .....

TEXT .....

TEXT .....

d) Imagine you are a passenger on the Explorer. What can you hear on the public address system after the accident?

B. *MISSING PERSONS. Listen to the safety instructions for the case of a missing person on board. Fill in the missing words.*

1. Determine _____ and _____the person was last seen.
2. Organize a _____ of the vessel including decks, engine room and all accessible _____.
3. Prepare to turn the vessel round and retrace the _____ to where and when there was a last sighting of the person.
4. Post additional _____.
5. Prepare the _____ boat for immediate use and have the _____ standing by.
6. If the _____ search does not find the person, use the VHF to call to other vessels in the area asking them to keep a sharp lookout as they _____ the area.

3. SMCP: Distress communications

A. *Match the pictures to the types of distress.*

Sinking	Grounding	On fire	Oil spill / leak	Capsized

a)

b)

c)

d)

e)

B. *Listen to the following SMCP phrases and tick the type of distress communication (in some cases, more than one is relevant).*

TYPE OF DISTRESS	1	2	3	4	5	6	7	8
Collision								
Armed attack / piracy								
Person overboard								
Abandoning vessel								
Fire, explosion								
List - danger of capsizing								
Disabled and adrift								
Flooding								
Sinking								
Grounding								

C. *Fill in the correct preposition. Listen to the distress communication phrases from the previous exercise if you need to.*

1. I am _____ fire.
2. I am flooding _____ the engine room.
3. I have collided _____ iceberg. Crew must abandon vessel _____ collision.
4. I have dangerous list _____ port. I am _____ danger _____ capsizing.
5. I am sinking _____ explosion. I am _____ critical condition.
6. MV Morgan drifting _____ 10 knots _____ South East.
7. I am _____ attack _____ pirates.
8. MV Vectra has lost person overboard _____ position 20 degrees 35 minutes North 060 degrees 30 minutes West.

D. *Choose the correct phrase according to the SMCP phrases.*

1. How do you report a fire, according to the SMCP phrases?
   a. Vessel is burning.
   b. Vessel is on fire.
   c. Vessel has caught fire.
2. How do you inform on the type of help needed?
   a. I require medical assistance.
   b. I need medical assistance.
   c. I want medical assistance.

3. How do you ask about the type of help needed (by a vessel)?
   a. What type of help do you need?
   b. What kind of assistance is required?
   c. What kind of assistance have you asked for?

4. How do you report flooding?
   a. MV Destiny has water in the holds.
   b. MV Destiny is flooding in the holds.
   c. There is ingress of water in the holds of MV Destiny.

5. How do you report collision?
   a. I have collided with iceberg.
   b. I have crashed with iceberg.
   c. I have run into an iceberg.

6. How do you report grounding?
   a. I have grounded.
   b. I am aground.
   c. I have stuck on ground.

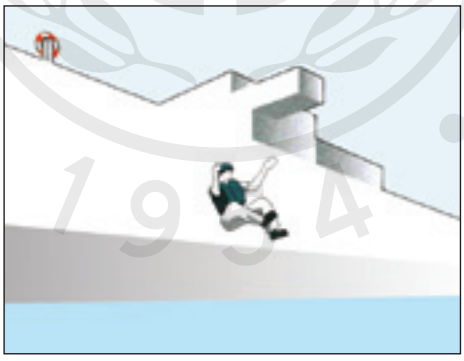
4. Emergency and Rescue procedures / situations

I. Person Overboard

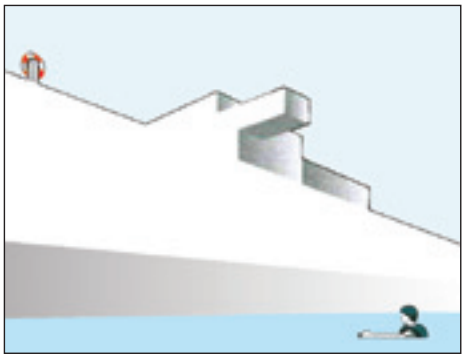
Lead-in:

i. Look at the following pictures. What type of emergency are they showing? What must you do in this type of emergency? Name at least 5 steps you must follow.

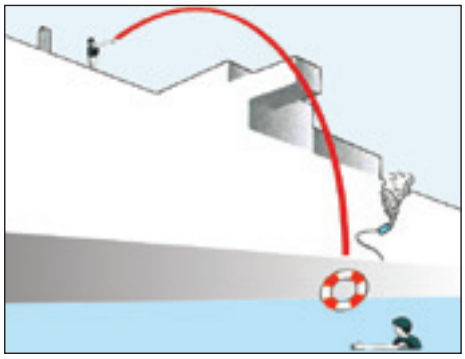
a)



b)



c)



ii. Match the phrases to make full sentences. Put the correct number in each box.

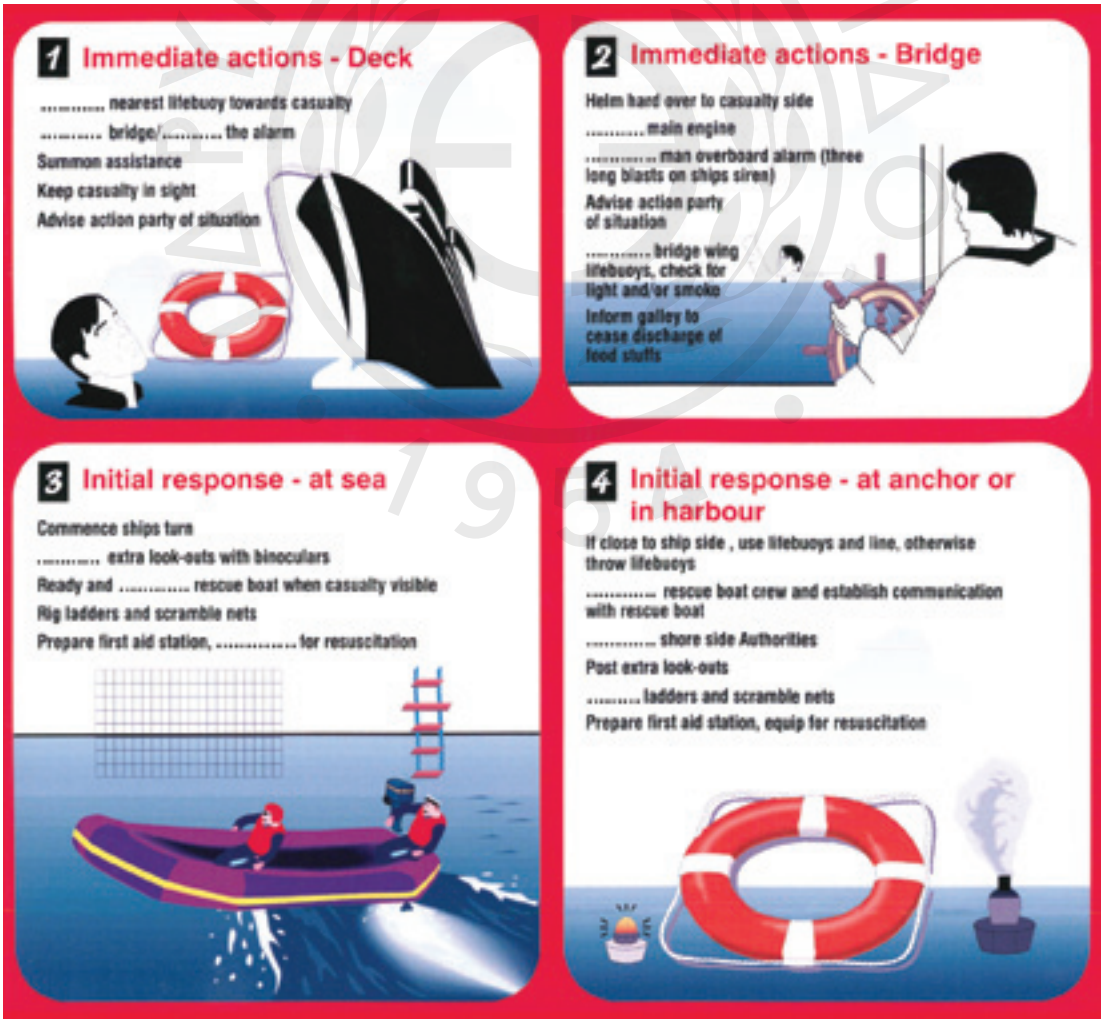
In the event of a Man Overboard the following steps should be implemented:

1. You must shout …	☐ visual contact.
2. You must throw ...	☐ "Man Overboard! Starboard / Port side!"
3. You must maintain ...	☐ the vessel away from the side that the person went overboard.
4. You must raise ...	☐ a Williamson Turn.
5. You must inform ...	☐ the nearest lifebuoy overboard.
6. You must turn ...	☐ additional lookouts.
7. You must do ...	☐ the alarm.
8. You must post ...	☐ the bridge.

a) Look at the pictures of the following safety poster.

What *must* you do when you notice a man overboard and you are:

– on deck? – on the bridge? – at sea? – at anchor or in harbour?



b) Look at the stages of the emergency procedure.

i. There are three missing verbs in each stage, use the ones given below to fill in the gaps.

Man Overboard: Vital action on discovery of a man overboard

1. **Immediate actions – Deck**
   raise / throw / notify
2. **Immediate actions – Bridge**
   release / stop / sound
3. **Initial response – at sea**
   launch / equip / post
4. **Initial response – at anchor or in harbour**
   inform / muster / rig

ii. Use the safety poster to give commands in a man overboard emergency.
e.g. "Call the bridge!"

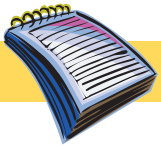
iii. The casualty is not located. What must you do?
Use the signs below and match the verbs to the nouns in the box to write what you must do.

inform **make an entry** **increase**	**in the logbook** **look-outs** **other ships in the area**

1. You must .....

2. You must .....

3. You must .....



Glossary

summon assistance	call for, send for assistance
cease	stop, discontinue
resuscitation	the act of reviving someone from unconsciousness or apparent death (CPR: cardiopulmonary resuscitation)

II . Language Awareness: Imperative form for urgent commands

Look at the following commands:

Bring your lifejacket! Don't use this fire extinguisher!

- The commands are short.
- We use the verb in the infinitive form.
- We do **not** use *I*, *you*, *he*, *she*…
- We stress the verb in the command: ▮ ▪
  Open the valve!
- In the negative we stress both "don't" and the main verb: ▮ ▮
  Don't panic!

a) Match the halves to make full commands.

1. Close...	…the alarm!
2. Sound...	…garbage overboard!
3. Go to...	…the fire extinguisher!
4. Get...	…that valve!
5. Put on...	…your assembly stations!
6. Don't throw...	…your immersion suit!

b) Use the verbs in the box to complete the sentences.

call	proceed	not enter	stop
get	lower	close	

1. Fire in the galley! _____ the fire blanket!
2. Man overboard! _____ the rescue boat!
3. Emergency! _____ to your muster station immediately!
4. Flooding in the engine room! _____ the Master!
5. The oil is leaking! _____ the pumps!
6. Fire in the accommodation! _____ all fire doors!
7. The air is toxic! _____ that area!

c) Listen to the emergency announcement. Tick the commands you can hear.

1. Get the fire extinguisher!
2. Put out the fire!
3. Do not attempt to extinguish the fire!
4. Post two lookouts!
5. Sound the alarms immediately!
6. Lower the lifeboats!
7. Proceed to your muster stations immediately!
8. Prepare to abandon ship!

III. Language Awareness: this / that / these / those

- Do you want **this** fire extinguisher here?
  No, I want **those** two in the corner.
- Look! **That** ship over there is a mega yacht! I think it belongs to Roman Abramovich, the Russian billionaire!
- Excuse me, are **these** your keys? I found them on your desk.

a) Look at the examples above and tick accordingly.

	used for singular nouns	used for plural nouns	close to the speaker ("here")	far from the speaker ("there")
This				
That				
These				
Those				

b) Fill in this / that / these / those.

1. _____ postcards over there look very nice. I'd like to buy some.
2. "Who are _____ people there on the pavement?" "They are demonstrators. They demonstrate against the new Employment Bill."
3. Lower _____ rescue boats here!
4. Push _____ button there!
5. Give me _____ hammer here!
6. Wear _____ goggles there!
7. Look here, _____ tools are dirty. Clean them again.
8. Who sleeps in _____ cabin at the end of the corridor?
9. _____ rose is for you, sweetie! Here you are!

IV. Language Awareness: Must

Look at the following sign:

You must record all garbage discharges in the garbage record book.

Must means (choose two):

a. it is very important to do something.
b. it is necessary to do something.
c. it is a good idea to do something.

Also, look at the following examples and the patterns with ***must***:

There is an oil spill on deck! You **must** close the valve immediately!
The oxygen level is low! You **must not** enter the enclosed space!

You	**must**	close	the valve.
You	**must not**	enter	the enclosed space.

I / You He / She / It We / They	**must stop**.	I / You He / She / It We / They	**mustn't smoke**.

a) Circle the correct one.

1. You **must / mustn't** throw plastic in the sea.
2. You **must / mustn't** follow emergency procedures.
3. You **must / mustn't** fasten your seat belt when you drive.
4. You **must / mustn't** take notes during class.
5. You **must / mustn't** speak loudly in hospitals.

b) Fill in the blanks with 'must' or 'mustn't'.

1. You _____ smoke in the galley.
2. You _____ make noise in the library.
3. You _____ eat fruit and vegetables.
4. She is ill, so she _____ see the doctor.
5. It is raining. You _____ take your umbrella.
6. This is a secret. You _____ tell anybody.

c) Make sentences using 'must' or 'mustn't'.

1. Follow instructions carefully: You ……
2. Cheat in the exams: ……
3. Study hard: ……
4. Drive carefully: ……
5. Smoke inside restaurants: ……

d) What fire fighting means must / must not be used when dealing with different types of fire? Use the following table and write 5 sentences.

must **must not**	**water** **foam** **sand** **dry powder** **CO_2 (carbon dioxide)** **inert gas**	**accommodation space fires** **galley fires** **cargo space fires** **machinery space fires** **oil fires** **electrical fires**

e.g. You mustn't use water for electrical fires .....
1. .....
2. .....
3. .....
4. .....
5. .....

V. Hypothermia

a) Read the following information from a Safety Manual. Fill in the missing sentences, which are given below, to complete the stages of the procedure.

Hypothermia[1]		
Hypothermia occurs when the body temperature drops below 35°C/95°F. This can occur when the casualty has been immersed in cold water for a length of time or is exposed to cold wind. Here are some guidelines on the treatment of hypothermia: 1. Take the casualty to a protected area. 2. _____ 3. Rewarm the casualty by wrapping them in a sheet, a thermal protection aid or by using the body heat of another person. If the casualty is conscious, they can be rewarmed in a warm bath if they are able to climb into the bath unaided. 4. _____ 5. Look for signs of frostbite. 6. Monitor the casualty for breathing, pulse and temperature._____ _____		
If casualty is fully conscious, give them a warm drink.	**Resuscitate if necessary.**	**Remove any wet clothing and replace with dry clothes**

1. Source: SOLAS and Fire Fighting Manual, Methane Jane Elizabeth, Ceres LNG Services Ltd.

Glossary

occurs	happens, takes place
immerse	dip or submerge in a liquid
frostbite	injury to body tissues caused by exposure to extreme cold, typically affecting the nose, fingers or toes and often resulting in gangrene
wrap	cover, enclose in
unaided	without help, needing no assistance
conscious	aware of and responding to your surroundings
monitor	observe and check something over a period of time

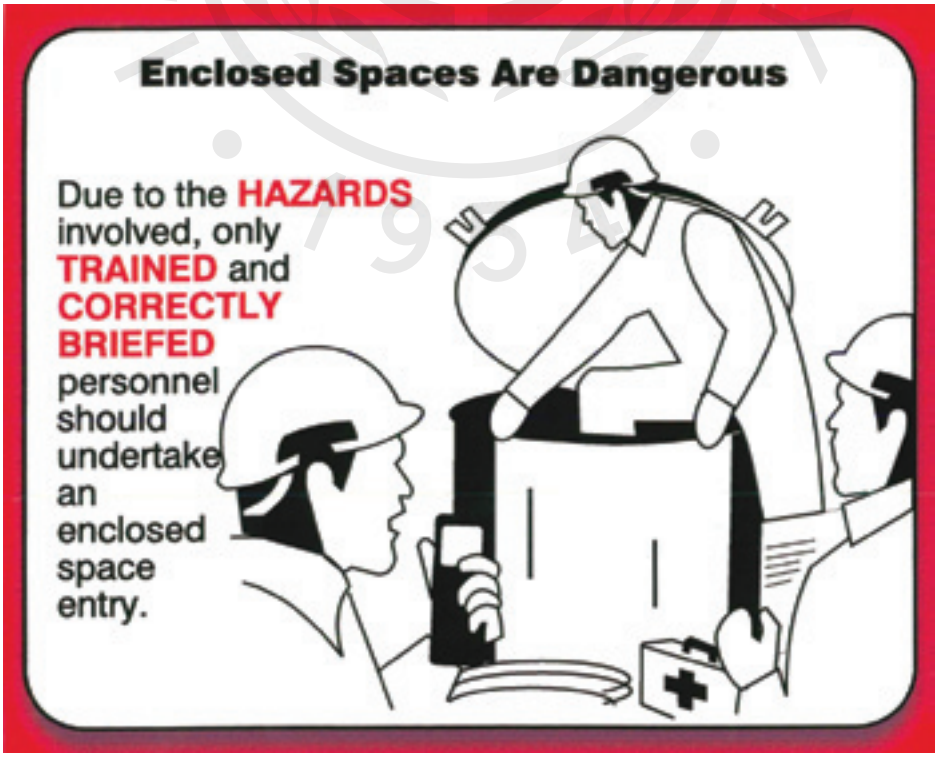
b) Use the Safety Manual information above and do the following orally.

i. Give some short commands.
e.g. Remove his clothes!
Wrap him with this blanket!

ii. Say what you must or mustn't do.
e.g. You mustn't keep the wet clothes.

VI. Enclosed space entry

What must you do in case of an enclosed space accident?



a) Look at the signs. Complete the sentences using the phrases given in the box below.

1.  You must .....
.....
2.  You must .....
.....
3.  You must .....
.....
4.  You must .....
.....

carry rescue equipment: breathing apparatus, recovery gear and resuscitators	**have good communication with the person responsible for the operation**
test the atmosphere for oxygen level, toxic and flammable gas concentrations	**wear safety equipment, hard hat, boots, gloves, overalls and personal gas monitor**

b) Look at the following Safety Poster and say what you must do after an enclosed space accident. You can use some of the words in the box for help.

use, wear, give, carry, call, help, remove, apply, check	face mask, first aid, resuscitation, stretcher, safety helmet, breathing, breathing apparatus

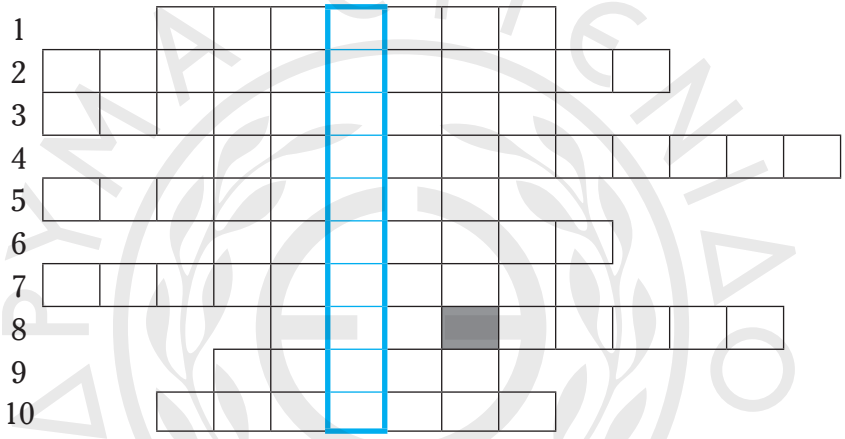
VII. Oil pollution

a) Read the following text on oil pollution and then use the words in bold to solve the word puzzle.

*The deliberate, negligent or accidental **dumping** of oil and other harmful substances from ships constitutes a serious source of **pollution** and puts into danger the marine **environment**.*

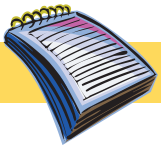
*In order to **contain** and remove an **oil slick** from the marine environment, there are different techniques, such as the use of **booms**, **skimmers** and **dispersants**, or by pumping or absorbing or **burning**. As prevention is better than cure, it is important to obey the international anti-pollution regulations, while at the same time being fully prepared to respond adequately to an oil spill **emergency**.*

Oil booms



1. Disposing of oil into the sea.
2. Chemicals that help break up spilled oil.
3. A serious, unexpected, and often dangerous situation requiring immediate action.
4. The natural world.
5. System used for clearing the water of any floating matter (vessels equipped with such systems).
6. Keep within limits, restrain.
7. The contamination of water, soil or the atmosphere by the discharge of harmful substances.
8. A film (layer) of oil floating on the surface of the water.
9. Physical barriers used for the containment of an oil slick.
10. Destroying by fire.

✸ *What word is formed vertically?* _____ *is better than cure.*



Glossary

deliberate	done consciously and intentionally
negligent	failing to give care or attention
accidental	happening by chance, unintentionally, or unexpectedly

b) Match the adjectives to the nouns.

1. Marine	pollution
2. Harmful	regulations
3. International	environment
4. Accidental	substances

c) Choose the correct alternative.

1. You can **contain / absorb** an oil slick with booms.
2. You can **burn / break up** an oil slick with dispersants.
3. The emptying of oil into the sea is called an **oil spill / oil discharge**.
4. Every vessel must have a **reaction / response** plan in case of oil pollution.

5. SMCP message markers: Instruction, Question, Answer, Information

– In radio communication we may use special marker words to introduce messages and make their purpose clearer. In any message directed to a vessel it should be clear whether the message contains information, advice, a warning, an instruction, etc.
– "Markers" introduce messages and signal the move intended by the speaker, i.e. what the speaker wants to ask, order, request, inform, advice, warn, etc. There are 8 message markers recommended by IMO; here we will see how we use the following four:

INSTRUCTION QUESTION ANSWER INFORMATION

- An "INSTRUCTION" is only given by authorities (a VTS station, naval vessel or authorized personnel).
  e.g. "INSTRUCTION. Do not cross the fairway."
- An "INSTRUCTION" is legally binding: you **must** follow an instruction because it implies the intention of the sender to influence others by a Regulation.
- When you add "QUESTION" before a message, you make it clear that you expect an "ANSWER" as a reply.
  e.g. "QUESTION. What is your present maximum draught?"
  "ANSWER. My present maximum draught is two meters."
- "INFORMATION" is used for navigational and traffic information.
  e.g. "INFORMATION. MV ELINA will overtake to the west of you."
- With message markers you can avoid the use of modal verbs that might cause vagueness.
  e.g.: *May* I enter the fairway?
  → QUESTION. Do I have permission to enter the fairway?
  You *may* enter the fairway.
  → ANSWER. You have permission to enter the fairway.
  Can I use the shallow draught fairway at this time?
  → QUESTION. Do I have permission to use the shallow draught fairway at this time?

A. ***Which of the following messages contain an instruction and which ones a piece of information? Circle the correct message marker.***

1. INSTRUCTION / INFORMATION Stop immediately.
2. INSTRUCTION / INFORMATION Steer course: 1-3-6 degrees true.
3. INSTRUCTION / INFORMATION My position is 20° 52' S, 034° 87' W.
4. INSTRUCTION / INFORMATION My cargo is naphtha.
5. INSTRUCTION / INFORMATION Proceed to the nearest safe anchorage.
6. INSTRUCTION / INFORMATION Do no cross the fairway.

B. ***What is the appropriate message marker for each of the following messages?***

1. _____ Avoid this area–no possibility for vessels to turn.
2. _____ Recover your fishing gear.
3. _____ What part of your vessel is aground?
4. _____ Aground forward.
5. _____ MV Aldebaran is on opposite course.
6. _____ Alter your course to give way.
7. _____ What is the depth in the outer fairway?
8. _____ Reduce speed to three knots.
9. _____ The wind direction is NE force Beaufort 6.

C. ***Listen to the SMCP messages and decide what the appropriate message marker would be for each message. Write the marker in the space provided below. Then listen to the full messages to check your answers and repeat.***

1. _____ 4. _____
2. _____ 5. _____
3. _____ 6. _____

D. ***The following words are also important in VHF communication.***

correction	say again	repeat	mistake

– Fill in the gaps with these words and then listen to check your answers.

QUESTION What is your present speed?
ANSWER My present speed is 14 knots – (1)_____.
(2)_____, my present speed is 12, one-two, knots.
QUESTION What is your draught?
ANSWER My draught is 12.6, one-two decimal 6 metres.
INSTRUCTION Do not overtake – (3)_____ – do not overtake.
… (4)_____
INSTRUCTION Do not overtake.

E. *Write the correct sentence in the gaps to complete the radio exchange.*

• **INSTRUCTION. Steer a new course of 90 degrees.**	• **QUESTION. Do you require navigational assistance to reach the centre of the fairway?**	• **ANSWER. Yes, I have altered course – my new course is 90 degrees.**
• **Say again your speed.**	• **I will alter course.**	

VTS OPERATOR

↓

VESSEL

↓

INFORMATION. Your distance is 20.5 nautical miles from the centre of the fairway. (a)……	
	ANSWER. Yes, I require navigational assistance.
QUESTION. What is your present course and speed?	
	ANSWER. My present course is 80 degrees, my speed is 14 knots.
(b)……	
	My present speed is 14 – repeat – 14 knots.
INSTRUCTION. Keep you present speed. (c)……	
	(d)……
QUESTION. Have you altered course?	
	(e)……

Round-up

A. Vocabulary Consolidation Self-Assessment.

Tick ☑ what you can do. Cross ☒ what you still find hard to do in English.

- ☐ Talk about different types of emergency situations on board
- ☐ Understand instructions for emergency procedures
- ☐ Give urgent commands
- ☐ Use "must" for obligation and "must not" for prohibition
- ☐ Use SMCP message markers
- ☐ Use SMCP for external distress communications

B. Class Project.

- Find out more about the collision accident mentioned in the article on page 11 and present to class the names, flags and cargo capacity of the two vessels, types of cargoes, damage, oil-spill response, etc.
- Collect information about the ship's Garbage Management Plan and the Garbage Record Book and present to class.
- Find out more about MARPOL Annex I on the Regulations for the Prevention of Pollution by Oil and present to class.

C. Situation or Condition?

1. The vessel is in a good _____, even though it is old.
2. In any emergency _____ you must follow orders immediately.
3. MV Pride is in critical _____ after grounding.
4. The _____ is very complicated. We need to find a solution soon.
5. "Person picked up is crew member of MV Saturn." "What is _____ of person?"

D. Look at the following radio exchange between the VTS operator and a vessel and do exercises a and b.

a. Fill in the gaps. The first letter is given.
b. Put the correct message marker at the beginning of each message. Use QUESTION / ANSWER / INSTRUCTION / INFORMATION.

1. _____ Your distance is 20.5 n…… m…….. from the centre of the fairway.
2. _____ Do you r……. navigational assistance to reach the centre of the fairway?
3. _____ Yes, I require navigational assistance.
4. _____ What is your present course and speed?
5. _____ My present course is 80 d……., my speed is 14 k……..
6. _____ Steer a new c…… of 90 degrees.

E. Fill in the correct verb.

throw	post	do	maintain	raise	inform

In the event of a Man Overboard...

1. you must _____ the nearest lifebuoy overboard.
2. you must _____ visual contact.
3. you must _____ the alarm.
4. you must _____ the bridge.
5. you must _____ a Williamson Turn.
6. you must _____ additional lookouts.

F. Word-building. Fill in the correct derivative of the words in brackets.

1. You must carry a breathing apparatus when entering a(n) _____ (close) space.
2. You must wear full _____ (protect) clothing when dealing with fire.
3. In a person overboard situation, if the victim is _____ (vision), you must launch the rescue boat immediately.
4. I do not require medical _____(assist).

G. Match the adjectives to the nouns:

spaces	lookouts	use	equipment	sighting	gas

1. immediate …….
2. additional …….
3. accessible …….
4. last ……
5. flammable ……..
6. safety ……

H. Choose the correct word.

1. The restoration of life functions after apparent death is called *resuscitation / response*.
2. “What is the nature of *trouble / distress*?” “I have problems with navigation.”
3. All vessels, search in *vicinity / district* of position 20° 35’ North, 060° 30’ West.
4. Number of *casualties / fatalities* due to explosion: two.
5. *Fix / Rig* the pilot ladder immediately.
6. *Apply / Put* a face mask to the victim. He can’t breathe properly.

UNIT 2

Cargo handling, quantities and supplies

1. *Different types of containers*
2. *Types of cargoes transported by cargo vessels*
   - *Language Awareness:*
     - *I. Partitives / "how much" and "how many"*
     - *II. Joining words in speech: linking consonants and vowels*
3. *Asking for prices*
4. *Inventory*
5. *Ordering supplies*
6. *Cargo handling (SMCP B3)*
7. *Loading capacities and quantities*
8. *Cargo handling gear of different types of cargo ships*

Round-up

1. Different types of containers

Lead-in: ***Look at the following list of containers.***

- chest / box / case
- pallet / crate / carton
- barrel / drum / cask
- sack / bag / bale

1. How many of these words do you know?
2. Can you identify any of these containers in the pictures below?
3. Which ones are cylindrical, square or rectangular?
4. Which ones are made of wood?
5. What other material are they made of?
6. Which ones can you carry liquids in?

A. ***Put a caption to each picture. Here are some useful words.***

equipment shipping cases	**steel barrels**	**cotton bales**
drum	**sea chest**	**crate**
configuration of pallets	**sacks**	**drums / barrels on ship**
casks	**pallet**	

a).....

b).....

c).....

d).....

e).....

f).....

g).....

h).....

i).....

j).....

k).....

B. ***Match the type of cargo with the appropriate container.***

chest	sack	carton
bale	box	barrel

Coffee – .....
Tea –.....
Vegetable oil –.....
Electrical goods – .....
Cotton –.....
Juice –.....

C. ***Match the different types of containers with their definition. Make sure you can easily identify them in the pictures above.***

~~drum~~	case	barrel	chest
cask	pallet	bale	

1. _____: a large strong box with a lid, typically made of wood and used for storage or transport.
2. _____: a wooden barrel that is used for storing and transporting alcoholic drinks.
3. _____: a round container for food and liquids traditionally made of wood and held together by metal straps.
4. _____drum_____: a cylindrical container, made of steel or thermoplastics that can be used to transport dangerous goods.
5. _____: a container that is specially designed to hold or protect something so that it can be carried safely.
6. _____: a large bundle of goods (e.g. cotton) tightly tied together for shipping.
7. _____: a portable platform on which goods can be stacked, stored or moved.

Glossary

crate	a slatted wooden case used for transporting goods, e.g. a crate of bananas. Also, a square rigid container divided into small units, used for transporting bottles, e.g. milk crate
carton	a small light box or container in which drinks or foodstuffs are packaged. Also (esp. North American), a large container of goods
chest	a box for the shipping of certain goods, such as tea. Also, a sturdy box with a lid and a lock, used especially for storage (e.g. sea chest, captain's chest)

Cardboard box

Sea chest

Closed crate

Plastic crate

Milk carton

Tea chest

D. ***Match the cargoes to the containers (two words for each container).***

cotton	fish oil	petroleum	fish	~~rubber~~	tomatoes
wool	toys	guns	sugar	musical instruments	flour
wine	rum	~~milk~~	coal tar	orange juice	books

Cask: .....
Bale: .....
Crate: .....
Case: .....
Carton: .....milk, ...
Box: .....
Sack / Bag: .....
Drum: .....rubber, ...
Barrel: .....

E. ***What goes into the hold?***

Use the information from the previous exercise and add your own numbers for the quantity to make sentences like the following;

e.g. 30 drums of rubber go into hold 2

F. ***Which types of containers can be described with the following adjectives?***

– damaged	– crushed	– renailed
– wet	– torn	– resewn

G. ***Here are different types of cargoes; say how they are carried. Are they carried in bulk or in specific containers?***

– timber	– wheat	– iron-ore	– gas	– cars
– rice	– coal	– bananas	– tinned food	– steel
– steel plates	– logs	– tobacco	– fertilizers	– machine parts
– brandy	– onions	– glass	– dynamite	– cutlery
– cement	– cigars	– clothes	– shoes	– minerals

2. Types of cargoes transported by cargo vessels

A. ***Discuss this chart on cargo vessels and try to complete it with a study partner.***

Type of ship	Type of cargo	Examples of cargo
Bulk carriers		
Tankers		
Container ships		
Reefers		

B. ***Now, check your answers by filling in the missing words in the chart. Use the words given in the box. Then, read the information on cargo vessels.***

dry	general	fruit	crude
coal	grain	refrigerated	liquid

Type of ship	Type of cargo	Examples of cargo
Bulk carriers	_____bulk	_____, iron ore, _____, sugar
Tankers	_____bulk	_____, oil, fuel oils
Container ships	Containerized	Many types of _____ cargo
Reefers	_____	Meat, _____, dairy produce

Cargo Vessels

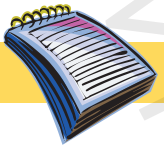
• Reefers (refrigerator ships) have all their holds refrigerated. They carry frozen cargoes such as frozen meat, chicken or fish. They can also carry fruit, like pallets of bananas. The holds are usually large open spaces with special ventilation systems designed to cool the cargo.

• Containers can be filled with just any type of cargo, from electrical appliances to fruit. There are also special refrigerated containers which are used to carry two main kinds of cargo: chilled or fresh produce (primarily fruits and vegetables) and frozen foods (primarily meat, fish and dairy products). In both cases, the cargo has to be pre-cooled to the optimal carrying temperature, because reefer containers are built to maintain temperatures, not to lower them.

• Ro-ro ships are used to carry motor vehicles, which are loaded via a stern ramp. Car carriers are ships designed to carry a specialized cargo consisting of automobiles only. They are designed to allow cars to drive on and off the vessel, and "be parked" in what looks like a large parking garage, with no need for cargo handling gear.

• Bulk liquid cargoes, oil, gas and chemicals are carried in tanker ships.

• Cement ships carry only cement, no other cargo.



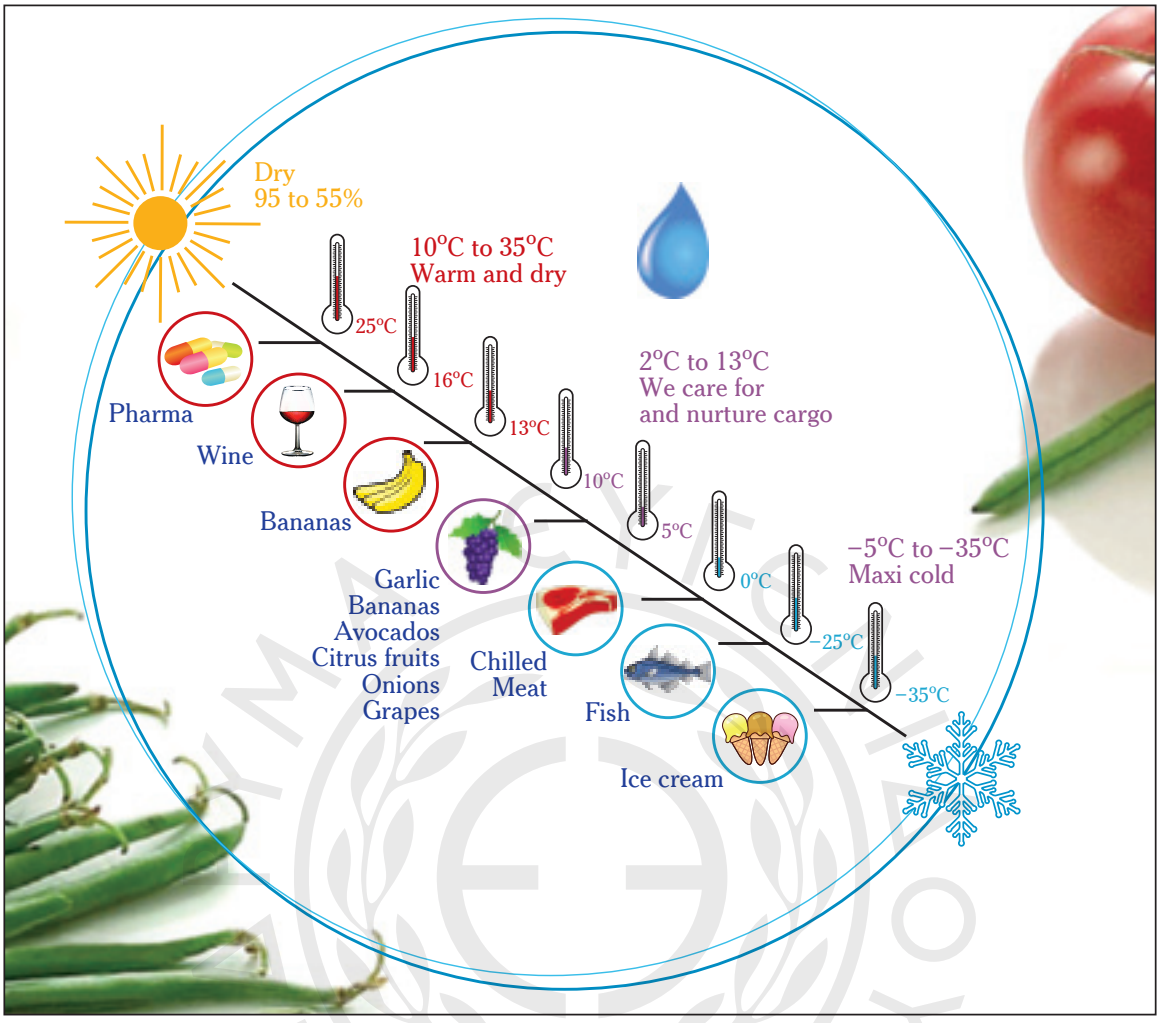
Glossary

chill	to cool (food or drink) in a refrigerator
optimal	best or most favourable, optimum

C. ***Fill in the gaps with the words in the box.***

appliances	dairy	via
chilled	primarily	optimal

1. White wine should be served _____.
2. I am allergic to milk, so I am on a non-_____ diet.
3. There are big sales on home electrical _____ this week. I got this fridge with a 20% discount.
4. We are seeking the _____ solution to the problem.
5. This company is _____ interested in the Eastern market.
6. I'll send you the file _____ electronic mail.



Temperatures in refrigerated containers range from +35°C to -35°C

D. ***Look at the chart above and then complete the sentences about the temperatures maintained in refrigerated containers.***

1. _____ is transported at maximum cold temperature.
2. Fruits like grapes or avocados need a cool temperature of about _____.
3. You can keep _____ at 13°C or less, up to about 8°C.
4. _____ is transported in dry and warm conditions, at about 16°C.

E. ***What temperature should the following items be transported at? Use the chart and practise speaking about the temperatures, giving approximate numbers.***

e.g. You can transport fish at -25°C.

– Chilled meat
– Onions
– Garlic
– Pharmaceutical tablets and pills
– Oranges / Lemons

I. Language Awareness: Partitives / "how much" and "how many"

• ***How many apples are there?*** • ***How much water is there?***

We ask

• **How many**? (for things we can count)
– Countable nouns are things we can count (singular or plural).
*e.g. I eat a **banana** everyday. I like **bananas**.*

• **How much**? (for things we can't count)
– Uncountable nouns are things we cannot count.
*e.g. I eat **rice** everyday. I like **rice**.* (NOT "one rice", "two rices")
*We haven't got enough **water**.There is no **electricity** on deck B.*

We use

• **much** and **little** with uncountable nouns:
– much time, much luck, little energy, little money

• **many** and **few** with plural countable nouns:
– many friends, many people, few cars, few countries

– How much wine is there? There are **40 bottles / 40 litres of** wine.
– How much butter is there? There are **2 kilos of** butter.
– How much oil is there? There are **5 barrels / 50 gallons of** oil.
– How much cotton is there? There are **20 bales / 2 tonnes of** cotton.

two glasses of milk / **a bar of** soap
a carton of orange juice / **a bowl of** soup
a jar of honey / **three bags of** flour

To talk about quantities of items we can't count, we measure them in containers or by weight. **Partitives** are used to refer to different parts of a whole, like

containers *(a cup of coffee)*
a single item *(a loaf of bread)*
a part of a whole *(a slice of bread)*
measures *(a kilo of meat)*

– ***Tick the things you can count. Then, ask questions using 'how many' or 'how much'.***

✓ Passengers	How many passengers are there?
Water	How much water is there?
Money	_____
Oil	_____
Coffee	_____
Cotton	_____
Barrels	_____
Ice	_____
Containers	_____
Time	_____
Cars	_____
Soup	_____
Fire extinguishers	_____
Pressure	_____

II. Language Awareness: Joining words in speech: linking consonants and vowels

- In English we join or "link" words to each other when we speak. Because of this linking, the words in a sentence do not always sound the same as when we say them individually. Linking is very important for understanding spoken English. To understand it, you need to know the difference between vowel sounds and consonant sounds.

Vowels	**Consonants**
a, e, i, o, u	b, c, d, f, g, h, j, k, l, m, n, p, q, r, s, t, v, w, x, y, z

- ***When a word ends in a consonant sound, we often move the consonant sound to the beginning of the next word if that word starts with a vowel sound.***

We write	**We say**	**Joined sounds**
A lot of	A lo-tof	∩ A lot of
Can I have a bit of egg?	ca-nI-ha-va-bi-to-fegg	∩ ∩ ∩ ∩ Can I have a bit of egg
Turn off the heat	tur-noff the heat	∩ Turn off the heat
Two kilos of oranges	two kilo-so-foranges	∩ ∩ Two kilos of oranges
An old ally	a-nol-dally	∩ ∩ An old ally

– Read these phrases correctly and watch the linking.

- An old barrel of fish
- A tin of sweet corn
- A tonne of coal
- Most of us
- All of the honey
- She likes it all
- Have we got everything?
- It arrived at 8
- Must I wait on deck 1?
- Can I help or not?
- That's a lot of butter
- Twenty-five kilos of lamb
- Twenty kilos of onions
- Twenty-eight kilos of oranges
- Ten cents a kilo
- Six euros a kilo

3. Asking for prices

- **How much does it cost?**
- **How much do they cost?**

Greengrocer's Price List

Bananas: $9 / 2 kilos
Imported apples: $1.20 / kilo
Home apples: $2.40 / 3 kilos
Tangerines: $5 / kilo
Cherries: $4 / kilo
Oranges: $3 / kilo
Tomatoes: $2 / kilo
Pears: $4 / kilo

A. *Look at the picture and the price list above and answer the questions in full.*

1. How much does 1 kilo of oranges cost?
   .....
2. How many kilos of home apples can you buy for $5?
   .....
3. How much do 2 kilos of bananas cost?
   .....
4. How many kilos of tomatoes can you buy for $1?
   .....

B. ***Ask questions for the following answers.***

1. .....?
   Two and a half kilos of pears cost $10.
2. .....?
   You can buy half a kilo of bananas for $4.50.
3. .....?
   One kilo of tangerines costs $5.
4. .....?
   You can buy about two kilos of imported apples for $2.50.

C. ***You want to buy the following items. Call your greengrocer and place your order. Calculate how much your order costs in euros, pounds and dollars (approximately). The exchange rate is as follows: 1 USD = 0.7 Euro, 1 USD = 0.6 GBP.***

Buy:

2 kilos of tomatoes,
3 kilos of tangerines,
2 kilos of oranges
Total: $ _____
€ _____
£ _____

D. ***Shopping on the shore.***

A seafarer is on the shore and wants to buy a new camera. Write up the dialogue:

Seafarer: Excuse me, I want to buy a camera.
How _____ (this one / cost)?

Shop assistant: Oh, this camera _____ (cost / 350€).

Seafarer: That's very expensive!
How _____ (this model / cost)?

Shop assistant: That camera _____ (cost / 250€), sir.
And it's very reliable.

Seafarer: Let's have a closer look at it, then.

E. ***Practise a similar dialogue with a study partner. You want to buy a jacket, a pair of boots, etc.***

4. Inventory

Listen to the dialogue between the cook and the steward about an inventory of the food supplies on board.

A. ***Fill in the list. Listen to the dialogue twice. First fill in the food items missing. During the second listening, fill in the quantities and numbers.***

INVENTORY

Food items mentioned	We have (quantities)	We need
Apples	(2 cartons x 5 kilos) 10 kilos	(1 carton) 5 kilos
_____	(5 packages x 1 kilo) 5 kilos	_____
Tomato sauce	_____	X
_____	(10 packages x 10) 100	X
Milk	50 pints	X
_____	Not enough	_____
Sliced white bread	5 packages	_____ packages
_____	Not enough	50
Juice	_____	X
Chicken	10 kilos	X
_____	4 kilos	_____ kilos
Pork chops	Not enough	15 kilos
_____	Not enough	_____
Beer	Not enough	_____
_____	Not enough	_____
Salt and spices	Enough	X
_____	Enough	X

In the dialogue we hear the following phrases:

– we have got enough
– there is too much tomato sauce
– there are too many eggs
– there is not enough butter
– there isn't enough beef fillet.
– we have enough salt and spices

B. ***Complete the sentences. Use 'too much', 'too many', 'enough', or 'not enough'.***

1. Risk of overflow. There's _____ fuel in the tank. (too much / too many)
2. Visibility is poor. There's _____ fog. (too much / too many)
3. We need to buy more paper. There's _____ paper for the printer. (enough / not enough)
4. Do we have _____ provisions for the trip? (enough / not enough)
5. There are _____ sick crewmembers on board. (too much / too many)

5. Ordering supplies

A. ***Look at the supplier's web page and then answer the questions below.***

CAMPBELL'S SHIPS SUPPLIES

Atlantic Canada's largest full service ships supplier

Ships Supplies

Food Service

Inventory

Campbell's Foodservice has access to over 2 million pounds of national and brand name fresh and frozen food products on-site, providing "one-stop shopping" convenience for out customers.

