

### Dive!

Although humans live on land, we have always been enchanted by the urge to explore the deepest parts of the ocean. We are fascinated by the mysteries of underwater life. For centuries we have been inventing new ways of exploring the deep sea.

In the 1600s, inventors created the first submarines. Their early submarines operated on the same principles as today's submarines. A hollow object filled with air will float. Something filled with water will sink.

1



Any submarine journey begins on the surface of the water. The ship floats because its ballast tanks are filled with air. A submarine floats or sinks based on the contents of its ballast tanks.

2



Read these two sentences again. What do they tell you about the difference between the weight of air and the weight of water? Which one do you think is lighter?

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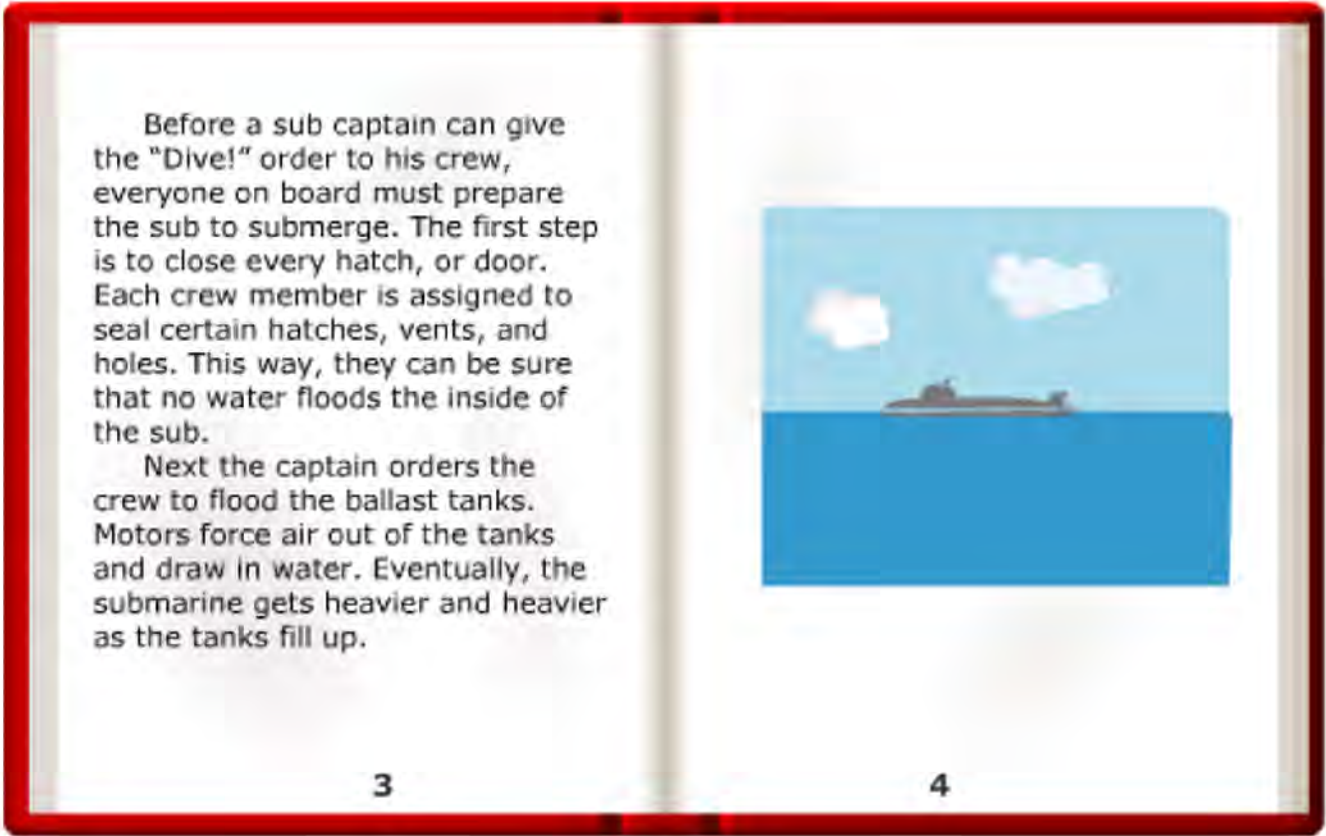
If you look up the word “tank” in a dictionary, you will see it means a container, and it also means an army vehicle. In this sentence, which meaning do you think is correct?

