

9 Gas exchange – Part 2 — Answers

Answers

Work through these after trying the questions yourself.

9.1 Any two of: large total surface area; very thin (one-cell) walls; rich blood supply; moist lining.

9.2 (a) oxygen diffuses into the blood \ (b) carbon dioxide diffuses out of the blood.

9.3 It gives a very short distance for the gases to diffuse, so exchange is fast.

9.4 Diffusion.

9.5 Breathing brings in fresh air (high oxygen, low carbon dioxide) and the blood flow carries gases away, so the difference in concentration across the wall stays large.

9.6 Millions of tiny sacs give a much larger total surface area than one big sac, so far more gas can be exchanged at once.

9.7 Merging the alveoli into fewer, larger sacs greatly *reduces* the total surface area for exchange. With less surface, far less oxygen can diffuse into the blood each second, so the person becomes breathless even with gentle activity.