Our inventory includes:

- Beef
- Desserts
- Poultry
- Fish
- Pork
- Bread
- Vegetables
- Fruit

Bonded stores:

- Duty-free Canadian and US tobacco products
- Duty-free spirits, wines, and beer

Delivery

Our local delivery personnel ensure customer foodservice orders are delivered in our modern fleet of temperature controlled refrigerated vehicles on time, every time.

Employees

Our employees always provide our customers with quality products, exceptional service and "common sense" advice because we listen, we understand, and we respond in a timely and professional manner to our customers' every need. We employ staff fluent in Portuguese, Spanish, Russian and Japanese to ensure all customers' requests are fully understood and filled.

Our ships' chandlers are dedicated to servicing all types of ocean-going vessels located at any port in Newfoundland. We deliver all goods and services on time, every time to meet our customers' port turnaround deadlines.

– Who is a "ship chandler"?
– What does the inventory include?
– What are "bonded stores"?
– How are the supplies delivered?

B. ***In pairs make a dialogue between the ship chandler and the person on board who is ordering supplies.***

Student A: You are on board MV Happiness. The cook has given you the list of food supplies you need to order. You have the exact quantities. Ask for the prices (you can try to negotiate prices if you want).

Item	Quantity	Price	Total
Apples	5 kg		
Tomatoes	4 kg		
Butter	5 kg		
White bread	15 packages		
Rolls	50		
Beef fillet	10 kg		
Pork Chops	15 kg		
Sausages	20 kg		
Beer	20 cans		
Olive oil	5 litres		

Student B: Give the prices. Don't forget to ask the customer to fill in and send you the order form by fax. Give him/her the final total price and offer a 10% off.

Item	Price ($/kg)	Quantity	Total
Apples	1.25		
Bananas	1.20		
Onions	0.60		
Tomatoes	1.00		
Butter	1.65		
Olive oil	4.50		
Sliced White Bread	0.80		
Rye bread	0.90		
Rolls	0.25/roll		
Beef fillet	6.00		
Pork chops	5.00		
Sausages	5.00		
Chicken	4.00		
Beer	1.00/750ml can		
Red Wine	4.00/litre		

Start like this: A: I'd like to place an order.
B: Sure, what do you need?
...

C. ***Order the supplies by fax. Fill in the information required. Rearrange the word order to write up your text.***

M/V **.....**

FAX

TO:	.....	FROM:	MASTER M/V .....
ATTN:	Mr. Hatz....	PHONE:	352389533 (INMARSAT B)
CC:	NONE	FAX No:	352389534
		TELEX:	352389535 PPP X (INMARSAT C)
FAX No:	+30 210 7725898	PAGES:	2 (including this one)
PHONE:	+30 210 7725897	DATE:	July 25, 2011
SUBJECT:	.....	Y/REF:	

☐ Urgent ☐ For Review ☐ Please Comment ☐ Please Reply ☐ Please Recycle

TEXT / REMARKS

my / made / to / this is / confirm / order / by phone.

.....

detailed / with / I / order / am / attaching / a 2nd page / the.

.....

agreed / the / total / is / amount / (in USD):

.....

6. Cargo handling

*(Section **B3** of Standard Marine Communication Phrases on Loading and Unloading)*

- ***Cargo handling gear: the facilities required for un/loading the cargo***

A. ***What cargo handling gear is shown in the pictures below?***

grain elevator and barge	**ore loader with conveyor belt system loading minerals**	**bobcat**
crane with grab discharging coal		**tanker deck piping**
forklift truck	**oil cargo pump**	**oil tanker cargo manifolds**
stowage plan		**gantry cranes in container terminal**

a).....

b).....

c).....

d).....

e).....

f).....

g).....

h).....

i).....

j).....

B. ***The following are verbs you need to give orders for handling cargo. Match them to their definition.***

overstow	exceed	relash	rig	secure

1. _____: go above / over (e.g. the speed limit)
2. _____: put on top (e.g. stack on top of something else)
3. _____: tie up again (using belts, strings, etc.)
4. _____: make safe by fastening down
5. _____: put together, fix and fit

C. ***Match the beginning and ending phrases to make full sentences.***

1. Do not exceed	... hooks for handling bags
2. Do not use	... the hold ventilation yet.
3. Do not overstow	... the loading rate of 2000 tonnes per hour.
4. Do not switch off	... cartons with other goods.

D. ***Match the verbs on the left to the phrases on the right to form full orders related to loading and cargo handling.***

1. Check	_____	the pallets closely together.
2. Secure	_____	damaged boxes.
3. Relash	_____	the winchmen.
4. Stow	_____	the correct fixing of the rope clips.
5. Place	_____	dunnage between the tiers.
6. Close	_____	the heavy lifts.
7. Refuse	_____	the hatches in case of rain.
8. Instruct	_____	all lashings.

E. ***Fill in the correct preposition.***

1. Check the containers _____ damage.
2. Keep _____ the safe working load of crane.
3. Clean the tween deck _____ opening lower hold.

7. Loading capacities and quantities

A. ***Answer the following questions in full, following the SMCP.***

1. Is the cargo list available and complete?
   Yes, ...
2. Are the holds free of smell?
   Yes, ...
3. Are the safety arrangements in the holds operational?
   No, ...
4. Are the hold ventilators operational?
   No, ...
5. Are dockside cranes available?
   Yes, ...

B. ***Write the questions for the following answers. Fill in the correct measurements/ quantities in the sentences where they are missing, using the table below.***

10 metres	2 tonnes	2000 tones per hour
30 containers per hour	2000 cubic metres per hour	20 by 20 metres

1. _____?
   26,000 cubic metres of cargo space are required.
2. _____?
   The handling capacity of the container crane is .....
3. _____?
   The SWL of the slings is .....
4. _____?
   The handling capacity of the ore loader is .....
5. _____?
   The size of the hatch openings is .....

6. _____?
   The SWL of the main deck is 15 tonnes per square metre.
7. _____?
   The maximum reach of the crane is .....
8. _____?
   The maximum discharging rate is .....

C. *Fill in the information / words needed on loading capacities and quantities.*

a) Complete the missing figures in the answers given according to the particulars of MV Nirint Commander.

b) Write a question for each answer. Then, practise saying the exchanges with your fellow students correctly. Watch the way you link vowels and consonant sounds as you speak.

1. _____ ?
   The deadweight is _____ tonnes.
2. _____ ?
   The hold capacity is _____ cubic feet for grain, and the bale capacity is _____ cft.
3. _____?
   The container capacity is _____ TEU.
4. _____?
   The refrigerated container capacity is _____ TEU.
5. _____?
   The loading capacity of the cranes is _____ metric tonnes combined.
6. _____?
   There are _____ holds available.

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Ships Particulars

Name	**MV "Nirint Commander"**
Flag	Antigua & Barbuda
Port of Registry	St John's
Build	1996 April
Callsign	V2VD
Class	Germanischer Lloyd GL + 100 A5 E GL + MC E AUT
Imo Number	9051595
LOA	100.70 mtr
Breadth mld	17.80 mtr
Draft	6.65 mtr on summer sw
Deadweight	6.149 tdw
Gross tonnage	4489 GRT
Net tonnage	2244 GRT
Panama fitted	YES
Suez fitted	YES

Type	Dry Cargo Multipurpose Container Vessel
Grain/Bale Capacity	268286 / 258150 cft
Container Capacity	377 TEU
Reefer plugs	30
No of Holds	2 box-shaped double skinned cargo holds
Tweendeck	Half flush removable tweendeck in Hold 2
Hatchcovers	MacGregor non-sequential pontoon hatch covers,
Ventilation	6 air changes per hour based on empty holds
Hold equipment	Co_2 fitted in all 2 cargo holds Steel floored tanktop with flush container shoes
Cargo handling gear	2 x 35 mt cranes Max. loading capacity 67 mt combined
Speed	abt 13.5 kn

D. ***Look at the ship's particulars for M/T Angelica Schulte and answer the following questions.***

1. What is the pumping capacity of the cargo pumps?
2. What is the pulling capacity of the mooring winch forward?
3. What is cargo tank No 2 (Port Side) capacity?

Ship's Particulars for *M/T "Angelica Schulte"*

Call sign.	: A 8 G V 4	MMSI	: 636 090 864	**Hull dimensions:**	
Homeport.	: Monrovia	Inmarsat-F (voice1)	: 764 341 666	Length LOA. Extr.	: 243,00 m
Nationality.	: Liberia	Inmarsat-F (voice2)	: 764 341 667	Length LPP.	: 233,00 m
IMO/Lloyds No.	: 9296822	Inmarsat-F (fax)	: 764 341 668	Breadth moulded.	: 42,00 m
Radio Accounting.	: CY 03	Inmarsat-F (data64)	: 600 628 253	Depth moulded.	: 20,70 m
		Inmarsat-F (MPDS)	: 600 628 254	Summer draught.	: 14,75 m
Date of keel laid	: 06-12-2004	Inmarsat-C	: 463 790 320	Corresponding deadweight.	: 106,443 mt
Date of delivery	: 21-04-2005			Max air draft above BL.	: 49,258 m

Load Line. (Freeboard from deck line)

Tropical	:	5688 mm (T)
Summer	:	5995 mm (S)
Winter	:	6302 mm (V)
Winter North Atlantic	:	not required
Load line:		
Fresh water allowance	:	334 mm above (S)
The upper edge of the deck line from which these freeboards are measured is:		NIL m

Builder	:	Universal Shipbuilding Corp.,Ariake Shipyard.
Building No.	:	010
Owner	:	*MS"Angelica Schulte" Schifffahrtgesellschaft mbH & Co. KG; Hamburg, Germany*
Operator	:	*Vorsetzen BSK* *Vorsetzen 53* *Hamburg 20459* *Germany* *Tlf. : + 49 - 40 82 22 650* *Telex : + 41- 21 26 7*

Mooring Winch

	Wire #	Brakes	Pull	Length	Dia.
Fwd.	4+4	61 t	16 t	250 m	33.5 mm
Aft.	6+2	61 t	16 t	250 m	33.5 mm

Tonnage	Gross	Net
International	56,163	32,720
Suez	57.624,26	53.519,48
Light ship weight	16.403 mt	
L.S. Freeboard	18.497	

Pumping Capacities

	Number	Each
Cargo pumps	3	2500 m^3/h
Stripping pump	1	150 m^3/h
Ballast pump	2	1500 m^3/h

RPM and SPEED

Engine order	RPM	Speed in loaded condition	Speed in ballast condition
Full navigation	97.6	15.7 knots	16.7 knots
Full ahead	68	11,0 knots	12,3 knots
Half ahead	58	9,4 knots	10,8 knots
Slow ahead	41	6,6 knots	8,0 knots
Dead slow ahead	32	5,2 knots	6,5 knots

Time and Distance to stop

	Normal loaded cond.		Normal ballast cond.	
	Time	Dist.	Time	Dist.
Full navigation	15'02"	1,88 nm	8'08"	1,1 nm

Main Engine: One "SULZER" 7RTA58T two-stroke, turbo-charged marine diesel engine / Max Cont. Rating: 14,000 kW at 103 rpm / Cont. Service Rating: 11,900 kW at 97.6 rpm / Max. F.O. daily consumption: 48.3 Mt / Max bunker intake: 2,972 m^3 Fuel Oil -330 m^3 Diesel Oil / Propeller submerged at: 7,54 m

Cargo Tank Capacities in M^3

	Port		Starboard	
	100 %	98 %	100 %	98 %
1	7,904	7,746	7,904	7,746
2	10,037	9,836	10,037	9,836
3	10,081	9,879	10,081	9,879
4	10,081	9,879	10,081	9,879
5	10,081	9,879	10,081	9,879
6	9,710	9,516	9,710	9,516
Slop	2,177	2,133	2,177	2,133
Total at 100 %: 120,142 m^3		**Total at 98 %: 117,736 m^3**		

Aux. Engines: YANMAR
6N21AL-DV
680 kW at 900 rpm.

BCM distance.	:	123,45 m
Bridge to CM.	:	80,83 m
Bridge to bow.	:	204,30 m
Bridge to stern.	:	38,70 m

E. *In pairs, exchange information according to the instructions below.*

Student A: Ask about the following capacities and fill them in.
e.g. ***What is*** *the deadweight of the vessel?*

dead-weight	maximum discharging rate	hold capacity	container capacity	maximum reach of the cranes	container crane handling capacity
main deck SWL	size of hatch openings	cargo pump capacity	SWL of fork-lift trucks	SWL of slings	SWL of cranes

Student B: Answer the questions using the particulars given on page 195.
e.g. ***What is*** *the deadweight of the vessel?*

- m^3/h (Cbm/h) = c _ _ _ c metres per h _ _ r
- t /m^2 (t/Sqm) = tonnes per s _ _ _ _ e metre

8. Cargo handling gear of different types of cargo ship

A. *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 recognize but don't understand
1 unknown to me

__ Stowage plan
__ Loading rate
__ Cargo list
__ Cargo shifting
__ Stability
__ Hold capacity
__ Storage
__ Cargo segregation
__ Rigging
__ Coamings
__ Notice of readiness to load
__ Commodities
__ Minimize
__ Locking Devices

B. *Find the words that describe how cargo is handled.*

- In a tanker cargo is p _ _ _ _ d through pipes.
- In a bulk carrier we use g _ _ _ s, tubes or e _ _ _ _ _ _ _ s.
- In container ships, containers are handled by special g _ _ _ _ y c _ _ _ _ s.

C. ***Write key words regarding cargo handling on each type of ship. Use the words in the box below.***

cargo pumps	elevator	~~deck cranes~~	lightering	pouring cargo in holds	tier/row/ bay
~~derricks~~	cells	manifolds	lashing	ship-to-shore connection	loader
conveyor belt	~~winches~~	~~cargo hoses~~	stacking	~~gantry crane~~	grab
~~slings~~	piping	locking devices	~~trimming~~	marine loading arms	

derricks, winches, deck cranes, slings

cargo hoses, ..., ..., ..., ..., ...

trimming, ..., ..., ..., ...

gantry crane, ..., ..., ..., ...

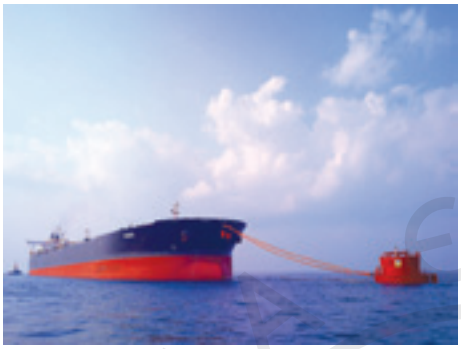
D. ***Underline the sentences on cargo handling and note the keywords to check your answers to the previous exercise.***

Cargo ships and their cargo handling gear

1. The general cargo ship uses various combinations of derricks, winches and deck cranes for the handling of cargo. Depending on the cargo, different types of slings can be used. Access to the holds is provided by hatch openings. Hatch covers of steel close the hatch openings when the ship is at sea. The hatch covers are made watertight and lie upon coamings around the hatch which are set some distance from the upper deck to reduce the risk of flooding in heavy seas. One or more separate decks are fitted in the cargo holds and are known as tween decks. Greater flexibility in loading and unloading, together with cargo segregation and improved stability, are possible using the tween deck spaces.
2. In tankers, cargo pumps are used for loading and discharging. Large amounts of piping are to be seen on the deck running from the pump rooms to the discharge manifolds positioned at midships, port and starboard. Loading an oil tanker consists primarily of pumping cargo into the ship's tanks. In discharging, the ship's cargo pumps are used to move the product ashore. Cargo can be moved on or off an oil tanker in several ways. One method is by ship-to-ship transfer, also known as lightering. In this method, two ships come alongside in open sea and oil is transferred manifold to manifold via flexible hoses. Lightering is sometimes used where a loaded tanker is too large to enter a specific port. Another method is for the ship to moor alongside a pier, connect with cargo hoses or marine loading arms. A third method (SBM, Single Buoy Mooring) involves mooring to offshore buoys and making a cargo connection via underwater cargo hoses.
3. Bulk/ore carriers transport single-commodity cargoes such as grain, sugar, coal and ores in bulk. Large hatchways are a feature of all bulk carriers, since they reduce cargo-handling time, facilitate rapid simple cargo handling and so improve loading rate. Cargo handling is done with loaders, conveyor belts, elevators and bulk-handling cranes which carry a grab or bucket. Cargo should be distributed evenly within each hold and trimmed to the boundaries of the cargo space to minimize the risk of it shifting at sea. So, after the cargo is poured in the holds, bobcats are used to keep the cargo levelled in order to maintain stability. A large proportion of bulk carriers do not carry cargo-handling equipment, because they trade between special terminals which have particular equipment for loading and unloading bulk commodities.
4. In container ships, the cargo-carrying section of the ship is divided into several holds which have hatch openings the full width and length of the hold. Cellular container ships are ships fitted throughout with fixed or portable cell guides for the carriage of containers. Depending on the type of the ship, containers are secured by cell guides, or are secured on deck by lashing gear (e.g. rods and twistlocks). Cargo handling consists only of vertical movement of the cargo in the hold and the containers are connected together at their corners by locking devices and stacked according to the tier / row / bay numbering system. The container crane is a special version of gantry crane operating in container terminals. These gigantic cranes lift the containers and place them one on top of the other in their respective cells. Once the hull is loaded additional containers are stacked on the deck.

E. *Write a title for each picture.*

Container securing (rods, twistlocks)	STS (Ship to Ship Operation)	SBM (Single Buoy Mooring or Single Point Mooring)
Pouring durum wheat into the holds	Container numbering system	



a).....

b).....

c).....

d).....

e).....

F. *Match the synonyms.*

1. feature	___ fast, quick
2. facilitate	___ product
3. rapid	___ amount, ratio
4. proportion	___ characteristic
5. commodity	___ make easy

G. *Fill in the table.*

Adjective	Noun	Verb
high		heighten
	width	
	length	
broad		
	depth	deepen

H. *Match the following to form correct collocations.*

gear	plan	rate	calculation

Loading _____
Stowage _____
Stability _____
Handling _____

I. *In the text of exercise D you read that the loading rate is improved due to large hatchways. Study the following paragraphs to familiarize yourself with more key words on loading procedures. Write up the missing words.*

- When acting as a cargo officer, the chief mate oversees the loading, stowage, securing and unloading of cargoes. Moreover the C/M is accountable for the care of cargo during the voyage. This includes a general responsibility for the stability conditions of the ship and special care for the cargoes that are dangerous, hazardous or harmful. That is why s/he makes the s _ _ _ _ _ _ _ y c _ _ _ _ _ _ _ _ _ n.
- The s _ _ _ _ _ e p _ _ n is a completed stowage diagram showing what material has been loaded and its stowage location in each hold, between-deck compartment, or other space in a ship, including deck space. Each port of discharge is indicated by colours, numbers or other appropriate means.

J. *SMCP: Preparing for loading and unloading / briefing on stowing and securing.*

Fill in the words:

tiers	**available**	**reach**	**stowage**
capacity	**free**	**bent**	**arrangements**
readiness	**list**	**stability**	**rate**

1. The cargo _____ will be available and complete in 10 minutes.
2. The _____ plan is completed.
3. Make the _____ calculation.
4. Give notice of _____ to discharge by 21:00 hours UTC.
5. What is the maximum loading _____?
6. Place dunnage between the _____ .
7. Are floating cranes _____?
8. What is the maximum _____ of the crane?
9. What is the handling _____ of the grain elevator?
10. Are the holds _____ of smell?
11. Are the safety _____ in the holds operational?
12. The hold ladder is _____. Straighten the hold ladder.

Round-up

A. Vocabulary Consolidation Self-Assessment.

In this chapter you practised vocabulary on the following topics; tick ☑ the topics you feel confident you can express yourself in English on, and give four key words connected to each topic.

- ☐ types of container
- ☐ types of cargo
- ☐ types of cargo ships and their cargo
- ☐ cargo handling gear
- ☐ cargo handling by different types of ships
- ☐ loading capacities and quantities
- ☐ numbers and measurements in an inventory of food supplies
- ☐ talking about prices in shopping and ordering goods

B. Class Project.

Find information on, and present in class one of the following:

- Future techniques in cargo handling; the development of integrated or multimodal systems.
- More information on one type of cargo handling gear, e.g. cranes (development, different types and models, etc).

C. Supply the term for the following definitions.

- a complete list of items such as goods in stock: i_____
- a dealer in supplies and equipment for ships: s_____ c_____
- the process of transferring cargo between vessels of different sizes: l_____

D. Choose the correct alternative.

1. The Safety Officer is **dependable / in charge / accountable** for any expired fire extinguisher that has not been replaced.

2. Tourism is a valuable **commodity / possession / item** for Greece.
3. When stowing dangerous cargo in a container ship, you must follow the **isolation / separation / segregation** requirements of the IMDG (International Maritime Dangerous Goods) Code.
4. This bag is **rotten / torn / cracked**. It cannot be accepted. It needs to be **resewn / restitched / reassembled**.
5. Do not **exceed / overcome / rise** above the speed limit of 50 miles per hour or you'll pay a fine.

E. Word Grid.

Look for 7 types of container and 7 items of cargo handling gear in the following word grid. Look for them horizontally and vertically.

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

F. Crossword puzzle.

Across:

2. Gantry _____
4/a. Cotton _____
4/b. If you feel sea-_____, take some medicine.
6/a. Iron-_____
6/b. _____ plan
9. Single _____ Mooring

Down:

1. _____ stores
3. Cargo handling _____
5. Sliced white _____.
7. Every month we have a(n) _____ of our supplies.
10. Rubber _____
12. Sea / treasure _____

	1	2	3	4	5	6	7	8	9	10	11	12	13
1	■	■	■	■		■		■	■	■	■	■	■
2	■	■	■						■	■	■	■	■
3	■	■	■	■		■		■	■	■	■	■	■
4	■	■	■					■	■				
5		■		■		■		■	■		■		■
6				■	■								■
7		■		■	■	■		■	■		■		■
8		■		■	■	■		■	■		■		■
9		■	■					■	■	■	■	■	■
10		■	■	■	■	■	■	■	■	■	■	■	■

UNIT 3

Vessel particulars/ specifications

1. Comparing vessels

I. Vessel particulars and technical specifications
II. Language Awareness: Comparative and Superlative adjectives
III. What are the world's largest ships?
IV. Ship dimensions

2. Function and operation of equipment on board

I. Communication safety equipment
Language Awareness:
II. What do you use this for? Infinitive of purpose / for + ing
III. Describing shapes and dimensions
IV. Navigation and nautical equipment on the bridge
V. Radar controls
VI. NAVTEX
VII. Operation manuals: SART, Radar
Vocabulary focus:
VIII. Multi-word verbs for mechanical operations
IX. SMCP multi-word verbs for various operations

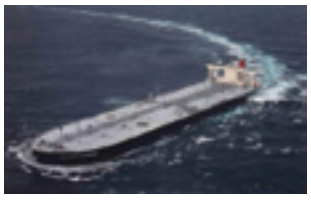
3. SMCP: Pilot on the bridge

Round-up

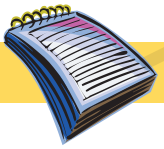
1. Comparing vessels

I. Vessel particulars and technical specifications

a) Listen to a presentation of the following three vessels and note down some of their particulars.



VESSEL DATA	BRITISH EMERALD	ATLANTIC PIONEER	OBERON
Type of vessel			
Flag			
Completion Year			
Length Overall			
Breadth			
Deadweight			



Glossary

specifications — the detailed description of requirements set by a classification society for a vessel under construction, in general, a detailed description of the design and materials used to make something

particulars — detailed information about someone or something

b) Listen again. Which of the following phrases can you hear in relation to each vessel? Write them in the correct column.

- the world's largest
- one of the largest
- ~~one of the newest~~
- the highest class
- more reliable
- more effective
- more expensive
- stronger
- the highest specifications

BRITISH EMERALD	ATLANTIC PIONEER	OBERON
.....	one of the newest	.....
.....	.....	.....
.....	.....	.....

c) Answer the following questions.

1. Which one of the three vessels is the largest of its kind?
2. Which is older, the Oberon or the British Emerald?
3. Which is longer, the Oberon or the British Emerald?

II. Language Awareness: Comparative and Superlative adjectives

Look at these examples:

The Atlantic Pioneer is **longer than** the British Emerald.
The British Emerald is **older than** the Oberon.
The DFDE engine is **more effective**.

- "long**er**", "old**er**" and "**more** effective" are ***comparative*** forms
- the comparative form is formed with **–er** or **more**…
- after comparatives you can use **than**

Spelling

In general, we use "**–er**" for short adjectives and "**more**…" for longer ones.

e.g. long ➔ longer
difficult ➔ more difficult

- wide → wid**er** [if the adjective ends in **–e**, simply add **–r**]
- heavy → heav**ier** [if the adjective ends in **–y**, change the **–y** to **–i** and add **–er**]
- big → big**ger** [if an adjective ends in a consonant + vowel + consonant before **–er**, the consonant at the end is "doubled"]

These adjectives have irregular comparative forms:

good → better *e.g. The new engine has a **better** performance record than the old one.*
bad → worse *e.g. Is your health better? No, I'm afraid it's **worse**.*
far → further (or farther) *e.g. It's a long drive from here to the port, **further** than I thought.*

Look at these examples:

The Atlantic Pioneer is **the longest** ship of the three.
The British Emerald is one of **the largest** LNG Carriers in the world.
The shipyard is one **of the most reliable** of its kind.

- "long**est**", "larg**est**" and "**most** reliable" are ***superlative*** forms
- the superlative form is formed with **–est** or **most**…
- we normally use **the** before a superlative

Spelling

In general, we use "**–est**" for short adjectives and "**most**…" for longer ones.

e.g. long → longest
difficult → most difficult

- wide → wid**est** [if the adjective ends in **–e**, simply add **–st**]
- heavy → heav**iest** [if the adjective ends in **–y**, change the **–y** to **–i** and add **–est**]
- big → big**gest** [If an adjective ends in a consonant + vowel + consonant before **–est**, the consonant at the end is "doubled"]

These adjectives have irregular superlative forms:

good → best *e.g. Tom is the **best** Chief Engineer I've ever worked with.*
bad → worst *e.g. What was the **worst** day of your life?*
far → furthest *e.g. What is the **furthest** point humans have travelled in space?*

a) Write the comparative and superlative form of these adjectives.

	Comparative	Superlative		Comparative	Superlative
interesting			lazy		
weak			cheap		
fat			slow		
funny			wise		
careful			important		

b) Fill in the following data for the vessel you served on as an apprentice in your training voyage. Then write sentences comparing M/V Buffalo to your vessel.

VESSEL DATA	M/V BUFFALO	YOUR VESSEL
Type of vessel	Container ship	
Flag	Danish	
Completion Year	2007	
Length Overall	294	
Breadth	32	
Deadweight	52,400	

Which of the two vessels is **older**? **longer**? **wider**? Whose cargo on board is **heavier**?

e.g. My vessel is older than the M/V Buffalo.

1. .....
2. .....
3. .....
4. .....

c) Ask your partner about the particulars of his / her vessel and fill them in the following chart.

VESSEL DATA	YOUR PARTNER'S VESSEL
Type of vessel	
Flag	
Completion Year	
Length Overall	
Breadth	
Deadweight	

d) Compare M/V Buffalo, your vessel and your study partner's vessel. Which of the three vessels is the oldest? longest? widest? Whose cargo on board is the heaviest?

e.g. My vessel is the oldest one.

1. .....
2. .....
3. .....
4. .....

e) Circle the correct form.

1. Rotterdam is the _____ port in Europe.
   a. busier
   b. busiest
   c. more busy

2. Germany is _____ than Denmark.
   a. bigger
   b. more big
   c. biggest

3. Christina is the _____ person I've ever met.
   a. more boring
   b. most boring
   c. boring

4. I prefer this cabin to the other one. It's _____ .
   a. comfortabler
   b. more comfortable
   c. most comfortable

5. What is the _____ way of getting from here to the port?
   a. quicker
   b. more quick
   c. quickest

f) Complete the sentences. Use the comparative or superlative form of the words in brackets.

1. Football is the _____ sport in Greece. (popular)
2. The sea in this area is _____ than we thought. (polluted)
3. It was a very bad mistake. It was the _____ mistake I've ever made. (bad)
4. Hotels in the city centre are _____ than hotels in the outskirts of the city. (expensive)
5. There are 11 students in this class. The _____ one is 22 years old. (young)
6. Have you lost weight? You look _____. (thin)
7. Iron is without doubt one of the _____ cargoes carried at sea. (dangerous)

III. What are the world's largest ships?

a) The largest cruise ship in the world.[1]

Read the text and choose the correct word in bold to create the right caption for each picture.

MS Allure of the Seas is the world's largest passenger vessel. It's only 5 cm (two inches) longer than her sister ship, the MS Oasis of the Seas.

The Allure of the Seas is 362m long, has a tonnage of 225,000 gross tons and carries around 5,600 people. The ship features telescopic funnels, a two-deck dance hall, a theatre with 1,380 seats and an ice skating rink.

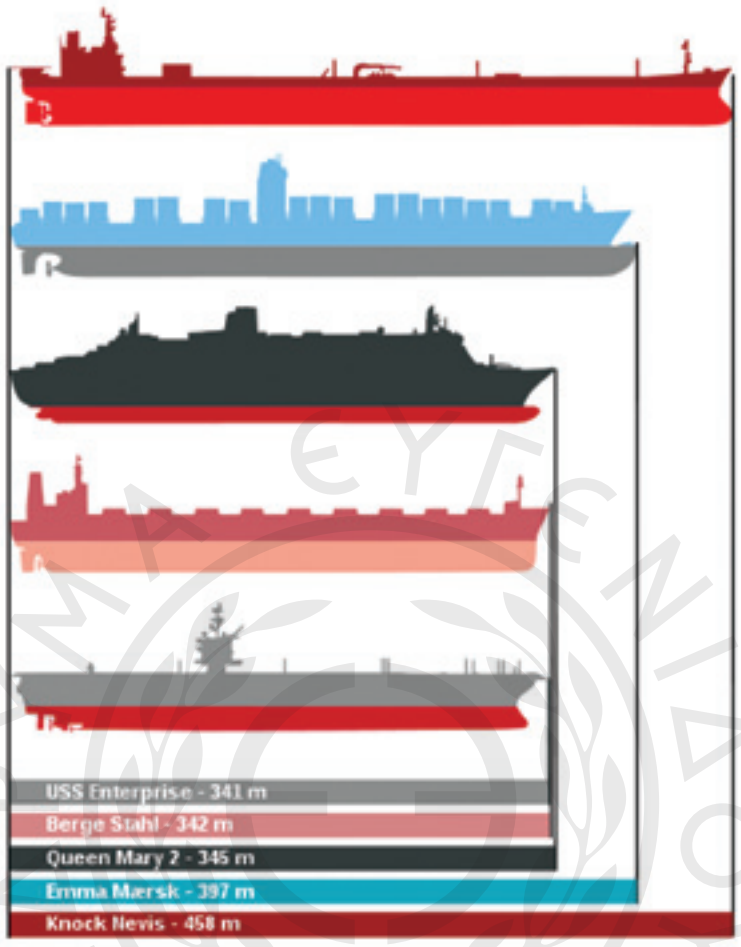
She made her maiden voyage from the shipyard in Turku, Finland, to her future home port in Florida, USA, in November 2010.

i. The Allure of the Seas is one of **the longer/ the longest** cruise ships in the world.

ii. The Allure of the Seas is 5 cm **longer/ shorter than** the Oasis of the Seas.

1. Information on ship comparisons and top 100 largest ships from www.largestshipintheworld.com.

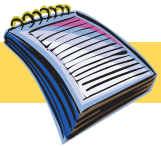
b) The top 5 largest vessels.



i. Look at the graph above and fill in the correct type of vessel in the following table. Use the types in the box.

Bulk carrier	Aircraft carrier	Ocean liner
Supertanker		Container ship

Name	Type	Length	Status
1. Knock Nevis (Seawise Giant)		458	Scrapped
2. Emma Maersk		397	In service
3. Queen Mary 2		345	In service
4. Berge Stahl		342	In service
5. USS Enterprise		341	In service



Glossary

allure	quality of being powerfully and mysteriously attractive and fascinating
sister ship	a ship that is one of two (or more) similar ships built at the same time, a ship of the same class and identical design to another ship
feature (v)	to have as a prominent attribute or aspect
maiden voyage	the first voyage of a ship
scrap	to discard or remove from service (an old or inoperative vessel), especially so as to convert it to scrap metal

ii. In pairs, ask and answer the following questions. Add some of your own questions, like the ones given, to compare the ships.

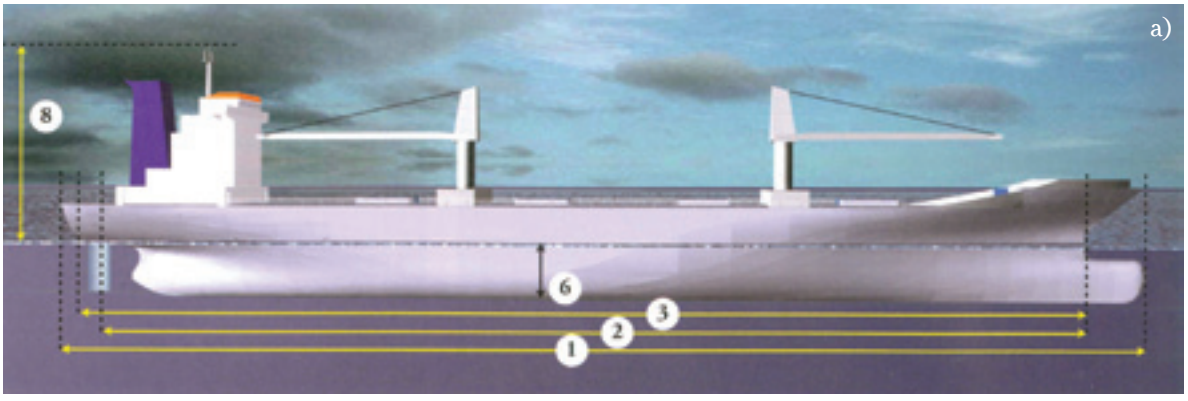
1. What is the world's largest ship in operation now?
2. Which one is bigger, the Queen Mary or the Oasis of the Seas?
3. Is the world's largest bulk carrier longer than the largest container ship?

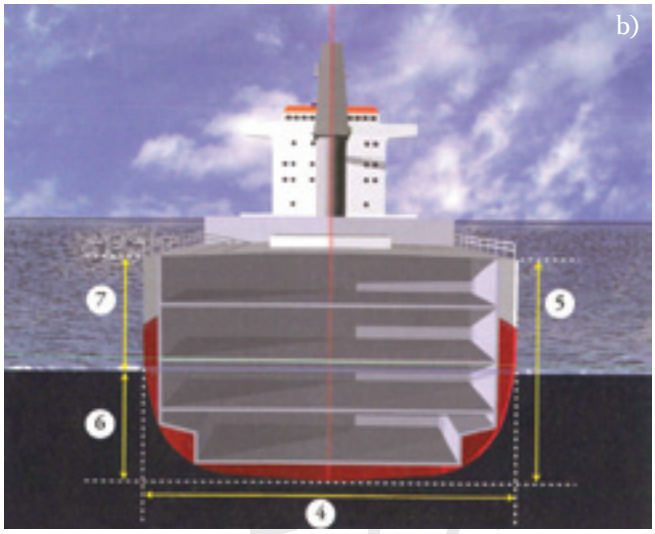
IV. Ship dimensions

a) Write the dimensions shown in the pictures.

Draught	**Air Draught**	**Depth**	**Breadth overall**
Length overall	~~**Length between perpendiculars**~~	**Freeboard**	~~**Length on the water line**~~

1. .....
2. .....Length between perpendiculars.....
3. .....Length on the water line .....
4. .....
5. .....
6. .....
7. .....
8. .....





b) Match the dimensions to their definitions.

Freeboard	**Beam**	**Draught**
Air draught	**Depth**	**Length overall**

1. _____: width (breadth) of the hull
2. _____: height from baseline to uppermost continuous deck
3. _____: the maximum depth underwater
4. _____: the horizontal distance over the extremities, from stem to stern
5. _____: the distance between the water line and the top of the deck at the side
6. _____: the vertical distance between the water line and the highest point of the ship

2. Function and operation of equipment on board

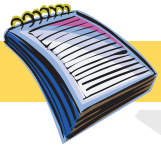
I. Communication safety equipment

– The following are devices related to communication safety. Match the words to the descriptions. The first one has been done for you.

NAVTEX	~~GMDSS~~	Voyage Data Recorder	EPIRB	SART

1	***2***
A GMDSS installation is legally required by SOLAS 74. It ensures that, irrespective of the ship's location, reliable shore to ship and ship to shore communication is possible in an emergency using radio and/or satellites.	*A _____ receiver receives and prints weather forecasts and warnings as well as distress messages.*

3	4	5
Life rafts and lifeboats are difficult to see on radar because of their poor radar-reflecting properties. A _____ is a device which, on receiving a radio signal, answers by transmitting a radio signal of the same frequency. This makes the life raft or lifeboat visible on the radar screen.	*The _____ is of use in case the ship is sinking so fast that the crew does not have the time to warn the world of a disaster. It rises to the surface of the water (through a hydrostatic release) and it transmits the MMSI number of the ship to a satellite, which, in turn, will warn a ground station. When it starts transmitting, a bearing can be taken and the position of the ship can be determined.*	*A _____ is an apparatus storing in a secure and retrievable form, the data of navigation, such as position, movement, speed, course, command and control (recording of voice on the bridge, etc.) leading up to and after an incident or accident.*



Glossary

irrespective of	not taking (something) into account, regardless of
reliable	able to be trusted, consistently good in quality or performance, dependable
properties	attributes, qualities or characteristics of something
determine	to establish or ascertain exactly (by calculation or research)
lead up to	to immediately precede, gradually result in

II. Language Awareness: What do you use this for? Infinitive of purpose / for + ing

To explain the equipment used for specific tasks you can use
to + **infinitive** / **for** + **ing**

What do you use a chipping hammer for?
You use it **to chip** the rust off. You use it **for chipping** the rust off.

In general,

- you can use **What**…**for**? to ask about the purpose of an object:

What** is this switch **for?

- you can use **for** + **–ing** to say what the purpose of an object is. **To** + **infinitive** is also possible.

*This knife is only **for cutting** bread. (or …**to cut** bread)*

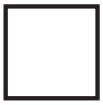
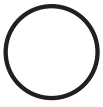
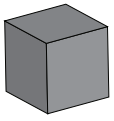
a) What is the name of each hand tool? What do you use it for? Write full sentences next to each picture. Use both to … and for … .

Pliers	~~turn screws~~
Hacksaw	cut metal
~~Screwdriver~~	scrape off paint
Scraper	hold and turn a nut or bolt
(Single German) Spanner	grip small objects and bend or cut wire

	NAME OF TOOL	USE OF TOOL
		
		
		
		
	Screwdriver	You use it for turning screws. You use it to turn screws.

III. Describing shapes and dimensions

a) Fill in the missing words in the following table.

Geometrical figure/ 3D object	Shape	Adjective
	square	square
	triangle	
	circle	circular
	rectangle	
		hexagonal
	sphere	spherical
	cylinder	
	cone	conical
		cubic

- You can say,

  It is circular in shape. **OR** It is shaped like a circle.

- You can also use the letters of the alphabet or well-known shapes like:

  S = S-shaped + = cross-shaped

- For dimensions, use the adjective and say, e.g.:

  It is 20 cm **long** / **high** / **wide / broad**

b) In pairs, describe the appliances shown in the pictures below and talk about their function and operation. What is shown in the two pictures below? Write the name under each picture.

a).....

b) .....

Student A: Ask about the appliance:
– What does it look like? (shape, dimensions)
– How does it work? (operation)
– Why do we use it? (function)
– Where can we find it on board? (location)
Guess which one it is.

Student B: Choose one of the two objects and describe it orally. Don't mention it by name.

IV. Navigation and nautical equipment on the bridge

Navigation and nautical equipment[2]

Generally, the following equipment is installed on the bridge:

- A **radar with ARPA** (Automatic Radar Plotting Aid), an automatic collision warning installation, with a rotating transmitting/receiving antenna, working in the X-band, 3 cm wavelength.
- A **second radar**, for ships larger than 500 GT, usually working on a different wavelength, as the two types of radar give different pictures of heavy rain showers, swell/wave reflections, fog, etc., working in S-band 10cm wavelength.
- Two independent **GPS** positioning systems, or even more accurately, **DGPS**, with an omni directional satellite receiving antenna and a parabolic correction antenna.
- A water depth meter: **echo sounder**, with printer.
- A **speed indicator** with distance counter (**log**).
- A **magnetic standard compass**, which has to be calibrated for the magnetic influence of the ship's steel. The deviation of the compass from the magnetic North has to be minimized by adding small magnets to the compass.
- A **gyro compass**
- An **automatic pilot**
- **AIS** automatic identification system

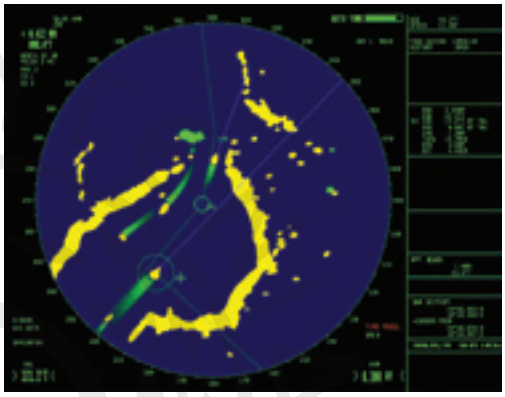
2. Ship Knowledge, 5th ed., 2008, p. 310.

– Look through the text above and find the words which mean.

1. A system of machinery set up for use: _____
2. It revolves, turns around an axis: _____
3. Capable of transmitting or receiving signals in all directions: _____
4. Instrument (gauge or meter) used to monitor the speed: _____
5. Adjusted, marked with a standard scale of readings: _____
6. Deflection of a compass needle caused by local magnetic influence: _____

V. Radar controls

The marine radar has performance adjustment controls for brightness and contrast, gain, tuning, sea clutter and rain clutter suppression, and other interference reduction. Other common controls consist of range scale, bearing cursor, fix/variable range marker or bearing/distance cursor.



Radar screen

– What are the following controls for? How do you use these controls? Use the phrases in the box to make full sentences as in the example.

reduce the effect of rain on the display
take a bearing measurement
✓suppress sea clutter
adjust the sensitivity of the receiver
generate a range ring

1. Anti-sea clutter: ……You use the anti-sea clutter control to suppress sea clutter……..
2. Gain: ……..
3. Range ring: ……..
4. Electronic bearing indicator: ……..……
5. Anti-rain clutter: ……

VI. NAVTEX

a) Listen to the dialogue and do exercises i-iv below. The officers are talking about the NAVTEX receiver.[3]

3. Information from Operation Manual for NAVTEX JRC NCR-300A.

i. Which of the following comparative adjectives can you hear in the dialogue? Circle the ones you can hear.

– more modern – easier to operate

– less complicated – quicker

– more sophisticated – more convenient

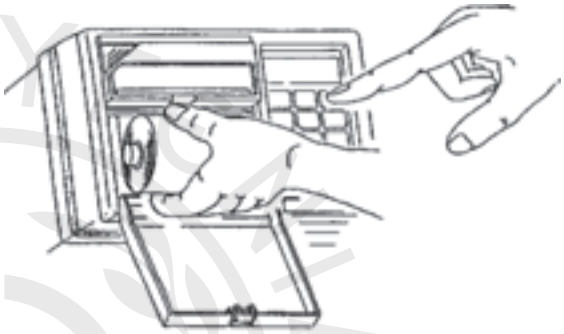
NAVTEX receiver

ii. Which sentence goes with the picture, A, B or C?

A. Press the POWER key to turn on the main power.

B. Hold the FEED key pressed until the paper is pulled in.

C. Press the ILLUM key and change it from Half-light ➔ Light.



iii. What do each of the following keys on the control panel do? Match.

TEST ➔	controls the lighting of display
ILLUM ➔	feeds the printing paper
SAVE ➔	feeds the printing paper
FEED ➔	stores received messages

iv. What do you use the keys above for?

You use the TEST key for / to….

b) Sentence stress: Practise saying the following sentences aloud, stressing strongly the word in bold. What is the difference in meaning? Match each sentence to the underlying meaning on the right.

1. You use the FEED key for **feeding** the printing paper. – (not the TEST key)
2. You use the **FEED** key for feeding the printing paper. – (not for taking out the paper)

Do the same with the sentences you formed in exercise **iv** above. Try stressing different words to give a different meaning to the same sentence. Then, explain the underlying meaning.

VII. Operation manuals: SART, Radar

Look at the following excerpts from technical manuals[4]. Fill in the missing verbs.

position	press	release	hold	click

GMDSS SART TESTER MANUAL	RADAR OPERATING INSTRUCTIONS
Controls and connections A four-row indicator and keyboard are on the front panel of the device. The right upper key ON turns on the device. The left key OFF turns off the device. The keys of lower row <, ESC, ENT, > provide for menu advancing and menu execution. The plug for power unit connection is in the lower part of the device. **Turn ON / OFF** To turn on the device (1) _____ the key ON and (2) _____ it till battery voltage U and internal SART temperature appear on the display and beep sounds. (3) _____ the key. In case the key is held 5 seconds longer the device will turn off automatically.	**Navigation** **Introduction** The display of waypoints, routes and steering data, is switched ON and OFF using the navigation (NAV) soft key. This key also provides access to the NAVIGATION menu and the editing facilities for: • Defining own ship's position; • Switching route display ON and OFF. **Accessing the NAVIGATION Menu** 1. _____ (4) the screen cursor over the "NAV" soft key. 2. Left _____ (5) to reveal the NAVIGATION menu. The Route Display can be switched-ON and OFF from within the menu. A left click on the EXIT NAVIGATION soft key will close the menu.

VIII. Vocabulary focus: Multi-word verbs for mechanical operations

Multi-word verbs include phrasal verbs, prepositional verbs and phrasal-prepositional verbs.

