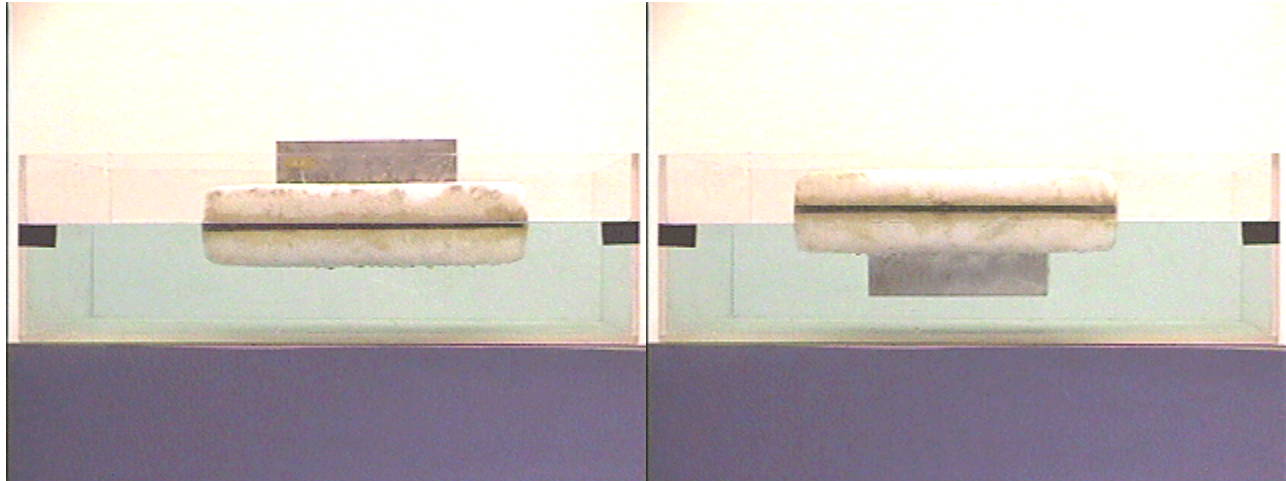


Answer #32

The answer is (a): the black line will be above the water level, as seen by comparing the pictures of the blocks immersed in the water both ways. The important idea about buoyancy here is that the system will float upside down when it displaces the same amount of water - an amount equal to its weight. The aluminum displaces some water, so the styrofoam block will not need to displace as much as in the original configuration to keep the system afloat.



Because the weight of the floating block is the same, it displaces the same amount of water, and the water level in the tank remains the same, as can be readily seen by comparing the pictures.

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