

APOLLO

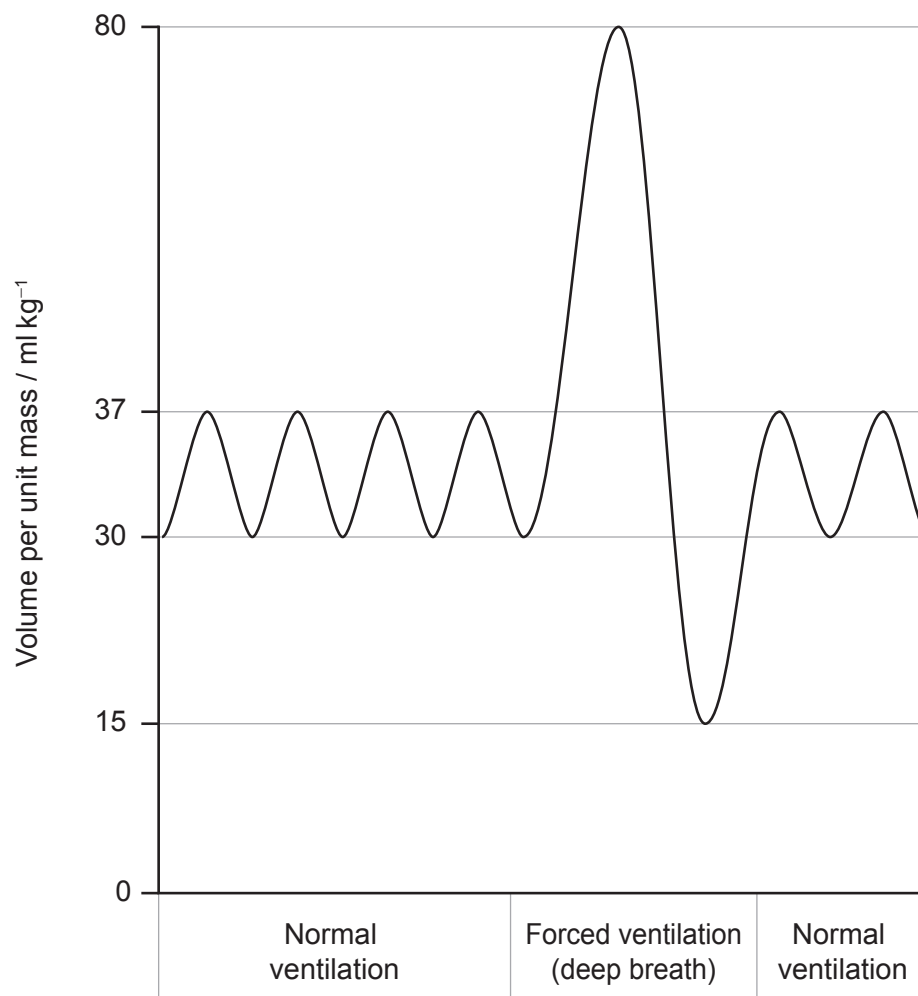
Gas exchange SL

Biology

First assessment 2025

5 questions | questions

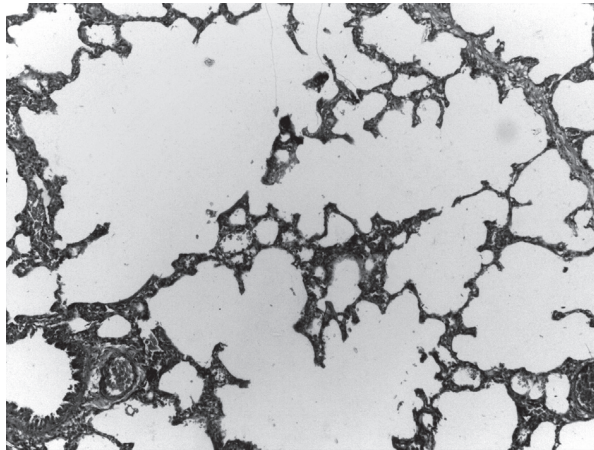
14. The graph shows changes in lung volume during normal ventilation and forced ventilation (taking a deep breath).



What is the vital capacity?

- A. 7 ml kg⁻¹
- B. 37 ml kg⁻¹
- C. 65 ml kg⁻¹
- D. 80 ml kg⁻¹

13. Emphysema is a condition where the alveoli of the lungs are destroyed, resulting in patients feeling out of breath. The micrograph shows air pockets resulting from emphysema.



What is a direct consequence of the destruction of alveoli?

- A. Decrease in surface area for gas exchange
- B. Increased blood flow to the lungs
- C. Increase in pulmonary surfactant production
- D. Decrease in ventilation rate

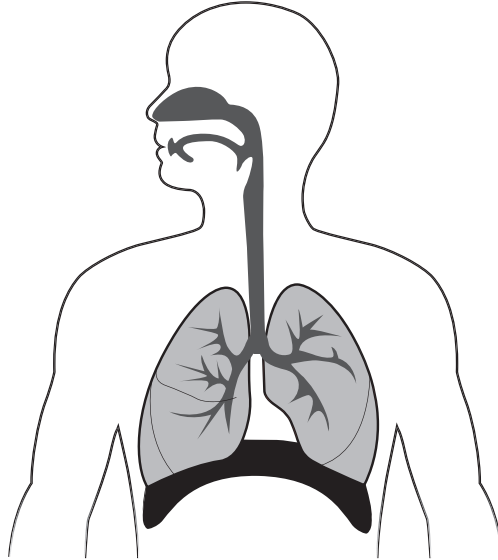
16. What happens in humans to cause inhalation of air?

- A. The diaphragm contracts, causing pressure in the thorax to decrease.
- B. Abdominal muscles contract, causing pressure in the thorax to decrease.
- C. The diaphragm contracts, causing pressure in the thorax to increase.
- D. Intercostal muscles contract, causing pressure in the thorax to increase.

Section A

Answer **all** questions. Answers must be written within the answer boxes provided.

4. The image shows the location of the lungs and diaphragm in a human.



- (a) Explain how contraction of the diaphragm causes air to enter the lungs.

[2]

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- (b) State another muscle group that causes inspiration when it contracts.

[1]

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- (c) Outline the role of surfactant in the mammalian lung.

[2]

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Turn over

17. What occurs at gas exchange surfaces in the lungs of mammals?

- I. Gases diffuse across a moist surface.
- II. Concentration gradients are maintained by ventilation.
- III. Water is lost.

- A. I and II only
- B. I and III only
- C. II and III only
- D. I, II and III