Look at these verb definitions:

Turn

• **turn** something **on** ▶ start the operation or flow of something by means of a switch, button or a tap.
• **turn** something **off** ▶ stop the operation or flow of something by means of a switch, button or a tap.
• **turn** something **down** ▶ adjust a control on an electrical device to reduce the volume, heat, etc.
• **turn** something **up** ▶ increase the volume of strength of sound, heat, etc. by turning a knob or switch on a device.

4. Bridge Master E Radar Operating Instructions and SART Manual.

Switch

• **switch** something **off** (or **on**) ▶ turn an electrical device off (or on).
• **switch down** (also, *shut down*, *close down*) ▶ stop or switch off a piece of machinery.

Start

• **start up** ▶ cause a machine to begin to work.

– Use the table above to fill in the gaps with the correct preposition.

1. Is the heater on? Yes, it's set to 21 °C.
   Turn _____ the heater to 23 °C, it's cold in here.
2. They forgot to switch _____ the hold ventilator and without proper ventilation the perishable cargo was destroyed.
3. Sorry I'm late. I couldn't start _____ my car in the morning so I had to take the bus.
4. Quickly, turn the pressure _____, it is increasing uncontrollably.
5. Remember to turn _____ the gas before you leave.
6. The radio is too loud. Please, turn the volume _____.
7. After a long day at work, I went home, turned _____ the TV and spent the entire evening watching soap operas.

IX. Vocabulary focus: SMCP multi-word verbs for various operations

a) Fill in the prepositions.

on	**out**	**up**	**off**	**over**
on	**out**	**up**	**off**	**by**

1. **fill** ____: cause a container or space to become full
2. **stand** ____: be ready to deal or assist with something
3. **stand** ____: continue on the same course
4. **take** ____: become airborne
5. **take** (clothing) ____: remove clothing from your body
6. **put** (clothing) ____: place clothing on your body
7. **put** ____: extinguish something that is burning
8. **take** ____: become responsible for a task in succession to another
9. **carry** ____: perform a task
10. **pick** ____: go and collect someone

b) Choose some of the verbs from exercise (a) to fill in the gaps.

1. Do not alter course. You must _____.
2. The helicopter is ready to _____.
3. Do not attempt to _____ the fire.
4. _____ and dispose of contaminated clothing.

c) Match the following to make full phrases.

1. take over …	…warm clothes
2. put on …	…survivors
3. fill up …	…the watch
4. carry out …	…on VHF channel 16
5. pick up …	…the tank
6. stand by …	…search pattern

3. SMCP: Pilot on the bridge

[A2 / 3.1-3.4: Propulsion System / Manoeuvring / Radar / Draught and Air draught]

A. ***The Pilot is on the bridge. S/he asks certain questions. Put the sentences under the correct heading.***

Propulsion system	Manoeuvring
	What is the advance and transfer distance in a crash-stop?

1. Is the turning effect of the propeller very strong?
2. How long does it take to change the engines from ahead to astern?
3. ~~What is the advance and transfer distance in a crash-stop?~~
4. Is the engine a diesel or a turbine?
5. What notice is required to reduce from full speed to manoeuvring speed?
6. Do you have single or twin propellers?
7. Do you have a bow thruster?
8. What is the full sea speed?

B. ***Intonation: Use arrows, (↗) or (↘), to indicate the correct intonation for the questions in exercise A above. Then repeat the questions to practise the correct intonation.***

Note: Usually yes/no questions have a rising intonation at the end of the sentence.

e.g. Is the pilot ready? (↗)

Usually information questions (wh-questions, what, how, etc.) have a falling intonation at the end of the sentence.

e.g. What is your current speed? (↘)

C. *Fill in the blanks with the words in the box.*

controllable	**manned**	**inward**
blasts	**revolutions**	**blind**
pilot	**diameter**	**available**

1. Is the engine-room _____ or is the engine on bridge control?
2. Is extra power _____ in an emergency?
3. Do you have a _____ or fixed pitch propeller?
4. The twin propellers turn _____ when going ahead.
5. What are the maximum _____ ahead?
6. I require the _____ card.
7. Give 2 prolonged _____ on the whistle.
8. Does the radar have any _____ sectors?
9. What is the _____ of the turning circle?

D. *Word stress: Which of these vocabulary items fit the following word stress patterns? Write each word under the correct pattern. The first one in each column has been done for you as an example.*

Note: ■ = the main stress of a word; the stressed syllable is louder, longer and higher pitched (in a higher voice)

■ = unstressed syllables or secondary (weaker) stress

prolonged	reduction	~~ahead~~	~~inward~~	transmission
pilot	available	~~automatic~~	operation	feature
~~propeller~~	manual	~~diameter~~	radar	retrievable
revolutions	controllable	release	~~maximum~~	propulsion

inward | ahead | propeller | maximum | diameter | automatic

E. *Match the words to make correct collocations.*

pilot	speed	draught	power	antenna	propeller

1. Maximum manoeuvring …….
2. Left-hand …….
3. Automatic ……..
4. Air ……..
5. Fairway …….
6. Radar …….

F. *Match the two halves to make full sentences.*

1. Stand by look-out	____ is 7 meters.
2. Maintain	____ is operational.
3. Change the radar	____ on the forecastle.
4. My draught forward	____ a speed of 4 knots.
5. The radar	____ to true-motion north-up.

G. *Write up the missing letters in the following terms.*

1. The propeller blades can be turned around the blade-axis, thereby changing the propeller pitch:
   • C _ _ _ _ _ _ _ _ _ _ _ (or adjustable) pitch propeller
2. A transversal propulsion device built in or mounted to the bow of a ship to make it more manoeuvrable:
   • Bow t _ _ _ _ _ _ _
3. An area which cannot be scanned by the ship's radar because it is shielded by parts of the superstructure, masts, etc.:
   • B _ _ _ _ s _ _ _ _ _
4. An emergency reversal operation of the main engine(s) to avoid a collision:
   • C _ _ _ _ - s _ _ _

H. *Briefing on navigational aids and equipment status (SMCP B1/1.3).*

Which of the following sentences are offering a briefing on navigational aids and navigational equipment status? Tick ☑ appropriately.

1. Port side / starboard side radar is at 6 miles range scale. ☐
2. The radar is relative head-up. ☐
3. Wind increased within last 2 hours. ☐
4. GPS is not in operation. ☐
5. The latest fire patrol was at 09.00 hours UTC. ☐
6. The echo-sounder recordings are unreliable. ☐
7. I changed to manual steering at 12.00 hours UTC. ☐
8. Navigation lights are switched on. ☐

I. ***Say the sentences in the previous exercise aloud. Watch the linking of consonant sounds (at the end of words) to vowel sounds (at the beginning of the next word). Mark the linking on the sentences.***

e.g. The radar is…

Round-up

A. Vocabulary Consolidation Self-Assessment.

Tick ☑ what you can do. Cross ☒ what you still find hard to do in English.

- ☐ Describe ship's dimensions
- ☐ Compare vessels
- ☐ Talk about the function and operation of communication equipment
- ☐ Describe equipment in terms of shape and dimensions
- ☐ Understand the main verbs we use for mechanical operations
- ☐ Use SMCP for Pilot briefing

B. Class Project.

Find out more about one of the largest ships in the world (presented in this unit) and present to class its history, particulars, operation, etc.

C. Fill in the gaps with the words in the box.

features	**scrap**	**retrievable**
sister ships	**maiden**	

1. The tanker was eventually sold for _____.
2. The hotel _____ a large lounge, a sauna and a solarium.
3. The _____ voyage of the Titanic was disastrous.
4. The _____ of the Titanic were the Olympic and the Britannic.
5. A VDR is storing data in _____ form.

D. Write the opposite.

start up	release	push down	turn off

1. press ≠ ……. the key
2. pull up ≠ ……. the handle

3. switch on ≠ ……. the navigation lights
4. shut down ≠ …….. the engine

E. Write the nouns.

1. suppress - …….
2. interfere - ……..
3. reduce - ……
4. adjust - …….
5. transmit - …….
6. install - …….

REVIEW 1

Units 1-3

Part One: Consolidation / Expansion

Topics:

1. The Mariner's Handbook: useful abbreviations
2. Cargo handling gear: Cranes
3. Emergency situation: Fire
4. Pilot boarding
5. Container vessel information

Part Two: Terminology Work

Part One: Consolidation / Expansion

1. The Mariner's Handbook: useful abbreviations

Task: Look at the following abbreviations which are used in The Mariners' Handbook[1]. Work in pairs to do the exercises below.

A. Put the correct title for each group of abbreviations. Use the following words.

Rescue and distress	**Times**	**Navigation**
Vessels and cargo	**Directions**	**Organizations**

B. Fill in the missing words to complete the abbreviations. Some help is given. Discuss them with your partner.

(1) _____

N _____ S _____
NE _____ SW _____

(2) _____

GPS _____ TSS Traffic _____ Scheme
_____ System VTS _____ Traffic

Offshore Operations

SBM Single buoy mooring

(3) _____

IALA International Association of _____ IMO International _____
_____ Authorities _____

Radio

HF High _____ VHF _____ high
Navtex Navigational _____ WT _____ telegraphy

(4) _____

EPIRB Emergency _____ MRCC Maritime _____
Indicating _____ Beacon _____ Co-ordination Centre
GMDSS Global _____ SAR _____ and
and _____ System

Tides

HW _____ water MLW Mean _____ water
LW _____ water MSL Mean sea level

1. Source: The Mariner's Handbook, NP 100, 7th ed.

(5) _____

ETA	Estimated time of	UTC	time
ETD	Estimated time of		

Units and Miscellaneous

°C	Celsius	Km	
dwt	tonnage	Kn	
feu	forty foot equivalent	m	metre(s)
gt	tonnage	mm	
hp	horse	teu	foot equivalent unit

(6) _____

LASH	aboard ship	POL	Petrol, & Lubricants
LNG	Liquefied	Ro-Ro	Roll-on,
LOA	overall	SS	Steamship
LPG	Liquefied Gas	ULCC	Ultra Large
MV	vessel	VLCC	Large

2. Cargo handling gear: Cranes

The following information comes from the brochure of a company that supplies harbour cranes[2].

A. What type of crane is shown in each picture?

a)

b)

c)

Mobile Harbour Crane: Picture ….
Floating Crane: Picture ….
Container Stacking Gantry Crane: Picture ….

2. Source: Gottwald.

B. Read the brochure and fill in the gaps with the words in the box below.

Integrated handling solutions:
• To ensure rapid container handling on the (1) ……..……., Mobile Harbour Cranes are a versatile and efficient alternative to purpose-built machines and can be easily integrated in the logistics chain. • Floating Cranes for mid-stream cargo handling and (2) …….. floating cranes. • Automated Stacking Gantry Cranes, for storing containers, ensuring high stacking (3)...……, short access times and high performance.
Environmentally-compatible products:
• Emphasis on products which contribute to meeting ever stricter environmental (4) …… legislation for ports and terminals. • Use of high-efficiency electric drive systems which prevent or significantly reduce (5) …… and sound emissions in ports and terminals.

protection	exhaust-gases	quay	barge-mounted	density

C. Find words in the brochure which mean the same or quite the same as the following.

1. It can be linked and co-coordinated to a bigger system: it can be _____
2. Flexible, adjustable, that can serve many different functions: _____
3. Designed and constructed to serve a particular use or purpose: _____
4. The production and discharge (into the air) of gas, radiation etc.: _____

3. Emergency situation: Fire

A. Listen to a short lecture on fire and note down its outline in the space provided. The parts are given below. First decide on the three main parts of the lecture, then list the details in the correct place.

✸ **Fire** ……
- Fire-retarding bulkheads / decks
- ……
- ……
- ……
- ……

✸ **Fire** ……
- Cleanliness
- ……
- ……

✸ Fire detection
- ……
- ……

✸Fire prevention

✸~~Fire detection~~

✸Fire protection

- Fire alarms
- ~~Fire-retarding bulkheads / decks~~
- Fire patrols
- Means of escape
- ~~Cleanliness~~
- Proper ventilation
- Sprinklers
- Correct cargo stowage
- Portable and fixed extinguisher systems
- Fire drills

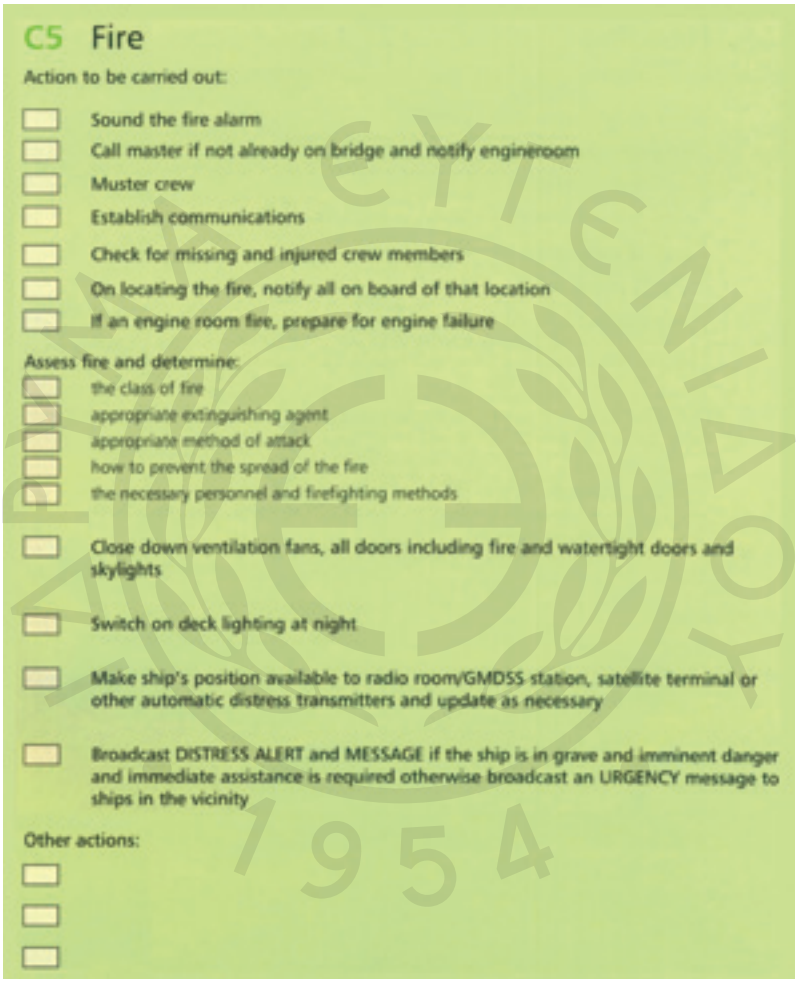
B. Fire: Emergency Checklist[3].

In pairs, say what you must do in case of a fire on board.

Student A: What must you do in case of fire on board? What are the actions to be carried out?

You must…

Student B: Tick the actions mentioned by your partner in the checklist. Ask him/her questions to help him/her mention as many actions as possible. Add any "other actions" s/he mentions at the bottom of the checklist.



C5 Fire

Action to be carried out:

- ☐ Sound the fire alarm
- ☐ Call master if not already on bridge and notify engineroom
- ☐ Muster crew
- ☐ Establish communications
- ☐ Check for missing and injured crew members
- ☐ On locating the fire, notify all on board of that location
- ☐ If an engine room fire, prepare for engine failure

Assess fire and determine:

- ☐ the class of fire
- ☐ appropriate extinguishing agent
- ☐ appropriate method of attack
- ☐ how to prevent the spread of the fire
- ☐ the necessary personnel and firefighting methods

- ☐ Close down ventilation fans, all doors including fire and watertight doors and skylights
- ☐ Switch on deck lighting at night
- ☐ Make ship's position available to radio room/GMDSS station, satellite terminal or other automatic distress transmitters and update as necessary
- ☐ Broadcast DISTRESS ALERT and MESSAGE if the ship is in grave and imminent danger and immediate assistance is required otherwise broadcast an URGENCY message to ships in the vicinity

Other actions:

- ☐
- ☐
- ☐

4. Pilot boarding

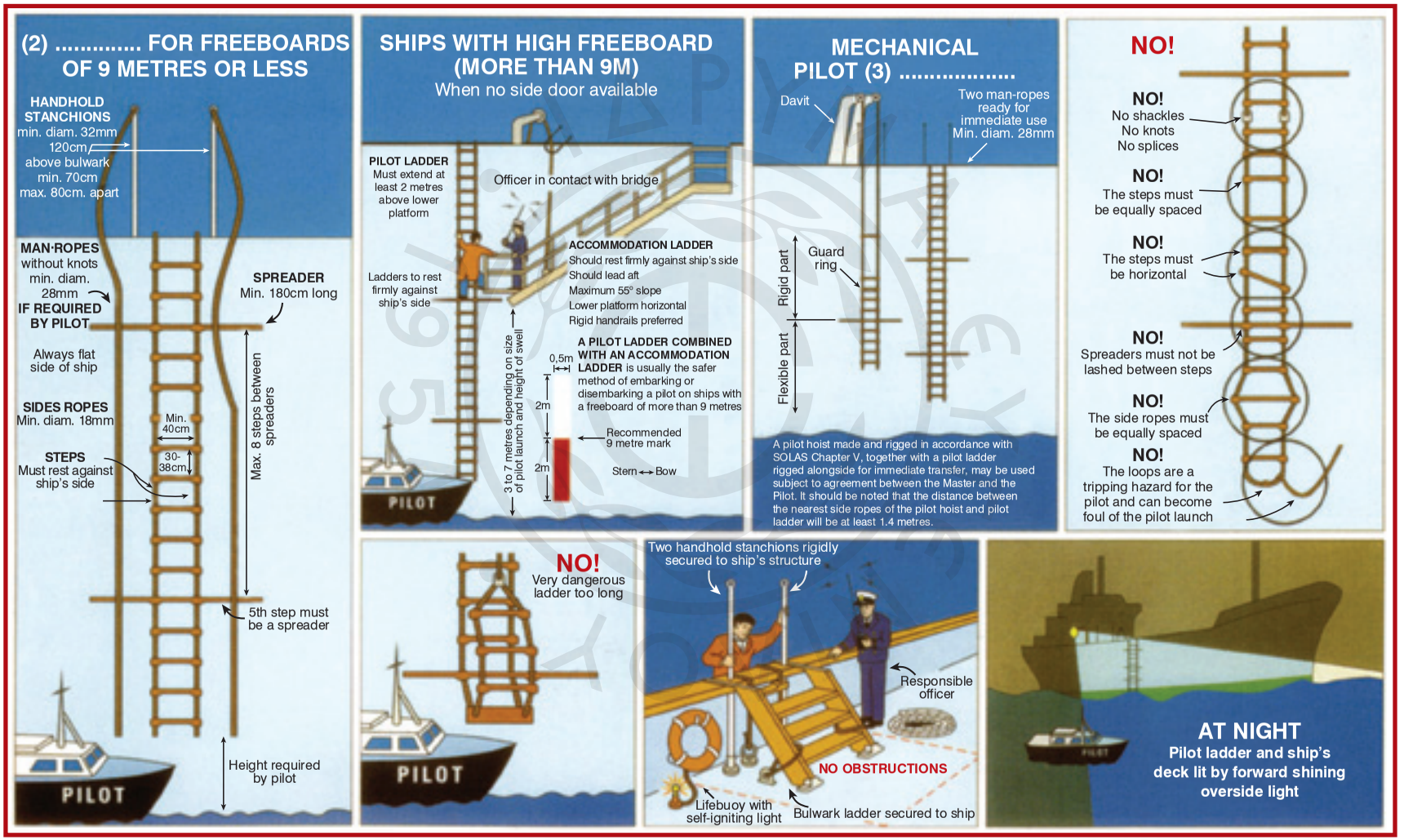
A. There are three gaps in the poster on the next page. Choose the right word for each gap from the following alternative words.

1. equipment / mechanism / arrangements
2. rigging / fixings / ropes
3. cable / ladder / hoist

3. C5 Fire, from Emergency Checklists, Bridge Procedures Guide, International Chamber of Shipping, 1998.

REQUIRED BOARDING (1)..... FOR PILOT

In accordance with I.M.O. requirements and I.M.P.A. recommendations



B. Write the missing titles in the SHIP TO SHORE Master/Pilot Exchange table. Use the headings below – there is one extra heading you will not need to use.

SHIP PARTICULARS	PILOT BOARDING	SHIP IDENTITY
ADDITIONAL COMMUNICATION INFORMATION	MANOEUVRING DETAILS AT CURRENT CONDITION	LOCAL WEATHER AND SEA CONDITIONS

SHIP TO SHORE Master/Pilot Exchange

(1).....

Name | Call sign | Flag

Ship's agent | Year built | IMO No

Cargo type | Ship type | Last port

(2).....

Fax | Telex | Other

(3).....

Date/ETA (UTC/LT) | Freeboard

Boarding station (if there is more than one)

(4).....

Draught fwd | Draught aft | Draught amidships (salt water)

Air draught | Length | Beam

Displacement | Dwt | Gross | Net

ANCHORS

Port anchor | Stbd anchor (length of cable available)

(5).....

Full speed | Half speed

Slow speed | Min. steering speed

Propeller direction of turn left/right | Controllable pitch yes/no

Number of propellers | Number of fwd thrusters | Number of aft thrusters

MAIN ENGINE DETAILS

Type of engine motor/turbine/other

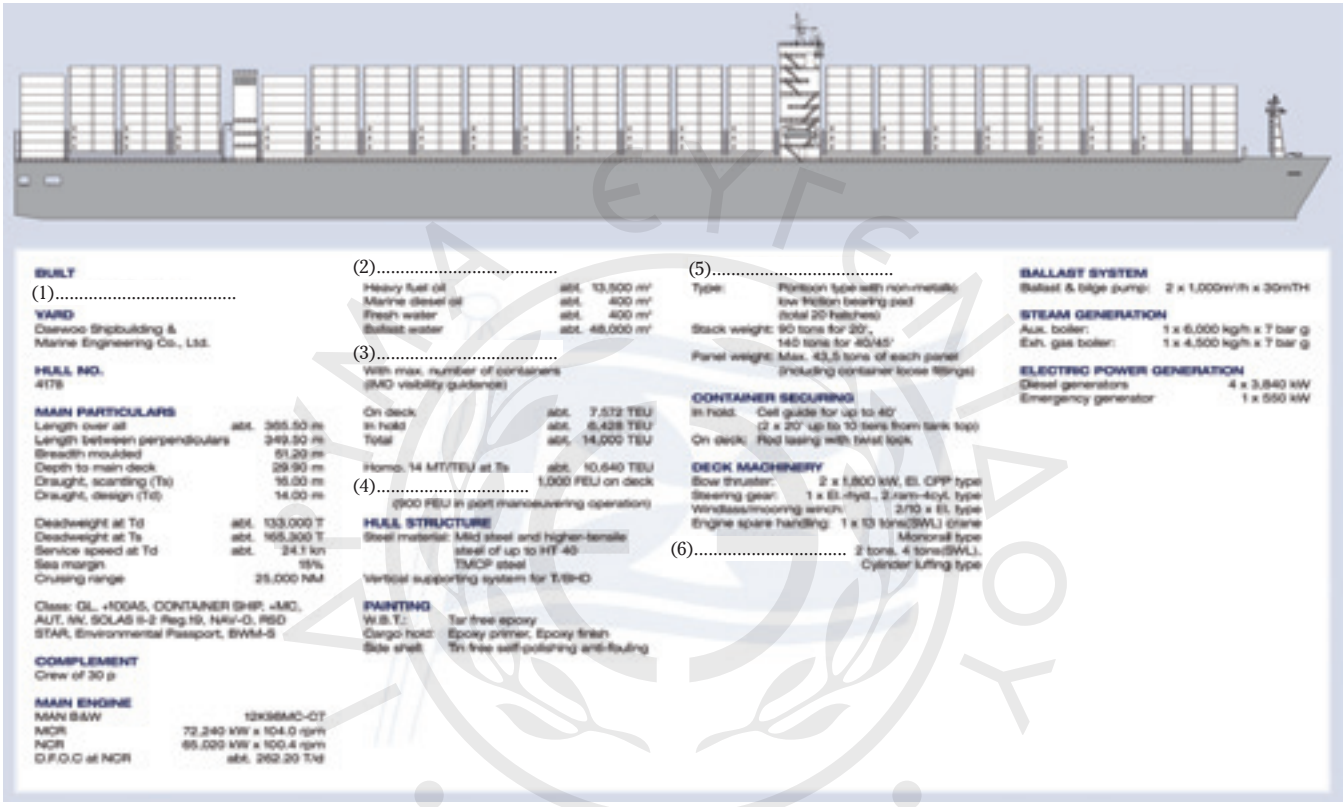
Max. number of engine starts | Time from full ahead to full astern

EQUIPMENT DEFECTS RELEVANT TO SAFE NAVIGATION

5. Container vessel information

Fill in the numbered gaps in the Container Vessel Information. Use the phrases below (there is one extra phrase you will not need to use).

Provision crane	Tank capacity	Pumping capacity	Container capacity
Reefer container	2009 (14,000 TEU Class)	Cargo Hatch Cover	



BUILT
(1).....
YARD
Daewoo Shipbuilding & Marine Engineering Co., Ltd.
HULL NO.
4178
MAIN PARTICULARS
Length over all abt. 365.50 m
Length between perpendiculars 349.50 m
Breadth moulded 51.20 m
Depth to main deck 29.90 m
Draught, scantling (Ts) 16.00 m
Draught, design (Td) 14.00 m
Deadweight at Td abt. 133,000 T
Deadweight at Ts abt. 165,300 T
Service speed at Td abt. 24.1 kn
Sea margin 15%
Cruising range 25,000 NM
Class: GL, +100A5, CONTAINER SHIP, +MC, AUT, NV, SOLAS II-2 Reg.19, NAV-O, RSD STAR, Environmental Passport, BWM-S
COMPLEMENT
Crew of 30 p
MAIN ENGINE
MAN B&W 12K98MC-GT
MCR 72,240 kW x 104.0 rpm
NCR 65,020 kW x 100.4 rpm
D.F.O.C at NCR abt. 262.20 T/d

(2).....
Heavy fuel oil abt. 13,500 m³
Marine diesel oil abt. 400 m³
Fresh water abt. 400 m³
Ballast water abt. 48,000 m³
(3).....
With max. number of containers (IMO visibility guidance)
On deck abt. 7,572 TEU
In hold abt. 6,428 TEU
Total abt. 14,000 TEU
Homo. 14 MT/TEU at Ts abt. 10,640 TEU
(4)..... 1,000 FEU on deck
(900 FEU in part manoeuvering operation)
HULL STRUCTURE
Steel material: Mild steel and higher-tensile steel of up to HT 40
TMCP steel
Vertical supporting system for T/SHD
PAINTING
W.B.T.: Tar free epoxy
Cargo hold: Epoxy primer, Epoxy finish
Side shell: Tin free self-polishing anti-fouling

(5).....
Type: Pontoon type with non-metallic low friction bearing pad (total 20 hatches)
Stack weight: 90 tons for 20', 140 tons for 40/45'
Panel weight: Max. 43.5 tons of each panel (including container loose fittings)
CONTAINER SECURING
In hold: Cell guide for up to 40' (2 x 20' up to 10 tiers from tank top)
On deck: Rod lasing with twist lock
DECK MACHINERY
Bow thruster: 2 x 1,800 kW, El. CPP type
Steering gear: 1 x El.-hyd., 2 ram-4cyl. type
Windlass/mooring winch: 2/10 x El. type
Engine spare handling: 1 x 10 tons(SWL) crane
Monorail type
(6)..... 2 tons, 4 tons(SWL), Cylinder luffing type

BALLAST SYSTEM
Ballast & bilge pump: 2 x 1,000m³/h x 30mTH
STEAM GENERATION
Aux. boiler: 1 x 6,000 kg/h x 7 bar g
Exh. gas boiler: 1 x 4,500 kg/h x 7 bar g
ELECTRIC POWER GENERATION
Diesel generators 4 x 3,840 kW
Emergency generator 1 x 550 kW

Part Two: Terminology Work

A. In pairs, announce and note down different types of distress.

Student A: Announce the distress situations you will find on page 195.

Student B: Listen and decide what the distress situation is. Write the type of distress in the space provided. Choose from the following list:

Fire	**Flooding**	**Grounding**
Sinking	**Armed attack / piracy**	**Disabled and adrift**
Collision	**List – danger of capsizing**	**Person overboard**

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____

B. Speak about the loading capacities of the vessel you worked on during your first training voyage as a Cadet Deck / Engineer Officer.

- Deadweight of vessel
- Hold/bale/grain capacity
- Container capacity: how many 20'/ 40' containers
- How much deck cargo
- How many cars, trailers, trucks, etc.
- Shipboard cargo handling gear and equipment
- Safe working load of the derricks (tonnes)
- Maximum reach of crane(s)
- Pumping capacity of cargo pumps
- Hatch covers: size of hatch opening

C. Fill in the correct preposition (on, of, under).

1. MV Polar is _____ fire.
2. There is danger _____ explosion.
3. MV Prosperity is not _____ command.
4. The fire is not _____ control.
5. What kind _____ assistance is required?

D. You have an inventory of food supplies on board. In pairs, check the quantity of the following items.

Student A: Ask about the following items, and suggest how much more of each is needed.
- – Butter
- – Olive oil
- – Chicken
- – Bread
- – Fruit juice

Student B: Answer, giving the correct amount.
Butter: 5 kilos
Olive oil: 10 litres
Chicken: 10 kilos
Bread: 20 loaves
Fruit juice: 20 cartons

e.g. How much butter have we got?
We have got 5 kilos of butter.

E. What cargo handling operation is shown in the following picture? Describe it to class and decide on five key words, which you will write down in the space below. See if your classmates agree about the key words.

Key words:

_____
_____
_____
_____
_____

F. Fill in the blanks with the following words (there are two extra words you do not need to use).

reefer	shipyard	gear	grab
flag	pipe	capacity	

M/V MAERSK BUFFALO is a container ship completed in 2007 in a German _____ and flies the _____ of Denmark. Its maximum TEU _____ is 4,300, and it can carry 1,400 TEU _____ containers. It has no handling _____ of its own.

G. Fill in the missing words.

relative	range	operation	switched	unreliable	manual

I will give you a briefing on status of navigational aids and equipment:

1. Port side / starboard radar is at 10 miles _____ scale.
2. The radar is _____ head-up.
3. GPS is not in _____.
4. The echo-sounder recordings are _____.
5. I changed to _____ steering at 12.00 hours UTC.
6. Navigation lights are _____ on.

H. Talk about one of the following pieces of equipment.

– What does it look like?
– How does it work?
– Why do we use it?

• Walkie-talkie	• Gyro compass
• EPIRB	• Radar
• VDR	• Gas monitor
• Echo sounder	• Breathing apparatus

I. Fill in the gaps with words from the box. There is one extra word which you do not need to use.

proceed	bonded	inventory	capacity	attempt
resuscitation	traffic	spill	adjust	frozen

1. Do not _____ to extinguish the fire!
2. _____ to your muster stations immediately.
3. In an enclosed space rescue, the emergency party must begin _____ if the victim is not breathing at all.
4. Refrigerated containers carry fresh produce and _____ foods.
5. Every month the chief steward has a/an _____ of the food reserves onboard.
6. _____ stores, such as spirits and tobacco products, are subject to special tax.
7. The grain _____ of the vessel is 286,286 cft.
8. How do I _____ the range, sir?
9. The Master notified the authorities about the oil _____ in accordance with the Vessel's Response Plan.

J. Match the cargoes to the containers.

cotton	tomatoes	rum	guns	vinegar	coal tar	milk powder	toys

Cask; _____ Carton; _____
Bale; _____ Bag; _____
Crate; _____ Drum; _____
Case; _____ Barrel; _____

K. Which emergency situation must the following actions be carried out for? Fill them in under the appropriate situation.

Actions to be carried out:

- Hoist signal flag 'O'
- Release lifebuoy with light and smoke signal
- Identify location of incoming water
- Sound the general emergency alarm
- Sound three prolonged blasts of the ship's whistle
- Close watertight doors
- Commence a recovery manoeuvre, such as a Williamson turn
- Cut off all electrical power running through the area
- Post a lookout with binoculars
- Check bilge pump for operation
- Check auxiliary pumps for back-up operation
- Prepare rescue boat for possible launching

Flooding	Man overboard

L. Match the synonyms.

1. gear	… kept at a refrigerated temperature
2. dairy products	… equipment
3. chilled	… to make better
4. to improve	… to make easier
5. to facilitate	… quick
6. rapid	… milk, yoghurt, etc.

M. Match the phrases to make full sentences.

1. Is there risk of	☐ drifting into danger.
2. Do not overstow cartons	☐ free of smell?
3. MV Pioneer is	☐ grounding at low water?
4. Are bob-cats available	☐ replace them.
5. Are the holds	☐ straighten it.
6. The container lashings are damaged,	☐ keep sharp lookout and report to the On-Scene Co-ordinator.
7. The hold ladder is bent,	☐ with other goods.
8. All vessels in the vicinity,	☐ for trimming?

UNIT 4

Visitors on board

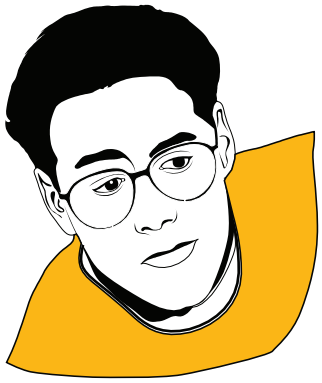
1. *What does s/he look like? People's physical appearance*
2. *What is s/he wearing? Clothing for work and casual wear*
3. *What is s/he like? People's character*
4. *SMCP: Passenger Care*

Round-up

Lead-in: describing / identifying visitors.

a. Listen to the dialogue. Look at the pictures and identify the people mentioned in the dialogue. Which one is the agent? Who is the superintendent?





b. IS or HAS? Fill in.

1. The agent …….. quite thin.
2. He …….. short grey hair.
3. The superintendent …….. a beard.
4. He …….. bald.

c. Say the following sentences aloud. What does the "**'s**" mean in each sentence? Write "is" or "has" in the space provided.

"'s" can be the contracted form of **is** or **has**.

	is or ***has***?
Do you know Bill? He's tall and thin.	
Linda's of medium height.	
Nick's got straight, brown hair.	

1. What does s/he look like? People's physical appearance

His name is Lionel Messi.

He is from Argentina. He is a young football player (forward) who plays for Barcelona FC.

What does he look like?

He is short. He has brown eyes and straight brown hair.

To ask about a person's appearance, we say:

What does s/he look like?	S/he is	short. thin. fair.	S/he has	brown hair. full lips. blue eyes.

A. *Adjectives for describing looks and appearance. Complete the missing letters to form correct adjectives.*

1. A _ _ _ _ _ _ _ _ e : a person who is good-looking (man or woman).
2. B _ _ _ _ _ _ _ l : a person who is extremely good looking (mainly used to describe women).
3. G _ _ _ _ _ _ s : very attractive, for men and women.
4. H _ _ _ _ _ _ e : a man who is extremely good looking.
5. O _ _ _ _ _ _ y : someone who is very plain; not beautiful.
6. P _ _ _ n : someone who is very ordinary-looking.
7. S _ _ _ _ _ y : someone whose appearance is very untidy.
8. S _ _ _ t : someone who takes a lot of care over their appearance.

To describe someone's appearance use the following adjectives:

a) HEIGHT: tall, short, of medium height
b) EYES: brown, hazel (= green + brown), blue, black, etc
c) HAIR: use three different adjectives to describe size, hairstyle and colour in that order

I have	long short medium-length	straight curly wavy	black blonde brown, etc.	hair.

d) BUILD: slightly overweight, slim, slender, medium-built, etc.

B. *Adjectives that describe build. Complete the missing letters to form correct adjectives.*

1. W _ _ l-b _ _ _ t : someone whose body shape or size is bigger that the average person.
2. S _ _ _ _ y : used to describe someone who is very thin (impolite).
3. T _ _ n : someone who weighs less that the average person.
4. C _ _ _ _ y : a polite way of describing someone who is a bit overweight.
5. F _ t : a negative way to describe someone who is overweight (impolite).
6. F _ t : someone who gets a lot of exercise and is very healthy.
7. F _ _ _ _ y : someone who doesn't get much exercise, with poor muscle tone.
8. L _ _ _ e : someone who is overweight (neutral).
9. M _ _ _ _ _ _ r : someone who is very strong and has well defined muscles.
10. P _ _ _ p : a tactful way of describing someone who is overweight (British English).
11. S _ _ _ _ y : short, with a strong, solid body.

e) COMPLEXION / SKIN COLOUR: fair, dark, light brown
- Asian; light-brown skin
- Black; dark skin [*Black* in British English, *African American* in American English]
- White; fair skin

f) OTHER FEATURES (Facial features): glasses, moustache, freckles, scar, etc.

C. *Additional words. Put the words in the correct list.*

tanned	fringe	pale	big forehead	ponytail
bald	receding hairline	thin / thick eyebrows	beard	long nose

Skin: ……, ……
Hair: ……, ……, ……, ……
Facial features: ……, ……, ……, ……

D. *What about you? What do you look like?*

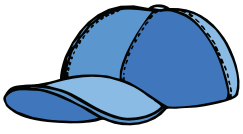
- I am ..... (HEIGHT)
- I have ..... eyes (COLOUR)
- I have ..... hair (LENGTH, HAIRSTYLE, COLOUR)
- I am ..... (BUILD)
- I have ..... (SKIN COLOUR, COMPLEXION)
- I have ..... (FEATURES)

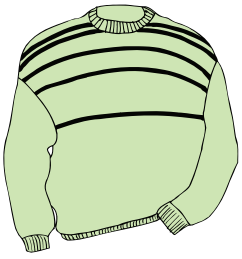
2. What is s/he wearing? Clothing for work and casual wear

A. *Match the words to the pictures of clothes.*

a) 

b) 

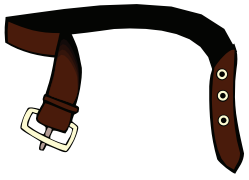
c) 

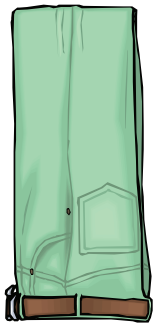
d) 

Boots
Hat
Cap
Belt
T-shirt
Trousers
Shirt
Sweater

e) 

f) 

g) 

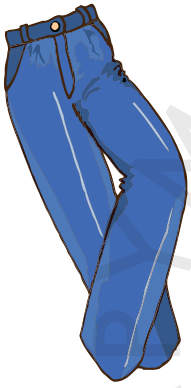
h) 

B. *Write the words for the clothes shown in each picture.*

a)

b)

c)



d)

e)

f)

g)

h)

a. R _ _ _ _ _ _ t
b. J _ _ _ _ t
c. S _ _ _ s
d. J _ _ _ s
e. U _ _ _ _ _ _ _ _ s
f. U _ _ _ _ _ m
g. O _ _ _ _ _ _ s
h. T _ _ _ _ _ _ s (or sneakers, sport shoes)

C. *Talk about yourself now. What are you wearing?*

D. ***Describe the person in the picture.***

- What does he look like?
- What is he wearing?

3. What is s/he like? People's character

To ask about people's character, we say:

What is s/he like?	S/he is	clever. lazy. serious.

A. ***Adjectives that describe people's personality. Complete the missing letters to form correct adjectives.***

a) Positive qualities:

1. B _ _ _ e : someone who is not afraid of danger or pain and shows courage.
2. C _ _ _ _ r : good at learning things.
3. E _ _ y-g _ _ _ g : someone who is easy to get along with.
4. G _ _ _ _ _ _ s : someone who shares his/her things with others.
5. H _ _ d-w _ _ _ _ _ g : someone who works very hard.
6. H _ _ _ _ t : someone who is truthful and who does not cheat or steal.
7. K _ _ d : someone who behaves in a caring way towards other people.
8. P _ _ _ _ e : someone who has good manners.
9. T _ _ y : a person who is very neat and well-organized.

b) Negative qualities:

1. L _ _ y : an inactive person who avoids work.
2. M _ _ n : (a) someone who is a nasty person.
   (b) someone who does not like spending money.
3. M _ _ _ y : someone who behaves differently every time you meet him/her.
4. R _ _ e : bad mannered, impolite.
5. S _ _ _ _ _ h : someone who only thinks about himself/herself.
6. S _ y : quiet and a little bit nervous around other people.
7. G _ _ _ _ y : bad-tempered.
8. V _ _ n : someone who thinks too much of his/her own appearance, abilities or worth.

B. *Choose from the adjectives above (in the previous exercise) to fill in the gaps.*

1. Tina is very _____. Yesterday she said hello; today she just ignored me.
2. Coastguards must be very _____. One of their duties is to rescue people in difficult circumstances.
3. My niece is a very _____ teenage girl. She always says please and thank you. But as she is growing up I think she is becoming a bit _____, she spends too much time looking in the mirror!
4. The manager gave all the employees of the company a really big bonus. It is the first time he is being so _____.
5. If you want to find out what really happened, ask Tom. He is very _____, he always tells the truth.

C. *Match the adjectives to the definitions.*

talkative	**creative**	**bossy**	**ambitious**	**anxious**
~~**sociable**~~	**dependable**	**bad-tempered**	**impulsive**	~~**introvert(ed)**~~

1. _____ – someone who is very reliable.
2. _____ – someone determined to be successful, rich, powerful, etc.
3. introverted – someone who is quiet and shy (≠ extroverted, out-going).
4. _____ – someone who acts before thinking.
5. _____ – someone who worries a lot.
6. _____ – someone who gets angry a lot.
7. _____ – someone who tries to control other people.
8. _____ – someone who is an original thinker or who has artistic skills.
9. sociable – someone who enjoys mixing with people.
10. _____ – someone who talks a lot.

D. *Choose from the words in the previous exercise to fill in the gaps.*

1. The Chief Mate is really …… . He is always shouting at the ratings.
2. He is very …… . He is hoping to be promoted soon.
3. My girlfriend is a bit …….. . She's always ordering me around.
4. The new cadet is very ……..; he has a lot of friends.
5. She's a …….. child who'll talk to anyone.
6. My brother can be a bit ……; he doesn't always think before she acts.

Modifiers for adjectives:

Very, *quite*, *slightly* are modifiers; they change (modify) the adjectives. You can use modifiers for the descriptive adjectives you are using, like:

S/he is	very / really quite slightly / a bit, etc.	selfish.

E. *Personality Questionnaire: In pairs, ask each other the following questions and describe each other's character.*

a) Ask your partner the following questionnaire questions and note down his/her answers.

What are you like?	YES	NO	Character trait
Do you often give presents, or pay for lunch or a coffee?	☐	☐	
Do you work hard?	☐	☐	
Do you often change opinion about things?	☐	☐	
Do you think the future will be good?	☐	☐	
Are you usually in a good mood?	☐	☐	
Can people trust you with a secret?	☐	☐	
Is it important for you to be successful in whatever you do?	☐	☐	
Do you become angry or annoyed if you have to wait for something or someone?	☐	☐	

b) Which of the following adjectives describe the quality asked about in each of the survey questions? Write them in the "character trait" column of the questionnaire.

- Cheerful
- Ambitious
- Generous
- Hard-working
- Impatient
- Trustworthy
- Optimistic
- Indecisive

c) Tell the class what you have learnt about your study partner. Try to use adjective modifiers.

e.g. S/he is quite optimistic as a person.

F. *Word Grid.*

a) Find 10 adjectives that describe personality in the following word grid. Look for them horizontally and vertically.

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

b) Which of the adjectives are positive and which ones are negative character traits? List them in the space provided below.

(+)	(–)
.....	.....
.....	.....
.....	.....
	.....
	.....
	.....
	.....

G. ***Use adjectives to describe your character and your best friend's character.***

1. What are you like?

I'm.....
.....
.....
.....

2. What is your best friend like?

S/he's .....
.....
.....
.....

H. ***A survey examined the stereotypes that exist for Filipino crew traits. Here are some of the subjective descriptions of Filipino crew[1]. Study them and answer the questions that follow.***

Positive stereotypes of Filipinos

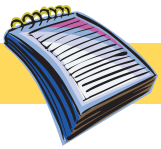
- Hardworking
- Flexible / adaptable
- Disciplined / obedient / respectful
- Sociable / happy / caring
- Family-focused

Negative stereotypes of Filipinos

- Lack of leadership
- Lower perception of risk
- Different / more localized sense of responsibility (reported by their European employers)

– Do you agree with the traits reported in the survey? Discuss in class.
– In your opinion, what are the positive / negative stereotypes for Greek seafarers?

1. Information from "'Flexible' Filipinos: myths and realities about Filipino seafarers", by Olivia Swift, Goldsmith University of London.



Glossary

trait	a particular quality in somebody's personality
flexible	able to change in order to suit new conditions or situations
disciplined	showing a controlled way of behaviour or way of working
obedient	doing what you are told to do, willing to obey
respectful	showing or feeling respect
lack	not having something, or not having enough of something
leadership	the ability to be a leader or the qualities a good leader should have
perception	the way you notice things, how you see or understand something
localized	happening within a small area
sense	understanding, judgment

I. ***Read the letter. The cadet is writing about two of the ship's officers.***

MV Pride
Esperance,
March 2011-04-07

Dear George,

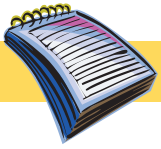
We are in Australia now, and we are **bound for** China tomorrow. Thank you for the magazines you sent me. I'm slowly **getting used to** the routine onboard. The people here are fine; I have no particular problem with any of them.

The Captain's name is Kostas. He is very young, only 34 years old and he is single, I think he is engaged to be married. He is tall, with short black hair. He is very fit, he exercises in the gym a lot. He never drinks alcohol or smokes. He is **committed**, and he takes his work very seriously. He is very dependable **work-wise**. I trust him completely. And he is **fair**, he does not do injustice to anyone.

The Chief Engineer, Sotiris, is around 48 or 50. He is short and **stout**, with a **beer belly**. He smokes a lot. He is very easy-going and you can talk to him about anything. He is like a father to me. He has two young daughters and says he might become my father-in-law one day. He is very helpful, hard-working, creative and good at his job.

Talk to you soon,
Fanis

a) Use the words that are written in bold in the letter to fill in the glossary below.



