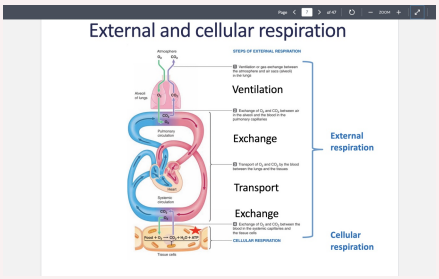
# Respiratory System Cheat Sheet

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

## Terms:

| | |
|---|---|
| Respiratory Airways: | carry air between 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 |

## System




## 4 Pressures in Ventilation

| | |
|---|---|
| Atmospheric: | pressure exerted by the weight of gas in the atmosphere on objects on earth |
| Intra--alveolar: | pressure within alveoli |
| Intrapleural: | pressure within the pleural sac |
| Transmural: | pressure gradient across lung wall (intra-alveolar - intrapleural) |

## 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 exchange: | - continuous exchange of O2 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 Pressures: | - independent pressure exerted by a particular gas |
| | - directly proportional to percentage of gas in that total mixture |

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