What is the mediastinum? The volume lying between the two pleural cavities
What are the 4 divisions of the mediastinum and how do you divide them? Superior (above sternal angle-second rib/T4 vertebra), anterior (in front of heart), middle (pericardial sac), posterior (behind the heart)
What are the three divisions of the superior mediastinum? Retrosternal (SVC, thymus, brachiocephalic veins), intermediate (aortic arch, vagus, phrenic), prevertebral (trachea, etc)
Layers of the pericardium? Fibrous, serous parietal, visceral
What part of the great vessel wall does fibrous pericardium fuse with? Adventitia
Where does effusion collect? Transverse sinus, oblique sinus
What are the sinuses made out of? Reflections of serous pericardium from parietal to visceral layers
What is the source of the pericardiacophrenic vessels? Internal thoracic vessels
What is in the pericardial space? A small amount of serous fluid
A build-up of serous fluid in this space is called? Pericardial effusion→ cardiac tamponade
Which aortic sinus doesn't have a coronary orifice? Posterior
What does a "right dominant" heart mean? Posterior interventricular from RCA
Order of conduction? SA node, AV node, AV bundle (of His), right and left bundle branches
What happens in diastole? Ventricles relax and fill, atria contract, AV valves open, semilunar valves closed
What happens in systole? Ventricles contract, atria relax and fill, AV vales closed, SL vales open
What carries parasympathetic innervation of the heart? Pre or post? Vagus, preganglionic
Where are the cell bodies from sympathetic pregnaglionic innervation of the heart? Lateral grey horn (T1-L2)
Where are the cell bodies from sympathetic postgnaglionic innervation of the heart? Cervical and thoracic ganglia of sympathetic chain
Why do you feel heart pain in your arm? Segmental sensory innervation causes referred pain
What does the iigamentum arteriosum connect? Pulmonary trunk and arch of aorta
What is the path of the left vagus? Out the jugular foramen in the skull, down the neck in the carotid sheath, gives off recurrent laryngeal under aortic arch around the ligamentum arteriosum, innervates laryngeal muscles, vagal trunks join to form esophageal plexus
Right vagus? Out the jugular foramen in the skull, down the neck in the carotid sheath, gives off recurrent laryngeal under right subclavian artery, innervates laryngeal muscles, vagal trunks join to form esophageal plexus
How does the vagus nerve travel down the esophagus? Esophageal plexus→ @ hiatus: left trunk passes anterior, right trunk passes posterior (LARP)
What kind of cartilage is the trachea made out of? C shaped hyaline cartilage
What are the smooth muscle layers of the esophagus? Inner= circular, outer= longitudinal
Outermost layer of esophagus? Connective tissue sheath (adventitia)
Where is the esophagus with respect to the trachea and heart? Posterior to trachea, immediately behind LA and LV
Blood supply to esophagus? Branches off the thoracic aorta, azygous venous system
Four groups of blood vessels coming off thoracic aorta? Posterior intercostal, bronchial arteries, esophageal branches, pericardial branches
Where do the posterior intercostal veins drain? Azygous venous system, left superior IC veins drain into left brachiocephalic trunk
Where does the arch of the azygous drain into? SVC
What are the parts of the azygous venous system? Azygous (right), hemiazygous (bottom left), accessory (superior) hemiazygous (top left)
Where is the thoracic duct? Lies antero-medially on vertebral bodies, between descending aorta and azygous vein, behind esophagus (passes through aortic hiatus of diaphragm)
What does the thoracic duct begin with? Cisterna chyli
Where does thoracic duct empty? Junction of left internal jugular vein and subclavian vein