Glossary

.....	willing to work hard and give his time and energy to something; dedicated
.....	rather fat, plump
.....	ready to travel to a particular place
.....	treating people equally
.....	a man's fat stomach caused by drinking a lot of beer over a long period as regards work
.....	becoming familiar with something so that it no longer seems new or strange to you

b) Write sentences comparing the Captain to the Chief Engineer.

The Chief Engineer **is older than** the Captain.

.....
.....
.....

J. ***Write detailed descriptions of two people you worked with in your training voyage (the Master, Chief Officer, Second Officer, Chief Engineer, Second Engineer, Bosun, etc.) What do they look like? What are they like? Compare them.***

4. SMCP: Passenger Care

The Passenger Care section of the SMCP provides phrases that should help the officers and crew of passenger vessels to

- inform passengers on safety aspects.
- manage passengers in case of an emergency.

More specifically, Passenger Care deals with the following topics:

- Briefing on drills, the general emergency alarm, and the conduct of passengers on board.
- Instructions related to Evacuation and Boat drill.

  e.g. allocating to assembly stations, instructions on how to embark lifeboats, on-scene measures in lifeboats.

- Attending to passengers in an emergency.

  e.g. escorting helpless passengers.

A. ***Fill in the missing phrases in the following emergency announcements.***

– to be alarmed	– make another announcement
– for safety reasons	– I repeat
– this is	– further instructions
– under control	– to remain calm

PA announcements on emergency

Attention please!

1. _____ your captain speaking.
2. _____, this is your captain with an important announcement.
3. We have a minor fire in the galley.
4. There is no immediate danger to our passengers and there is no reason _____.
5. _____ we request all passengers to go to their assembly stations.
6. Wait there for _____.
7. The ship's fire-fighting team is fighting the fire. The fire is _____.
8. As soon as I have further information I will _____.
9. I ask you kindly _____. There is no danger at this time.

B. ***What should you say to passengers to inform them about how a roll call is performed? Put the sentences in the correct order. Write the correct number (1-4) in each box.***

Performing roll call

☐ When your name is called out, please answer loudly "Here".
☐ At your assembly stations one of the officers will perform a roll call.
☐ If one of your cabinmates is not able to attend the roll call, please inform the officer immediately.
☐ The officer will say "This is a roll call", and will call out the passengers individually by their names.

C. ***Fill in the gaps with the words in the box.***

appliances	**vicinity**	**contact**
list	**abandoned**	**panic**

Informing passengers on present situation

1. The vessel was _____ due to heavy _____.
2. Keep calm. There is no reason to _____.
3. There are enough life-saving _____ for everyone on board.
4. Vessels in the _____ have already been informed of our situation.
5. We have radio _____ with rescue craft.

D. ***Choose the correct alternative of the words in bold.***

Protective measures for children

1. Children must by kept under **permanent / stable** observation.
2. Never let children climb on the ship's **rails / bars**.
3. Special lifejackets for children are **accessible / available**; please ask the steward.
4. You may leave your children under **trained / qualified** care in the playroom on B Deck from 09.00 to 17.00 hours.

E. ***Put the words in the correct order to make full sentences.***

1. passengers / all / must / drill / this / attend.
   ……..
2. aid / who / first / needs / medical ?
   ……..
3. missing / all / search / cabins / persons / for.
   ……..
4. the injured / we / for / a stretcher / require.
   ……..
5. prohibited / this area / to / strictly / access / is.
   ……..

F. *Match the synonyms for the following verbs.*

get	assign	give out, hand out, deliver	be present at
accompany	behave	deal with, take care of	put out

1. attend ……
2. attend to ……
3. obtain ……
4. escort ……
5. extinguish ……
6. allocate ……
7. act ……
8. distribute ……

G. *Match the synonyms.*

1. seasick
2. property
3. exclusively
4. approximately
5. strictly
6. hazard
7. discipline
8. regulations
9. preventive
10. prohibited
11. manner
12. regarding
13. vital
14. unlikely
15. minor

☐ very important
☐ improbable
☐ belongings
☐ small
☐ nauseous
☐ concerning
☐ forbidden
☐ only
☐ precautionary
☐ about, roughly
☐ rules
☐ self-control
☐ way
☐ danger
☐ severely

H. *Match the words to create collocations.*

International ……..
Public address ……
Ration of ……
Drinking ……water……..
On-scene ……
Long-sleeved ……..
High-heeled ……
Personal ……
Escape ……
Imminent ……

system
~~water~~
provisions
regulations
danger
documents
route
shoes
shirts
measures

I. *Write the noun.*

Verb	Noun
Familiarize	
Demonstrate	
Hesitate	
Evacuate	

Verb	Noun
Assist	
Brief	
Access	
Order	

J. *Fill in the prepositions.*

to	**of**	**via**	**in**
in	**within**	**down**	

1. The vessel is _____ all respects ready for sea.
2. All safety equipment is _____ full working order.
3. Do not take _____ your head covering whatever the weather.
4. Rescue vessels are coming _____ our rescue. They will reach us _____ 30 minutes.
5. Sit _____ in the lifeboat immediately.
6. Access to the assembly station is _____ the lounge.

K. *Match the two halves to make full sentences.*

1. Discipline in the lifeboat is…	☐ a MAYDAY.
2. Do not drink seawater...	☐ of vital importance.
3. We will send…	☐ when entering the lifeboat.
4. Keep a sharp look-out...	☐ given by the crew.
5. We will fire rockets...	☐ to collect your property.
6. Follow closely the demonstration...	☐ whatever the situation.
7. Do not return to your cabin...	☐ for persons in the water.
8. Do not push each other...	☐ to attract attention.

Round-up

A. Vocabulary Consolidation Self-Assessment.

Tick ☑ what you can do. Cross ☒ what you still find hard to do in English.

- ☐ Identify a visitor on board from oral and written descriptions
- ☐ Give a full spoken or written description of someone
- ☐ Describe people's personality
- ☐ Understand phrases on Passenger Care
- ☐ Understand basic words for clothing items

B. Class Project.

What does the ISPS Code mention about visitors on board? What are the security measures that are taken before a visitor is accepted on board? What is "unauthorized access" and how is it prevented? Find out about these issues and make a brief presentation to your class. See if any of your classmates have any related experiences.

C. Match the opposites.

1. Generous	☐ Pessimistic
2. Optimistic	☐ Messy
3. Introverted	☐ Scruffy
4. Tidy	☐ Stingy
5. Lazy	☐ Extroverted
6. Ugly	☐ Short
7. Fit	☐ Overweight
8. Skinny	☐ Beautiful
9. Tall	☐ Flabby
10. Smart	☐ Hard-working

D. Fill in the gaps with the words below.

trait	**overalls**	**leadership**	**adaptable**
dimples	**attractive**	**wavy**	

1. The mechanic was wearing a pair of blue _____.
2. Awareness of class is typically a British _____.
3. Successful businesses are _____ to economic change.
4. Strong _____ is needed to manage the company effectively.
5. She's a very _____ girl. She's got long, _____ black hair. Her face is round, and she's got _____ on her cheeks, she's got long eyelashes and beautiful black eyes.

E. Write up the adjectives.

1. B _ _ d: a person who has no hair.
2. B _ _ _ _ e: a person who has yellow hair.
3. T _ _ _ _ d: having a brown skin colour as a result of being in the sun.
4. S _ _ r: a mark that is left on the skin after a wound has healed.
5. R _ _ _ _ _ _ g hair: hair that has stopped growing at the front of the head.

F. Cross the odd one out.

1. chatty – talkative – kind
2. wavy – curly – round
3. short – plump – overweight
4. slender – high – slim
5. grumpy – violent – bad-tempered

G. Idioms with "fat" or "thin". Circle the correct one in the definition, then fill in the examples.

- A *fat / thin* chance (of something)
  ▶You do not believe something is likely to happen

- Walking on *fat / thin* ice
  ▶You are taking a risk
- Disappear into *fat / thin* air
  ▶You disappear suddenly in a mysterious way

1. Me, getting a promotion? _____ chance of that happening!
2. Be careful, don't lend him all your savings, you are walking on _____ ice here!
3. Where is she? We have to find her. She can't have disappeared into _____ air!

UNIT 5

What weather is expected?

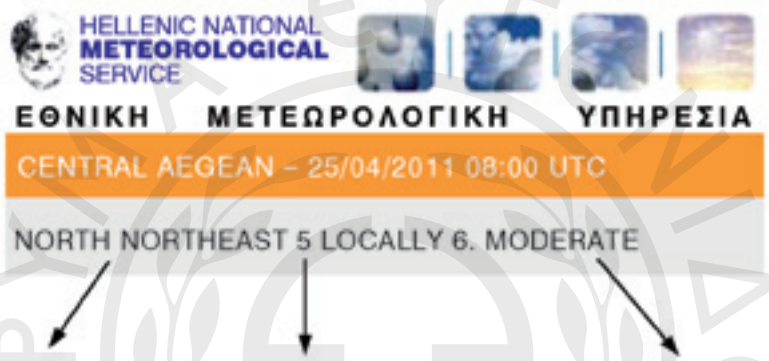
1. *Weather conditions*
   - *I. Types of weather*
   - *II. The climate*
   - *III. What's a tsunami?*
2. *Weather forecasts*
   - *I. Weather maps: current and anticipated weather*
   - *II. Language Awareness: will / going to*
   - *III. Maritime forecast*
   - *IV. VHF weather forecast*
   - *V. Satellite charts*
3. *SMCP*
   - *I. Safety communications and briefing on meteorological conditions [A1/3.1 & B1/1.5]*
   - *II. NAVTEX abbreviations for weather forecasts*
   - *III. Message markers: Warning, Advice, Request, Intention*
4. *Lights, shapes and sound signals*

Round-up

Lead-in: Check what you know.

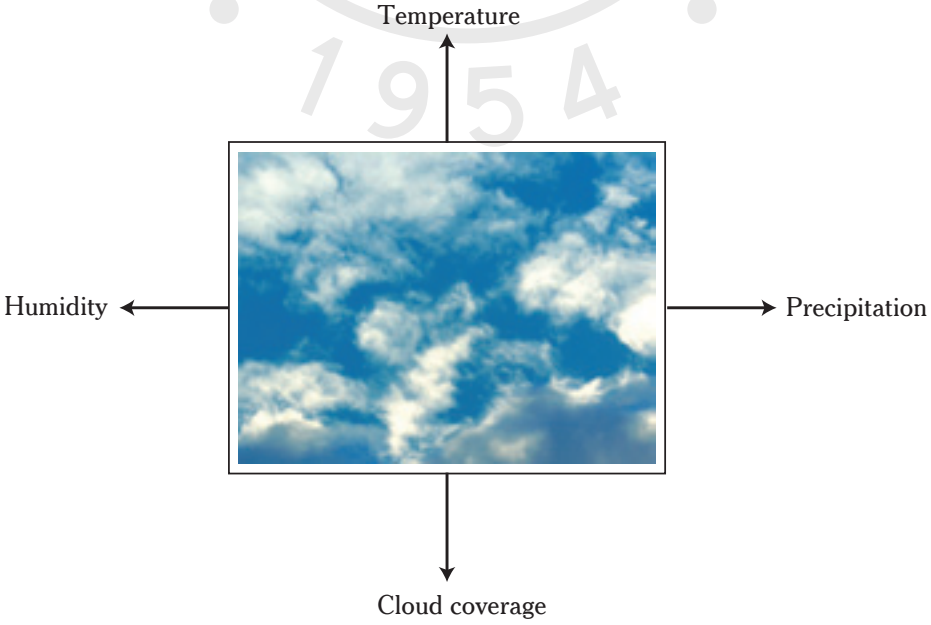
a. Can you explain the following message? Are there gale warnings for the particular day mentioned in the message or not?

b. Look at the following weather forecast. The arrows show three different pieces of information. What are they? Choose from the following: *humidity*, *wind direction*, *temperature*, *wind force*, *visibility* and write what is shown by each arrow.

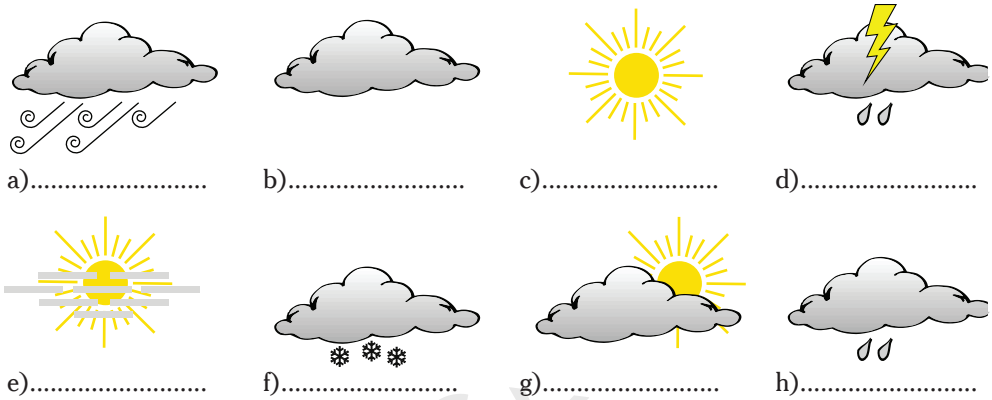


c. Look at the following words about the weather and put them in the right category.

rain	dry	clear	hot	snow	cold	wet	overcast



d. What's the weather like? Match the sentences to the pictures and write the correct sentence under each picture.



a)..... b)..... c)..... d).....

e)..... f)..... g)..... h).....

It's snowy	It's rainy	It's foggy	It's windy
It's stormy	It's cloudy	It's sunny	It's partly cloudy

1. Weather conditions

I. Types of weather

a) Look at the words related to weather in the box below and fill in the chart.

summer	~~thunderstorm~~	autumn	wet season	~~spring~~	rain	hail
tornado	blizzard	winter	hurricane (tropical cyclone)	dry season	snow	~~drizzle~~

SEASONS			
spring			
TROPICAL SEASONS			
STORMS			
thunderstorm			
PRECIPITATION			
drizzle			

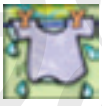
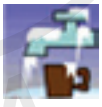
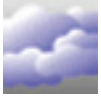
b) Look at the chart above and find the appropriate words which mean the following.

1. a storm with thunder and lightning and usually very heavy rain: ……
2. heavy violent snow storm with high winds: ……..
3. violent storm with very strong winds, especially in the Western Atlantic Ocean: ….....
   .....
4. fine, gentle, misty rain: ……
5. precipitation of spherical pellets (=small pieces) of ice and hard snow: …….....

c) Write the correct word(s) next to each symbol.

Weather Symbols[1]

– Hail
– Rain
– Partly cloudy
– Snow
– Blizzard, Snowstorm
– Drizzle, Light rain
– Dry
– Windy, Gale
– Sunny
– Freezing
– Overcast
– Cold, Chilly
– Clear
– Warm

01		Thunderstorms, Storm, Lightning	12		Cloudy
02			13		
03			14		
04			15		
05		Sleet	16		Wet, Humid
06		Showers	17		
07			18		
08			19		Hot
09		Fog	20		
10			21		
11			22		Cool

1. Source: World Meteorological Organisation, Weather icons.

d) Answer the questions, as in the example.

e.g. *What's the weather like in December in your home area?*
It's snowy and cold.

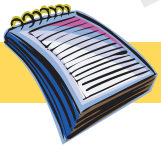
- What's the weather like in November in your home area?
- What's the weather like in February in your home area?
- What's the weather like in August in your home area?
- What's the weather like in May in your home area?

II. The climate

a) Read about the Climate in Western Australia[2] and do the exercises that follow.

The Climate in Western Australia

The Western Australian climate is the most diverse in the country, and it is divided into three main climatic zones: tropical, semi-arid and Mediterranean. The north is tropical, characterized by a sunny dry season (April to September) and a wet season (October to March) with its humidity, heavy rains and thunderstorms. The dry season has ideal temperatures, with hot days and mild evenings, and is perhaps the best time to travel to Western Australia. The central part of the state falls within the semi-arid zone and consists mostly of desert regions. A temperate, Mediterranean climate characterizes the south where the summers are warm and dry and the winters mild and wet. Perth lies within this zone and the hot summer days are cooled by the strong afternoon sea breeze. Perth has a very low rate of humidity. Winters (June to August) are mild, with the wettest month being July.



Glossary

diverse	showing a great deal of variety; very different
arid	having little or no rain, very dry
humidity	the amount of water in the air
ideal	perfect; most suitable
mild	(of weather) not very cold, and therefore pleasant; moderately warm
temperate	(of climate) having a mild temperature without extremes of heat or cold
sea breeze	a wind blowing from the sea/ocean towards the land

i. Underline all the words used for the climate in the article and then write them down below.

tropical,

2. Source: Western Australia Climate and Weather from WorldTravels.

ii. What are the characteristic weather conditions of each season in Western Australia? Put the words in the correct space.

rainy	hot	stormy	sunny	humid	mild

- dry season: ……, ……, …… .
- wet season: ……, ……, …… .

iii. Answer the following questions.

What is the climate in Perth?
When is the most rain in Perth?
What is the hottest month in your home area?
What is the wettest month in your home area?

b) The Climate in Greece[3]. Fill in the gaps for a description of the climate in Greece.

freezing	coldest	mild	dry	mainland	sunshine

The Climate in Greece

The climate in Greece is typical of the Mediterranean climate: _____ and rainy winters, relatively warm and _____ summers and, generally, extended periods of _____ throughout most of the year.

In terms of climatology, the year can be broadly divided into two main seasons. The cold and rainy period lasting from the mid of October until the end of March, and the warm and non-rain season lasting from April until September. During the first period the _____ months are January and February, with, on average, mean minimum temperature ranging between 5-10 degrees Celsius near the coasts and 0-5 over _____ areas, with lower values (generally below _____) over the northern part of the country.

III. What's a tsunami?

a) What is a tsunami?[4] Do you know how it is caused and if it can be predicted? Read the sentences below and try to guess the correct alternative for each gap. Then listen and circle the correct answer. Fill in the gaps.

3. Source: Climatology: The Climate of Greece, Hellenic National Meteorological Service.
4. Source: Podcast "Diving Deeper: Episode 22 (April 21, 2010) What are tides?", US National Ocean Service.

Definition 1. A tsunami or _____ is a series of ocean waves caused by the displacement of a large volume of water.	tidal wave / ocean wave
Causes 2. Tsunamis are commonly generated by _____ in coastal and marine regions.	volcanic activity / earthquakes
3. Tsunamis frequently occur in the _____ Ocean.	Atlantic / Pacific
The Indian Ocean Tsunami in 2004 4. The catastrophic Indian Ocean Tsunami in 2004 was generated when a magnitude _____ earthquake struck the coastal region of Indonesia.	7,0 / 9,0 (on the Richter scale)
5. The Indian Ocean Tsunami was over _____ meters high.	10 / 30
6. It killed 240,000 people in Indonesia and _____ people in Thailand, Sri Lanka and India.	30,000 / 60,000
Prediction 7. Predicting when and where the next tsunami will strike is currently _____.	possible / impossible
8. We can forecast the tsunami _____ and roughly what we think the impact will be.	arrival time / speed
9. Warning signs just prior to a tsunami: • if you see the water receding from the shoreline • if you see or hear approaching water (tsunami survivors described the loud sound of an approaching tsunami as similar to _____) • if you feel a strong earthquake	a freight train / heavy rain
10. If a tsunami is coming you should right away_____	evacuate the area / move to high ground

Glossary

displacement	the action of moving something from its place or position; also, the volume or weight of water displaced by a floating ship, used as a measure of the ship's size, e.g. a ship with a displacement of 10.000 tons
magnitude	the size of an earthquake
roughly	approximately, but not exactly
impact	the powerful effect that something has on somebody or something
prior to	before
receding	move gradually away from a previous position

b) Story in the News: Japanese tsunami garbage island moves towards US.[5]

Following the March 2011 Japanese earthquake and tsunami disasters, a massive amount of rubbish has washed into the Pacific Ocean. The US Navy is watching the garbage with interest as it floats towards Hawaii and the west coast of the USA.

i. Listen to the news story and circle the correct alternative(s). (More than one can be correct).

1. The floating objects have been declared a maritime hazard by the American Navy because
   a. they could pierce the body of a boat.
   b. they could destroy engines in the Pacific's shipping lanes.
   c. they could destroy offshore installations in the Pacific.
2. The debris is made up by
   a. entire houses and household furniture.
   b. car parts and tyres.
   c. upturned boats and fishing equipment.
3. How long is the island of debris that causes the most concern?
   a. 10 kilometers long.
   b. 100 kilometers long.
   c. 110 kilometers long.
4. What impact can the wreckage have?
   a. It could cause damage to port facilities in Hawaii.
   b. It could foul beaches and reefs off the Eastern North Pacific.
   c. It could kill marine life.

ii. You heard the following vocabulary in the report. Find out what the words mean by matching them to the definitions.

pierce	debris	maritime hazard	foul	shipping lanes

1. a danger, encountered while at sea: _____
2. puncture or damage the outer layer of something: _____
3. routes traveled by ships and boats at sea: _____
4. wreckage or garbage: _____
5. pollute, make dirty: _____

2. Weather forecasts

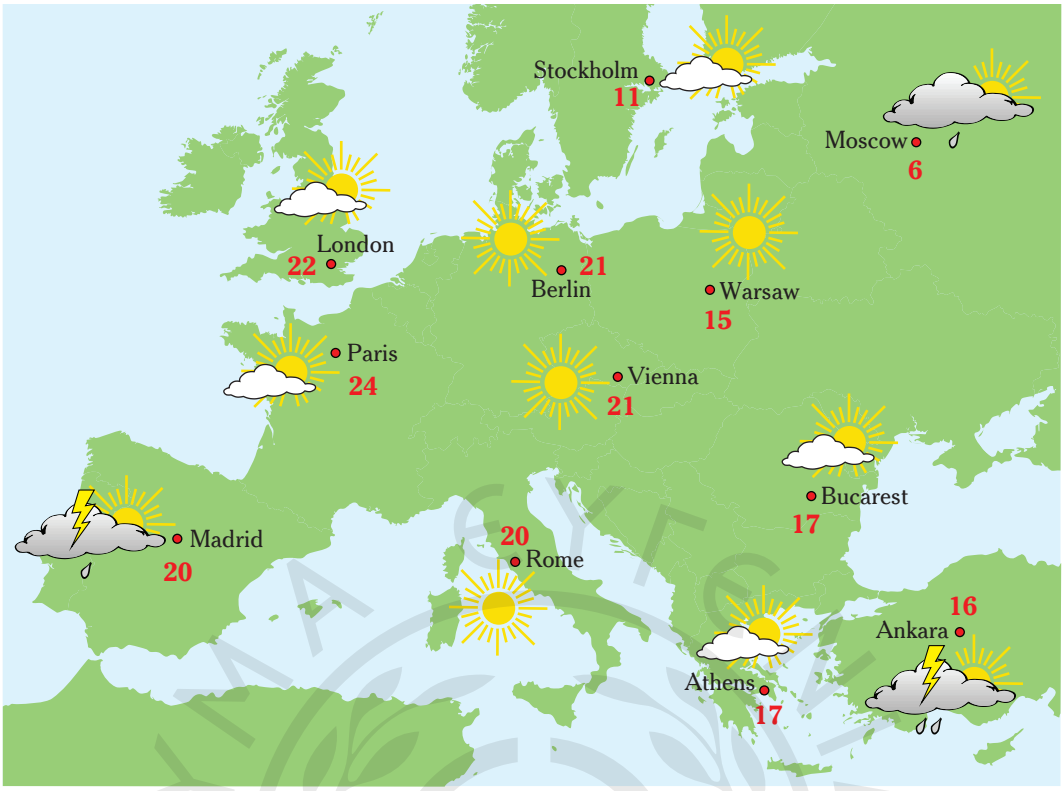
I. Weather maps: current and anticipated weather

Look at the weather map on the next page. What is the weather like in Europe?[6]

This is how we ask and answer about the weather:

Question: *What is the weather like?*
Answer: *It's rainy (or it's cold, or it's windy, etc.)*

5. Mark Lobel, BBC News "Japanese garbage island moves towards US", 11th April 2011.
6. Weather maps and symbols from WeatherOnline.



This is the key to the weather symbols used on the map:

Sunny *Mostly sunny* *Partly cloudy, dry* *Partly cloudly, light rain*

Partly cloudly, rain *Partly cloudy, isolated showers, thunderstorms* *Partly cloudy, showers, thunderstorms*

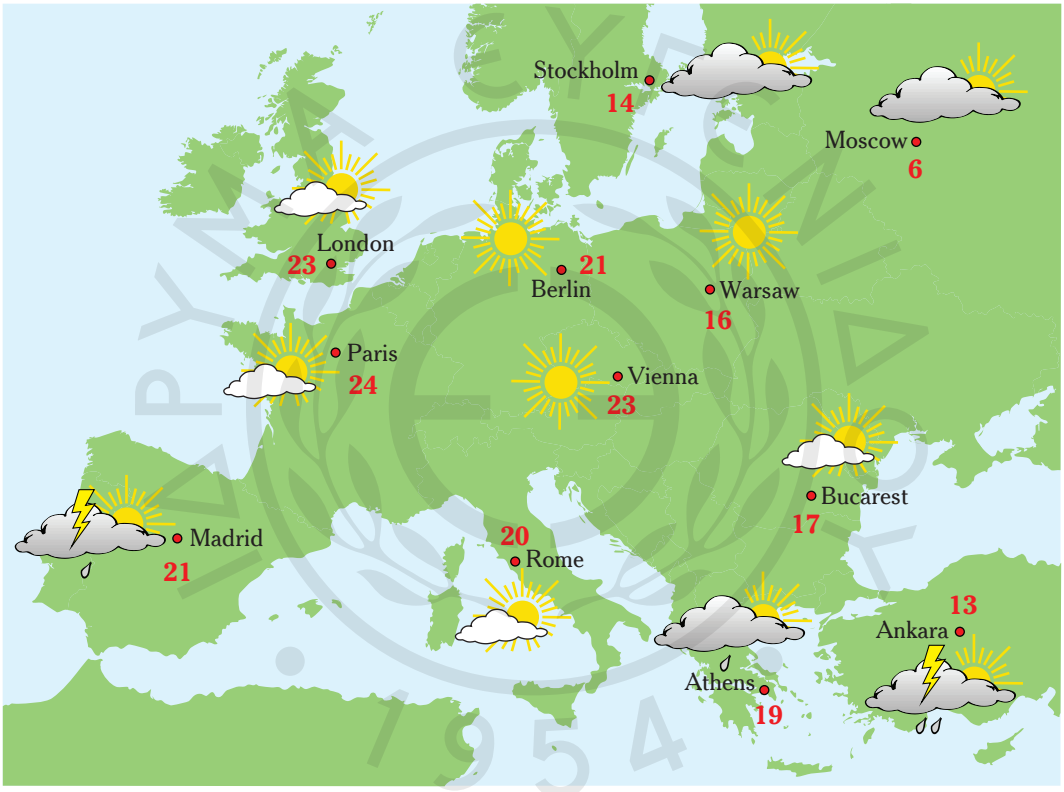
a) Answer the questions about today's weather and temperature. Use the information on the map above and the key to the weather symbols.

1. What is the weather like in Bucarest?
   It's mostly sunny today. The temperature is 17 degrees Celsius.
2. What is the weather like in Madrid?
   .....
3. Where is the hottest weather?
   .....
4. Which is sunnier: Vienna or Stockholm?
   .....
5. What is the weather like in Athens?
   .....
6. Where is it the coldest?
   .....

7. Is Berlin hotter than London?
   .....
8. What's the weather like in Rome?
   .....
9. Is Warsaw colder than Bucarest?
   .....

Look at the weather map below. What is the weather going to be like in Europe tomorrow?

This is how we ask and answer about the weather forecast:
Question: *What is the weather going to be like?*
Answer: *It's going to be rainy (or it's going to be windy, etc.)*



b) Answer the questions about the weather forecast for tomorrow. Use the information on the map above.

1. What is the weather going to be like in Rome tomorrow?
   Tomorrow it's going to be mostly sunny and warm.
2. What's the weather going to be like in London?
   .....
3. What's the weather going to be like in Madrid?
   .....
4. What's the weather going to be like in Athens?
   .....

5. What's the weather going to be like in Bucarest?
……
6. Where is it going to be the coldest?
……
7. Where is it going to be the hottest?
……
8. Is Ankara going to be hotter than Berlin?
……
9. Is Stockholm going to be hotter than Moscow?
……
10. Is Vienna going to be colder than Warsaw?
……

II. Language Awareness: will / going to

Look at the following phrases, taken from weather forecasts:

> Melbourne **is going to** be dry.
> Showers **will** break out later in the evening.

We use both "going to" and "will" for weather forecast.

- **"going to"** is used for pre-determined prediction about the weather:

e.g. The weather forecast says it is going to rain tomorrow.

Generally, we can use both "will" and "going to" to predict the future.

- **"going to"** is used to predict the future when we have already got some evidence that something is certain or likely to happen. When we say "something is going to happen", we know (or think) this because of the situation now.

e.g. It's going to rain later. Look at those black clouds in the sky!
(I can see the clouds building up now, it is sure to happen)

- **"will"** tends to be used when this evidence is not present, or at least is not as concrete.

e.g. I think it will rain later.
(It often does at this time of year)

a) You've seen the weather forecast for tomorrow and you are talking to a friend. Finish up the sentences using "going to" and one of the phrases below.

– rainy and windy
– cold
– windy and warm
– hot and sunny

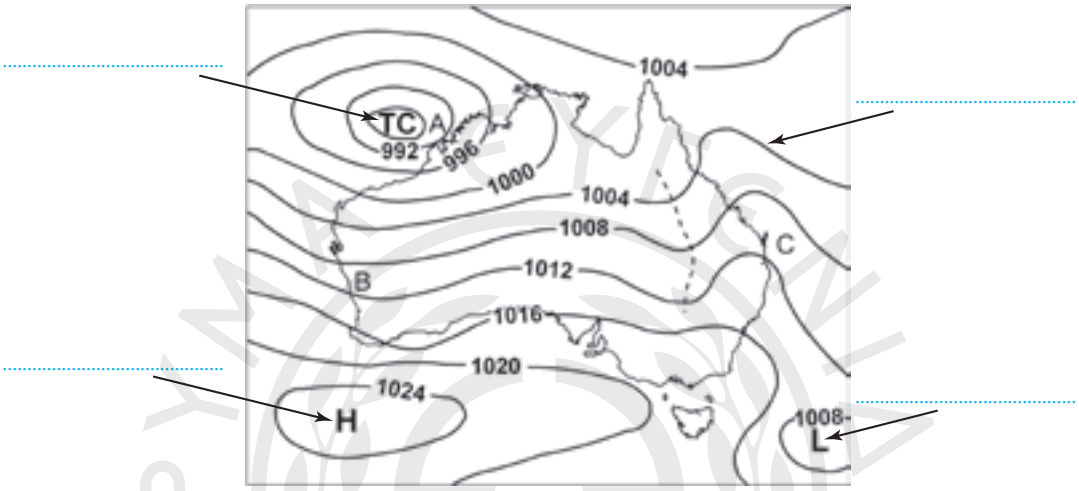
1. You need to wear a warm coat. It's going to be ……
2. It's a perfect day to go to the beach. It's ……
3. It's great weather for staying in and watching a movie, ……
4. We can go windsurfing, ……

b) Today's weather. Answer the following questions.

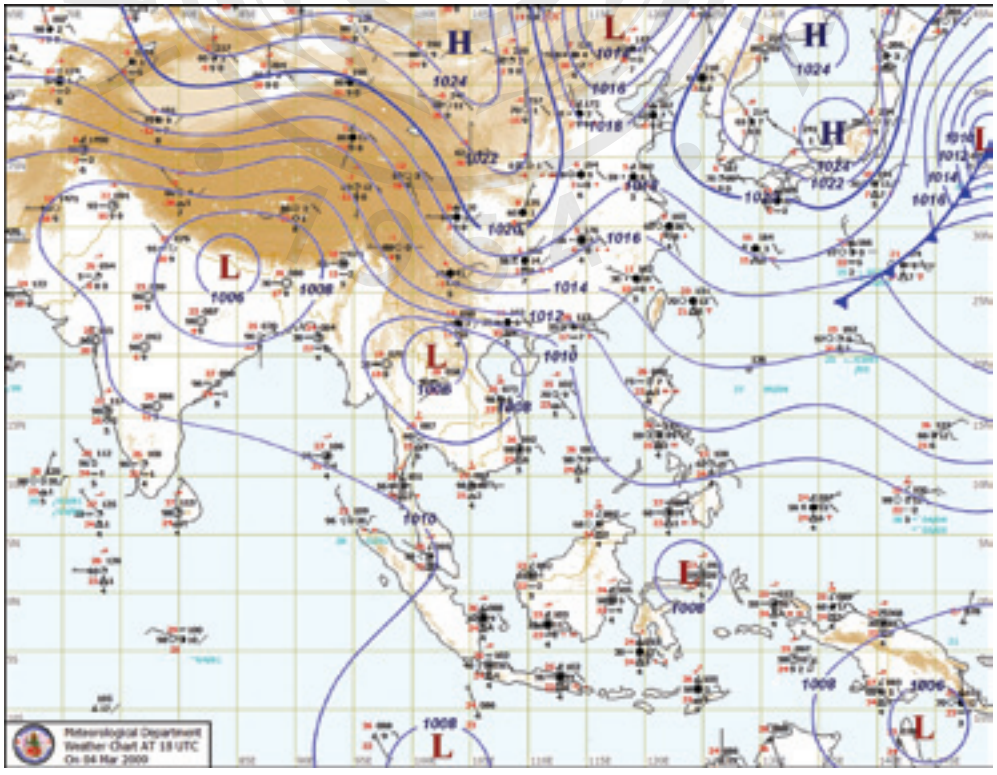
– What's the weather like where you are now?
– Do you like the weather today? What's your favourite weather?
– What is it going to be like later?

c) The following weather map features a tropical cyclone over north-western Australia. Try to find the following symbols on the map and write them next to the arrows.

Tropical cyclone	Isobar	High pressure cell	Low pressure cell



d) Look at the weather map and show the symbols you identified in the previous exercise. Can you also find the Cold Front?



III. Maritime forecast

A sea area forecast tells us what the wind direction and the wind force is going to be. Example: *Wind: easterly, force 8*

a) Write the abbreviations for the cardinal points and half cardinal points at the correct places on the compass rose.

N	S
SW	SE
W	NW
E	NE

b) To describe wind direction we say: "It's a northerly wind" or "There is going to be a northerly wind." Write the correct abbreviation in the chart below.

Direction	Adjective	Abbreviation
North	Northerly	N
West	Westerly	
South	Southerly	
East	Easterly	
Northwest	Northwesterly	
Southwest	Southwesterly	
Northeast	Northeasterly	
Southeast	Southeasterly	

c) Say and write down wind force and direction.

Student A: Say the following wind direction and force to your study partner.

1. Easterly Force 6
2. Northwesterly Force 6 to 8
3. Westerly Force 5
4. Northwesterly Force 3 to 5
5. Southerly Force 2
6. Southwesterly Force 6
7. Southeasterly Force 4 to 6

Student B: Go to page 195. Write down the information in your chart using the appropriate abbreviations.

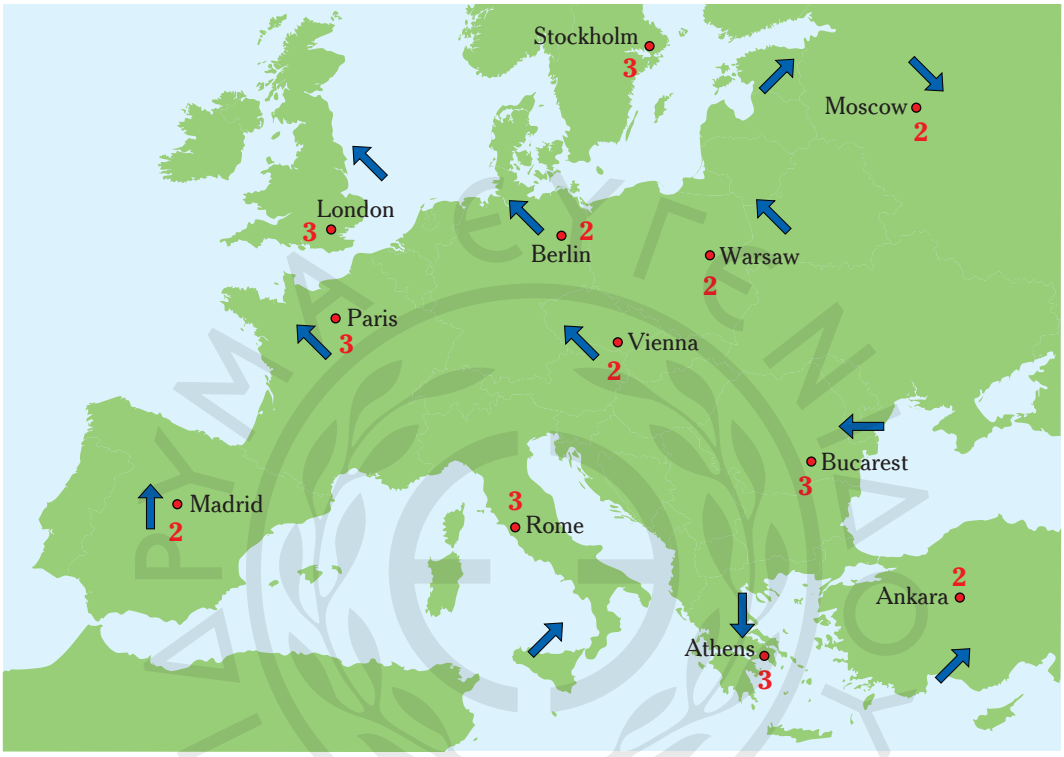
d) Look at the weather map below. It provides a wind forecast and marks the wind direction with arrows and the wind force with numbers. Do exercises (i) and (ii) below.

i. Note down the wind direction and force using the appropriate abbreviation.

ii. Say what winds there are going to be.

e.g.: *There is going to be a southeasterly wind force 3 in London and Paris.*

Paris & London:	SE3	Ankara:	
Vienna, Warsaw & Berlin:		Rome:	
Moscow:		Athens:	
Madrid:		Bucarest:	



e) Descriptive terms of wind and sea state according to the Beaufort wind force scale. Fill in the table with the missing terms.

Rough	Phenomenal	Light breeze	Slight	Near gale
Calm	Hurricane	Smooth	Moderate breeze	Storm

Beaufort wind scale	Mean wind speed - knots	Wind descriptive terms	Mean wave height - meters	Sea state	Sea state descriptive terms
0	'1		—	0	Calm
1	1-3	Light air	0.1	1	Calm
2	4-6		0.2	2	
3	7-10	Gentle breeze	0.6	3	
4	11-16		1.0	3-4	Slight – moderate
5	17-21	Fresh breeze	2.0	4	Moderate
6	22-27	Strong breeze	3.0	5	
7	28-33		4.0	5-6	Rough – very rough

Continued

8	34-40	Gale	5.5	6-7	Very rough – high
9	41-47	Strong Gale	7.0	7	High
10	48-55		9.0	8	Very high
11	56-63	Violent storm	11.5	8	Very high
12	64+		14+	9	

f) What wind force is shown in each picture? Match the pictures to the descriptions below. Write the correct wind force under each picture.

1. *Force 12* – wind speed greater than 63 kn; the air is filled with foam and spray, sea completely white; visibility very seriously affected
2. *Force 10* – wind speed 52 kn; very high waves with long overhanging crests; the surface of the sea takes a white appearance; visibility affected
3. *Force 8* – wind speed 37 kn; moderate high waves of greater length; spray may affect visibility
4. *Force 5* – wind speed 19 kn; moderate waves, becoming longer; many white horses are formed (chance of some spray)
5. *Force 2* – wind speed 5 kn; small wavelets; crests have a glassy appearance and do not break

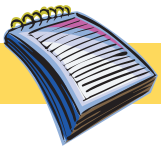
a).....

b).....

c).....

d).....

e).....



Glossary

crest of a wave	the curling foaming top of a wave
spray	water in small drops in the atmosphere, blown from waves
affect	to have an influence on or produce a change in something or somebody

g) Visibility definitions: Write the correct description for the visibility. Use the following terms.

good	poor	very good	very poor	excellent	moderate

Description	Range
	Less than 1 km
	Between 1-4 km
	Between 4-10 km
	Between 10-20 km
	Between 20-40 km
	More than 40 km

h) Write the correct units for each reading / measurement used in weather forecasts. Choose words from the box that follows.

	Units
Wind Direction	
Temperature	
Visibility	
Sunshine	
Humidity	
Snow accumulation	
Rainfall	Millimetre (mm)
Pressure	

Kilometre (km)	**Hectopascal (hPa)**	**S, SSW, SW, etc. (16-point compass)**	**Degrees Celsius (°C)**
Percentage (%)	**Hour (hr)**	**Centimetre (cm)**	~~**Millimetre (mm)**~~

i) The following phrases are part of a sea area forecast. What does each phrase refer to?

WIND	VISIBILITY
WEATHER	SEA STATE

- …….. Moderate or good, occasionally very poor
- …….. SE 4 or 5, veering NW 5 to 7 later
- …….. Slight
- …….. Occasional rain

j) Put the following vocabulary into the appropriate categories (some words may fit into more than one category).

moderate	**fog patches**	**southeasterly**	**poor**
cyclonic	**variable**	**rough**	**showers**
backing	**slight**	**veering**	**good**

WIND	SEA STATE	WEATHER	VISIBILITY

k) Each student has a shipping forecast with some missing information. Get the information you need from your partner. Take turns asking and answering questions in order to complete your two different worksheets. Look at the map to locate the sea areas.

Example: – *What is the wind speed and direction in Dover?*
The wind is west or northwest, force 4 to 5.
– *What is the visibility in Humber?*
The visibility is good.

Student A:

Met Office: Shipping forecast and gale warnings for the 31st January.

Shipping Forecast – issued: 0505 Sun 31 Jan

Sea Area:	**Fisher**
Gale warnings	Northeasterly gale force 8 expected soon.
Wind	Cyclonic becoming northeasterly 5 to 7, increasing gale 8 for a time, becoming variable 3 or 4 later.
Sea State	Moderate or rough, occasionally very rough in the west.
Weather	_____.
Visibility	Good, occasionally poor.

Sea Area: **German Bight**
Wind _____.
Sea State Moderate or rough.
Weather Snow showers.
Visibility Good, occasionally poor.

Sea Area: **Humber**
Wind Westerly or northwesterly 5 or 6, occasionally 7.
Sea State Moderate or rough.
Weather Snow showers.
Visibility _____.

Sea Area: **Thames**
Wind Westerly or northwesterly 5 or 6.
Sea State _____.
Weather Snow showers.
Visibility Good, occasionally poor.

Sea Area: **Dover**
Wind West or northwest 4 to 5, occasionally 6 later.
Sea State Slight or moderate.
Weather Wintry showers.
Visibility Good, occasionally poor.

Student B: Go to page 196.

I) You are going to listen to a shipping forecast issued on 21 April 2011. Read the information below and do the exercises that follow.

The shipping forecast is issued by the Met Office on behalf of the Maritime and Coastguard Agency[7].

i. There is a gale warning – which area is it for? Trafalgar, Biscay or Shannon?
ii. Fill in the missing words:

1. Viking / North Utsire / South Utsire
   - **Wind:** Variable, becoming mainly easterly later, 3 or 4
   - **Sea State:** Slight or moderate
   - **Weather:** Occasional rain or showers, fog patches
   - **Visibility:** Moderate or _____, occasionally very poor
2. Forties / Cromarty / Forth / Tyne
   - **Wind:** Variable, becoming easterly or southeasterly 3 or 4
   - **Sea State:** Slight
   - **Weather:** Fog banks, occasional _____ at first
   - **Visibility:** Moderate to very poor
3. Dogger / Fisher / German Bight / Humber
   - **Wind:** _____, becoming east or southeast 3 or 4
   - **Sea State:** Slight
   - **Weather:** Fog patches clearing
   - **Visibility:** Moderate or good, occasionally very poor
4. Thames / Dover / Wight / Portland / Plymouth
   - **Wind:** East or northeast veering east or southeast 3 or 4, occasionally 5
   - **Sea State:** Slight
   - **Weather:** Showers
   - **Visibility:** Moderate or good, occasionally _____
5. Biscay
   - **Wind**: _____ 3 or 4 in southwest, otherwise easterly or southeasterly 4 or 5
   - **Sea State:** Moderate
   - **Weather:** In north, mainly fair. In south, thundery showers, fog patches in southwest
   - **Visibility:** Moderate or good, occasionally very poor in southwest
6. FitzRoy / West Sole
   - **Wind:** Cyclonic or variable 3 or 4, occasionally 5 later, but becoming northwesterly 5 to 7 in far west later
   - **Sea State:** Moderate or rough
   - **Weather:** Rain or thundery showers, _____ patches
   - **Visibility:** Moderate or good, occasionally very poor
7. East Sole / Lundy / Fastnet / Irish Sea / Shannon
   - **Wind:** _____ or northeasterly veering southeasterly 3 or 4, occasionally 5 later
   - **Sea State**: Slight or moderate
   - **Weather:** Showers
   - **Visibility:** Moderate or good, occasionally poor

7. Source: BBC Weather, Shipping Forecast.

8. Rockall / Malin
   - **Wind:** Variable 3 or 4 becoming southeasterly 4 or 5, occasionally 6
   - **Sea State:** Moderate or rough
   - **Weather:** Occasional rain or _____
   - **Visibility:** Moderate or good, occasionally very poor
9. Hebrides / Bailey / Fair Isle / Faeroes
   - **Wind:** Southwest backing southeast 4 or 5, occasionally 6, decreasing 3 for a time
   - **Sea State:** Moderate or rough
   - **Weather:** Showers, fog patches
   - **Visibility:** Moderate or good, occasionally very poor
10. Southeast Iceland
    - **Wind:** Southwesterly _____ southeasterly 5 or 6, decreasing 4 for a time
    - **Sea State:** Rough
    - **Weather:** Showers, rain in west later
    - **Visibility:** _____ or good

Glossary

fog bank	a distinct mass of fog, especially at sea
fog patches	small areas of fog

IV. VHF weather forecast

a) Listen to the weather forecasts for two areas in North America (from NOAA).[8]

i. For the 1st clip:
What weather is expected? Tick (✓) appropriately.

