Respiratory System

- From: http://www.rsu.edu/faculty/LAndrews/mtless8f99respiratory.ppt

Functions of the Respiratory System

- Breathing process
- Exchange of Oxygen and Carbon Dioxide
- Enable speech production

Internal Respiration

- All cells require oxygen for metabolism
- All cells require means to remove carbon dioxide
- Gas exchange at cellular level

External Respiration

- Ventilation
  - exchange of air between lungs and atmosphere
- Gas Exchange in pulmonary capillaries
- Breathing largely involuntary activity

Structures of Respiratory System

- upper respiratory tract
  - nose, mouth, pharynx, epiglottis, larynx and trachea
- lower respiratory tract
  - bronchial tree and lungs

Nose

- nasal cavity
- nasal septum
- mucous membrane
  - mucus
  - cilia
  - olfactory receptors

Pharynx

- Nasopharynx
  - adenoids or pharyngeal tonsils
- oropharynx
  - palatine tonsils
- laryngopharynx
  - larynx

Epiglottis

- oropharynx and laryngopharynx serve as a common passageway for both food and air
- epiglottis acts as a lid or flap that covers the larynx and trachea (airway) so food does not enter the lungs.

Larynx

- voice box
- larynx/o
- glottis (vocal apparatus)
  - vocal bands or vocal cords

Trachea

- Windpipe or airway
- mucous membrane lining with cilia
- smooth muscle with c-shaped cartilage rings
- divides into two branches: bronchi
- no gaseous exchange

Bronchi

- Bronchus, singular
- c-shaped cartilage rings with smooth muscle
- each bronchi divides into bronchioles
- terminate in air sacs called alveoli

Thoracic Cavity

- thoracic
- thorax
- mediastinum
  - heart
  - aorta
  - esophagus
  - bronchi
  - thymus

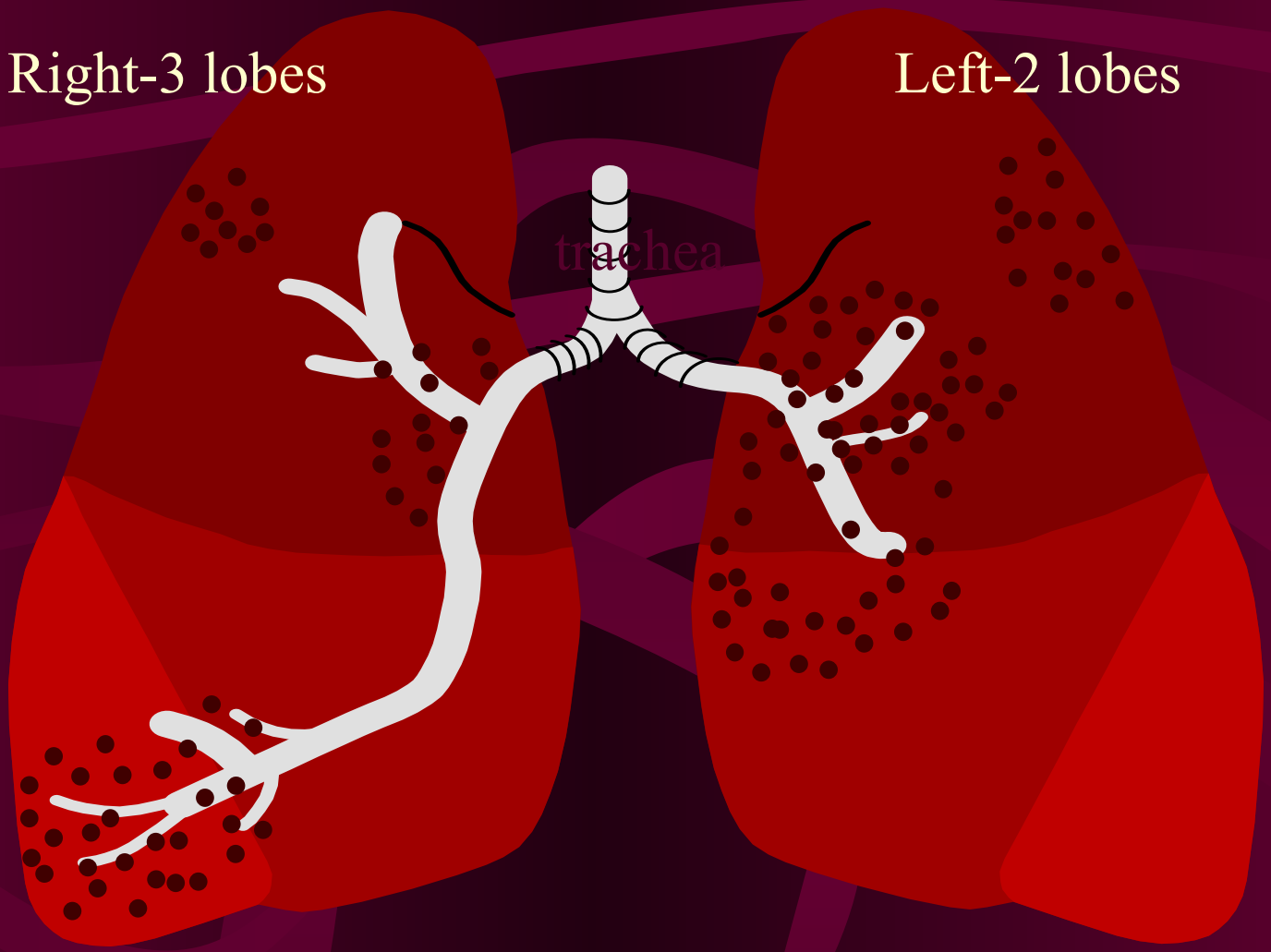
Alveoli

- air sacs
- alveolar wall membranes one cell thick and surrounded by capillaries
- gaseous exchange takes place here

Lungs

Right-3 lobes

Left-2 lobes



Pleura

- each lung enclosed in pleura
- parietal pleura (inner)
- visceral pleura (outer)
- pleural space or pleural cavity
- lubricating fluid

Diaphragm

- muscle separating chest and abdomen
- inspiration, diaphragm contracts and increases thoracic space
  - air flows in
- expiration, diaphragm relaxes and decreases thoracic space
  - air flows out
- phrenic nerve

Respiration

- external respiration - exchange of gases in lungs
- internal respiration - exchange of gases within cells of the body organs and tissues
- ventilation - movement of air

Oncology

- Primary Pulmonary Cancer
- Smoking is leading cause of ALL TYPES OF LUNG CANCERS
- common site: epithelium of bronchi
  - bronchogenic carcinoma
  - masses form and block air passages
  - metastasizes frequently to lymph noes, liver, bones, brain, or kidney

Endotracheal Intubation

- passage of a tube through the mouth, pharynx, and larynx into the trachea to establish an airway.

Respiratory System

You should now be prepared for a quiz over this material.