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Try creating an Idea Web to summarise the information in this paragraph. Put “Step one: before sub captain shouts ‘Dive!’” in the centre. What would you put in the surrounding squares about what has to be done, and why it needs to be done?

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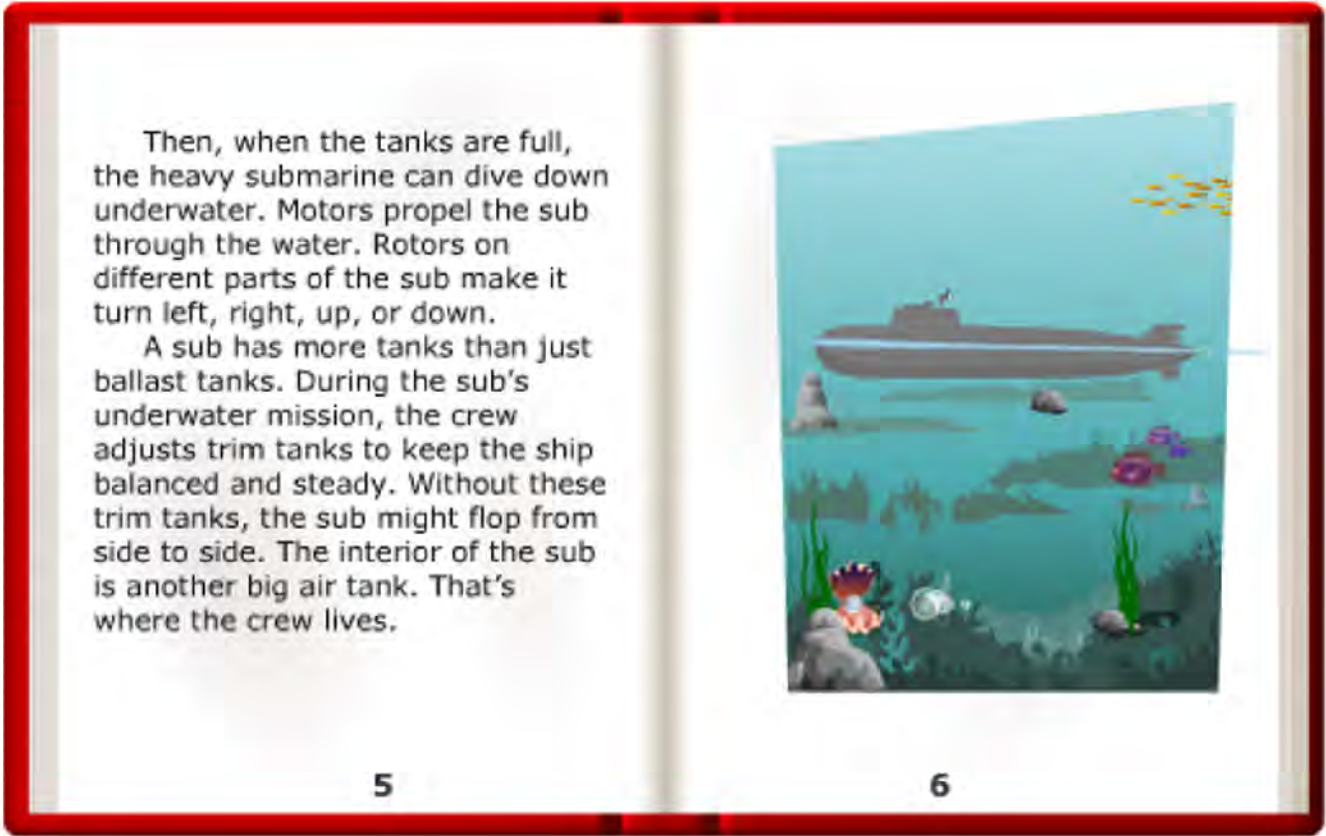
In a procedure, look out for words that tell you what step you’re on. I think we’re at the start of the procedure. Which word in this sentence tells us this?

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Then, when the tanks are full, the heavy submarine can dive down underwater. Motors propel the sub through the water. Rotors on different parts of the sub make it turn left, right, up, or down.

A sub has more tanks than just ballast tanks. During the sub's underwater mission, the crew adjusts trim tanks to keep the ship balanced and steady. Without these trim tanks, the sub might flop from side to side. The interior of the sub is another big air tank. That's where the crew lives.



These steps aren't numbered, but you can figure out what step you're on by locating sequence words like "then" and counting backward to the first step. What step are you on here?

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This word has two vowels side by side: "i" and "o". Pronounce it slowly. How many syllables does it have altogether?