– dry weather, clear skies, temperatures a bit above normal, with a slight chance of showers, thunderstorms and cooler temperatures over portions of the area.

– rainy weather, with showers and thunderstorms, temperatures a bit cooler than normal.

ii. For the 2nd clip:
– Listen to the recording and answer the following question:

What area is the forecast for?

– Listen again and circle the phrases (a or b) that you hear:

1. *a.* Gale warning
   b. Storm warning
2. *a.* Today, NE winds 10-15 knots increasing to 20 knots late this morning
   b. Today, NE winds 15-20 knots increasing to 30 knots late this morning

8. National Oceanic and Atmospheric Administration Weather Radio.

3. *a.* Tonight north gale 35 knots diminishing to 30 knots
   b. Tonight south gale 35 knots diminishing to 30 knots
4. *a.* Rain in the evening
   b. Hail in the evening
5. *a.* Chance of heavy showers in the afternoon
   b. Chance of rain and showers in the afternoon
6. *a.* Waves 15-17 feet subsiding to 5 feet
   b. Waves 5-7 feet subsiding to 3–5 feet

b) The following phrases are taken from the weather forecasts. Look at the key words used.

- Frost **is anticipated** for SE Kansas, chance of precipitation 30%.
- A strong cold front **is expected** to arrive on Sunday.
- **Forecast** for the coastal waters of St Mateo, California:…

Cross the odd one out:

i. prediction – forecast – prospect – prognosis
ii. expect – anticipate – wait for – advance

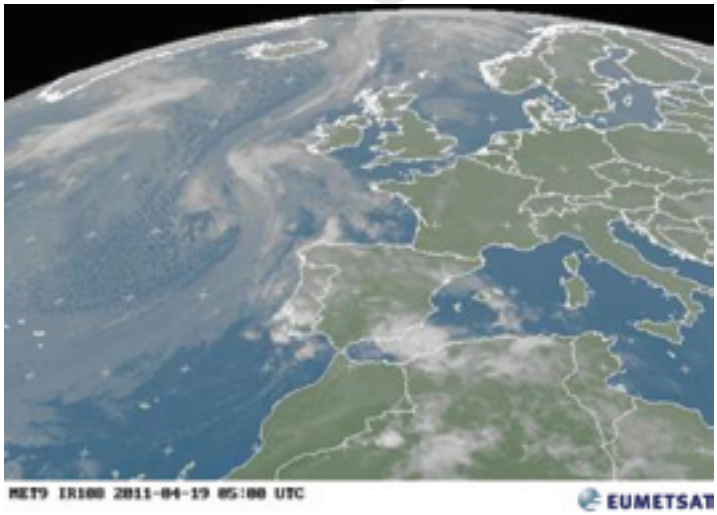
c) Create a VHF weather report. Using information from exercise (k) on page 121, write a weather report which includes two of the areas mentioned. Perform your weather report for the class.

Start like this: *This is the sea area forecast for …*

V. Satellite charts

Lead-in: **The following is a satellite image of the weather on the same day (19/4) as the weather map on page 113.**

- Are satellite images useful to weather prediction? Why so?
- What do they show?
- When do you think were the first weather satellites launched to space?



BBC "Forecasting from Space"[9]

Today we have enough imaging and analyzing technology to model and monitor every single weather system as it appears, grows and dies.

– Listen and put the sentences in the correct order as they are mentioned. Write the appropriate number in the boxes provided.

- ☐ The greatest impact of weather prediction now is giving hurricane warnings that can protect human life; the shape, size, direction and force of hurricanes is measured and advance warnings are given.
- ☐ Meteorologists can now see the weather systems as they approach.
- ☐ The gradual unlocking of our weather is giving us an understanding of the energy system of the entire planet: the Earth's Climate.
- ☐ Satellite pictures backed up the basic theory of weather charts used until then.
- ☐ 40 years ago, weather forecasting could offer little warning in advance for violent destructive storms.
- ☐ In the past 50 years over 200 weather satellites have been launched.

3. SMCP

I. Safety communications and briefing on meteorological conditions [A1/3.1 & B1/1.5]

Look at how we use **"is"**/ **"is expected"** for meteorological conditions:

•Ask about current wind direction / force:

*What **is** wind direction in position 20º 08'35''S, 118º 31'41''E?*
Wind direction SSW, force Beaufort 6 in position 20º 08'35''S, 118º 31'41''E.

• Ask about expected wind:

*What wind **is expected** in position Lat 20º 08'35''S, 118º 31'41''E?*
*The wind in position 20º 08'35''S, 118º 31'41''E is expected from direction SSW, force Beaufort 6. Wind **is expected** to increase.*

a) Use "what is..." or "what ... is/are expected" to ask about the following.

- Latest gale warning
- Visibility
- Sea state
- Next weather report
- Expected ice situation
- Expected maximum winds

b) Match the answers to the questions that follow. Write the correct answer for each question.

– Maximum winds of 40 knots are expected within a radius of 3 kilometres.
– Ice situation is expected to deteriorate in your position.

9. "Forecasting from Space", BBC One, Britain from Above Series.

– Next weather report is at 13.00 hours UTC.
– Visibility is variable.
– Sea moderate.
– Ice warning. Iceberg reported in area around lightship G3.

1. What is the latest ice information?
   …….
2. What is visibility in your position?
   …….
3. What is sea state in your position?
   …….
4. When is next weather report?
   …….
5. What ice situation is expected in my position?
   …….
6. What maximum winds are expected in the storm area?
   …….

c) Fill in the following exchange with these words: expected, radius, veering, latest.

VESSEL ↓	**MET STATION** ↓
What is the _____ gale warning?	
	The latest gale warning is as follows: Gale warning. Winds at 12.00 hours UTC in sea area Danang are from direction SW and force Beaufort 8 _____ to W.
What maximum winds are _____ in the storm area?	
	Maximum winds of 9 knots are expected within a _____ of 3 kilometres.

d) Match the opposites.

backing, improve, increase, drop, reported

1. _____ ≠ decrease (wind, depth of water, visibility)
2. _____ ≠ veering (wind direction)
3. _____ ≠ located (an object for navigational warning)
4. _____ ≠ deteriorate (ice situation)
5. _____ ≠ rise (atmospheric pressure)

e) Write up the adjectives used for each heading.

- SEA STATE; s _ _ _ _ h, m _ _ _ _ _ _ e, r _ _ _ h
- SWELL; s _ _ _ _ t, m _ _ _ _ _ _ e, h _ _ _ y
- VISIBILITY; r _ _ _ _ _ _ _ _ d, p _ _ r, v _ _ _ _ _ _ e

f) Fill in the missing words. Use the words given in the box.

current	assistance	deteriorate	increased	restricted

1. The charted depth of water is _____ by 2 meters due to winds.
2. The direction of the _____ will change in 3 hours.
3. Visibility is _____ by snow.
4. Navigation is only possible with icebreaker _____.
5. WARNING. Ice situation is expected to _____ in your position.

g) Match the following to create correct collocations.

1. Restricted	☐ tide
2. Meteorological	☐ state
3. Charted	☐ wind
4. Sea	☐ wave
5. High	☐ visibility
6. Variable	☐ depth
7. Gale	☐ conditions
8. Abnormal	☐ warning

h) Put the words in the correct order and write the full sentences.

1. is expected / within / to change / the next 2 hours / visibility.
   ……..
2. tides / abnormally / are expected / at about 1200 hours UTC / low.
   ……..
3. fog / is / signal / automatic / switched on.
   ……..
4. around Eurobuoy No 2 / area / closed / for navigation / temporarily.
   ……..

II. NAVTEX abbreviations for weather forecasts

a) NAVTEX categories of messages: Fill in the missing words.

Reports	Messages	Forecasts
Pirate	Gale	Rescue

A	Navigational Warnings	**F**	Pilot service _____
B	_____ Warnings	**G**	AIS information
C	Ice _____	**H**	Loran C information
D	Search and _____ information and _____ warnings	**J**	Satnav information
E	Weather _____	**Z**	No messages on hand

b) Common abbreviations for international NAVTEX service[10].

Write the NAVTEX abbreviations for weather forecasts. Use the abbreviations listed below for help and check your answers.

		[nouns]			*[adverbs]*
1.		Forecast	1.		Locally
2.		No change	2.		Occasionally
3.	NOSIG	No significant change	3.		Quickly
4.		Showers	4.		Rapidly
5.		Visibility	5.	SLWY	Slowly
		[-ing, change in weather]			*[adjectives]*
1.		Backing	1.		Expected
2.	BECMG	Becoming	2.		Frequent
3.		Decreasing	3.		Heavy
4.		Improving	4.		Isolated
5.		Increasing	5.		Moderate
6.		Intensifying	6.		Next
7.		Moving	7.		Possible
8.		Veering	8.		Scattered
9.		Weakening	9.		Severe
			10.	SLGT	Slight
			11.		Strong
			12.		Temporary
			13.		Variable

QCKY	FRQ	BACK	WKN	ISOL	~~BECMG~~	MOD
SEV	VRB	RPDY	MOV	~~SLGT~~	VIS	STRG
OCNL	HVY	POSS	FCST	NC	IMPR	NXT
EXP	INCR	~~SLWY~~	VEER	~~NOSIG~~	SHWRS	INTSF
DECR	SCT	LOC	TEMPO			

c) Match the opposites.

Rapidly, Intensifying, Slight, Decreasing, Veering

1. Weakening ≠ .....
2. Increasing ≠ .....
3. Backing ≠ .....
4. Slowly ≠ .....
5. Severe ≠ .....

10. World Meteorological Organisation: GMDSS.

III. Message markers: Warning, Advice, Request, Intention

- Adding the marker "WARNING" at the beginning of a message implies the intention of the sender to inform others about danger. The recipient of a WARNING should pay immediate attention to the danger mentioned.
  e.g. "WARNING. Obstruction in the fairway."
- "ADVICE" implies the intention of the sender to influence others by a Recommendation. The decision whether to follow the ADVICE still stays with the recipient. It shouldn't necessarily be followed but it should be considered carefully.
  e.g. "ADVICE. (Advise you) stand by on VHF channel six nine."
- A "REQUEST" is asking for action from others with respect to the vessel. The use of this marker is to signal: I want something to be arranged or provided, e.g. tugs. Remember that REQUEST must not be used involving navigation, or to modify COLREGs.
  e.g. "REQUEST. I require two tugs."
- "INTENTION" informs others about immediate navigational action intended to be taken.
  e.g. "INTENTION. I will reduce my speed."

a) What is the appropriate message marker for each of the following messages?

~~Warning~~	Advice	Request	Intention

1. WARNING. The ship ahead of you is not under command.
2. _____ The visibility is very poor.
3. _____ I will enter the fairway.
4. _____ A tsunami is expected by 2300 hours UTC.
5. _____ Advise you anchor in anchorage B3.
6. _____ You are running into danger.
7. _____ Send a doctor immediately.
8. _____ I will alter course.
9. _____ Please arrange for a berth on arrival.

b) What is the appropriate message marker for each of the following messages?

Question	Information	Instruction	Warning
Request	Intention	Answer	Advise

1. _____ Is the sea state expected to change within the next 2 hours?
2. _____ No, the sea state is not expected to change within the next 2 hours.
3. _____ Abnormally low tides are expected at about 18:00 hours UTC.
4. _____ Stop immediately. You cannot enter the fairway at this time.
5. _____ My ETA at Port Hedland is 15:00 hours UTC.
6. _____ Advise you to pass astern of me.
7. _____ Buoy number 4 is unlit.
8. _____ Is visibility expected to change?
9. _____ Yes, visibility is expected to increase.
10. _____ Do not overtake.
11. _____ Please send medical assistance.

12. _____ Five vessels are at the anchorage area.
13. _____ My cargo is iron ore.
14. _____ I will stand on.
15. _____ You must alter course to SW.
16. _____ You are steering dangerous course.
17. _____ Advise all vessels keep clear.
18. _____ I require pilot.

4. Lights, shapes and sound signals[11]

A. *Definitions of terms. Match the terms in the box to the definitions below.*

Whistle	Flashing light	Prolonged blast
Short blast	Restricted visibility	Sidelights
All-round light	Sternlight	Masthead light

	a. a light flashing at regular intervals at a frequency of 120 flashes or more per minute
	b. a blast of about one second's duration
	c. a white light placed as nearly as practicable at the stern showing an unbroken light (over an arc of the horizon of 135 degrees)
	d. any sound signalling appliance capable of producing the prescribed blasts
	e. a white light placed over the fore and aft centreline of the vessel showing an unbroken light (over an arc of the horizon of 225 degrees)
	f. a green light on the starboard side and a red light on the port side each showing an unbroken light (over an arc of the horizon of 112.5 degrees)
	g. a blast of four to six seconds' duration
	h. a light showing an unbroken light (over an arc of the horizon of 360 degrees)
	i. any condition in which visibility is restricted by fog, mist, falling snow, heavy rainstorms, sandstorms or any other similar causes

B. *Sound signals in restricted visibility. Study the following table. Then write the condition the vessel is in when it sounds the particular sound signals, according to the table.*

[Rule 35] In **restricted visibility**, a power-driven vessel...

making way through the water	shall sound	one prolonged blast at intervals of not more than 2 minutes
underway but stopped		two prolonged blasts in succession with an interval of about 2 seconds between them at intervals of not more than 2 minutes

Continued

11. Source: International Regulations for Preventing Collisions at Sea, 1972, part C – Lights and shapes, part D – Sound and light signals.

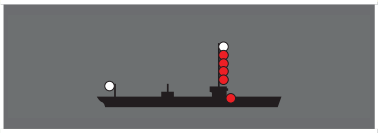
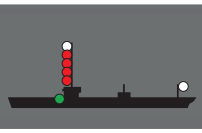
not under command	shall sound	three blasts in succession, namely one prolonged followed by two short blasts at intervals of not more than 2 minutes
restricted in ability to manoeuvre		three blasts in succession, namely one prolonged followed by two short blasts at intervals of not more than 2 minutes

VESSEL	SOUND SIGNAL
1.	____ . .
2.	____ . .
3.	____ ____
4.	____

C. *Lights and Shapes. Study the selected relevant regulations in the table below and do exercises (a) and (b).*

[Rule 23] A power-driven **vessel underway** shall exhibit: (i) a masthead light forward; (ii) a second masthead light abaft of and higher than the forward one; (iii) sidelights; (iv) a sternlight.	[Rule 30] A **vessel at anchor** shall exhibit: (i) an all-round white light or one ball in the fore part; (ii) an all-round white light at the stern, at a lower level than the light prescribed at the fore part.
[Rule 28] A **vessel constrained by her draft** may, in addition to the lights prescribed for "vessel underway", exhibit three all-round red lights in a vertical line, or a cylinder.	[Rule 30] A **vessel aground** shall exhibit the lights prescribed for "vessel at anchor" and in addition (i) two all-round red lines in a vertical line; (ii) three balls in a vertical line.

a) Can you identify the following vessels? Look at the lights they are exhibiting and write the condition of each vessel in the first column.

VESSEL	PORT	STARBOARD	AHEAD
1.			
2.			
3.			

b) Match the vessels to the shapes they exhibit. Draw arrows.

VESSEL	SHAPE
AT ANCHOR	
AGROUND	
CONSTRAINED BY HER DRAFT	

Round-up

A. Vocabulary Consolidation Self-Assessment.

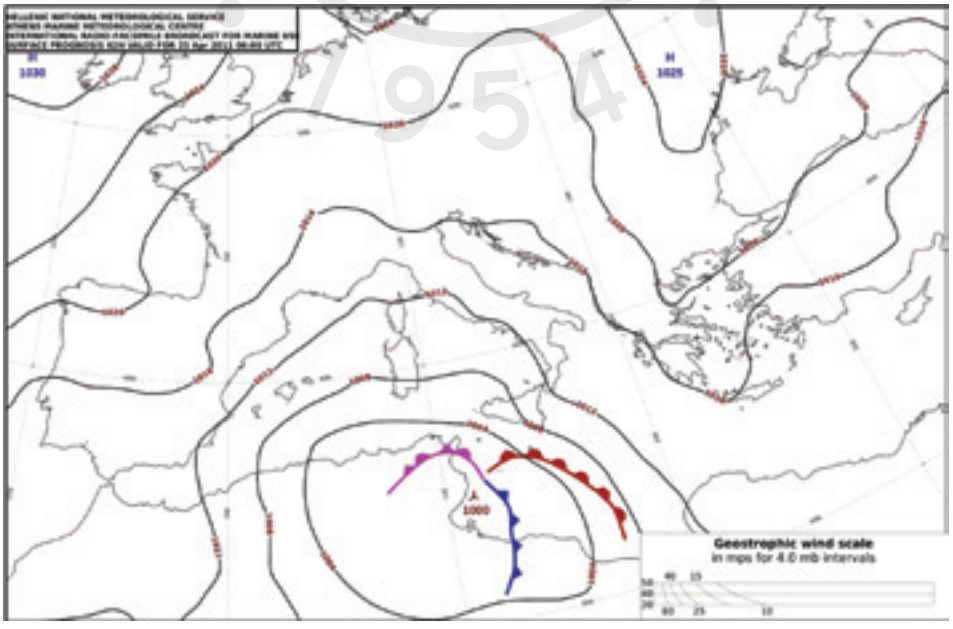
Tick ☑ what you can do. Cross ☒ what you still find hard to do in English.

- ☐ Understand weather forecasts
- ☐ Describe weather conditions (give 5 key words for different types of weather)
- ☐ Describe the climate (give 4 key words for different types of climate)
- ☐ Understand warnings regarding meteorological information
- ☐ Understand all eight SMCP message markers

B. Class Project.

– Research the catastrophic Japan Tsunami (11 March 2011) and report to class data such as: earthquake magnitude, wave height, number of casualties, etc.

– Explain the following weather map to class; get help from your meteorology instructor.



C. Circle the correct alternative.

- What is the **newest / latest** ice information?
- Ice **warning / advice**. Iceberg reported in area around Buoy K2. Ice situation is **estimated / expected** to deteriorate and thickness of ice to increase. Visibility is **restricted / limited** by snow. Area temporarily closed for navigation.

D. Meteorological terms. Match the terms with the definitions.

Weather **Forecasts** **Climate** **Isobars** **Weather warning**	1. ……: the overall pattern of weather, usually based on an average over 30 years; it can be temperate, arid, humid, polar, Mediterranean, etc. 2. ……: lines on a weather map that join locations of equal air pressure. 3. ……: the description of atmospheric conditions such as wind, temperature, cloudiness, precipitation and air pressure over a short period of time. 4. ……: notification issued by National Meteorology Offices on weather that has the potential to cause loss of life or damage to property. 5. ……: statements of probable future weather conditions calculated from meteorological data.

E. Terms contained in marine forecasts: write up the terms (the first letter is given, as well as a definition).

1. Visibility less than 1 kilometre: v_____ p_____
2. Visibility between 2 and 5 nautical miles: m_____
3. Winds of force 9: s_____ g_____
4. Sea state with wave length of 2.0 to 4.0 m: r_____
5. Sea state with wave length of 6.0 to 9.0 m: h_____
6. The changing of the wind direction clockwise, e.g. SW to W: v_____
7. The changing of the wind direction anticlockwise, e.g. SE to NE: b_____
8. A gentle wind (of force 2-6 on the Beaufort scale, 4-27 knots): b_____

F. Fill in the gaps with the words in the box.

rapidly	calm	debris
partly	dry	magnitude
locally	wet	impact

1. Countries in the tropical zone have two seasons: a _____ season and a _____ season.
2. The pressure is rising _____.
3. The sea is _____; it is like a mirror.
4. The earthquake reached a _____ of 7,8 on the Richter scale.
5. Businesses are beginning to feel the _____ of the economic crisis.
6. WARNING. Maritime hazard in the area. Dangerous _____ at your wake.
7. Rain showers are expected _____.
8. Tomorrow it's going to be _____ cloudy and cold.

UNIT 6

Past voyages and passage plans

1. A ship's past voyage

Language awareness: Past Simple (Regular and Irregular verbs)

2. Reporting events that occur during a sea passage

I. Ports of call

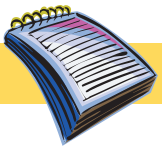
II. Deck log book entries

Round-up

1. A ship's past voyage

A. ***Read the draft log book entries about a ship's voyage last April. Draw the route of the voyage on the map.***

5 April *- Left Esperance at 1200* *- Sailed southwest and then north along the Australian coastline* *- Carried ballast*	***VESSEL'S NAME: CANNIBAL*** ***Master's additional log entries: draft notes***
8 April *- Arrived in Perth at 0800* *- Remained at the roadstead for 10 days, waiting for instructions on our next voyage*	*24 April* *- Docked at Port Hedland at 1700* *- Discharged 5.000 tonnes of iron ore* *- Technician repaired satellite telephone*
22 April *- Loaded 10,000 tonnes of iron ore* *- Sailed for Port Hedland at 2200* *- There was a breakdown in ship's communication systems (probably due to a virus); asked for technician at next port of call; 2nd Officer managed to fix the defect, except for satellite telephone*	*28 April* *- Departed at 0730* *- Sailed through Timor Sea towards South China Sea.* *- Destination: Hong Kong*



Glossary

roadstead	a sheltered offshore anchorage area for ships (also, "roads")
instructions	detailed information on how to do something
breakdown	a failure of a system
due to	because of
virus	instructions hidden within a computer program that are designed to cause faults or destroy data
entry	piece of information written in a logbook
draft	a rough written version of something that is not in its final form

B. *Use the words from the Glossary above to fill in the phrases below.*

1. _____ human error
2. a(n) _____ in the deck log book
3. the first _____ of a document / letter
4. follow the _____ given in the manual
5. a _____ in communications
6. a _____ in the software

Language Awareness: Past Simple (Regular and Irregular verbs)

> The MV Cannibal **sail*ed*** from Perth to Hong Kong last year.
> We **stay*ed*** in port for several days.

To report a past event we use the past simple. The past simple often ends in –**ed**.

> He **work*ed*** at Piraeus port from 1990 to 1995.
> Yesterday it **rain*ed*** all morning. It **stop*ped*** in the evening.
> I call my girlfriend on the phone every day. Last night I **call*ed*** her at midnight.

These verbs are *regular* verbs:
work – worked, rain – rained, stop – stopped, call – called

Spelling:

- **like** + **d** = **liked** [if the verb ends in –e, add –d]
- **stop** + **p** + **ed** = **stopped** [if the verb ends with a consonant + vowel + consonant, double the last consonant and add –ed]
- **carry** + **ed** = **carried** [if the verb ends with a consonant + y, change the –y to -i and add –ed]

a) Write the simple past.

study: ……..	plan: ……..	manage: ……..
try: ……...	play: …….	drop: ……
arrive: ……..	cry: ……...	hire: …….

b) Read the report on the sea passage of the MV Cannibal and complete the sentences. Choose the correct verb and write the past simple form.

notice	~~sail~~	depart	stop	load	carry	discharge	repair

VOYAGE REPORT: MV CANNIBAL
Last April the MV Cannibal ……*sailed*…. from Esperance to Hong Kong. It ……..…… two times: at Perth and Port Hedland. From Esperance to Perth, the vessel ……...…… ballast. The vessel remained anchored at the roadstead for 10 days. On 22 April we ……10,000 tonnes of iron ore in Perth. We …….. a malfunction in ship's communication systems. We …….. 5,000 tonnes of iron ore in Port Hedland. A technician ……the satellite telephone. The vessel ……..…… for Hong Kong on 28 April.

Use

With the Simple Past we describe an action that occurred and was completed in the past (for instance, a year / a month / a week ago, yesterday, last month / week, in 2003, etc.).

Pronunciation

There are three ways to pronounce the final –ed of regular verbs in the simple past tense. This pronunciation is determined by the final sound of the verb in the infinitive. It is pronounced:

/id/	**/t/**	**/d/**
when the verb ends in a sound /t/ or /d/:	when the verb ends in an unvoiced consonant sound such as /k/, /s/, /ts/, /f/, /p/:	when the verb ends in any other sound (voiced consonants like /b/, /g/, /v/, /m/, /n/, /r/ and vowel sounds)
examples:	*examples:*	*examples:*
want – wanted	like – liked	grab – grabbed
decide – decided	wash – washed	hug – hugged
	miss – missed	love – loved
	laugh – laughed	open – opened
	watch – watched	repair – repaired
	stop – stopped	stay – stayed

c) Write the Past Simple form of these regular verbs in the correct column according to how we pronounce the ending –ed. With the help of your teacher, listen to their pronunciation and say the verbs aloud to yourself to decide how the –ed is pronounced.

board	add	fix	load	try	need	paint
check	enjoy	dock	clean	hate	carry	look
live	exit	help	pick	resume	finish	steer

/id/	/t/	/d/
……	……	……
……	……	……
……	……	……

.....	.....	.....
.....	.....	.....
.....	.....	.....
.....	.....	.....

Some verbs are irregular. The past simple does not end in –ed.

The ship **left** the port on 5 April and **was** at sea for three days.

These verbs are *irregular*: leave – left, be – was

Note: the verb "to be" has two past forms:

I / he / she / it **was**
we / you / they **were**

Here are some important irregular verbs:

begin – began	hear – heard
come – came	leave – left
do – did	lose – lost
drink – drank	make – made
eat – ate	meet – met
fall – fell	pay – paid
find – found	say – said
get – got	see – saw
give – gave	sell – sold
go – went	take – took
have – had	understand – understood

d) Here are some irregular verbs in groups. Write the irregular past form of each verb; it is similar to the example in each group.

cost – *cost*	buy – *bought*	spend – *spent*	break– *broke*	know – *knew*
cut –	bring –	send –	speak –	throw –
put –	think –	lend –	wake –	blow –

e) Complete the sentences. Use the past simple form of the verbs in brackets.

INCIDENT: DISCOVERY OF A STOWAWAY ON BOARD

Last night we (1)_____ (have) a security breach incident on board. We (2)_____ (hear) a strange noise and, after searching the deck and all the accommodation spaces, we (3)_____ (find) a stowaway on board. He (4) _____ (be) thirsty so we (5)_____ (give) him some water and then we (6)_____ (take) him to the captain.

f) Complete the following sentences. Use one of these verbs in the past simple.

eat	fall	cost	sell	spend	break	buy

1. The A.B. _____ off the ladder and _____ his leg.
2. I couldn't afford to keep my car, so I _____ it.
3. I was hungry. I _____ 8 pieces of pizza.
4. I _____ a lot of money yesterday. I _____ a pair of shoes which _____ $200.

g) Complete the text. Use the past simple form of the verbs in brackets. Some verbs are regular and some are irregular.

Jacques-Yves Cousteau was a French explorer who (1).....(study) the sea and (2) .....(introduce) innovations in underwater diving. He (3) .....(live) from 1910 to 1997. He (4) ..... (make) many television documentaries, (5) .....(write) many books and (6) ..... (try) to campaign for the protection of the oceans.

2. Reporting events that occur during a sea passage

Lead-in: revision of key verbs.

A. *Make sure you know the following verbs well.*

approach
arrive
disembark
discharge
repair
remain

i. Find the opposites in the box:

1. _____ ≠ load
2. _____ ≠ depart
3. _____ ≠ embark

ii. Find the synonyms in the box:

1. _____ = come near
2. _____ = stay
3. _____ = fix

B. *Match to create collocations. Use the simple past form of the verbs in the box.*

carry
sound
leave
drop
sail
release
regain

..... the port
..... ballast
..... anchor
..... an alarm
..... stability
..... CO_2
..... from Rotterdam to Talin

C. *Write the correct verb.*

notice
refloat
evacuate
dock
inform
jettison

1. ……..: come into a dock and tie up at a wharf
2. ……..: see or hear, become aware of something
3. ……..: to tell somebody about something, give facts, especially in an official way
4. ……..: throw cargo overboard to lighten a ship
5. ……..: move out of a place of danger, leaving the place empty
6. ……..: float again, after being stuck on sea bottom

D. *Use the verbs of exercise C in the past simple to fill in the gaps.*

1. The first thing I _____ when I entered the galley was the smell.
2. The ship _____ at Southampton.
3. The Master _____the company of the situation and asked for instructions.
4. We _____ the accommodation spaces immediately and assembled on the main deck.
5. The ship grounded in shallow waters but they successfully _____ it.
6. There was a heavy list to starboard so we _____ cargo to make the vessel lighter.

I. Ports of call

a) Describe the stages of a sea passage orally.

i. Read the notes of the passage plan and complete them with your own ideas.
ii. Draw the route on the sea chart.
iii. Explain the events that occurred during the sea passage. You can use some of these phrases:

- Last May the vessel operated in …
- We loaded cargo …
- We left (Taipei) on …
- The weather was …
- We arrived at …
- The next port of call was …
- We discharged …
- We started from …
- Then we sailed to …
- We prepared for …

PASSAGE PLAN Notes:

MV Alice
Area of operation: East China Sea
Sea passage: Taipei to Nagasaki

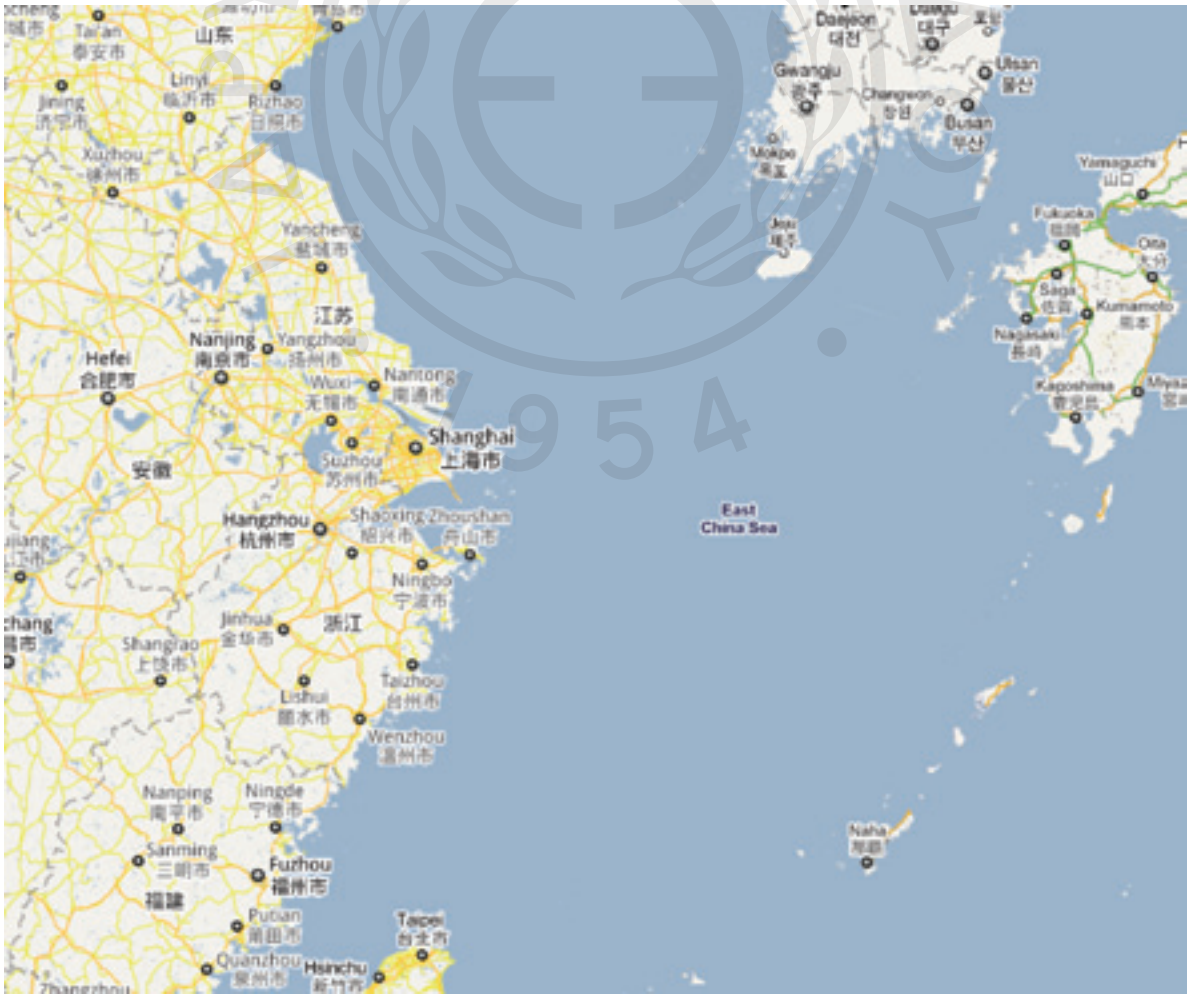
Port of Call #1: Taipei
ETA: 0800, 01-05-2011
Weather: …….
Loaded 16,000 mt of cargo
Finished loading: 2300
Problem with main engine cylinders
Contacted company about possible repair in next port of call
ETD: 2030, 03-05-2011

Continued

Port of Call #2: Shanghai
ETA: 1300, 06-05-2011
Were delayed due to heavy traffic in area
……
……
……
……
Time spent in port: …….. hours

Port of Call #3: Rizhao
ETA: 0700, 14-05-2011
Weather: ……
Discharged 10,000 mt cargo
Performed scheduled maintenance of lifeboats
……
……
ETD: 0900, 15-05-2011

Port of Call #4: Nagasaki
……
……
……



b) Listen to a seafarer talking about an event that happened during a sea passage. Complete the information below.

Name of vessel:

Type of vessel:

Route:

Cargo:

Incident:

Area / position where incident happened:

Date when incident happened:

II. Deck log book entries

a) Look at the deck log book extract below. What is the event recorded in the log? Circle the correct event.

engine failure	discharging operation	anchoring	attempted pirate boarding

b) Fill in the gaps of the deck log book with the words in the box below.

Time	Log	Course	(1)_____	REMARKS
0000	6533	065	N 4	(2)_____, moderate breeze, moderate sea,
				good (3)_____ .
0020				(4)_____ New York Pilot Station. Stand by
				engine. End of sea (5)_____. Proceeded to
				take sea pilot as per NY Pilot Station instructions.
0040				Pilot (Mr. Sean Craig) (6)_____. We
				(7)_____ towards anchorage area.
0055				Reached the anchoring position. Engines stopped.
0100				(8)_____ port anchor 6 shackles.
0115				Pilot (9)_____. Finished with engines.

sailed	disembarked	approached
dropped	overcast	passage
wind	embarked	visibility

c) These are log book entries reporting past incidents. Match the phrases to the appropriate incident.

~~made stability calculations~~	sounded fire alarm	activated flooding response team
stranded in shallow waters	oil leaked into the sea	released CO_2
jettisoned cargo	~~evacuated ER~~	regained stability
~~tank overflowed while transferring fuel~~	performed oil clearance	refloated vessel

LIST • made stability calculations • •	**GROUNDING** • • •
SEA POLLUTION • tank overflowed while transferring fuel • •	**FIRE IN THE ENGINE ROOM** • • evacuated ER •

d) Listen to the captain reporting an incident from a past voyage. Fill in the missing verbs in the deck logbook entries about the particular incident.

Time	Log	Course	Wind	REMARKS
1720	1022	245	NW 6-7	At this time, while sailing in position Lat 23°30'21" N
				Long 120°25'34" E we (1)_____ that the
				vessel was listing heavily to port. After measuring fuel
				tanks, fresh water tanks, ballast tanks and calculating
				vessel's stability it was established that the metacentric
				height of the vessel (GoM) was zero because the deck
				cargo had absorbed seawater. (2)_____ to
				jettison cargo.
1730				(3)_____ owners and charterers.
1745				Standby engine. Preparation for jettison of cargo.
1830				Commenced jettisoning in position Lat 23°42'21" N Long
				120°25'34" E.

1840				(4)_____ about 200 cubic meters of deck
				cargo (timber) and the vessel (5)_____
				positive stability.
1930				Completed jettisoning. Sailing normally.
2000				(6)_____ initial incident report and
				(7) _____ it to owners as per S.M.S.

e) Write a paragraph that describes a past voyage. Describe the following.

– The route – The weather
– The cargo – An incident

For help, you can use the notes in exercise (c) above, and choose one of the incidents mentioned there (sea pollution, grounding, fire in the ER). Also, you can use the Voyage Report (on page 138) as a model for your own paragraph.

Round-up

A. Vocabulary Consolidation Self-Assessment.

Tick ☑ what you can do. Cross ☒ what you still find hard to do in English.

- ☐ Use the past simple tense when describing past events
- ☐ Read log book entries
- ☐ Explain / understand events that occurred during a sea passage
- ☐ Describe past voyages based on information from log book entries, passage plans and sea charts

B. Class Project.

- Talk about a particular sea passage which occurred during your training voyage: mention the duration, area of operation, ports of call, hours spent in each port and any events that took place.
- What log books are there on board? Make a list and read it to class with a brief description of the type of entries that are recorded on each log book.

C. Circle the correct alternative.

1. A person who hides on a vessel is called a **charterer / stowaway**.
2. A place outside a harbour where ships can lie at anchor is called a **roadstead / berth**.
3. To sail into a harbour and stay there is to **dock / strand**.

4. When something that is normally protected is no longer secure, there is an **innovation / a breach of security**.
5. To illegally seize a vessel while in transit and force it to go to a different destination is to **hijack / commence** it.

D. Complete the following sentences. Use one of these verbs in the past simple:

lose	**go**	**enjoy**	**drink**	**stay**
start	**finish**	**stop**	**expect**	**put**

1. We _____ out last night to a nice restaurant. I _____ a lot of red wine, that's why I have a terrible headache this morning.
2. I _____ my keys yesterday. I can't remember where I _____ them.
3. The rock concert last night _____ at 2200 and _____ at 2300. Everybody in the audience were really disappointed because they_____ more.
4. I _____ my holidays last summer. We _____ at a very nice hotel.
5. The police _____ me on my way home last night.

REVIEW 2

Units 4-6

Part One: Consolidation / Expansion

Topics:

1. Satellite Radar: Looking into the oceans

2. What is the weather forecast for Greece?

3. What are tides?

Part Two: Terminology Work

Part One: Consolidation / Expansion

1. Satellite Radar: Looking into the oceans

Lead-in:

- What is a satellite radar?
- What information does it provide?
- How does it work?

Satellite Radar: Looking into the oceans[1].

The technology of satellite radar has revealed the entire climate engine of the planet, enabling vast weather systems to be detected, mapped, monitored and forecasted.

– Listen and put the sentences in the correct order as they are mentioned. Write the appropriate number (1-5) in the boxes provided.

- ☐ With ocean imaging technology, scientists try to predict climate change for a time span of 10, 20, or even more years.
- ☐ The first series of radar satellite, called Poseidon, was the first to offer a glimpse of El Niño, and its catastrophic temperature shifts.
- ☐ The Satellite Radar can measure ocean currents from space, offering information on the circulation of water and heat transfer around the globe.
- ☐ The new series of radar satellites is called Jason.
- ☐ Global climate change is visible through the satellite, making apparent the melting of polar ice and the rising temperatures.

2. What is the weather forecast for Greece?

– What weather is expected? What is the weather forecast for Greece?

Give the forecast for the weather and temperatures in different areas around Greece according to the map on the right.

1. Looking into the Oceans; BBC One, Britain from Above Series.

3. What are tides?

Do you know...

– the difference between tides and currents?
– the difference between high tide and low tide?
– what causes tides?

A. What are tides?[2] Before you listen, check what you know. Choose the correct alternative.

1. Tides are the **horizontal / vertical** motion of water.
2. Tides are caused by **gravity / the wind**.
3. High tide is when the **crest / trough** of the wave reaches a particular location.

B. Listen to an interview with a scientist who studies tides and check if you guessed correctly. Then fill in the missing words.

1. Water moving up and down during the day: _____
2. Water moving horizontally driven by wind, tides, etc.: _____
3. The gravitational pull of the _____ and the _____ causes tides.
4. If we know the tides we can better navigate through the _____ waterways and within the estuaries, _____ and harbours.

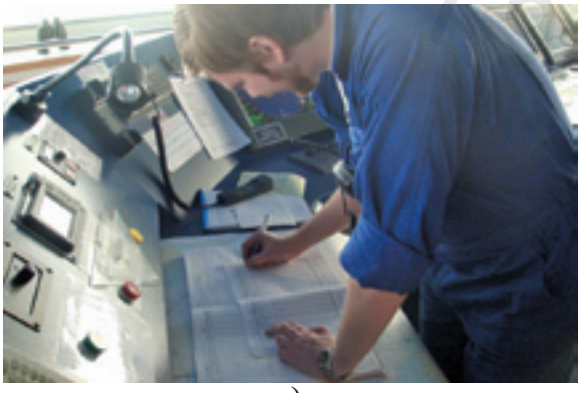
C. Match the words to their definitions.

trough
bay
estuary
crest

1. _____: the wide part of a river where it flows into the sea
2. _____: the top part of a wave
3. _____: a low area between two waves in the sea
4. _____: a part of the sea partly surrounded by a wide curve of the land

Part Two: Terminology Work

A. What is shown in each picture? Choose the statement that best describes the picture.



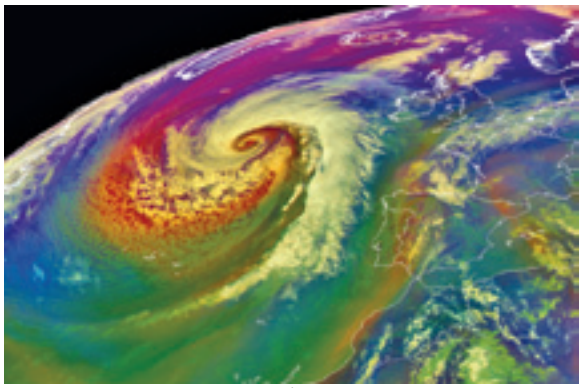
a)

1. Plotting the course.
2. Writing a log book entry.

b)

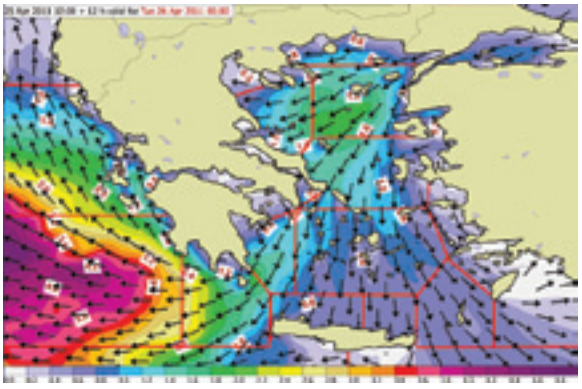
1. Stacking crane.
2. Floating crane.

2. NOAA podcast, April 8, 2009, Diving Deeper – What are tides?



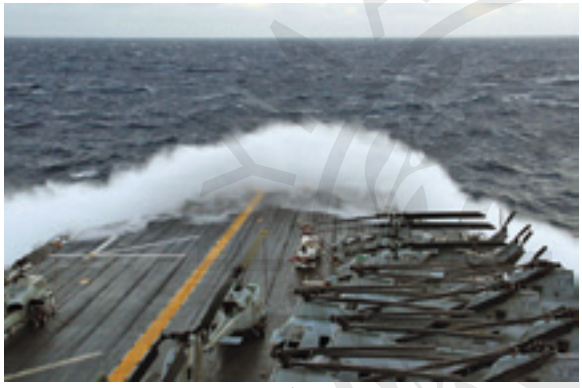
c)

1. Satellite map with tropical cyclone over North Atlantic.
2. Weather map with weather forecast for North Atlantic.



d)

1. Wind forecast map: wind force and direction for Greece.
2. Wave forecast map: wave height and direction for Greece.



e)

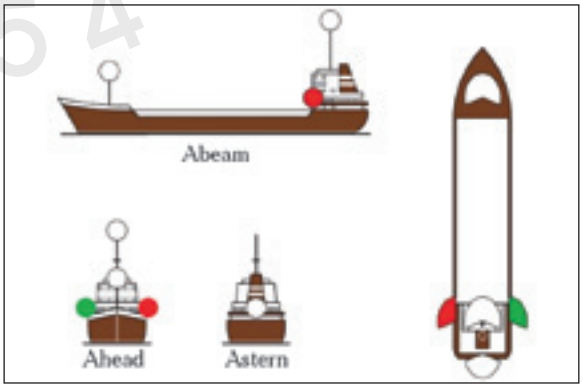
1. Sea spray created by large waves.
2. Floating ice around the vessel.

f)

1. Extreme ice conditions, moderate visibility.
2. Following an icebreaker, poor visibility.

g)

1. Pilot disembarkation in extreme ice conditions.
2. Towing in extreme ice conditions.



h)

1. Power-driven vessel underway: Rule 23.
2. Anchored vessel: Rule 30.

i)

1. Ships anchored at Singapore roadstead.
2. Ships docked at Singapore port.

j)

1. Accommodation ladder on the ship's side.
2. Pilot ladder with spreader.

B. What is the appropriate message marker for each SMCP message?

1. _____ What is the atmospheric pressure in you position?
2. _____ The atmospheric pressure in my position is 990 millibars.
3. _____ I will enter fairway.
4. _____ Iceberg is located in sea area B7.
5. _____ The tide is rising.
6. _____ Wait until low water.
7. _____ I require icebreaker.
8. _____ (Advise you) Turn your vessel to windward.

C. Match the two halves to make full sentences.

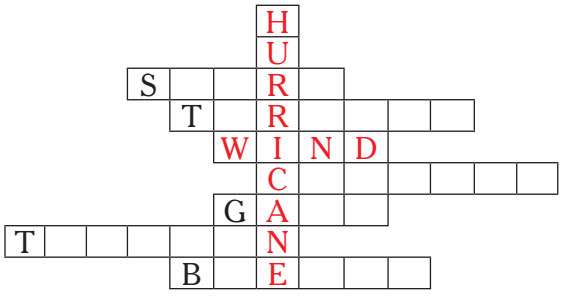
1. The atmospheric pressure	... is expected by 1200 UTC.
2. An abnormal wave	... is sufficient in your position.
3. Visibility	... in my position is 1020 millibars.
4. The depth of water	... is variable.

