

Respiratory System Cheat Sheet

by TristanPerez via cheatography.com/213589/cs/46493/

Terms:	
Respiratory	carry air between
Airways:	atmosphere and alveoli
Nasal Passages:	nose
Pharynx:	passage for lungs and stomach
Larynx:	voice box
Trachea:	tube where air travels to lungs
Bronchi:	two main branches of trachea
Bronchioles:	small branches of respiratory airway
Alveoli:	small sacs where gas

exchange occurs

External and cellular respiration

4 Pressures in Ventilation

on earth

Ventilation

pressure exerted by the weight of

gas in the atmosphere on objects

pressure within the pleural sac

pressure gradient across lung

wall (intra-alveolar - intrapleural)

pressure within alveoli

Conducting Zone

- Top of trachea all the way to respiratory bronchioles
- Provides low-resistance pathway for airflow
- Defends against microbes, toxic chemicals, and other foreign objects through mucus, cilia, and macrophages
- Warms and moistens the air
- Used in sound production (vocal cords)

Respiratory Zone

- Where gas exchange occurs
- Type 1 Cells: form walls of alveoli
- Type 2 Cells: secrete pulmonary surfactant to reduce surface tension
- Alveoli are the site of the gas exchange
- Alveolar surface is large as to allow rapid exchange of oxygen and carbon dioxide through diffusion

Lungs

- Consists of lower portion of respiratory airways, pulmonary circulation, and connective tissue
- Pleural sacs: thin fluid-filled sacs that enclose the lungs
- Pleura produce fluid that lubricates the lungs to prevent friction when breathing
- Pressure Gradient: air moves from area of high pressure to area of low pressure
- Respiratory pressures are always relative to atmospheric pressure
- High altitude = Low atmospheric pressure
- Low altitude = High atmospheric pressure
- Boyle's Law: at constant temperature the pressure of a gas varies inversely with its volume

During Inspiration

- Diaphragm contracts increasing thoracic cavity vertically
- External intercostal muscles contract elevating rib cage
- Intrapleural pressure becomes more subatmospheric
- Lungs expand
- Intra-alveolar pressure becomes subatmospheric
- Air flows into alveoli

During Expiration

- Diaphragm and intercostals stop contracting
- Chest wall recoils inward
- Intrapleural pressure moves back toward preinspiration value
- Lungs recoil toward preinspiration size
- Air in alveoli becomes compressed
- Intra-alveolar pressure becomes greater than atmospheric pressure
- Air flows out of lungs

Gas Exchange

Gas - continuous exchange of O2
exchange: and CO between environment
and body2
- movement of gases occurs
by passive diffusion down
partial pressure gradient
- diffuse from area of high

partial pressure to areas of low partial pressure

Partial - independent pressure
Pressures: exerted by a particular gas

- directly proportional to percentage of gas in that total mixture

C

System

Atmosp

heric:

Intra--

eolar:

Intrap-

leural:

Trans

mural:

alv-

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