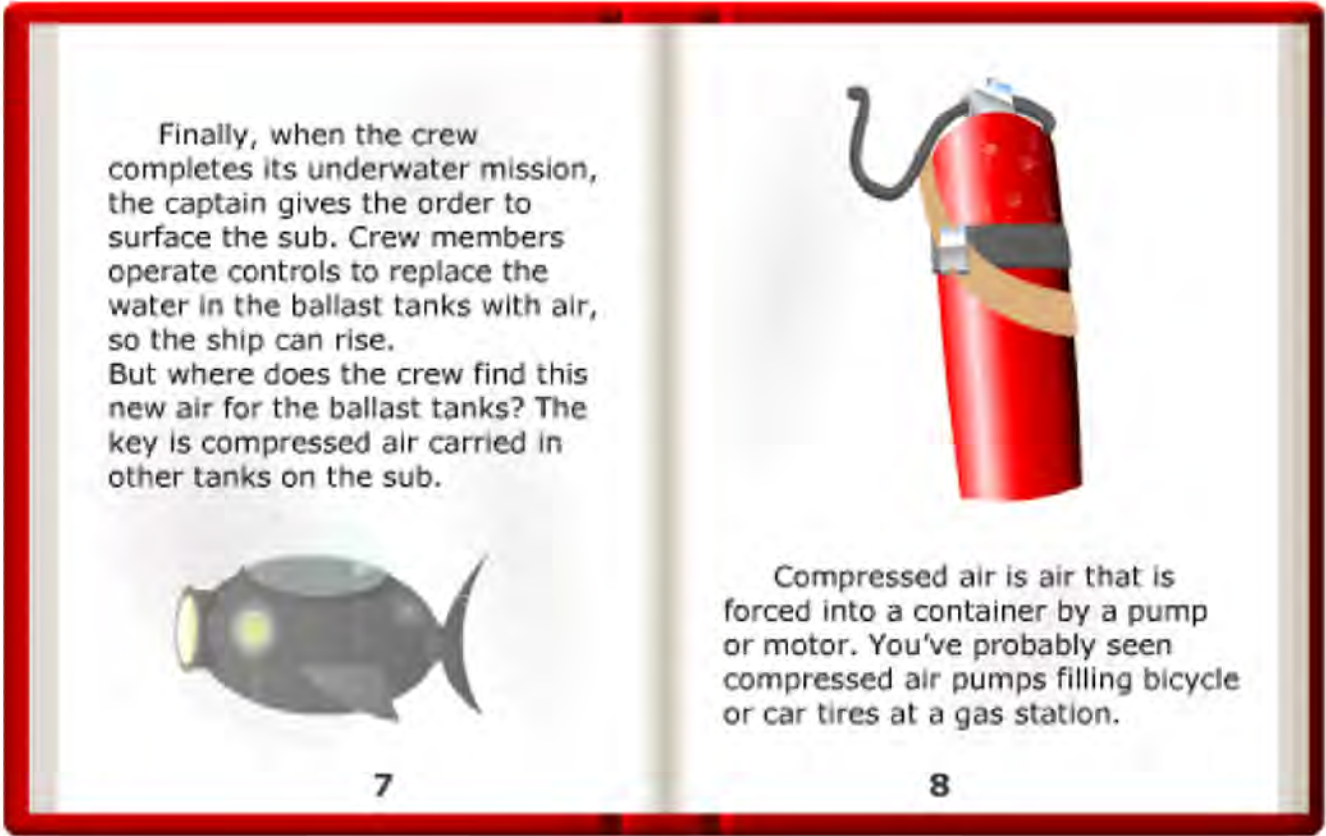
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Finally, when the crew completes its underwater mission, the captain gives the order to surface the sub. Crew members operate controls to replace the water in the ballast tanks with air, so the ship can rise. But where does the crew find this new air for the ballast tanks? The key is compressed air carried in other tanks on the sub.



7



Compressed air is air that is forced into a container by a pump or motor. You've probably seen compressed air pumps filling bicycle or car tires at a gas station.

8



Look up the word “mission” in a dictionary. It has more than one meaning. Which meaning fits the word as it is used here?

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Why do you think it’s important for things to take up little space on a submarine?

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# DESTINATION READING COURSE 3

## UNIT 85: Dive!

Compressed air takes up less space than normal air, because it is under pressure. When compressed air is released into the ballast tanks, it expands. The lighter air forces the heavier water out of the ballast tanks. The submarine starts floating and rises up to the surface, ending the crew's mission.



9

10

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.