D. Fill in the gaps with the words in the box.

rough	charted	state	restricted	expected	navigation

1. What is sea _____ in your position?
2. Sea is _____ in my position.
3. What is visibility in your position? Visibility is _____ by snow.
4. Is visibility _____ to change in my position?
5. _____ is dangerous in the area due to pack ice.
6. The _____ depth of water is decreased by 2 metres due to sea state.

E. Write up the types of wind; the first letter is given.



F. Write the correct derivative of the words in brackets to complete the sentences.

1. The barometer is dropping _____ [rapid].
2. _____ low tides are expected in your position [abnormal].
3. Navigation in the area is only possible with icebreaker _____ [assist] or for high-powered vessels of strong _____ [construct].
4. The tide is 2 meters below _____ [predict].
5. Listen carefully to the safety _____ [instruct] which follow.
6. This is your captain with an important _____ [announce].
7. We will have an _____ [evacuate] and boat drill shortly.
8. _____ [provide] and drinking water in the lifeboats will be distributed by an officer.
9. You obtain medicine for _____ [seasick] from the lifeboatman.

G. Fill in the missing words in the following passenger care announcements.

calm	obey	detect	address	leaflets	prolonged

1. In case of emergency, please _____ the orders given on the public _____ system.
2. Seven short blasts and one _____ blast will be given with the ship's whistle.
3. Remain _____ when you hear the general emergency alarm.
4. Read all notes and _____ concerning safety regulations.
5. If you _____ a fire or smell smoke call out "Fire"!

H. Fill in the correct preposition.

in	for	on	on	of	off	with

1. Keep a sharp look-out _____ persons in the water.
2. Do not take _____ your head covering whatever the weather.
3. Keep your lifejackets _____.
4. We have radio contact _____ rescue craft.
5. Vessels _____ the vicinity have been informed _____ our situation.
6. There are enough life-saving appliances for everyone _____ board.

APPENDIX I
English for Marine Engineers

1. Diesel Engine Operation

Lead-in: Check what you know.

I. The engine room

A. With your partner, write up the missing words.

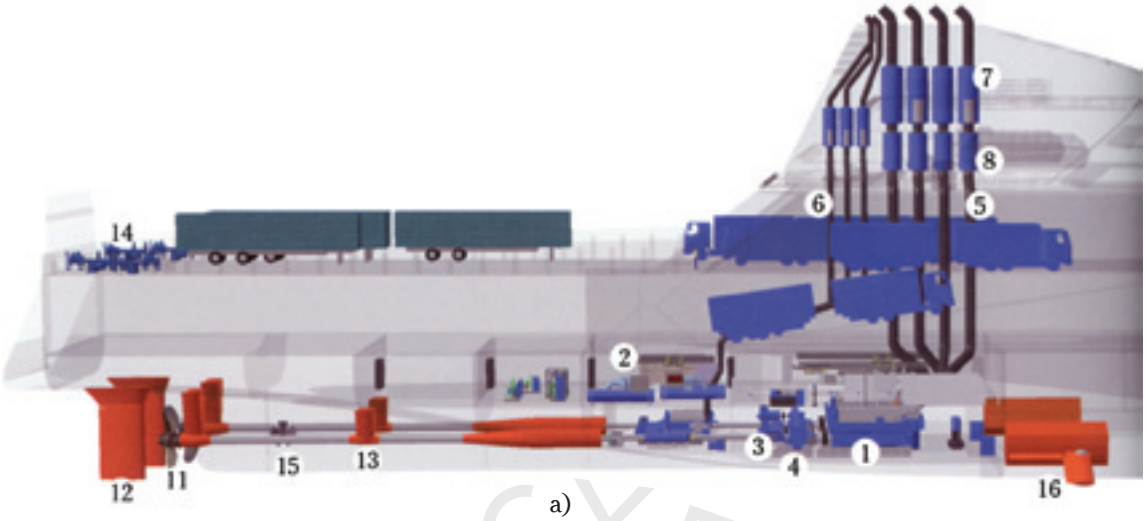
All engine rooms consist of at least:

• Main engine(s) (for p _ _ _ _ _ _ _ _ n) • Auxiliary engines (for power g _ _ _ _ _ _ _ _ n) • Cooling water system • L _ _ _ _ _ _ _ _ _ g oil system • Fuel system • Compressed air system (starting-, control- and working air) • Drinking w _ _ _ r system • Sewage system • Bilge system	• B _ _ _ _ _ t system • Boiler (heating of tanks, accommodation, etc) • Refrigerating system • F_ _ e-f _ _ _ _ _ _ g system • Storage t _ _ _ s for lubricating oil • Hydraulic oil • Fuel oil • S _ _ _ e parts store • C _ _ _ _ _ l room • Workshop

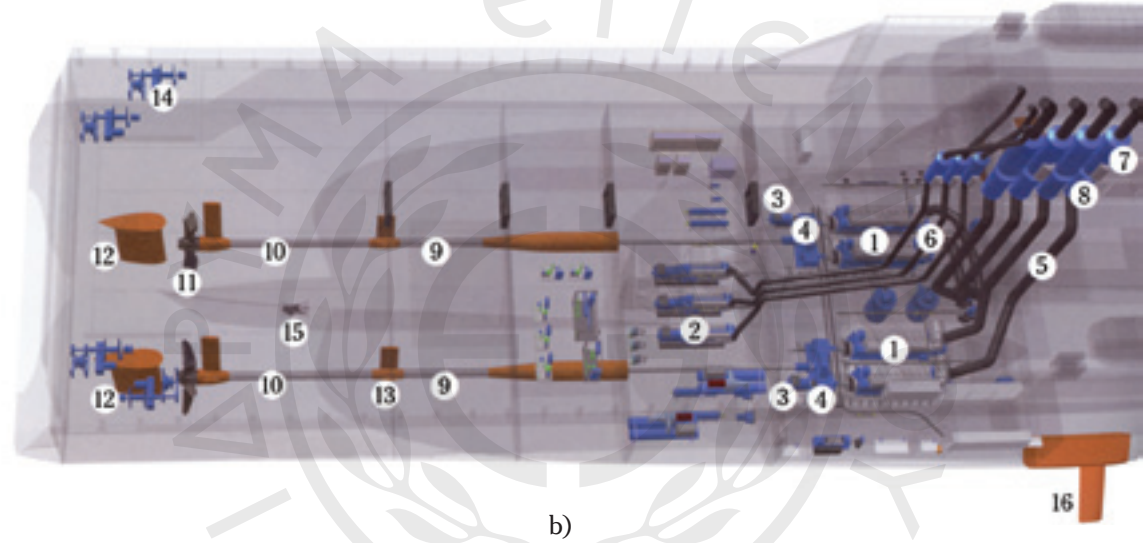
B. Look at the 3-D drawing of the engine room and the propulsion system of a cruise ship. Identify the components shown and write them down. The names listed in the box will help you.

1. .....
2. .....
3. Shaft generator (2)
4. .....
5. .....
6. Auxiliary exhaust lines
7. .....
8. .....
9. .....
10. Tail shaft
11. .....
12. .....
13. Intermediate shaft bearing
14. .....
15. .....
16. .....

Shafting
Stern thruster
~~Auxiliary exhaust lines~~
Main exhaust lines
Gearbox
Auxiliary diesel generators
~~Tail shaft~~
Main engines (4)
CPP (Controllable Pitch Propeller)
Mooring winch
~~Shaft generator (2)~~
Silencer
Stabilizer
Rudder (2)
Exhaust gas boilers / economizers
~~Intermediate shaft bearing~~



a)



b)

II. Diesel engine components

A. Listen about a marine Diesel Engine and answer the questions.

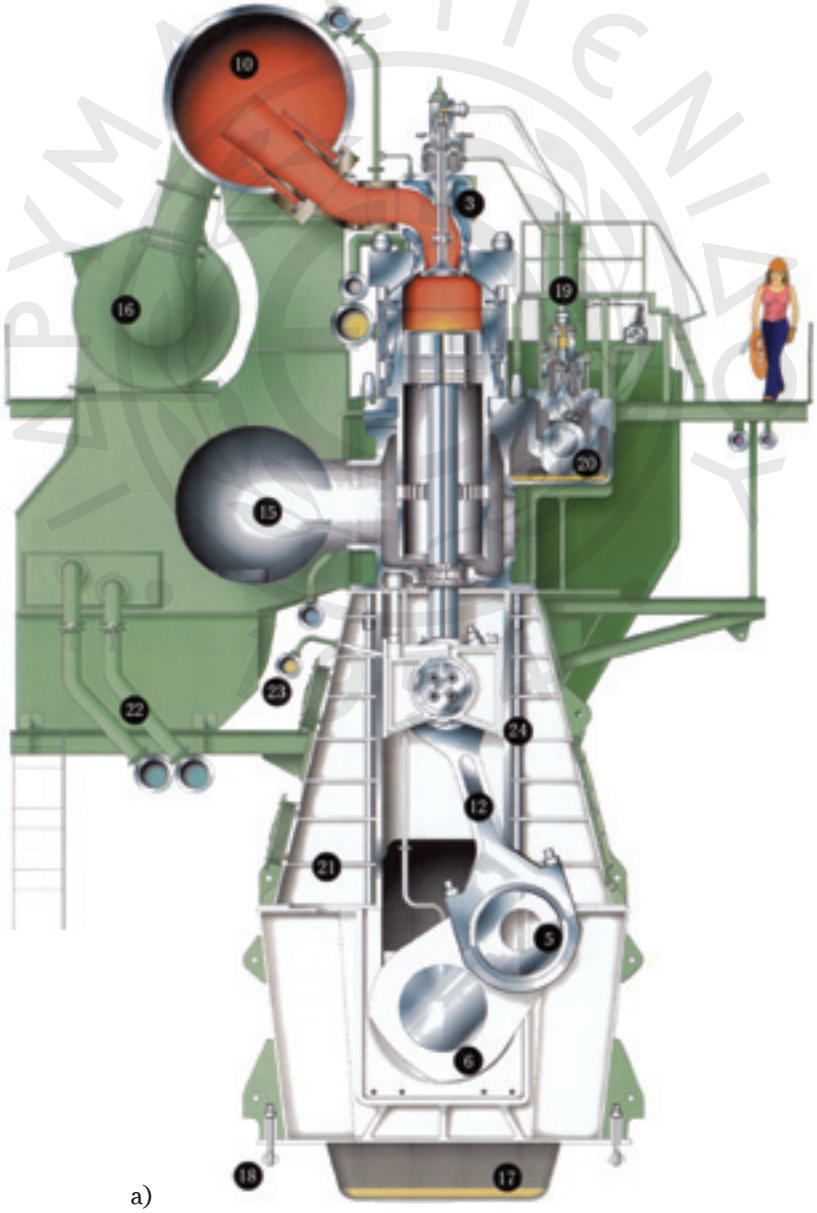
1. What types of ships is it used on?
2. What is its horsepower?
3. What is its weight?
4. What is its daily fuel consumption?
5. What is the maximum speed it can propel vessels to?
6. What are the components mentioned in the clip? Underline.

Valves	Scavenge box	Piston	Piston rod
Crankshaft	Crosshead	Camshaft	Cylinder

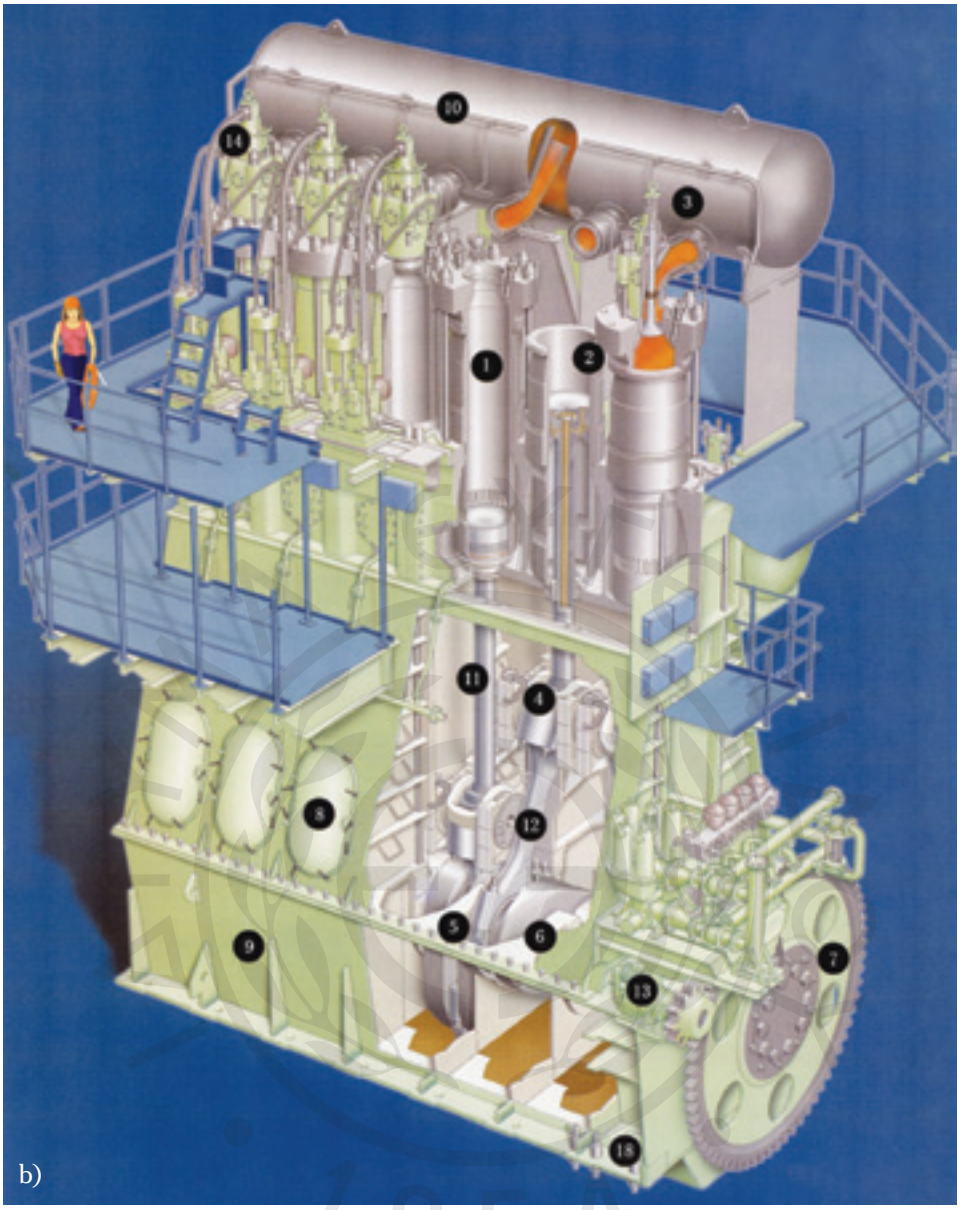
B. In pairs, identify the components of the engine in the pictures that follow. It is a low speed crosshead engine for a bulk carrier or a tanker.

Student A: Write the names of the components in the numbered list below. If you need help ask Student B for a suggestion.

1. ……
2. ……
3. ……
4. ……
5. ……
6. ……
7. ……
8. ……
9. ……
10. exhaust gas receiver
11. ……
12. ……
13. turning gear
14. ……
15. ……
16. ……
17. ……
18. foundation bolt
19. ……
20. ……
21. ……
22. ……
23. ……
24. ……



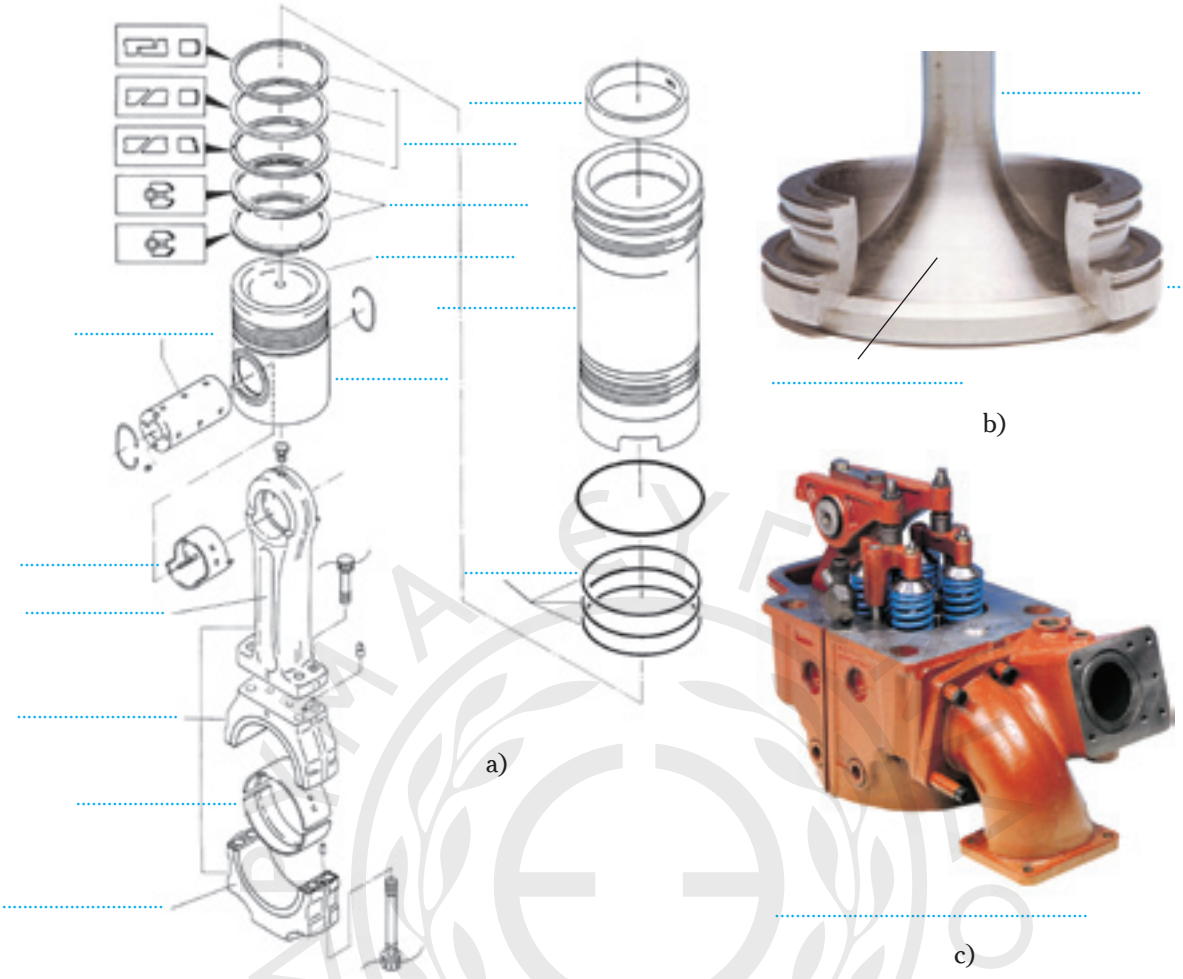
a)



Student B: Look at the components in the box on page 196 and suggest which one is shown in the picture.

C. Insert the following terms in the correct picture.

piston skirt or trunk pin, crown	**rings** compression, oil scraping, sealing, additional	**connecting rod** head bearing, top-end semi-shell, bottom-end semi-shell, top and bottom end bearings
cylinder liner	**cylinder head**	**valve** stem or spindle, head or mushroom, seat



a)

b)

c)

D. Underline the correct choice.

1. In a 4-stroke Diesel Engine the piston is connected to the connecting rod with the.....
   a. crank pin
   b. gudgeon pin
   c. connection pin
2. In a 2-stroke Diesel Engine the piston rod is connected to the connecting rod with the....
   .....
   a. connection pin
   b. crosshead pin
   c. crank pin
3. The connecting rod is connected to the crankshaft with the.....
   a. crank pin
   b. connection pin
   c. crosshead pin
4. The piston ..... in the cylinder.
   a. reciprocates
   b. rotates
5. Diesel Engines are.....
   a. ICE (Internal Combustion Engine)
   b. ECE (External Combustion Engine)

6. The piston rod reciprocates into and out of the……
   a. stuffing box
   b. scavenge box

7. The …… opens the valves with the help of the ……
   a. crankshaft
   b. camshaft
   a. piston rod
   b. push rod

8. The 2-stroke DE does not have an …… valve; it has scavenge …….
   a. inlet
   b. exhaust
   a. valves
   b. ports

9. The crankshaft changes the …… motion into …… with the help of the …….. rod.
   a. reciprocating
   b. rotating
   a. reciprocating
   b. rotating
   a. connecting
   b. piston

10. The cylinder block, the frame of the engine and the bedplate are all three connected together with the……
    a. frame rods
    b. tie rods

11. The valve seats are housed on the……
    a. cylinder liner
    b. cylinder head

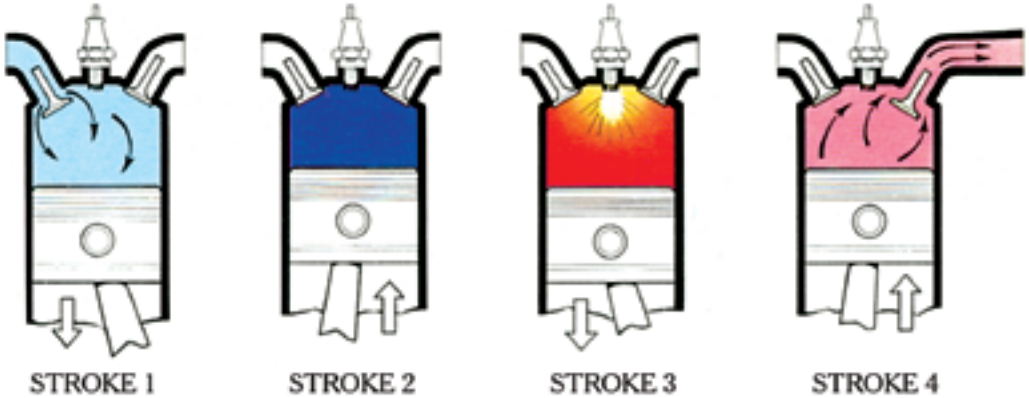
12. The piston of a 2-stroke Diesel Engine does not have a……
    a. crown
    b. skirt

III. The 4-stroke and 2-stroke cycles

Lead-in:

A. Listen to a description of a four-stroke cycle. Look at the words in the box below and circle the names of the strokes that you can hear. Then write them under the correct picture underneath.

compression	**condesation**	**injection**	**intake**
power	**fire**	**exhaust**	**outlet**



B. What do the following terms mean? Match.

1. stroke	☐ to fill up (with air)
2. T.D.C	☐ hole on the cylinder liner
3. B.D.C	☐ travel of the piston between the T.D.C and B.D.E
4. port	☐ to force liquid into (as by syringe)
5. to inject	☐ bottom dead centre
6. to charge	☐ top dead centre

C. What do the following terms mean? Match.

1. suction	☐ drawing in
2. ignition	☐ squeezing
3. combustion	☐ firing
4. exhaust	☐ burning
5. compression	☐ escape

The 4-stroke Diesel Engine

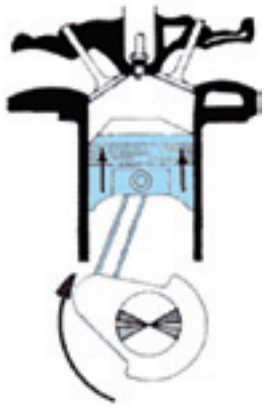
In a 4-stroke Diesel Engine the cycle is completed in four strokes of the piston or two revolutions of the crankshaft.

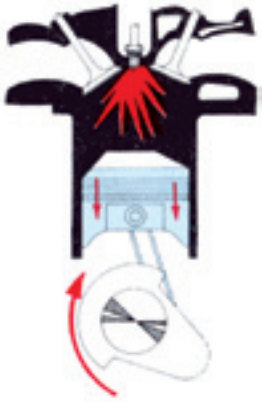
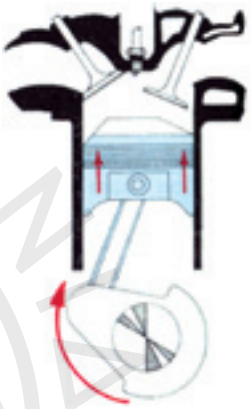
D. Use the terms in the box to complete the passage below which describes the four strokes of a 4-stroke Diesel Engine.

inlet	BDC	upwards	compresses	exhaust
compression	suction	rise	combustion	ignited
downwards	upwards	injection	TDC	power

During the (1)_____ **(or intake or induction) stroke** the intake valve is open and the piston is moving (2)_____. Air is drawn into the cylinder and when the piston reaches the (3)_____ the cylinder is full of air and the (4)_____ valve closes.

In the (5)_____ **stroke** the piston is moving (6)_____ and (7)_____ the air. The pressure and the temperature (8)_____. All valves are closed when the piston is almost at the (9)_____ the fuel is sprayed into the cylinder by the fuel (10)_____ valve. It is self (11)_____ because of the high temperature of the compressed air (over 500°C).



Then fuel is burnt and the (12)_____ gases push the piston down. This is the **combustion or** (13)_____ **stroke** – only this stroke provides power for the propulsion of the ship.	
Finally, in the (14)_____ **stroke** the piston is moving (15)_____ and the exhaust valve is opened, through which the exhaust gases are driven out.	

E. For more information about the 4-stroke Diesel Engine, underline the correct choice.

– Four-stroke Diesel Engines are **medium-speed / slow-speed** Diesel Engines, operating between **100 / 200** and **900 /1500** rpm.
– They are connected to the propeller **with / without** reduction gears. They are **small / big** in size and weight and they basically burn **heavy fuel oil / refined oil**.
– They are used in **medium-size / large** ships.

The 2-stroke Diesel Engine.

- In a 2-stroke Diesel Engine the cycle of operation is completed in two strokes of the piston or one revolution of the crankshaft.
- The 2 strokes are called compression and power (or expansion) stroke. However, the phases in the cycle do not differ from those in the 4-stroke Diesel Engine.
- The conventional 2-stroke Diesel Engine does not have inlet or exhaust valves. It has scavenge and exhaust ports instead, which are opening on the cylinder liner near the B.D.C. (the exhaust port being a little higher than the scavenge one).
- However modern very powerful 2-stroke Diesel Engines are built with an exhaust valve.

F. Read the passage on the operation of a 2-stroke Diesel engine.

i. Write the missing sentences in the correct space.

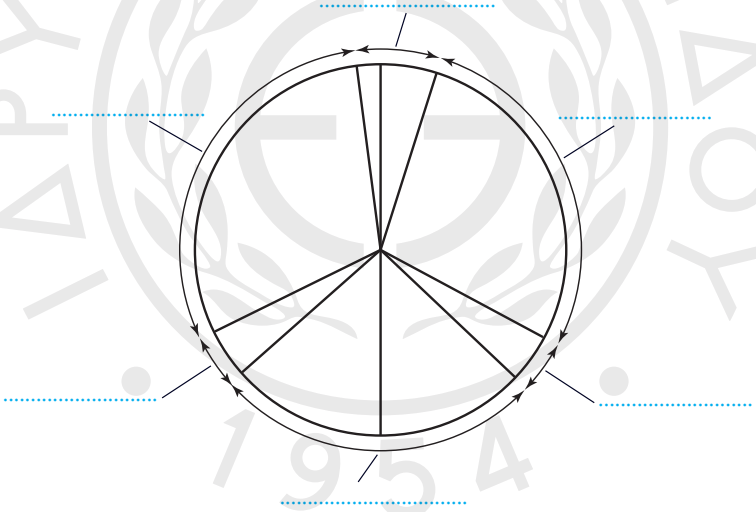
Pressure drops	Pressure and temperature rise

When the piston is at the BDC and before it starts its upward movement on its 1st stroke, the scavenge and exhaust ports (or exhaust valve) are already open. Pressurized air has already entered the cylinder expelling the remaining gases through the exhaust port (or valve). As the piston moves upwards on its first stroke it converts the scavenge ports first and then the exhaust port. Compression starts. ..... When the piston is a little before the TDC at the end of its 1st stroke the fuel is sprayed into the cylinder and is self–ignited.

At the beginning of its 2nd stroke the fuel has already been burned. The combustion gases push the piston down. As the piston moves downwards, it uncovers the exhaust port first and the hot gases escape through the exhaust manifold. ..... So, when the piston uncovers the scavenge port right after, air enters the cylinder under pressure to push the remaining gases out during the scavenge phase.

ii. Complete the time diagram below with all the phases of the cycle :

scavenge	post scavenge	expansion	exhaust	compression	ignition



G. Put the sentences (a–d) in the correct space to complete the description of the strokes.

Four-stroke engine	**Two-stroke engine**
1. Piston moves down. ……. 2. Piston moves up. Air is compressed. Fuel is injected and combustion takes place. 3. Piston moves down. 4. Piston moves up. …….	1. Piston moves down. …… 2. Piston moves up. Air is compressed by the piston. …… Fuel is injected and combustion takes place.

a) Air is taken in at the bottom of the cylinder.
b) Simultaneously, exhaust gases are forced out through valves at the top of the cylinder.
c) Air is taken in through the valves at the top of the cylinder.
d) Exhaust gases are forced out of the cylinder through valves at the top.

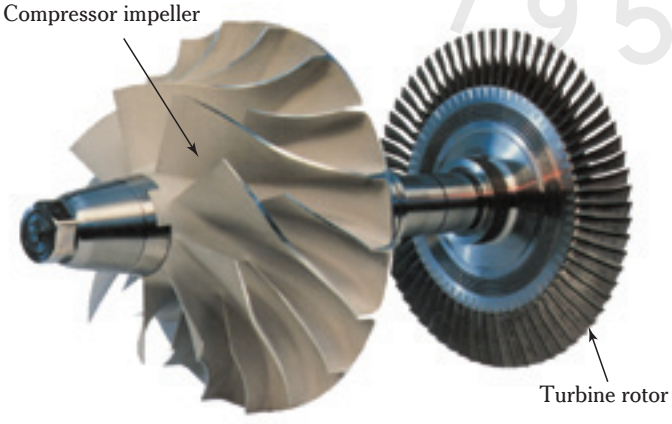
H. You will hear about the "Miller cycle" of operation in a Diesel Engine by Wärtsilä. Decide whether the following statements are True or False according to the clip.

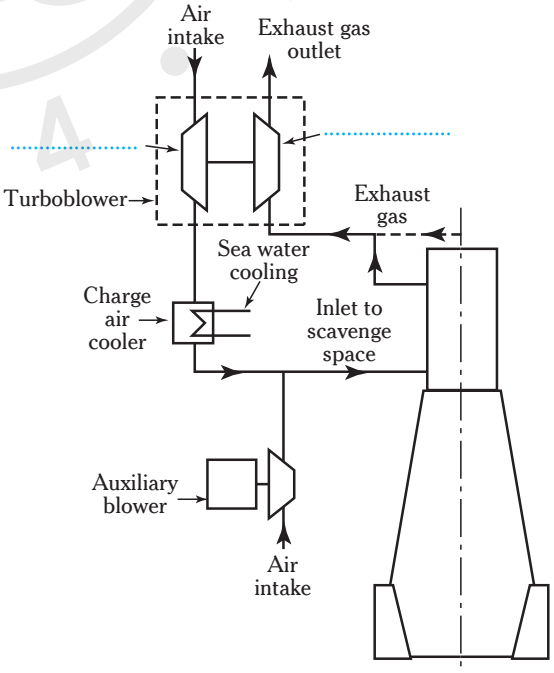
True	False	
☐	☐	1. In Wärtsilä engines the inlet valves close just before the piston reaches the bottom dead centre.
☐	☐	2. This method increases the work of compression and the combution temperature.
☐	☐	3. The "Miller timing" method results in higher engine efficiency but also higher emissions.

IV. The turbocharger

A. Check what you know.

– How is the pressurized air, which is needed for the operation of a 2-stroke Diesel Engine, obtained?
– What are the two main components of a turbocharger? Identify them in the diagram below and then answer the questions underneath.





a. How is the turbine driven?

b. How is the compressor driven?

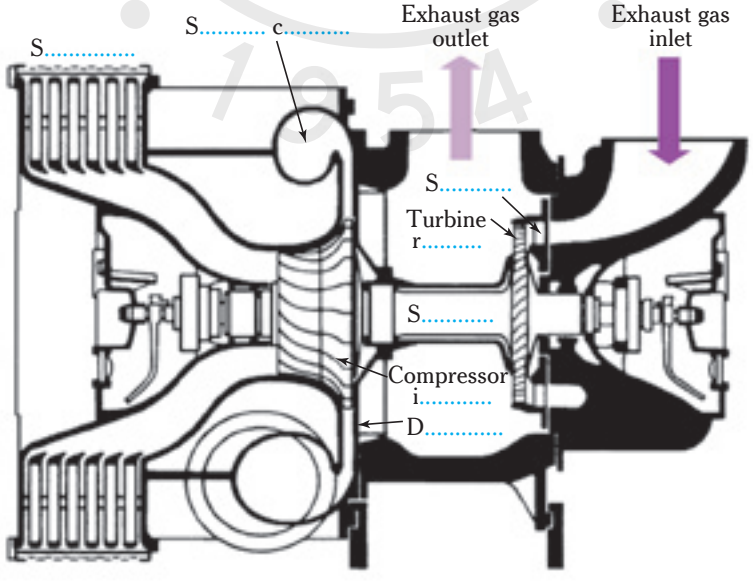
c. What does the compressed air pass through before it is charged into the cylinder?

B. Read the passage on the turbocharger and see if your answers to the previous questions were correct.

A turbocharger consists of a single turbine wheel, the rotor of which is mounted on the same shaft as with the impeller or a centrifugal compressor.

The turbocharger uses some of the energy of the hot exhaust gases of the engine to drive the turbine (35% of the total heat energy in the fuel is wasted to the exhaust gases). The turbine, being on the same shaft with the impeller of the compressor, transmits the power to the impeller and drives the compressor. The compressor compresses the incoming air which then is cooled and enters the scavenge air manifold. Besides the rotor, the turbine assembly has a stator too, that is, stationary vanes which direct the exhaust gases to the rotor. On the compressor's side on the other hand, there is a diffuser (where there may be more vanes) and a spiral casing, both of which contribute to further rising of the pressure of the compressed air. There is also a silencer to absorb the noise of the vibration of the running components.

C. The picture below is a cross section of a turbocharger of a diesel engine. With your study partner, try to identify the parts of the turbocharger underlined in the previous passage.



D. To summarize the differences between a 4-stroke and a 2-stroke Diesel Engine, tick appropriately in the following table.

	2-stroke Diesel Engine	4-stroke Diesel Engine
1. One cycle of operation needs one revolution of crankshaft		
2. One cycle of operation needs two revolutions of crankshaft		
3. Inlet valve exhaust valve		
4. Piston rod & crosshead		
5. Reduction gears		
6. Scavenge ports		
7. Low fuel consumption		
8. Slow speed		
9. Medium speed		
10. Heavier and more expensive		
11. Lighter and cheaper		
12. More powerful for the same size		

E. Write a paragraph comparing a 4-stroke Diesel Engine with a 2-stroke one. The previous exercise will help you. Add other differences you know, e.g. what kind of ships each engine is used on, arrangement of cylinders, etc.

F. Project: Make a presentation.

- What features must a Diesel Engine (2-stroke or 4-stroke) have to make it most attractive in the Merchant Marine industry for main propulsion? Find such an engine and present it in class.

2. Boilers

Lead in: Discuss in class.

Can you identify the piece of machinery in the following pictures?

– What does it do?
– Where is water kept?
– Where is steam kept?
– Where is the fuel burnt?
– Do you know any other parts?
– Do you know the types of boilers?

A. The following terms are related to boilers. Which of the definitions below describe the terms? Match.

economizer	**superheater**	**steam drum**	**water drum**
furnace	**oil burners**	**steam**	**water tubes**

1. The place where the fuel is burnt: .....
2. The vapour of water: .....
3. A great number of small tubes which super heat the wet steam: .....
4. They supply the fuel and air to the furnace: .....
5. Cylindrical chamber which holds water: .....
6. It preheats the feeding water: .....
7. Cylindrical chamber which holds mainly steam: .....
8. Water pipes which connect the steam drum with the water drums: .....

B. Read the following text on boilers and insert an appropriate term in the gaps from the list above (the terms in exercise A).

Boilers are used on board ships for producing (1)_____. This steam may be used for driving the main engines, when steam turbines are fitted, or for driving auxiliary machinery such as the windlass.

A steam generating plant consists of a furnace with the **oil burners**, **a boiler**, **a superheater**, **an economizer** and three separate **piping systems**: the **feed water system** which supplies the boiler with the required feed water, the **fuel oil system** which supplies the burners with fuel and the **steam system** which carries the steam from the boiler to the engine.

The (2)_____ is the space where the air and fuel oil mix and burn. The casing or shell is made of steel sheets and forms an airtight chamber. The walls and floor of the furnace have an insulation of fireproof bricks in two or three layers.

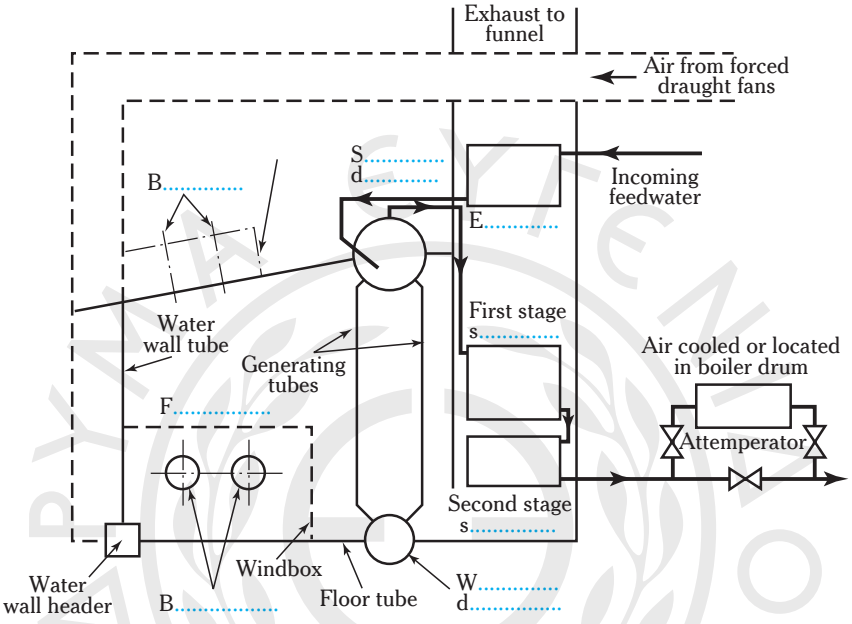
The (3)_____ in front of the fire-box supply the fuel oil and air to the furnace. Each burner has an atomizer and an air register.

The boiler holds the water and steam. It has three main parts, the **water drums**, the **steam drum** and the (4)_____ that connect them. It may also have a(n) (5)_____ which has a great number of small tubes and is used to super heat the wet steam before it enters the main steam pipe which leads to the

engines. The (6)_____ on the other hand serves to heat the feed water before it goes into the boiler.

When the boiler is in operation, the water circulates through the water tubes between the steam drum (at the top of the furnace) and the water drums (at the bottom of the furnace). The (7)_____ serve as a reservoir of water and the (8)_____ holds some of the boiling water but mainly serves as a storage space for steam.

C. Now look at the diagram of a simplified boiler arrangement and insert the missing terms.



D. Study the diagram again and answer the questions.

- How does the feed water circulate in the boiler?
- How is the steam generated? How does it circulate?

E. In pairs, use the boiler arrangement diagram, read the following passage on the operation of a boiler and fill in the missing terms.

The incoming feed water passes through a(n) (1)_____ first before it enters the lower part of the (2)_____. From there it enters the circulating tubes which take it in the water (3)_____, where water is heated by the combustion (4)_____.

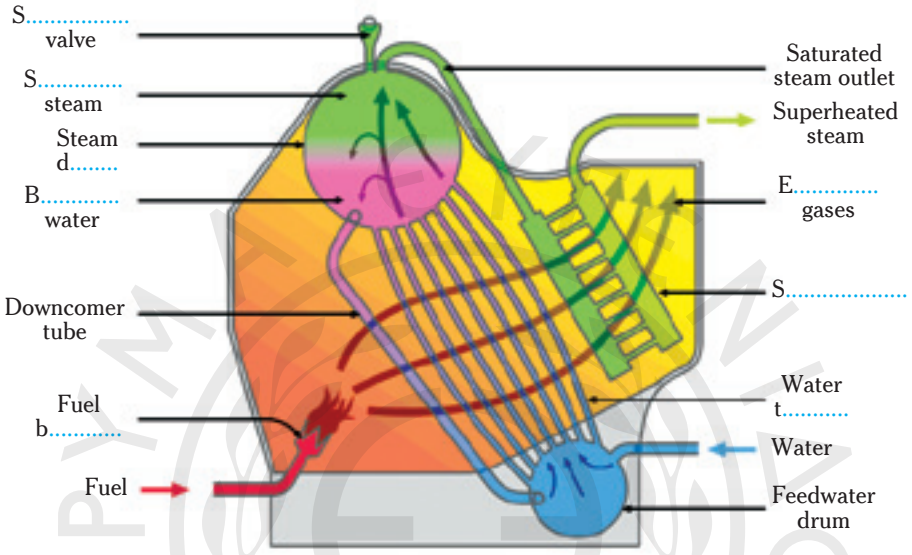
Then it enters the (5)_____ tubes where water changes into wet steam which enters the upper part of the steam drum and becomes saturated. From there the steam passes through the 1st and the 2nd stage (6)_____ where it becomes superheated and is led to the turbine.

Depending on the case there may be a(n) (7)_____ to decrease the temperature of the superheated steam. The side and the roof of the furnace form a(n) (8)_____ of tubes very near each other, which are supplied with water from a water wall (9)_____. The (10)_____ _____ may be placed either at the bottom of the boiler or at the top (preferably on modern boilers).

I. Types of boilers

The **water tube boiler** is one type of boiler in use. It is very efficient and because of this it is used for generating steam for main engines.

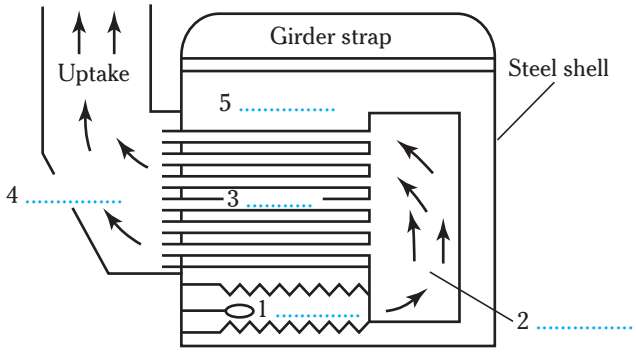
A. Fill in the missing terms in the schematic diagram of a marine type water tube boiler below. Then describe its operation.



Another type of boiler is the **fire tube** or **Scotch boiler**. The Scotch boiler is very strong but less efficient than the water tube. That is why it is used only for auxiliary purposes. In a fire tube boiler the water for generating steam does not circulate in the tubes but all around them, around the furnace and around the combustion chamber as well.

B. Here is a diagram of a Scotch boiler. Insert the following terms and describe its operation.

tubes	water	smoke box	furnace	combustion chamber

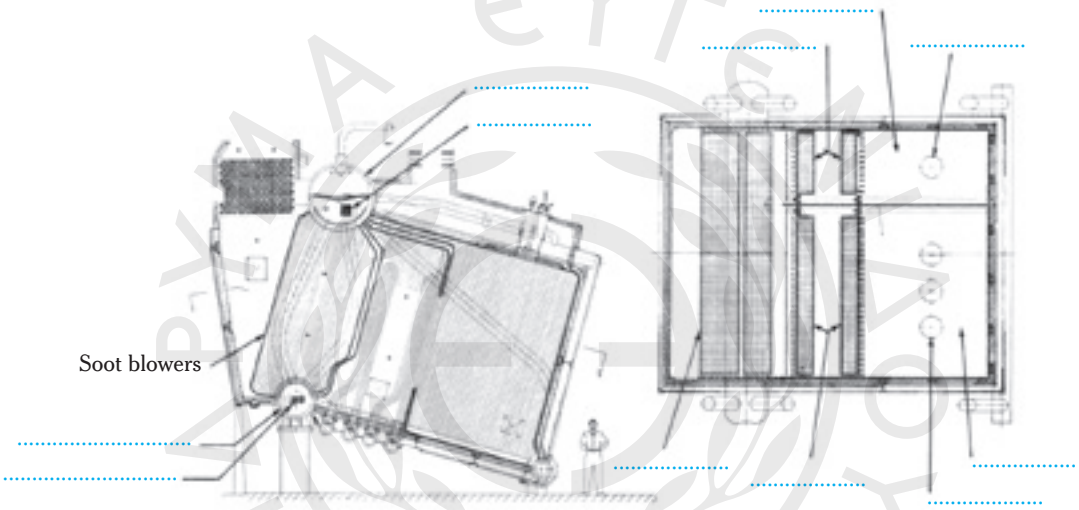


Scotch boiler

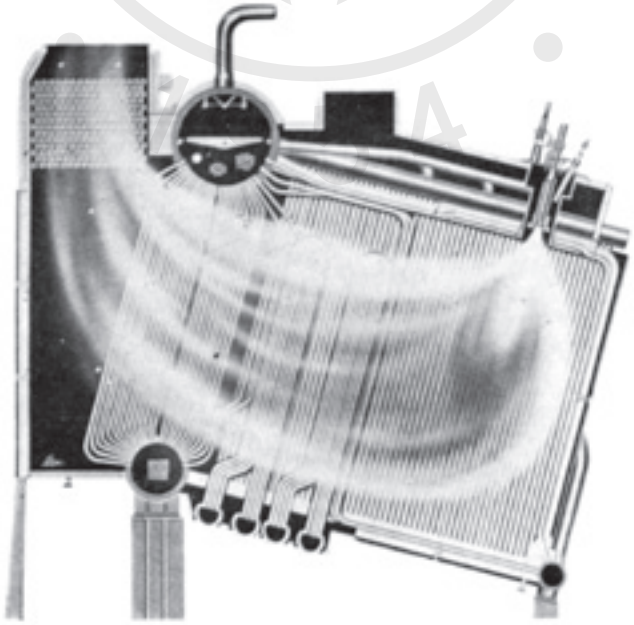
II. Boiler mountings

Various valves and gauges which are attached directly to the pressure parts of the boiler are known as boiler mountings. For a water tube boiler these include: **safety valves** which release any excess steam from the boiler, **feed check valves** which control the final entry of water into the boiler and a **main stop valve** which controls the passage of the steam to the engines. There are also **water level indicators** to show the level of water in the boiler, thermometers for showing the temperature inside the boiler, **drain valves** to drain water from the system, **salinometer valves**, in order to get samples of water for testing and **chemical dosing valves** for adding chemicals directly into the boiler.

