Worksheet 2: EPIRB - page 13

Note for first edition

Answers to Q 6, 8, 9, 10, 11b are not explicit in text (see note in box opposite)

Note for second edition

In second edition Questions Q 6, 8, 9, 10, 11b and 12 are now research questions 1-5. Q7 becomes Q 6 and Q11 becomes Q7.

1. Emergency Position Indicating Radio Beacon.

2. When activated, an EPIRB sends a radio signal to an orbiting satellite. They transmit on 121.5 MHz, 243 MHz (until 2009), and 406 MHz.

3. 406 MHz EPIRBs provide global coverage.

4. If an EPIRB is accidentally activated, switch it off and ring 1800 641 792 as soon as possible.

5. The Rescue Co-ordination Centre is located in Canberra and is responsible for the national coordination of both maritime and aviation search and rescue.

6. Satellites have made EPIRBs more effective. The 406 MHZ digital signal has meant that information about the type of vessel in distress can be transmitted.

7. Australia's Local User Terminals are located in Albany (WA) and Bundaberg (QLD).

8. Boats operating more than 900 km offshore should use 406 MHz EPIRBs. After 2009, all vessels that are required to carry an EPIRB will require 406 MHz EPIRBs.

9. EPIRB is a transmission only; it doesn't have a receiver. EPIRBs don't use voice signals.

10. The answer to the first part of this question is not in the text.
    121.5 MHz Beacon: Time to relay signal accurately varies. (Information not in text)
    406 MHz Beacon: Time to relay signal accurately instantaneous.

    Additional Information: *The 121.5 MHz signal is analog and is not stored aboard the satellite. The satellite must see the beacon and the ground station simultaneously for a 121.5 MHz transmission to be detected; thereby giving an average notification time of 6 hours. The 406 MHz signal is digital and can be stored aboard the satellite for later relay to the next available ground station, thereby giving it global capability and a 1-hour average notification time.*

11. a) If an EPIRB is activated off the Queensland coast, the EPIRB sends a radio signal to an orbiting satellite, which stores and relays the signal to the LUT (probably the one in Bundaberg), which is linked to the RCC in Canberra. The RCC contacts the nearest suitable rescue authority to conduct search and rescue operations.

    b) Some problems that may occur with the rescue situation in Fig 11.2 could include: no nearby search and rescue organisations, or they might take a long time to arrive; the vessel could be North of Australia's area of responsibility; sharks, crocodiles, stingers and heat stroke.

    c) SAR: Search and rescue

    LUT: Local User Terminal

    RCC: Rescue Coordination Centre.

12. Students' own responses. For example:
    Carrying an EPIRB is important because it can alert rescuers when you are in an emergency situation. They are not very expensive any more, and are well worth the money if they can save your life.

ERRATA to first edition

Insert the following on page 49

Battery care

1. Use a good quality marine battery - check it at regular intervals and charge it when necessary.
2. Batteries should always be secured in brackets and properly ventilated.
3. Keep terminals, cables and casing clean. Grease cables regularly.
4. Terminals and connections need to be tight and secure.
5. Battery cells need to be topped up with distilled water and checked with a hydrometer.
6. Batteries should never be overcharged. They should be charged at a rate as set down by the manufacturer. Turn the power off before removing charging leads to prevent an explosion.

Worksheet 21: Make a reference card - page 54

Students' own reference cards.

You can obtain free stickers with frequencies and call signs from your local marine rescue organisation.

Worksheet 22: Logging of messages - page 59

Students' own radio log.

You may be able to keep a radio on during a normal lesson, and fill out the table when a message is heard.