LEARNING EXPERIENCES AND SYLLABUS MATCH

Section 1 Marine navigation and communication devices (Learning experiences)

Syllabus

MS3.1

Marine navigation and communication devices and procedures are used for coordination and safety

Navigation devices and their use

- Define a marine navigation and communication device and explain why its wide ranging implications. Describe how the integration of devices and procedures are used for safe navigation. Give example of how navigation devices can show incorrect readings.
- Describe non electronic devices are used for co-ordination and safety. Identify rescue devices that are used in emergencies that assist in search and rescue
- Explain the use of a steering compass. Define terms variation and error and describe how it affects very compass. Distinguish between a pleorus, hand held, fluxgate and steering compass.
- Explain the use of a depth sounder, radar, GPS, waypoints, chart plotter and doppler log and account for differences caused in navigation.
- Justify the use of a combination of navigation and communication devices in safely entering a port
- Explain why correct chart datum must be used when operating a GPS

Complete Worksheet 1 Navigation devices

Syllabus

MS3.2 Chart datum is interpreted when operating vessels in marine environments.

Communication devices

- Distinguish between three types of radio with respect to their range and effectiveness in coordination and safety
- List the information contained in a DSC alert
- Distinguish between radio frequency type, name and use.
- Explain what an EPIRB is, what it is designed to do and how it is used in coordination and rescue
- Explain how flares are ignited, and distances they can be seen in distress situations
- Describe three flag signals used to communicate warnings or distress giving an example for each
- Explain why ships have day shapes and give two examples explaining how their shapes communicate safe navigation
- Define navigation lights on a ship, identify their location and explain why they are compulsory
- Explain how vessels use lights to navigate at night with an example using a powered vessel

Complete Worksheet 2: Communication devices

Syllabus

MS3.5

Radio transmission communication should be clear and concise (e.g. vessel identification, logging vessel movement, etiquette) and fitting to local regulatory requirements.

MS3.6

Organisations play vital roles in search and rescue operations (e.g. Australian Maritime Safety Authority's role in Safety of Life at Sea).

Marine radio procedures

- Describe the procedure involved in obtaining a radio check and log in from a base station called Redcliffe Coast Guard, on a vHf radio before setting out for a days research aboard a vessel called Research I that had its ship's details registered with the Coast Guard.
- Describe three types of emergency call given on a marine radio and describe when they are used
- Explain how a DSC distress button is used in emergency coordination and what follows immediately after its use.
- Interpret the messages on the two screens below and predict what will happen next
- Describe how organisations play a vital role in search and rescue
- Analyse COMSAR Circular 25 below and justify the flow chart in terms of search and rescue following a ship's receipt of a DSC alert.. Your analysis should identify the parties involved, their roles in the response, the devices used and provide a justification for each step in the process.

Complete Worksheet 3: Communication procedures

Section 2 Pilotage (IALA-A) (Learning experiences)

Syllabus

MS3.2 Chart datum and the IALA-A (International Association of Lighthouse Authorities region A) buoyage system are interpreted when operating vessels in marine environments.)

IALA* Buoyage A

- Define the term pilotage and state its use
- List the five types of IALA markers and describe their possible shapes
- State the rules using these markers, for entering and leaving port
- Explain how a skipper knows the location of a main shipping port on a chart
- Identify IALA markers on a local chart
- Explain why the correct chart datum and chart software is used with a GPS when operating vessels in marine environments

Section 3 Establishing and revisiting research sites (Learning experiences)

Key concepts

MS3.3 Navigational aids, including compass, GPS, radar and charts are used to plot courses and record locations (e.g. latitude/longitude, position-fixing methods) as navigational precision is required for establishing and revisiting research sites.

MS3.4 A safe passage is planned and implemented using a variety of calculations and modifications (e.g. speed, distance, time).

Research sites

- List some of the features that need to be considered when selecting a offshore research site
- Locate research site latitude and longitude on a practice A3 navigation chart (Download A3 Chart from www,wetpaper.com.au - Resources section)
- Calculate distance speed and time for navigation data for a research boat.
- Define the term chart tidal datum
- Calculate departure times for a vessel using tidal information
- Distinguish between variation, deviation to calculate a ships head given a variety of bearings
- Explain the meaning of the term ships heading and make calculations based on variation and deviation errors
- Plot a safe course to a research site
- Determine safe waypoints for a ocean voyage on a practice chart making all necessary calculations

Position fixing

- Convert compass bearings to true and to find the latitude and longitude of a variety of research positions on a practice chart. Account for variations in position due to sea conditions or navigation errors
- Calculate set and drift to determine the effects on reaching a research site
- Estimate tide heights at hourly intervals from tide table data
- Use a mobile phone app to locate and return to a research site

Worksheets

No	Title	Verbs used in questions
1	Navigation devices	Define, describe, identify, list, distinguish, explain
2	Communication devices	Distinguish, list, complete, explain, describe, define, interpret, analyse
3	Communication procedures	Describe, interpret, analyse
4	IALA* Buoyage A marks	Define, list, state, explain, complete
5	Locating a research site	List, locate, calculate, define, interpret,
6	Calculating a ship's heading	Explain, calculate
7	Plot a set of waypoints	Plot, calculate, interpret, discuss
8	Research site position fixing	Convert, explain, discuss, calculate
9	Set and drift	Calculate, discuss, explain
10	Use a mobile phone	Draw, describe, locate