A. Look at the vertical and horizontal cross section of a modern boiler below. Insert the terms in the first picture and present its operation using the second picture.



V2M-8R of the Combustion Engineering Co., with reheater



The boiler in operation

Note: the **soot blower** removes the soot that is deposited on the furnace tubes of a boiler during combustion [**soot**: the impure black carbon particles resulting from the incomplete combustion of a hydrocarbon].

B. Match the words to their definitions.

1. Fireproof	...Reservoir of water
2. Atomizer	...Apparatus which decreases the temperature
3. Water header	...Be in motion, move around
4. Attemperator / desuperheater	...Burning
5. Water wall	...Not affected by fire
6. Circulate	...Wall made of tubes of water
7. Combustion	...Filled with moisture
8. Saturated	...Part of the oil burner which sprays the fuel

C. Work in pairs to find the words which correspond to the following functions.

1. It shows the level of water in the boiler: .....
2. It can stop or start the flow of water into the boiler: .....
3. It measures the salinity of water: .....
4. It contains water and steam: .....
5. It allows the steam to pass to the engine: .....

D. Underline the best choice.

1. The steam which is generated in the tubes is **saturated / wet**, while the steam in the steam drum is **saturated / dry**.
2. Water changes into steam in the **circulating / generating** tubes.
3. Steam turbines need **superheated / saturated** steam.
4. The attemperator **increases / decreases** the temperature of the steam.
5. A desuperheater is the **same as / opposite of** a superheater.
6. The feed check valve controls the entry of the **steam / water** in the boiler.
7. The safety valve is actuated when there is **high / low** pressure.
8. The economizer is used to heat **the steam / the water** before it goes into the steam boiler.
9. The water wall header **supplies water to / is supplied with water from** the water wall tubes.
10. The Scotch boiler is **more / less** efficient than the water tube boiler.

E. Boiler safety systems[1]. Read the text and do the exercises that follow.

Marine boiler plants require adequate control systems to raise steam, maintain design conditions for steady steaming, secure the boiler units and (1) _____ *malfunctions* and failures. The automatic control arrangement on a shipboard boiler (2) _____ into two parts:

- **Safety system** which controls that all values are within the *predetermined* limits and give automatic alarm if some of them are not, and also *initiate* an automatic burner trip in case of a dangerous situation.

Continued

1. Lars Josefsson "Boiler safety systems".

- **Continuous control** of the different parameters for water level control, steam pressure control, fuel oil pressure control, fuel oil temperature control, blowdown control, superheat temperature control etc.

The combustion control system maintains *constant* steam pressure by (3)_____ of air and oil to the burner. The more advanced combustion controls transmit the air and oil loading simultaneously but with a slight *lag* between air and oil, so that with an increased boiler load, the air will lead the oil, and on a *decrease* in the boiler load the oil will lead the air. Such an arrangement makes it possible (4)_____ the *emission* of smoke during manoeuvring. All the classification societies have (5)_____ for marine *applications* due to the environment and the fact that one can't escape from an accident nor get service when the ship is (6)_____. Things just have to work.

i. Fill in the gaps in the text with the following phrases.

1. to minimize
2. sailing at sea
3. controlling the flow
4. detect promptly
5. is divided
6. special requirements

ii. Find the following words in the text (they are in italics) and try to guess what they mean. Then match them to the definitions below.

malfunction	**initiate**	**application**	**decrease**
predetermined	**constant**	**lag**	**emission**

1. A period of time between two events, a delay: _____.
2. When a piece of machinery fails to function normally: _____.
3. When heat, light gas or radiation is sent forth, given out or discharged: _____.
4. The practical use or relevance of something: _____.
5. Remaining the same and occurring continuously: _____
6. To cause to start: _____
7. Becoming smaller in amount: _____.
8. Decided in advance: _____

3. Steam Engines

Lead in: Check what you know.

A. Circle the correct alternative:

1. Steam engines are
   a. internal combustion engines.
   b. external combustion engines.
2. In steam engines
   a. heat energy and mechanical energy are produced in the same apparatus.
   b. heat energy and mechanical energy are produced in different parts.

3. In steam engines
   a. the steam transmits the heat energy to the engine.
   b. the burning fuel transmits the heat energy to the engine.

4. The parts of a steam reciprocating engine
   a. are similar to those of a two-stroke Diesel Engine.
   b. are completely different from those of a two-stroke Diesel Engine.

5. Steam turbines are
   a. more efficient than reciprocating steam engines.
   b. less efficient than reciprocating steam engines.

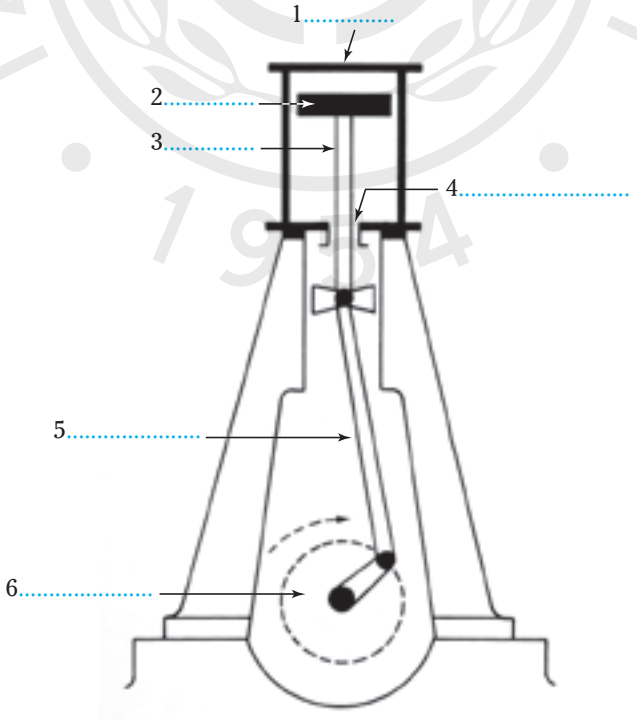
B. Write the correct word in the gaps.

Steam engines are (1)_____ combustion engines because the burning of the fuel takes place outside the engine. There are two types of steam engines, the (2)_____ steam engine and the steam (3)_____.

I. Reciprocating steam engines

A. In pairs, insert the following terms in the diagram of a single cylinder reciprocating steam engine.

Stuffing box	Cylinder	Piston
Piston rod	Connecting rod	Crankshaft



Single cylinder reciprocating steam engine

B. Read the passage on steam engines and insert the missing terms.

A **simple reciprocating steam engine** consists of a (1)_____ closed at both ends and a (2)_____ which moves back and forth in the cylinder by the force of steam. The piston is connected to a (3)_____ *[compound word]* that slides back and forth through a (4)_____ *[compound word]*. In each end of the cylinder there is a (5)_____ *[compound word]* to drain the water from the condensing steam.

Whatever the steam power plant is, beside the steam engine there must also be incorporated a boiler for the generation of steam. The steam generated in the boiler passes into the steam engine which converts the heat energy into mechanical work. After that the exhaust steam is condensed in a **condenser**, passes through a **deaerating feed tank** and is discharged by a **service pump** into a **preheater**. From there it passes into the boiler through the economizer and the cycle begins again.

C. In pairs, study the diagram of a steam power plant of a triple cylinder reciprocating steam engine and find the missing terms. The passage above and the list of terms in the box below will help you. Write the terms in the space provided; some are given for help.

Boiler	Condenser	Condensate pump	Steam pipe
Exhaust pipe	Deaerating Feed Tank - DFT	Preheater	Service pump

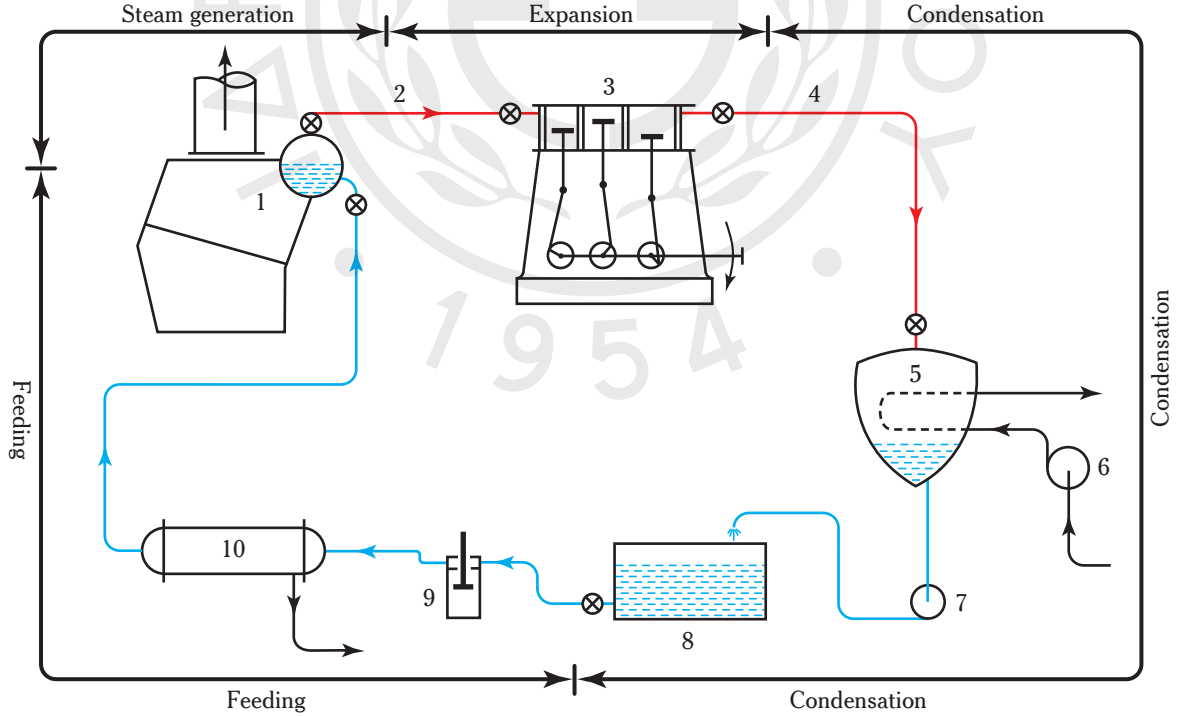


Diagram of steam power plant with triple cylinder reciprocating engine

1. .....
2. .....
3. reciprocating engine

4. .....
5. .....
6. sea-water pump
7. .....
8. .....
9. .....
10. .....

II. Steam turbines

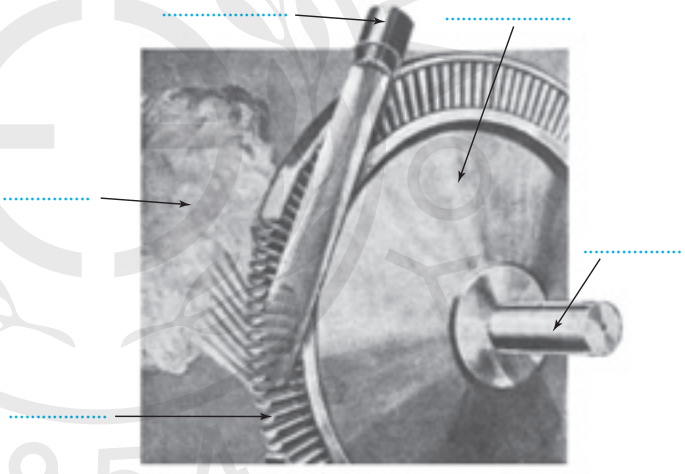
The **steam turbine** consists of a *rotor* mounted on a *shaft* that is free to rotate. The outer rim of the rotor has a set of curved *blades* and the whole system is enclosed in an airtight case. Several *nozzles* direct the *steam* against the blades and turn the rotor.

We have three types of steam turbines:

– the **impulse turbine**,
– the **reaction turbine** and
– the **action-reaction turbine**.

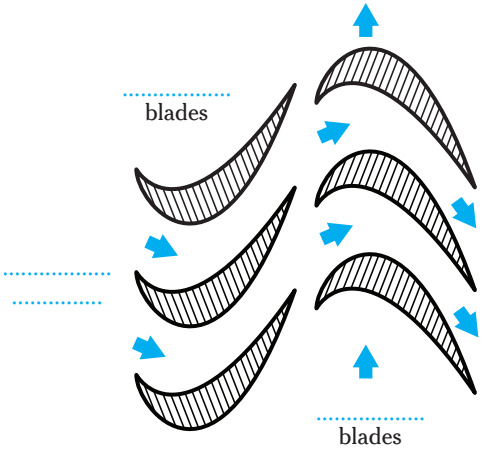
A. Identify the parts of a simple impulse turbine in the graph.

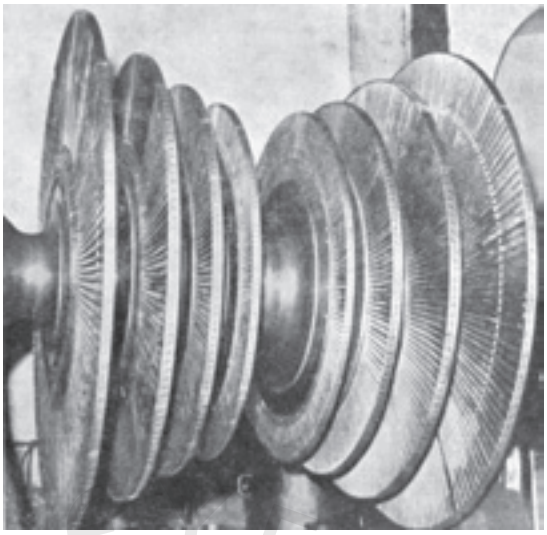
In the impulse turbine the steam from the nozzles is directed against the blades and turns the rotor.



B. Insert the missing type of blades in the following view of blades.

In the reaction turbine the steam passes first through the stationary blades where it expands and with increased speed enters the rotating blades and turns the rotor (action). While being in the canals of the rotating blades, the steam expands again and turns the rotor with a force exerted on the blades in the opposite direction this time (reaction).





Double flow reaction steam turbine rotor

C. Read the following text and do exercises (i) and (ii) below.

*The **reaction-type turbine** has all the advantages of the impulse-type, plus a slower operating speed and greater efficiency.*

*The steam is fed from a high-pressure (H.P.) line into the high-pressure turbine through a throttle valve. After passing through this H.P. turbine where some of its energy is converted to useful work, the steam is fed to the low-pressure (L.P.) turbine. The larger diameter of the L.P. turbine is due to the increased volume of steam as it expands because of the decrease in pressure. The L.P. turbine usually consists of a combination of impulse and reaction elements. All of the stages of the L.P. turbine operate on the reaction principle. This rotor also carries the blading of the **astern element** which is used for backing down.*

*The **turbine bearings** require special attention. They support the weight of the rotor and are adjusted to maintain a close clearance between the stationary and rotating blades.*

i. Look at the diagram of a steam power plant of a reaction turbine. Can you identify the H.P. turbine and the L.P. turbine in the diagram?

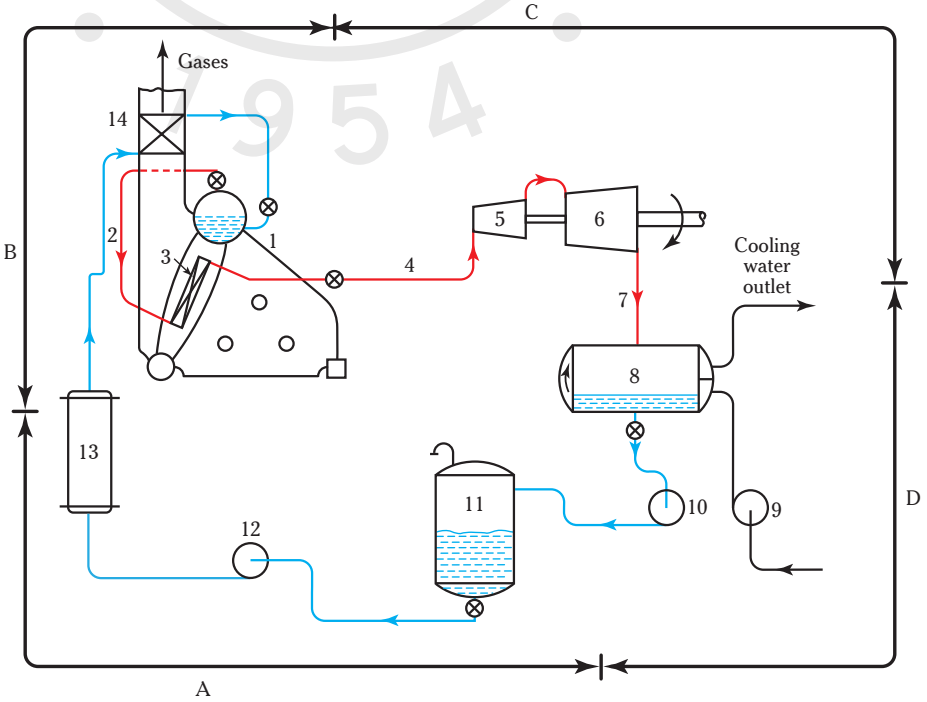


Diagram of steam power plant of reaction turbine

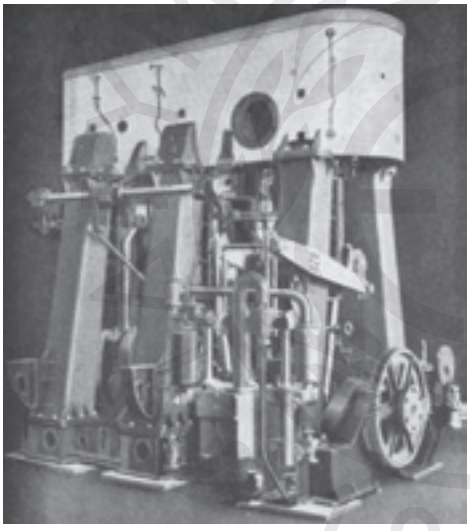
ii. Write what is shown in the diagram:

1. ……	8. ……	A. ……
2. ……	9. ……	B. ……
3. ……	10. ……..…	C. ……
4. ……	11. ……..	D. ……
5. ……	12. ……..	
6. ……	13. ……..	
7. ……	14. ……..	

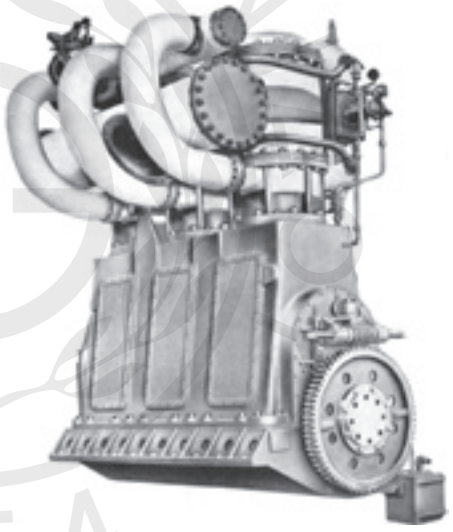
• If you need extra help, all the words you need are in the box below.

Economizer	Condensation	Feed pump	H.P. steam turbine
Preheater	Condensate pump	Condenser	Superheated steam pipe
DFT	L.P. steam turbine	Boiler	Saturated steam pipe
Steam generation	Expansion	Superheater	Sea water cooling circulating pump
Exhaust pipe	Feeding		

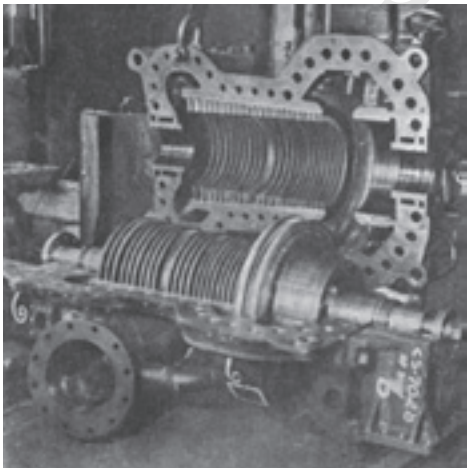
D. The following are pictures of steam engines. Can you distinguish between reciprocating steam engines and steam turbines (impulse, reaction, action-reaction)?



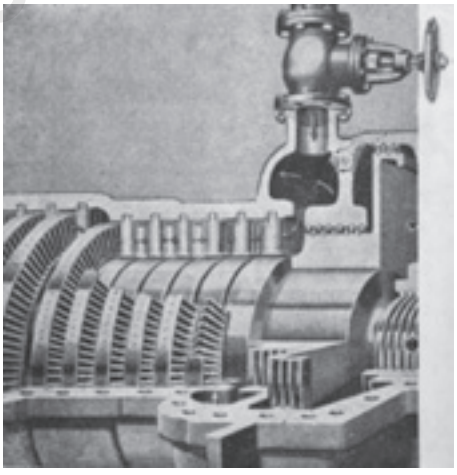
a)……



b)……

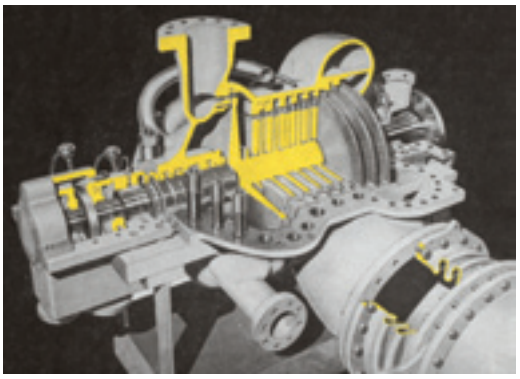


c)……



d)……

e).....



E. Match the terms to their definitions.

1. condenser ... the opposite of ahead
2. deaerating tank ... rotating drum
3. efficient ... action
4. rotor ... fixed, not in motion
5. blade ... apparatus which changes the steam into water by cooling it
6. impulse ... to change into something else
7. stationary ... capable of better output
8. to expand ... one of the flat thin (metal) parts (that turn around in a turbine)
9. astern ... to grow larger, spread out
10. to convert ... vessel where water gets rid of air and other gases

F. Match the words to make compound ones.

proof	valve	turbine	drum	cock (or valve)
chamber	drum	tube	heater	tight

1. Steam_____
2. Fire_____
3. Fire_____
4. Super_____
5. Combustion_____
6. Steam_____
7. Air_____
8. Water_____
9. Safety_____
10. Drain_____

G. We can also have three–word compound nouns such as "external combustion engine". Match the words to make 3-word compound nouns and write them in the space provided below. The first one is done as an example.

1. deaerating	proof	~~engine~~
2. low	check	bearing
3. fire	pressure	pump
4. sea	level	casing
~~5. reciprocating~~	feeding	turbine
6. water	end	header
7. feed	tube	valve
8. water	water	indicator
9. water	~~steam~~	tank
10. bottom	wall	boiler

1. reciprocating steam engine
2. bottom..... bearing
3. sea..... pump
4. fire..... casing
5. low..... turbine
6. water..... header
7. feed..... valve
8. water..... indicator
9. deaerating..... tank
10. water..... boiler

H. Underline the correct choice.

1. The steam which is collected in the steam drum of the boiler is _____.
   a. dry
   b. superheated
   c. saturated
2. Steam transmits _____ to the engine.
   a. kinetic energy
   b. heat energy
   c. mechanical energy
3. When the temperature of the steam falls below permissible limits, _____ takes place.
   a. evaporation
   b. condensation
   c. concentration
4. The main part of a reciprocating steam engine is _____.
   a. the piston
   b. the rotor
   c. the blades
5. In an impulse turbine the steam is directed from the _____ against the _____.

a. blades	*a.* blades
b. nozzles	*b.* nozzles
c. rotor	*c.* rotor

6. In an impulse turbine the blades are _____.
   a. stationary
   b. rotating
   c. stationary and rotating
7. In a reaction turbine the steam from the boiler comes into _____ first.
   a. a L.P. turbine
   b. a H.P. turbine
   c. a high pressure line
8. The L.P. turbine is larger due to the _____ of the steam because of the _____ in pressure.

a. extension	*a.* decrease
b. exhaust	*b.* increase
c. expansion	*c.* raise

9. The reaction turbine is _____ than the impulse turbine.
   a. more efficient
   b. faster
   c. less advantageous

I. Reorder the letters to form the word which corresponds to the definition.

1. Move back and forth: [t, p, i, e, r, c, a, e, r, o, c] _____
2. A cooler where the steam changes into water again: [n, s, c, e, n, r, o, d, e] _____
3. The steam comes out of these at a high pressure: [z, l, n, z, o, e, s] _____
4. A kind of turbine: [p, l, u, s, e, m, i] _____
5. The support of the rotor of the turbine: [a, n, i, e, r, g, b, s] _____

J. Fill in the gaps with the correct word from the box.

mounted	**deaerating**	**volume**	**throttle**	**boiling**
astern	**liquid**	**stationary**	**gas**	**packing gland**
	blades	**rotating**	**solid**	

1. We can produce steam by heating water to its _____ point.
2. The water can exist in three stages: as _____ it is water, as _____ it is ice, and as _____ it is steam.
3. On the rim of the rotor there are curved _____.
4. The rotor is _____ on a shaft.
5. In the reaction turbine the blades can be both _____ and _____.
6. The piston rod slides into the _____.
7. In the _____ feed tank the condensate gets rid of air.
8. The high pressure steam passes from the H.P. line into the H.P. turbine through a _____ valve.
9. The rotor of the L.P. turbine has additionally the _____ blades for backing down.
10. When the pressure of the steam is decreased its _____ is increased, because the steam expands.

K. Choose the correct term for each definition.

1. A device by means of which a liquid is reduced to very fine spray.
   a. Atomizer
   b. Economizer

2. A vessel in which boiler feed water is heated under reduced pressure in order to remove dissolved air.
   a. Combustion chamber
   b. Deaerator

3. A device for removing all or part of the superheat from steam by spraying water into it or by use of a heat exchanger.
   a. Desuperheater
   b. Superheater

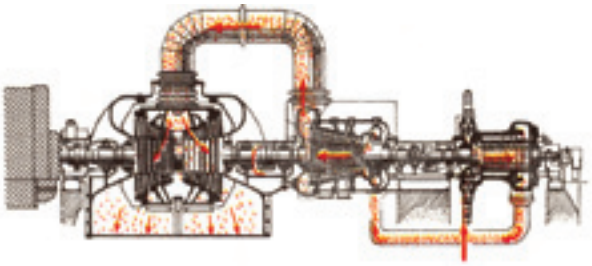
4. A device which cools exhaust steam back into water.
   a. Condenser
   b. Deaerator
5. A heat exchanger that transfers heat from the gases of combustion to the Boiler Feedwater.
   a. Economizer
   b. Resuperheater
6. A type of boiler design in which combustion gases flow inside the tubes and water flows outside the tubes.
   a. Fire-tube boiler
   b. Water tube boiler
7. An enclosed space provided for the combustion of fuel.
   a. Furnace
   b. Funnel
8. The upper drum of a water tube boiler where the separation of water and steam occurs.
   a. Header
   b. Steam drum

L. Find the missing word.

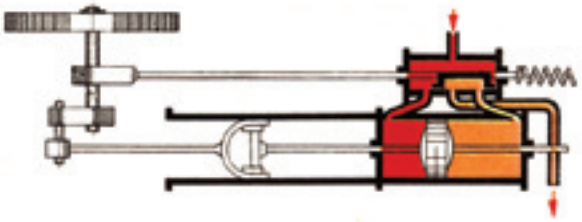
1. S _ _ _ _ h M _ _ _ _ e boiler: fire-tube boiler equipped with an internal furnace, fire chamber and return tubes completely surrounded by water.
2. W _ _ _ r T _ _ e boiler: a boiler having a heating surface consisting of a large number of relatively small diameter tubes which contain water. The heat is applied on the external side of the tubes.
3. R _ _ _ _ _ _ _ _ _ _ _ g engine: any engine which employs a piston working in a cylinder, the piston being caused to oscillate by the periodic pressure of the working fluid.
4. S _ _ _ _ _ _ _ d water: water at its boiling point.
5. S _ _ _ _ _ _ _ _ _ r: a bank of tubes in the exhaust gas duct after the boiler, used to heat the steam above the saturation temperature.
6. S _ _ _ _ y valve: a spring loaded valve that automatically opens to prevent excessive pressure from building up in a boiler.

M. Project: Make a presentation. Choose one of the following.

- Draw a diagram of a steam power plant and explain how it works.
- Pick one of the two engines shown below and describe its parts and operation.



External combustion steam turbine engine



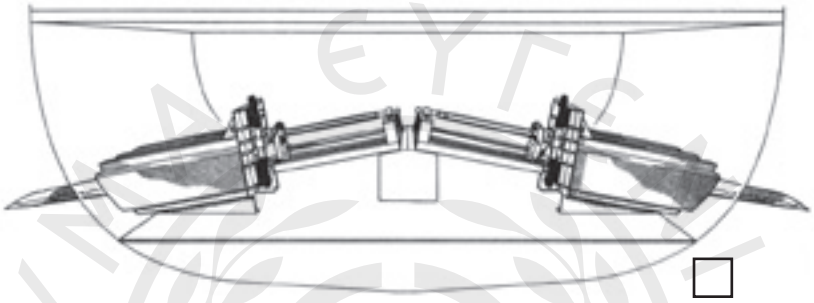
External combustion reciprocating steam engine

4. Auxiliary Machinery

Besides the main engines which are used for the propulsion of the ship there is also auxiliary machinery on board which covers everything mechanical on board, plus all the pipes and fittings and the equipment needed to carry out various functions.

A. Which of the auxiliary machinery can you identify in the pictures below? Label them with an appropriate term from the list in the box.

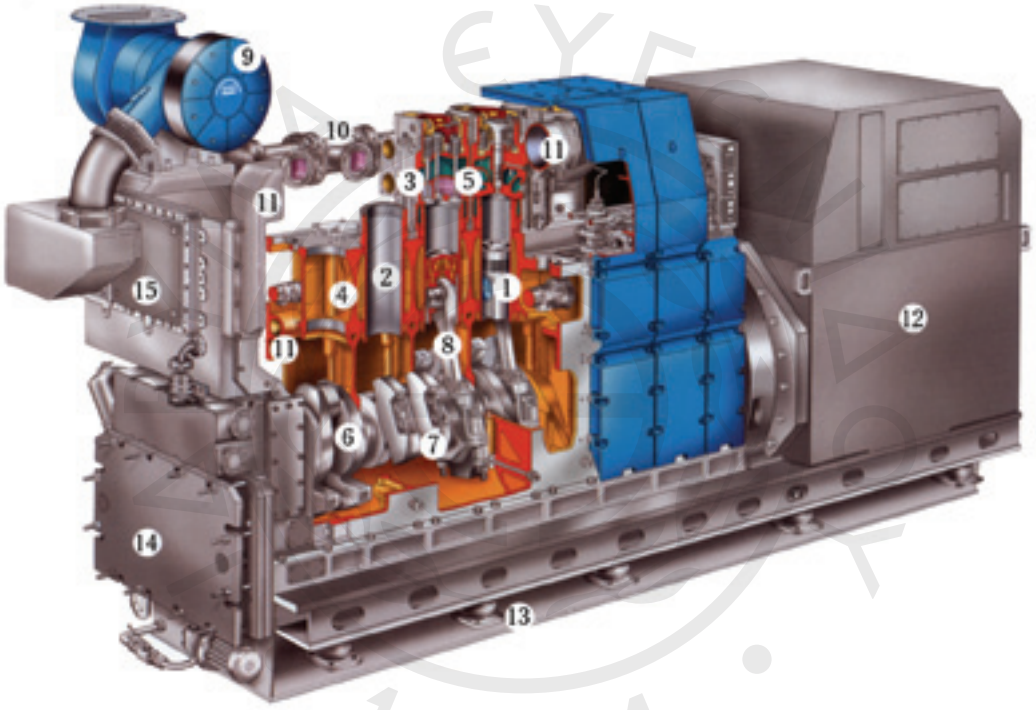
Generator [1]	Windlass [3]	Fire extinguisher [5]	Capstan [7]
Crane [2]	Pumps [4]	Fin stabilizers [6]	Electric motor [8]



B. Which of the auxiliaries in exercise A is used for...

1. Handling the anchor: _____
2. Handling the cargo: _____
3. Handling the ropes for mooring the ship: _____
4. Supplying the ship with electrical power and lighting: _____
5. Fire-fighting: _____
6. Transferring liquids from one place to another: _____
7. Reducing rolling of the ship: _____
8. Driving another machine: _____

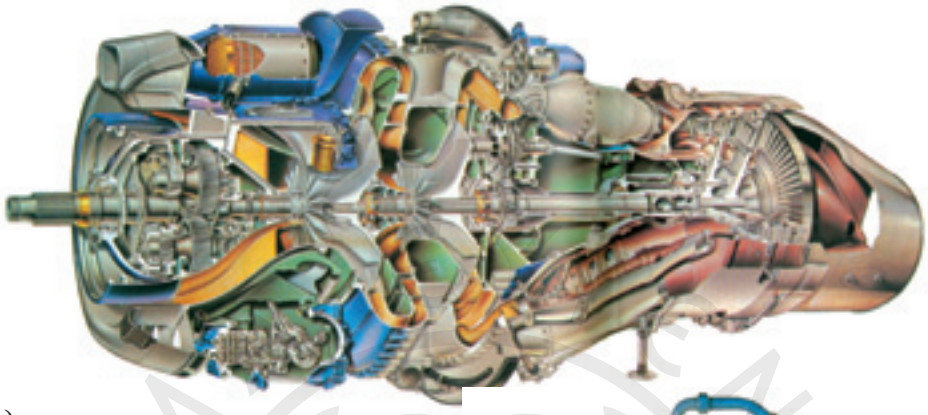
C. Show the different components in the diesel generator below. Write them in the space provided. The first letter is given for help.



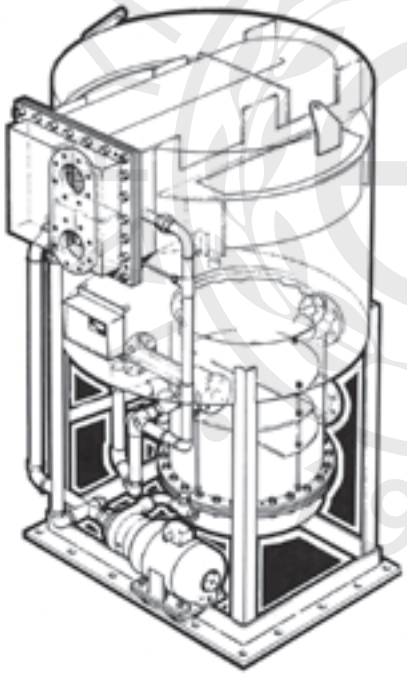
1. p……..
2. c……..
3. c…….. h……..
4. entablature with cooling space
5. i……./ o…… v……..
6. c…….
7. balancing weight
8. c…….. r……
9. t…… c……
10. exhaust ducting
11. s…….. air duct
12. g……
13. flexible m……..
14. w…….. c…..……
15. a…… c……..

There are various auxiliaries which supply the needs of the main engines and boilers such as **coolers**, **heaters**, **air compressors**, **oil-water separators (purifiers)** and **evaporators**.

D. Choose an appropriate term from the ones mentioned above to fill in the gaps in the sentences and label the corresponding machines in the pictures as well.

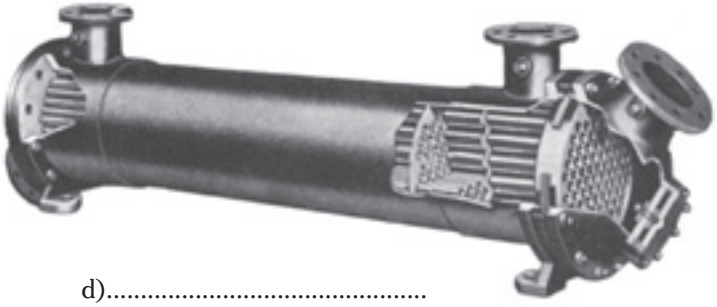


a).....

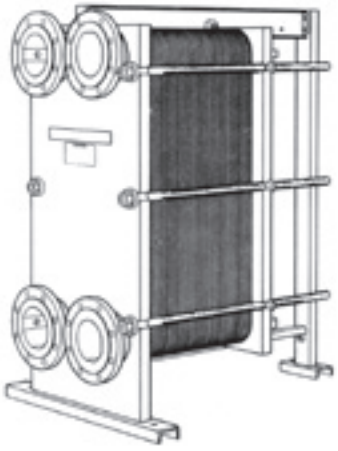


b).....

c).....



d).....



e).....

1. We use a(n) _____ to supply compressed air for starting the engine. Picture ☐
2. _____ are used for cooling either oil or water. Picture ☐
3. We use a(n) _____ to heat the oil and improve the viscosity. Picture ☐
4. The oil gets rid of water and other harmful substances in a(n) _____ . Picture ☐
5. We can have distilled water from a(n) _____ . Picture ☐

E. Read about fresh water production on board and fill in the missing parts in the text.

Ships navigating deep sea, make their own fresh water.

Salt water, evaporated into steam and then brought into a condenser produces condensate, which is fresh water. When the pressure in the boiler is reduced below atmospheric pressure, the boiling temperature is lower than 100°C. This phenomenon allows the hot cooling water, after having done its work in cooling the main engine, to make fresh water. The cooling water is led through a heat exchanger inside the lower part of a drum, where the pressure is reduced using an ejector. The heat exchanger is submerged in clean seawater, which boils in the low-pressure atmosphere. (1) …….. Condensate drips from the tubes. Below this condenser a conical dish collects condensate. Through a drain line in the centre of the dish, the fresh water is transferred outside the drum. This system is called (2) …….. .

A second way of making fresh water is filtering. (3)…….. The water passes and comes out as fresh water. This process is called (4)…….. .

(a) Salt water is pumped under high pressure through a membrane with openings so small that salt molecules cannot pass.	(b) The vapour goes to the high part of the drum, where another heat exchanger with cold seawater acts as a condenser.	(c) reverse osmosis	(d) an evaporator

F. Complete the Glossary with the following words, found in the text above.

condensate	drip	transfer	evaporate	drain line	submerge

Glossary

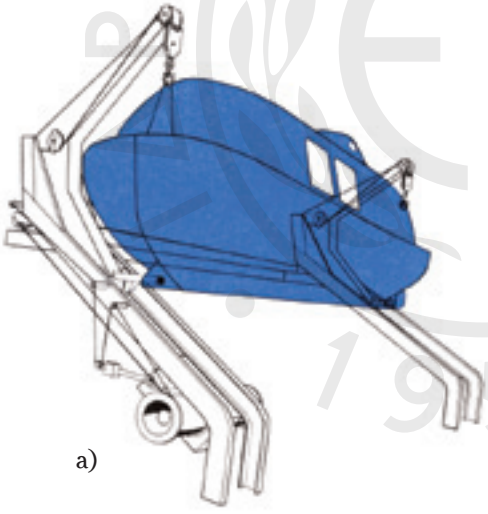
.....	to turn from liquid into vapour
.....	the liquid collected by condensation (=the conversion of a vapour or gas to liquid)
.....	to place under water
.....	to fall in drops
.....	pipes that carry away liquid waste
.....	to move from one place to another

Reverse osmosis plant

Other auxiliaries include **fans**, **ventilators** or **blowers** which supply air for the engines or cargo spaces. The **steering gear** is also necessary to operate the rudder for manoeuvring and the **launching gear (davits)** for lowering lifeboats to sea.

G. Can you identify the fan (or blower), the steering gear (ram steering gear), and the launching gear (gravity davits) in the following pictures?

a)

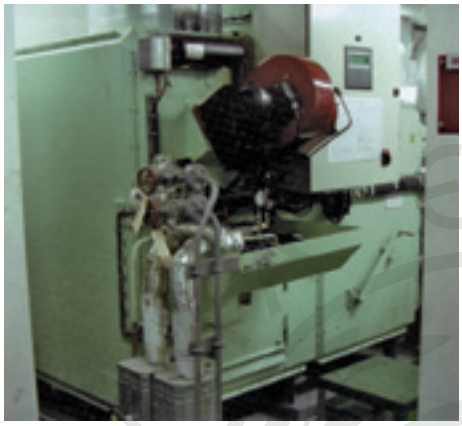


b)

c)

To supply domestic needs there is a **sewage treatment plant** where human body waste is treated biologically before being discharged into the sea and an **incinerator** where garbage is burnt. Fresh water is produced in a distillation plant but it can be used for drinking only after appropriate treatment to meet purity standards.

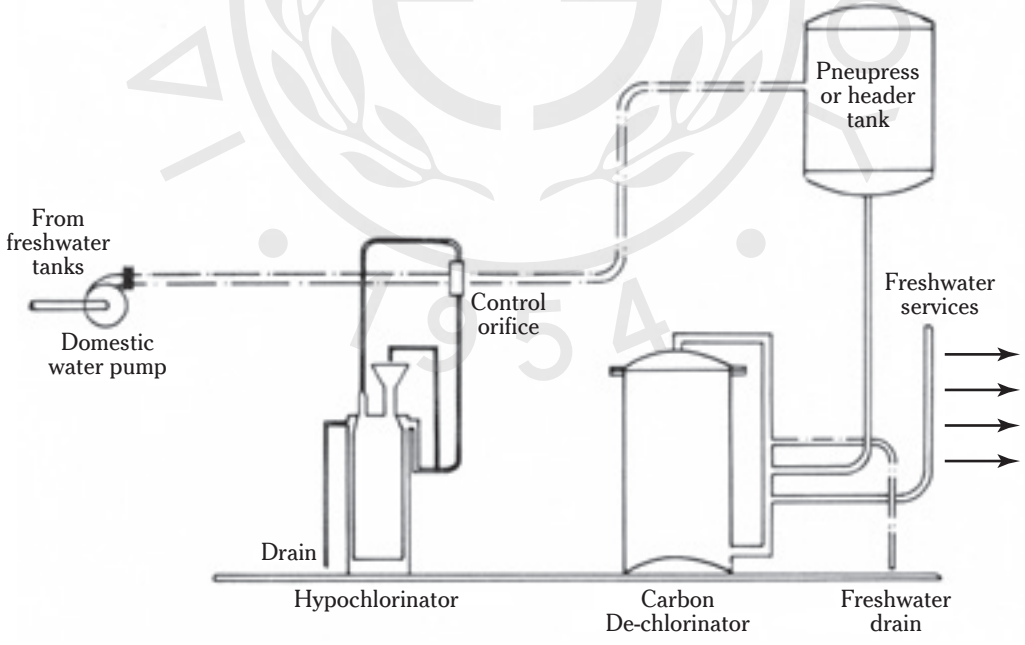
H. Which picture shows the incinerator and which one the sewage treatment plant?



a).....

b).....

I. What treatment is carried out in the diagram below?



J. Circle the correct choice.

1. In order to lower the boats to the sea we use the **steering gear** / **launching gear**.
2. **Fire extinguishers** / **fire detectors** warn us of a fire in a place.
3. Fuel oil is cleaned in **a separator** / **an evaporator**.
4. Steam changes into water in a **compressor** / **condenser**.

5. If lub oil has high viscosity, a **heater / cooler** can regulate it.
6. **Pumps / cranes** are used for loading and unloading liquid cargo.
7. The economizer of a boiler is a **cooler / heater** of the feeding water.
8. To remove water from the machinery space we use a **bilge pump / service pump**.
9. **Motors / generators** supply electricity on board.
10. Evaporators produce water which can be used for **drinking / boilers**.
11. We use the **windlass / capstan** for pulling in mooring lines.
12. **Electric fans / generators** provide forced ventilation to holds.
13. A lot of trash (waste) can be burnt in the **incinerator / evaporator**.
14. To manoeuvre the ship we use the **turning gear / steering gear**.
15. Fin-stabilizers improve the ship's **stability / instability**.

K. Ask and answer questions about the function of different auxiliaries.

e.g. A: What does an air compressor do?
B: It compresses the air which is needed to start the engine.

L. Project: Make a presentation.

- Choose one of the auxiliary machinery. Find more about its parts and operation and present it in class.

5. Pumps

Lead-in: Discuss in class.

– What does a pump do?
– What liquids can it transfer?
– How is a pump driven?

A. Here's a list of duties pumps carry out on board. Find the name of the pump for each duty. Look at the list that follows for help.

1. Supply water to the boiler: _____
2. Transfer the condensate from the condenser: _____
3. Supply the engine with fuel oil: _____
4. Supply the engine with lub oil: _____
5. Supply the engine with cooling water: _____
6. Evacuate the tanks and other compartments of water: _____
7. Transfer ballast from one tank to another: _____
8. Load and unload cargo: _____
9. Supply the firemain with water: _____
10. Supply sanitary spaces with water: _____
11. Supply fresh or (salt) water on board: _____
12. Serve general purposes: _____
13. Draw remains from a tank or apparatus: _____

Cooling water circulating pump	Ballast pump	Bilge pump	Fresh water pump
Air pump or condensate	Lub-oil pump	Drain pump	Feed water pump
General service pump	Fuel oil pump	Cargo pump	Sanitary pump
Emergency fire pump			

B. Read the following passage on pumps and insert an appropriate word in the gaps. Use the words in the box.

A pump is a (1)_____ which is used to (2) _____ liquids from one point to another under (3)_____.

There is a great variety of (4)_____ on board which are all moved by pumps; such as:
- (5)_____ and (6)_____ water,
- (7)_____ oil and (8)_____ oil,
- boiler (9)_____ water, etc.

Pumps can be driven by
- (10)_____ engines,
- (11)_____ engines,
- (12)_____ engines and to a great extent by
- electric (13)_____.

A pumping system on board consists of a (14)_____ branch, a pump and a discharge branch.

feed
transfer
device
suction
pressure
motors
diesel
steam
petrol
liquids
fresh
lub
sea
fuel

Types of pumps.
There are two main groups of pumps in maritime use: **displacement pumps** and **centrifugal pumps**.

- In the displacement pump the increase or decrease of the **volume** of the pump chamber causes the **suction** or **discharge** of the liquid (or gas).
- In the centrifugal pump there is an **impeller** rotating at high speed inside the pump casing. The liquid enters the pump through the suction pipe, is thrown against the surrounding casing by centrifugal force and finally is discharged through the delivery outlet.

I. Displacement pumps

The displacement pumps can be subdivided into:

i. **reciprocating pumps** in which a piston (or ram, or plunger) is mechanically reciprocated in a liquid cylinder and
ii. **rotary pumps** (or volumetric pumps) where the liquid is forced through the pump casing by means of **gears**, **screws**, **vanes** (or lobes, or pistons).

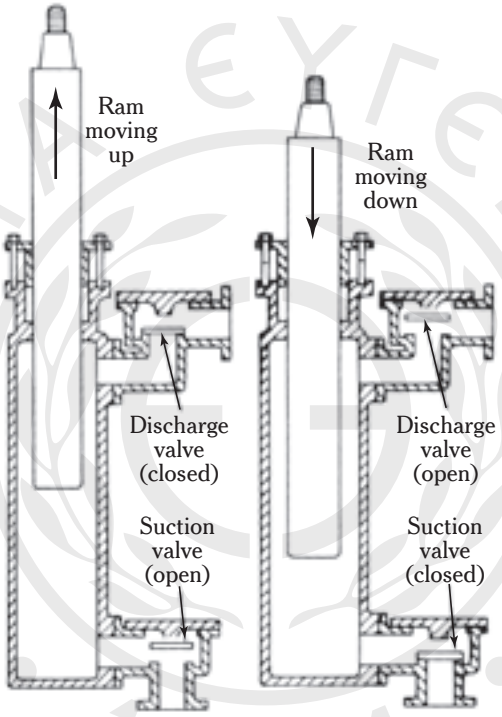
A. Find the words in the above written passages (and information) which mean:

1. Removal off position from an object: .....
2. Throwing away from the centre: .....

3. Delivery: ……
4. Rotary unit: ……..
5. Moving back and forth: ……..
6. Turning round and round: ……
7. Toothed wheels: ……
8. Blades: ……
9. Capacity, cubic content: ……..
10. Shell: …….

i. Reciprocating pumps

A simple kind of reciprocating pump is the single-acting ram pump. This is the diagram of such a pump:



B. Using the diagram above, read the paragraph underneath and insert the missing terms.

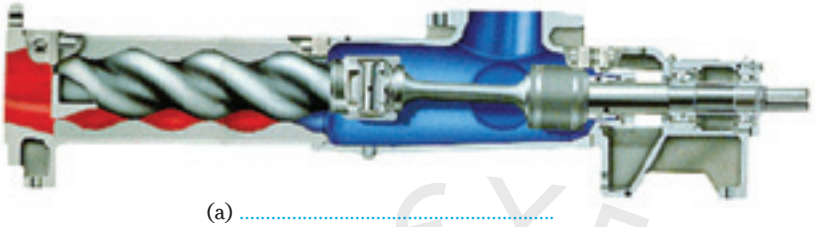
A single-acting ram pump consists of a (1)_____ moving (2)_____ and (3)_____ inside a pump chamber which is fitted with a non-return (4)_____ valve and a non-return (5)_____ valve. When the piston moves up a vacuum is formed in the chamber. The liquid is drawn into this vacuum through the (6)_____ valve. Then the piston moves down. This decreases the (7)_____ of the pump chamber creating a force on the liquid which closes the (8)_____ valve and forces the liquid out through the (9)_____ valve.

The **double-acting piston pump** works on the same principle as the single-acting pump. The chamber, however, is fitted with suction and return valves at the top and bottom, so the liquid can be drawn in and discharged on each stroke.

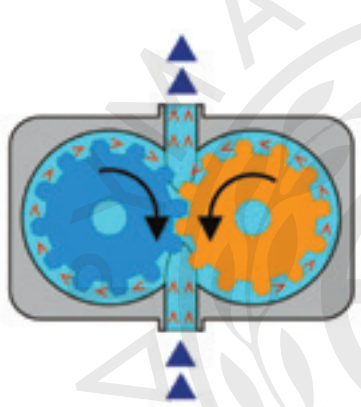
ii. Rotary pumps

The rotary pumps operate on the same principle of displacement, but their moving part does not reciprocate; it rotates. According to the type of their rotating part they are divided into: **gear-wheeled pumps**, **screw pumps**, **vane pumps**, **lobe pumps**, etc. Rotary pumps are used mainly for oil or viscous fluids.

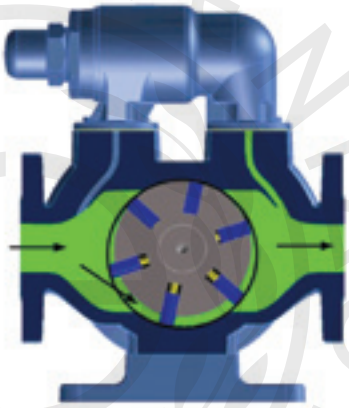
C. Label the diagrams of rotary pumps below. Write the correct title under each picture.



(a) .....



(b) .....



(c) .....

II. Centrifugal pumps

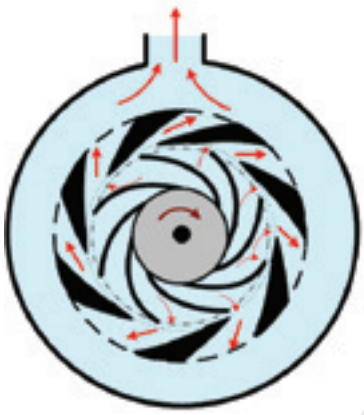
A. Read the passage and identify the types of centrifugal pumps below.

i. Write the correct type under each diagram.
ii. Write the terms shown in diagram [c]. The first letter is given.

There are three main types of centrifugal pump: the **volute**, the **diffuser** and the **regenerative**.

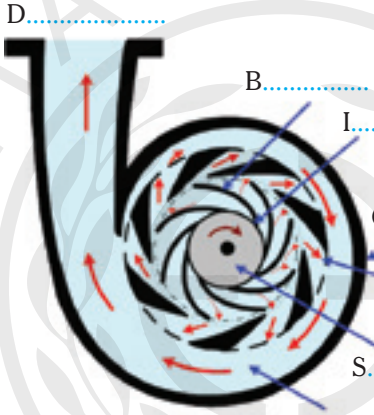
- In the volute type, the impeller is surrounded by a spiral case called volute. It is the most common type of centrifugal pump.
- The diffuser pump is a version of the volute type, but here the impeller is surrounded by diffusion vanes which are stationary (fixed). Because of this slight similarity to a reaction turbine it is often called turbine pump. The diffuser type is used on high pressure e.g. boiler feed and the regenerative type, where high pressure and small capacity are required.

- The regenerative pump is a combination of the volute around the impeller and it is surrounded by a spiral casing.



a).....

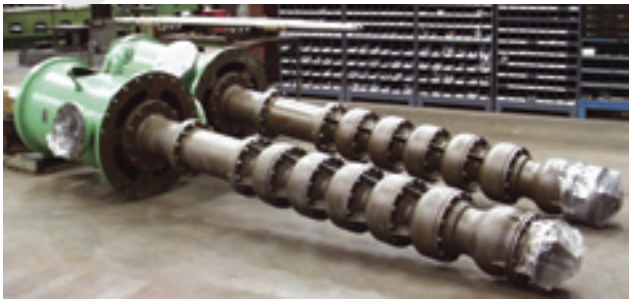
b).....



c).....

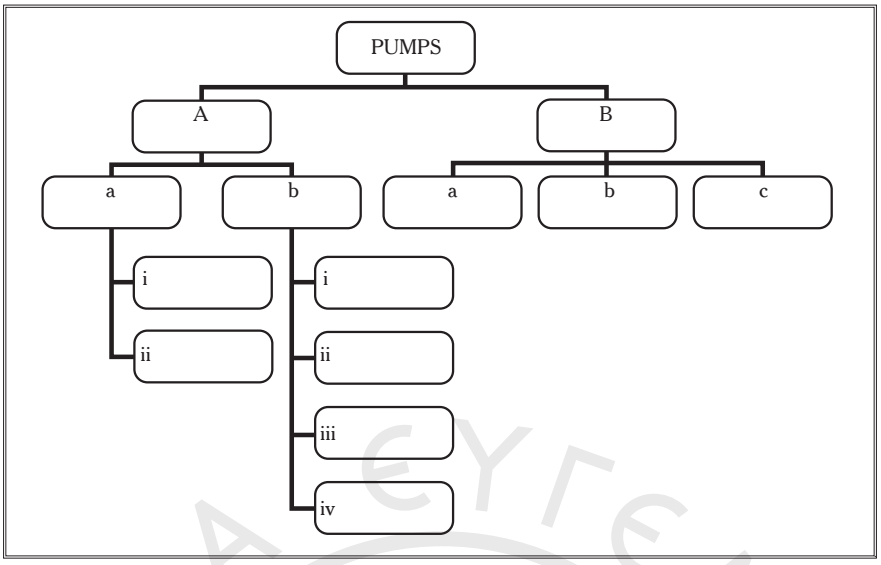
Centrifugal pumps can be **single-stage** (with one impeller) or **multistage** (with two or more impellers on the same shaft). With the multistage pumps we can have high capacities and high discharge pressure which is needed in cases such as boiler feeding.

Centrifugal pumps, in general, are suitable for all duties except very small capacities or very low speeds. Displacement pumps, on the other hand, are not suitable for very high speeds or large capacities.



Multistage centrifugal pump

B. Complete the diagram on pumps.



C. Underline the correct choice.

1. Centrifugal pumps consist of _____ inside a casing.
   a. a ram
   b. an impeller
   c. a gear wheel
2. A gear-wheeled pump is an example of a _____ .
   a. centrifugal pump
   b. displacement reciprocating pump
   c. displacement rotary pump
3. A single acting ram pump is a _____ .
   a. displacement reciprocating pump
   b. displacement rotary pump
   c. displacement centrifugal pump
4. A double acting ram pump has _____ .
   a. double pistons
   b. double suctions and one discharge
   c. double suctions and double discharges
5. In a _____ pump, the liquid is thrown against the casing of the pump.
   a. gear-wheeled
   b. centrifugal
   c. displacement
6. In a _____ pump, the vacuum is formed by the teeth on both wheels.
   a. gear-wheeled
   b. centrifugal
   c. displacement
7. In reciprocating displacement pumps there is always a(n) _____ which moves up and down in the pump chamber.
   a. piston
   b. gear
   c. impeller

8. A gear-wheeled pump is used to pump mostly _____ .
   a. water
   b. lub-oil
   c. all kinds of liquids
9. The diffuser type of pump is a _____ .
   a. rotary pump
   b. centrifugal pump
   c. reciprocating pump
10. The vane type of pump is a _____ .
   a. rotary pump
   b. centrifugal pump
   c. reciprocating pump

D. Find the pumps which the following functions correspond to.

1. It sucks and discharges liquid in each stroke of the piston: .....
2. The variation of the pump chamber volume causes the suction and discharge of the liquid: .....
3. Screws force the liquid through pump casing: .....
4. Its necessary component is the impeller: .....
5. They are not used where very high speeds are required: .....

E. In pairs, tick only the correct statements underneath.

1. A volute pump is a centrifugal pump. ☐
2. A vane pump is a displacement pump. ☐
3. Centrifugal pumps are not used for boiler feeding. ☐
4. All displacement pumps consist of a piston or ram. ☐
5. A screw pump is a rotary displacement pump. ☐
6. Rotary pumps are used for lub oil. ☐
7. A double-acting piston pump has two pistons. ☐
8. The diffuser pump has stationary vanes. ☐
9. In a centrifugal pump the vacuum which is formed in the pump chamber causes the suction of the liquid. ☐
10. In a reciprocating pump the liquid is thrown against the casing. ☐

F. Form 3-word compound words with the word "pump". Write them beneath.

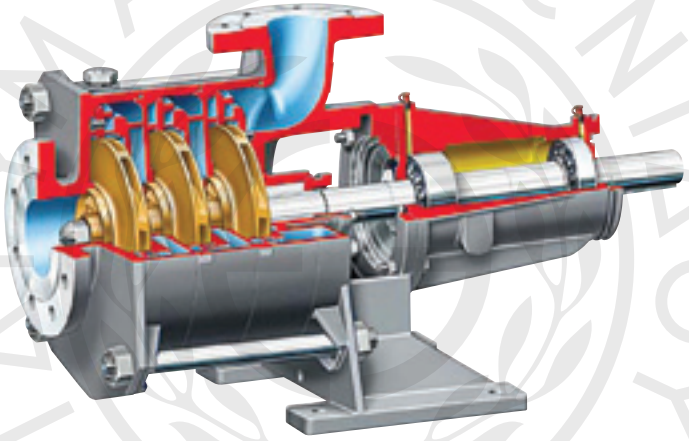
feed water fuel oil reciprocating single-acting rotary centrifugal gear emergency ~~regenerative~~	circulating displacement multistage water wheeled transfer reciprocating fire ~~centrifugal~~ vane	pump

1. ……..
2. ……..
3. ……..
4. ……..
5. ……..
6. ……..
7. ……..
8. ……..
9. ……..
10. regenerative centrifugal pump

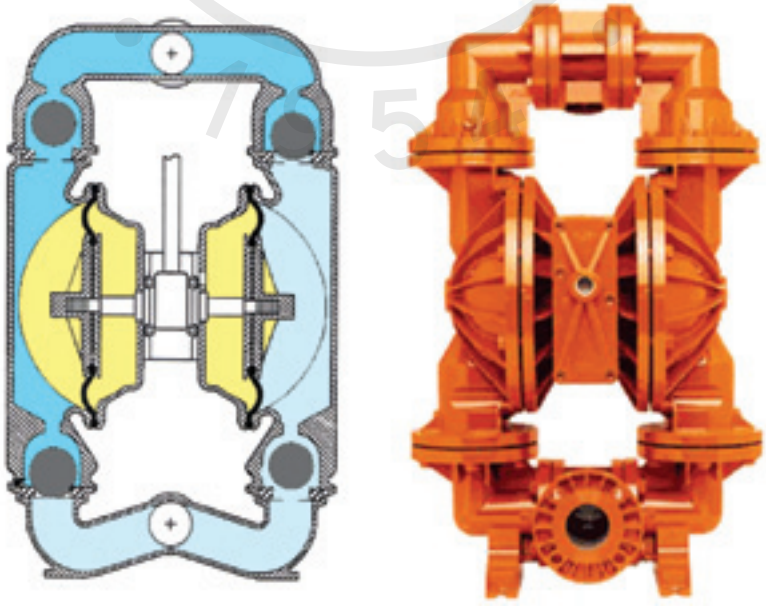
G. Discuss in class. Think of some 4-word compounds with the word "pump".

e.g. cylinder lub-oil pressure pump

H. Project: In groups of three or four, pick up one of the pumps below and prepare a presentation of its parts and operation.



Triple-stage centrifugal pump



Rotary positive displacement pump

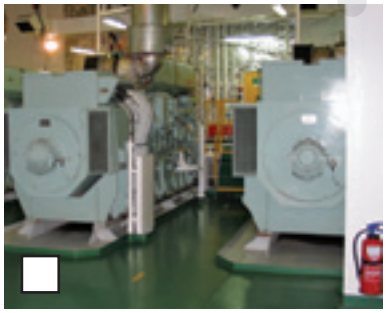
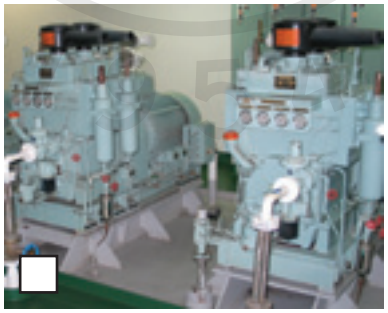
I. Self-assessment checklist. Can you talk in English on the following topics?

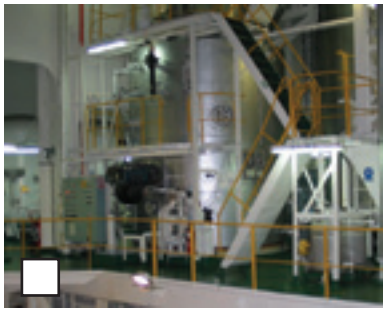
Tick ☑ accordingly. Write 3-4 key words for each question and then answer the questions orally.

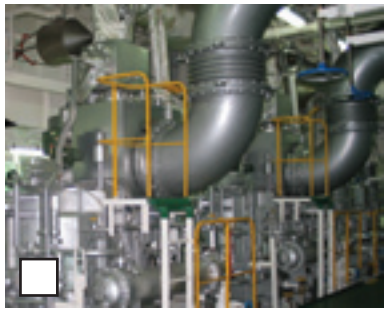
	Very well	Moderately well	Poorly	Key words or phrases
1. What are the names of the strokes in the four-cycle operation?				compression,
2. What are the phases of a 2-stroke cycle?				scavenge,
3. What is the turbocharger?				impeller,
4. What is the difference between a water tube and a Scotch boiler? (in terms of operation, efficiency, use)				furnace,
5. What are boiler mountings?				drain valves,
6. What are the main parts of a steam turbine?				rotor,
7. Which auxiliary machinery supply the needs of the main engine?				air compressor,
8. What are the main types of pumps?				centrifugal,
9. What are the duties carried out by pumps on board?				ballast transfer,

J. Identify what is shown in the following pictures of the Engine Room of a tanker. What is the correct caption for each picture?

Purifier room [1]	Steam turbine cargo pumps [3]	Diesel generators [5]
Air compressors [2]	Main boiler [4]	Bilge pump [6]





APPENDIX II
Pair-work: Student B material

Unit 2

Exercise E (page 48)

Deadweight: 6.149 mt
Hold capacity: 286.286 m^3
Container capacity: 377 TEU
Hatch openings: 20x20 m
Main deck SWL: 15 t/m^2
Crane reach: 20 m
Crane SWL: 15 mt
Container crane capacity: 30 TEU/h
Ore loader capacity: 2000 m^3/h
Cargo pump capacity: 2500 m^3/h
Maximum discharging rate: 2000 mt/h
SWL of fork-lift truck: 3 mt
SWL of slings: 2 mt

Review 1

Exercise A (page 84)

1. I have lost 2 persons overboard in position 40° 08'N 022° 58'E.
2. I am under attack by pirates – repeat – I am under attack by pirates.
3. I am sinking after collision – repeat – I am sinking after collision.
4. I am flooding in the engine room.
5. MV Athena on fire.
6. I have collided with unknown object.
7. I am not under command. I am drifting at 12 knots to SE.

Unit 5

Exercise (c) (page 117)

1. E 6
2. NW 4/6
3.
4.
5.
6.
7.

Exercise (k) (page 122)

Met Office: Shipping forecast and gale warnings for the 31st January.

Shipping Forecast – issued: 0505 Sun 31 Jan

Sea Area:	**Fisher**
Gale warnings	Northeasterly gale force 8 expected soon.
Wind	Cyclonic becoming northeasterly 5 to 7, increasing gale 8 for a time, becoming variable 3 or 4 later.
Sea State	_____.
Weather	Snow showers.
Visibility	Good, occasionally poor.
Sea Area:	**German Bight**
Wind	Westerly or northwesterly 5 or 6, occasionally 7, becoming cyclonic later.
Sea State	Moderate or rough.
Weather	Snow showers.
Visibility	Good, occasionally poor.
Sea Area:	**Humber**
Wind	Westerly or northwesterly 5 or 6, occasionally 7.
Sea State	Moderate or rough.
Weather	Snow showers.
Visibility	Good, occasionally poor.
Sea Area:	**Thames**
Wind	_____.
Sea State	Moderate or rough.
Weather	Snow showers.
Visibility	Good, occasionally poor.
Sea Area:	**Dover**
Wind	West or northwest 4 to 5, occasionally 6 later.
Sea State	_____.
Weather	_____.
Visibility	Good, occasionally poor.

Appendix for Marine Engineers

Exercise B (page 156)

tie rod	piston	flywheel	connecting rod	crosshead bearing	exhaust valve	crankcase bed
piston rod	A-frame	scavenge air receiver	cylinder	sump tank	lub oil lines	fuel pump
crank-shaft	crankcase door	crankpin bearing	cylinder cover	cooling water (air cooler)	camshaft	turbo-charger

APPENDIX III
Audio material transcripts

Audio • CD tracks

1. Unit 1	Section 2, Exercise B	14. Unit 5	Section 2, Exercise III(ℓ)
2. Unit 1	Section 3, Exercise B	15. Unit 5	Section 2, Exercise IV(a), (clip i)
3. Unit 1	Section 4, Exercise II(c)	16. Unit 5	Section 2, Exercise IV(a), (clip ii)
4. Unit 1	Section 5, Exercise C	17. Unit 5	Section 2, Part V, Lead-in
5. Unit 1	Section 5, Exercise C	18. Unit 6	Section 2, Exercise I(b)
6. Unit 1	Section 5, Exercise D	19. Unit 6	Section 2, Exercise II(d)
7. Unit 2	Section 4, Exercise A	20. Review 2	Part One, Lead-in
8. Unit 3	Section 1, Exercise I(a)	21. Review 2	Part One, Exercise 3 A
9. Unit 3	Section 2, Exercise VI(a)	22. Appendix 1	Section One, Diesel engine components, Exercise A
10. Review 1	Part One, Exercise 3A	23. Appendix 1	Section One, The 4-stroke and 2-stroke cycles, Exercise A
11. Unit 4	Lead-in, Exercise (a)	24. Appendix 1	Section One, The 4-stroke and 2-stroke cycles, Exercise H
12. Unit 5	Section 1, Exercise III(a)		
13. Unit 5	Section 1, Exercise III(b)		

Unit 1: Emergency on Board

Section 2, Exercise B ***Missing person*** (page 12)

1. Determine where and when the person was last seen.
2. Organize a search of the vessel including decks, engine room and all accessible spaces.
3. Prepare to turn the vessel round and retrace the track to where and when there was a last sighting of the person.
4. Post additional lookouts.
5. Prepare the rescue boat for immediate use and have the crew standing by.
6. If the onboard search does not find the person, use the VHF to call to other vessels in the area asking them to keep a sharp lookout as they transit the area.

Section 3, Exercise B ***Distress communications: Announcing distress situations*** (page 13)

1. This is Bow Mariner. I am on fire.
2. I am aground. I require tug assistance.
3. I have collided with iceberg. Crew must abandon vessel after collision. I am flooding in the engine room.
4. I have dangerous list to port. I am in danger of capsizing.
5. I am sinking after explosion. I am in critical condition.
6. MV Morgan drifting at 10 knots to South East.
7. I am under attack by pirates.
8. MV Vectra has lost person overboard in position 20 degrees 35 minutes North 060 degrees 30 minutes West.

Section 4, Exercise II(c) ***Emergency Announcement*** (page 17)

Attention everybody. There is fire in the Engine Room. Fire is toxic. I repeat. Fire is toxic. Do not attempt to extinguish the fire. Proceed to you muster stations immediately. Prepare to abandon ship.

Section 5, Exercise C ***SMCP message markers*** (page 25)

1. QUESTION	Are dangerous goods on fire?
2. ANSWER	Yes, dangerous goods are on fire.
3. INSTRUCTION	All vessels in vicinity of position 15 degrees 35 minutes North 061 degrees 29 minutes West keep sharp lookout and report to Rescue Coordination Centre.
4. INFORMATION	Area around Super-Buoy No 2 temporarily closed for navigation.
5. QUESTION	When do you expect to refloat?
6. ANSWER	I expect to refloat when weather improves.

Section 5, Exercise D ***Full dialogue:*** (page 25)

QUESTION	What is your present speed?
ANSWER	My present speed is 14 knots – mistake. Correction, my present speed is 12, one-two, knots.
QUESTION	What is your draught?
ANSWER	My draught is 12.6, repeat one-two decimal 6 metres.
INSTRUCTION	Do not overtake – repeat – do not overtake. Say again.

INSTRUCTION Do not overtake.

Unit 2: Cargo Handling, Quantities and Supplies

Section 4, Exercise A ***INVENTORY*** (page 40)

Steward: OK. Let's start with the fresh fruits and vegetables. I think we have got enough.
Cook: There's never enough of them. How many kilos of apples have we got?
S: Let's see. Two cartons with 5 kilos each, that's 10 kilos.
C: We need one more carton, I think. I suppose I can make some apple-pie...
S: What about tomatoes? Everybody loves fresh tomato salad.
C: Let me count. 4, 5 packages, one kilo each: that comes out to 5 kilos. We definitely need some more.
S: 4 more packages should be enough. And there is too much tomato sauce. At least 20 tins.
C: Now, look at the eggs. 10 packages with 10 eggs each, there are too many eggs.
S: Right. How much milk have we got?
C: There's too much milk, don't worry. I can count more than 50 pints. But there is not enough butter.
S: That's because you use too much when you cook. Is a 5 kilo package enough?
C: It will do. And there's too little white bread left. Let me count, only 5 packages of sliced white bread I can see. We must order at least another 15. And at least 50 rolls.
S: How many cartons of juice have we got? About 20?
C: That's right. We've got enough. Now, let's see about meat. I haven't used the chicken yet, there's about 10 kilos. But there isn't enough beef fillet, only about 4 kilos.
S: How much do we need, then? Is 5 kilos enough?
C: More. 10 kilos would be better. And we must order at least 15 kilos of pork chops and 20 kilos of sausages.
S: What about beer? We shouldn't forget that...
C: Of course. At least 40 cans. And we need more olive oil, at least 5 litres. We have enough salt and spices. And we are doing OK with flour, I think.

Unit 3: Vessel Particulars / Specifications

Section 1, Exercise I(a) ***Vessel particulars and technical specifications*** (page 56)

The vessel British Emerald is one of the largest LNG Carriers. The ship can carry 155,000 cubic metres of natural gas. Its measurements are 288m length and 44.2m breadth. With a deadweight of 76,700 tonnes, it was built in 2007 in South Korea in the ship yard of Hyundai Heavy Industries. It flies the British flag and is part of the fleet of BP Shipping. The ship is the first of the series of diesel-electric gas vessels with dual fuel (DFDE). The heart of the new DFDE is the Ecobot system, which is using LNG gas that evaporates from the tanks during the transportation to fuel the main power engine. The main engine works well with both gas and fuel oil. The new DFDE system is nearly 1-2% more expensive than the older ones, but it is 10% more effective.

One of the newest crude oil tankers built by Namura Shipbuilding, Japan, is called Atlantic Pioneer and it also flies the British flag. The crude carrier was completed on 1st October 2009 and has an overall length of 333 meters while her moulded breadth is 60 meters. The VLCC has a deadweight of 302,303 metric tons, while her gross tonnage is 159,943 gross tons. This large vessel was in need of a stronger and more reliable engine on board than previous tankers in the past, so the builders decided to use the latest technology of MAN-B&W engines, a main engine from the generation of Mark G.

The LCTC (Large Car Truck Carrier) m/v OBERON has a capacity of 8,000 cars or a combination of 3,484 cars and 466 buses. It was built to the highest specifications of Lloyd's Register of Shipping by Daewoo Shipbuilding and Marine Engineering in South Korea and was delivered in October 2008. With her 231.6 metres and 71,673 gross tonnage, she and her sister ship ANIARA are the world's largest car carriers. OBERON is built to the highest class of Lloyd's Register and is owned by Wallenius Lines, Sweden, flying the Swedish flag. Some more of the vessel's particulars include a breadth of 32.2 m and a deadweight of 30,134 t. She has 13 car decks, of which 5 are movable. The width of its stern ramp is 9.5 m and the stern opening height is 6.5 m.

Section 2, Exercise VI(a) ***The officers are talking about the NAVTEX receiver*** (page 68)

A: The NAVTEX receiver is out of paper. Can you take care of it, please?

B: Sure. Just tell me what to do because I haven't used this model before.

A: First press the POWER key to turn on the main power. Then, just open the paper cover and insert the paper roll. Hold the FEED key pressed until the paper is pulled in.

B: OK, ready. The display is a bit dark, though.

A: We can fix that. Just press the ILLUM key and change it from Half-light to Light. That's it. It's a good idea to do a self-Diagnostic test now, to make sure everything is in order. Just press the TEST key.

B: A self-test sounds good, and I bet it makes maintenance easier. The NAVTEX in my previous vessel was more modern but this one seems easier to operate.

A: It's also quicker in saving messages than newer models. In new ones you press EDIT and COPY to paste the messages using additional software. Here, you just press SAVE. It's more convenient.

B: Let's hope the paper doesn't jam easily. When this happens often it's a real nuisance. By the way, how do you

correct paper jamming? Don't tell me, I'll check the manual, just to be ready. Let's see...“Correcting Paper Jamming”....

Review 1

Part One, Exercise 3A ***Emergency situation: Fire*** (page 80)

Fires and explosions are very serious accidents.

However, ships can be protected if they are constructed according to international regulations. Specifically, ships should be internally subdivided by fire-retarding bulkheads and decks. They should be further equipped with means of escape and with automatic sprinklers and portable or fixed extinguisher systems to contain and extinguish a fire, anywhere on board it may start. And of course, the crew should be regularly exercised with fire drills.

To prevent a fire from breaking out, three factors are very important; cleanliness, suitable cargo stowage and proper ventilation throughout the period of the voyage.

A fire can be brought under control with prompt action. Early detection of the fire in the zone of origin and immediate sounding of the alarm is paramount. That is why it is necessary that the detection system should be kept in good order and fire patrol be maintained.

Unit 4: Visitors On Board

Lead-in, Exercise (a) ***Identifying visitors on board*** (page 90)

A: Did you see the superintendent this morning? We were expecting him for a briefing on the company's Safety Management policy.
B: Yes, he came on board at 10.00 hours. The agent was with him.
A: Right, I saw two visitors around that time. Who was who? What does the superintendent look like? What is he wearing?
B: The superintendent is well-built, he has a beard and is bald. He's wearing a black jacket. The agent is quite thin and has short grey hair. They are both in their 50s. I actually know the superintendent. We studied together in the Academy.
A: What is he like?
B: He is very hard-working and serious. But he is quite easy going.

Unit 5: What weather is expected?

Section 1, Exercise III(a) ***What is a tsunami?*** (page 110)

Part One [definition / causes]

HOST: Welcome to Diving Deeper where we interview National Ocean Service scientists on the ocean topics and information that are important to you! I'm your host Kate Nielsen. Today's question is....What is a tsunami? A tsunami or tidal wave is a series of ocean waves caused by the displacement of a large volume of water. To help us dive a little deeper into this question, we will talk by phone with Russell Jackson on tsunamis. Russell is a coastal hazards specialist with NOAA's Coastal Services Center. Hi Russell, welcome to our show.

RUSSELL JACKSON: Hi Kate, thanks for inviting me here today to talk to your listeners about tsunamis.

HOST: Russell, so what causes tsunamis?

RUSSELL JACKSON: Well Kate, tsunamis are commonly generated by earthquakes in coastal and marine regions. And most tsunamis are produced by large, usually greater than a seven on the Richter scale, earthquakes that are associated with movement along the oceanic and continental plates. They frequently occur in the Pacific Ocean, Pacific Basin, where there's dense oceanic plates that slide under the lighter continental plates. And when these plates fracture and move, the vertical movement of the plate actually transfers a lot of energy from the sea floor to the ocean and actually causes the wave to be created.

HOST: Is this how the catastrophic Indian Ocean Tsunami back in 2004 was generated?

RUSSELL JACKSON: Yes, it was a very powerful earthquake, a magnitude 9.0, and it was actually one of the largest earthquakes ever recorded, struck the coastal region of Indonesia. And the movement of the sea floor actually produced a tsunami in excess of 30 meters, or about 100 feet, along the adjacent coastline which actually killed over 240,000 people in Indonesia. And then, from this source, the tsunami radiated outward and within a few hours had claimed over 60,000 lives in Thailand, Sri Lanka, and India.

Part Two [prediction / signs]

HOST: Russell, can we predict a tsunami before it reaches the land?

RUSSELL JACKSON: Well Kate, predicting when and where the next tsunami will strike is currently impossible. But, once an earthquake has occurred and a tsunami is generated, we can forecast the tsunami arrival time and roughly what we think the impact will be through modeling and

measurement technologies, but only a small window of time say 10 to 30 minutes can really be given to communities for local tsunamis. We have better capability for these long-distance teletsunamis to provide good information.
There are a few warning signs though that you may experience if you're in an area just prior to a tsunami that can help you if you're not aware of the warnings coming from government or through the radio or something. These things to keep in mind are if you see the water receding from the shoreline or if you see or hear approaching water, many tsunami survivors that I've talked to described the sound as a tsunami's approaching similar to a freight train approaching, very loud, also if you feel a strong earthquake. These are all good indicators that there could be a tsunami coming so you should right away just move to high ground.

Section 1, Exercise III(b) ***Japanese garbage island moves towards US*** (page 112)

Entire houses, bodies, car parts, tractors and many upturned boats have amassed off the east coast of Japan on an epic scale. The floating objects have been declared a maritime hazard by the American Navy, which is warned they could pierce the body of a boat, or destroy engines in the Pacific's shipping lanes.

The island of debris of most concern, 110 kilometres long, is being closely monitored by the US Navy's seventh fleet, as experts predict it could hit Hawaii's shores in two years and the American west coast a year later. Hawaiian scientists put it bluntly. They warned that a vast mess that originated in a few moments of destruction in Japan, could eventually foul beaches and reefs off the Eastern North Pacific and kill marine life.

The American Navy's working with civilian construction companies from the earthquake-hit country, as huge cranes and boats are deployed to clear the seas of this vast bobbing mass of wreckage of household furniture, wood, tyres, fishing equipment and other garbage, sweeping eastwards. [Mark Lobel, BBC News]

Section 2, Exercise III(ℓ) ***SHIPPING FORECAST;*** *issued 21 April 2011* (page 123)

The shipping forecast is issued by the Met Office on behalf of the Maritime and Coastguard Agency[1]
There is a gale warning; for which area? Trafalgar
1. Viking / North Utsire / South Utsire
   - Wind: Variable, becoming mainly easterly later, 3 or 4
   - Sea State: Slight or moderate
   - Weather: Occasional rain or showers, fog patches
   - Visibility: Moderate or good, occasionally very poor
2. Forties / Cromarty / Forth / Tyne
   - Wind: Variable, becoming easterly or southeasterly 3 or 4
   - Sea State: Slight
   - Weather: Fog banks, occasional rain at first
   - Visibility: Moderate to very poor
3. Dogger / Fisher / German Bight / Humber
   - Wind: Variable, becoming east or southeast 3 or 4
   - Sea State: Slight
   - Weather: Fog patches clearing
   - Visibility: Moderate or good, occasionally very poor
4. Thames / Dover / Wight / Portland / Plymouth
   - Wind: East or northeast veering east or southeast 3 or 4, occasionally 5
   - Sea State: Slight
   - Weather: Showers
   - Visibility: Moderate or good, occasionally poor
5. Biscay
   - Wind: Cyclonic 3 or 4 in southwest, otherwise easterly or southeasterly 4 or 5
   - Sea State: Moderate
   - Weather: In north, mainly fair. In south, thundery showers, fog patches in soutwest
   - Visibility: Moderate or good, occasionally very poor in southwest
6. FitzRoy / West Sole
   - Wind: Cyclonic or variable 3 or 4, occasionally 5 later, but becoming northwesterly 5 to 7 in far west later
   - Sea State: Moderate or rough
   - Weather: Rain or thundery showers, fog patches
   - Visibility: Moderate or good, occasionally very poor
7. East Sole / Lundy / Fastnet / Irish Sea / Shannon
   - Wind: Easterly or northeasterly veering southeasterly 3 or 4, occasionally 5 later
   - Sea State: Slight or moderate
   - Weather: Showers
   - Visibility: Moderate or good, occasionally poor
8. Rockall / Malin
   - Wind: Variable 3 or 4 becoming southeasterly 4 or 5, occasionally 6

1. BBC Weather, Shipping Forecast, retrieved on 21 April 2011

- Sea State: Moderate or rough
- Weather: Occasional rain or showers
- Visibility: Moderate or good, occasionally very poor

9.Hebrides / Bailey / Fair Isle / Faeroes
- Wind: Southwest backing southeast 4 or 5, occasionally 6, decreasing 3 for a time
- Sea State: Moderate or rough
- Weather: Showers, fog patches
- Visibility: Moderate or good, occasionally very poor

10. Southeast Iceland
- Wind: Southwesterly backing southeasterly 5 or 6, decreasing 4 for a time
- Sea State: Rough
- Weather: Showers, rain in west later
- Visibility: Moderate or good

Section 2, Exercise IV(a) ***NOAA forecasts*** (key) (page 124)

For the 1st clip [SYNOPSIS FOR CALIFORNIA & ARIZONA]:
What weather is expected?
a) dry weather, clear skies, temperatures a bit above normal, with a slight chance of showers, thunderstorms and cooler temperatures over portions of the area

For the 2nd clip [LAKE ONTARIO]:
- What area is the forecast for? LAKE ONTARIO, from Great Lakes, USA

Correct phrases:
1. a. Gale warning
2. b. Today, NE winds 15-20 knots increasing to 30 knots late this morning
3. a. Tonight north gale 35 knots diminishing to 30 knots
4. a. Rain in the evening
5. b. Chance of rain and showers in the afternoon
6. b. Waves 5-7 feet subsiding to 3-5 feet

Section 2, Part V, Lead-in ***Forecasting from space*** **(key)** (page 126)

Correct order:
1. 40 years ago, weather forecasting could offer little warning in advance for violent destructive storms.
2. In the past 50 years over 200 weather satellites have been launched.
3. Meteorologists can now see the weather systems as they approach.
4. Satellite pictures backed up the basic theory of weather charts used until then.
5. The greatest impact of weather prediction now is giving hurricane warnings that can protect human life; the shape, size, direction and force of hurricanes is measured and advance warnings are given.
6. The gradual unlocking of our weather is giving us an understanding of the energy system of the entire planet: the Earth's Climate.

Unit 6: Past Voyages and Passage Plans

Section 2, Exercise I(b) **An event which happened during a sea passage** (page 143)

Last year I was the Chief Officer on an oil tanker, the Hope, and we sailed the route from the Black Sea to the Persian Gulf through the Suez Canal. We carried crude oil. On April 28, we were underway in the Gulf of Aden (120 nm off the coast of Oman) when pirates tried to board the ship! They came with a speedboat and they were armed. Fortunately a vessel from the EU Naval Force was in the area and the pirates backed off. We heard on the radio that they hi-jacked another vessel on that same day! This is definitely one of the most dangerous shipping lanes in the world.

Section 2, Exercise II(d) **Reporting an incident from a past voyage: Jettisoning (Deck log book entry)** (page 144)

The incident happened two months ago. I was the Master of MV Cannibal. The cargo was timber. We were sailing off the coast of Taiwan heading for Shanghai. There was a near gale with moderate visibility. We noticed that the vessel was listing heavily to port. After making the necessary stability calculations, I decided to jettison cargo. I informed the owners and charterers and we jettisoned about 200 cubic metres of deck cargo. The vessel regained its stability and we proceeded with our voyage. I wrote an initial incident report and sent it to the owners according to the vessel's Safety Management System.

Review 2

Part One, Lead-in ***Satellite Radar: Looking into the oceans.*** (Key) (page 148)

Correct order:

1. The Satellite Radar can measure ocean currents from space, offering information on the circulation of water and heat transfer around the globe.
2. The first series of radar satellite, called Poseidon, was the first to offer a glimpse of El Niño, and its catastrophic temperature shifts.
3. The new series of radar satellites is called Jason.
4. Global climate change is visible through the satellite, making apparent the melting of polar ice and the rising

temperatures.
5. With ocean imaging technology, scientists try to predict climate change for a time span of 10, 20, or even more years.

Review 2

Part One, Exercise 3 A ***What are tides?*** (page 149)

Today's question is....What are tides?

Tides are basically very long-period waves that move through the oceans in response to the forces exerted by the moon and the sun. Tides begin in the oceans and then move towards the coast where they appear as the regular rise and fall of the sea surface.

To help us dive a little deeper into this question, we will talk with Steve Gill on tides – what they are, what causes them, and the factors that affect them. Steve is the Senior Scientist with the Center for Operational Oceanographic Products and Services. Hi Steve, welcome to our show.

STEVE GILL: Hi Kate, thanks, it's good to be here to talk about a topic that I have studied and worked on for over 33 years. Much of the practical application of tides is something that comes from on-the-job training and not learned in text books, so what the NOAA Tides and Currents program does is fairly unique.

HOST: Steve, first, ***what is the difference between a tide and a current?***

STEVE GILL: Well, Kate, that's a good question and typically the first thing I cover in many of my talks with students. The word "tides" is a general term used to define the alternating rise and fall in sea level with respect to the land. So, tides are characterized by water moving up and down during the day. Currents on the other hand move horizontally rather than vertically. Currents describe the horizontal motion of the water and are driven by several factors, one of those is tides; another is the wind. The horizontal movement of water that accompanies the rising and falling of the daily tides is called the tidal current.

HOST: Thanks Steve, so basically tides move up and down and currents move back and forth. ***What causes tides?***

STEVE GILL: Gravity is one of the major forces that causes tides. Tides are caused by the gravitational pull of the moon and the sun. The gravitational forces are counterbalanced by the outward force of inertia from the moon revolving around the Earth and Earth revolving around the sun in their orbital paths. The combination of these two forces results in the tide-producing forces. So, ocean tides are a combination of lunar tides (lunar meaning the moon) and solar tides (solar meaning the sun).

HOST: Steve, ***what is the difference between high tide and low tide?***

STEVE GILL: When the highest part, or crest, of the tide wave reaches a particular location, high tide occurs; low tide is the lowest part of the tide wave or trough. The difference between high tide and low tide is called the tidal range. Most people experience this difference when they are walking along the beach and perhaps notice either more or less beach area for a place to stop, sit down, or rest. I know my children would have fun building a series of sand castles further and further up the beach throughout the day as the tide came in and washed them out. Tides on all coasts originate in the oceans and travel onto shore and up into the estuaries, bays, and rivers.

HOST: So Steve, ***why do we study tides?***

STEVE GILL: Well, we study tides for a variety of reasons. If we know the times, heights, and extents of both the inflow and outflow of the tidal waters we can better navigate through the intracoastal waterways and within the estuaries, bays, harbors; and we can work on harbor engineering projects such as the construction of bridges and docks; and we can collect data critical to fishing, boating, surfing, and many other water-related sports. We put in tide stations to measure the tides and analyze the data so that we can predict the tides and publish tide tables. And this is just to name a few of the ways that we use tidal data to help us in our daily lives.

Appendix I: English for Marine Engineers.

Section One, The 4-stroke and 2-stroke cycles, Exercise H ***Diesel process by WÄRTSILÄ***[2] (page 162)

In the diesel process, liquid fuel is injected into the cylinder at high pressure by camshaft-operated pumps. The fuel is ignited due to the high temperature resulting from the compression.

Combustion takes place under constant pressure with fuel injected into the cylinder during combustion. After the working phase, the exhaust gas valves open and the cylinder is emptied of exhaust gases. With the piston in its upper position, the inlet valves open just before the exhaust gas valves close, and the cylinder is filled with air. In Wärtsilä engines the inlet valves close just before the piston reaches the bottom dead centre. This method, called "Miller timing", reduces the work of compression and the combustion temperature, which results in higher engine efficiency and lower emissions.

2. Source: http://www.wartsila.com/en/power-plants/technology/combustion-engines/oil-engines

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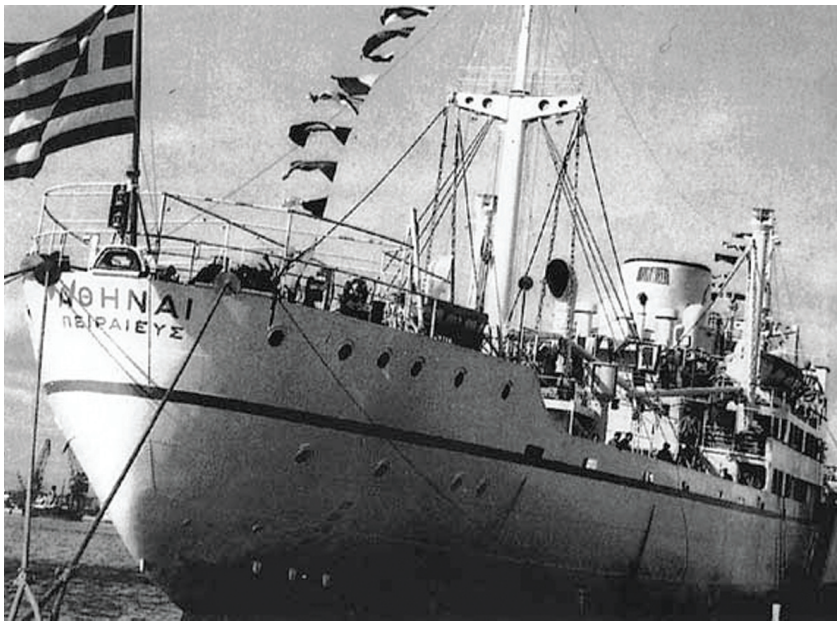

Το υπερωκεάνιο «Αθήναι» ναυπηγημένο το 1908 της Home Lines Inc. Το πλοίο χρησιμοποιήθηκε για την εξυπηρέτηση της γραμμής Ελλάδας-Νοτίου Αμερικής.

ISBN (SET) 978-960-337-095-6

ISBN 978-960-337-104-5