What fibers form the splanchnic nerves? Sympathetic preganglionic fibers (to abdominal ganglia)
Where do the fibers that form the greater splanchnic come from? T5-T9 ganglia
Lesser? T9-T10 ganglia
Least? Last thoracic ganglia
What connects trunks and ganglia to spinal nerves? White (pre) and gray (post) rami communicantes
What are the three fetal shunts and what are their purposes? Foramen ovale, ductus arteriosus, ductus venosus→ shunt blood away from lungs and liver
What are the fetal vessels and what kind of blood do they carry? Umbilical vein= oxygenated, umbilical artery= de-oxygenated

Block 2 Week 5: Bisected Head

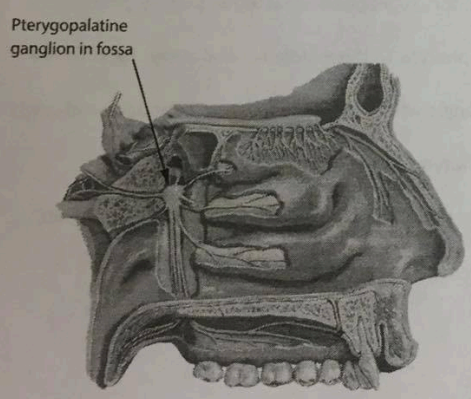
What are the cartilages that make up the nose→ septal, major alar, lateral
What forms the nasal septum→ Septal cartilage, vomer bone, contributions from palatine, maxilla, and ethmoid bone
What forms the lateral wall→ ethmoid, sphenoid, lacrimal, nasal, maxilla, and palatine bones
What forms the roof of the nasal cavity from front to back→ nasal, frontal, ethmoid, sphenoid
Where does the blood supply for the roof come from (trace it back)→ ant/post ethmoidal, ophthalmic artery, ICA
What is the innervation of the roof (superior 1/3)→ SA from anterior ethmoidal nerve (branch of V1), SS smell from olfactory nerve
What forms the floor of the nasal cavity and what are its parts→ palate: hard, soft
What forms the hard palate→ palatine process of the maxilla, horizontal plate of the palatine bone
What is the blood supply of the inferior nasal cavity→ sphenopalatine artery, lateral nasal branches (←superior labial←facial)
What is Kiesselbach's area→ location on the septal surface where difference arterial branches form a rich anastomosis
What is the venous drainage of the nasal cavity→ plexus that drains into the facial vein, pterygoid plexus, and cavernous sinus via the ophthalmic veins
What is the innervation of the inferior 2/3 of the lateral wall of the nasal cavity→ nasal branches from PPG (branches of V2) via sphenopalatine foramen
Septum→ nasopalatine nerve (from V2)
Vestibule→ internal nasal branch of the infraorbital nerve (V2)
What bones form the 3 conchae→ superior and middle= ethmoid, inferior= its own bone
What is the space beneath a concha called→ meatus
What are the paranasal sinuses and where are they→ frontal, ethmoidal, maxillary
Where is the ethmoidal bulla and what surrounds it→ beneath middle concha (middle meatus), hiatus semilunaris
What orifice lies beneath the ethmoidal bulla and where does it open into→ orifice for the maxillary sinus opens into the hiatus semilunaris
Where are the orifices of the middle ethmoidal air cells→ center of ethmoidal bulla
How are these sinuses best drained→ head tilted to the side (openings point to the side)
Where does the sphenoid drain and how do you drain it→ sphenoethmoidal recess, tilt head forward
What sinus drains into the superior meatus→ posterior ethmoidal air cells
How does the frontal sinus drain→ through frontonasal duct (beneath middle concha) into infundibulum (vertical) then hiatus semilunaris (curved)→ drains when the head is vertical
What separates the nasal cavity and the nasopharynx→ choanae
What structures are found in the nasopharynx→ pharyngeal opening of the auditory tube, pharyngeal tonsil, salpingopharyngeal fold
What does the auditory tube do and what marks is its opening→ connects the pharynx to the middle ear and allows for pressure regulation, torus tubaris
Where are the pharyngeal tonsils→ in the superior roof of pharyngeal recess (angle where NP descends from floor of cranial cavity anterior to the vertebral column)
What is the fold leading from the posterior torus tubaris that runs down the pharynx→ salpingopharyngeal fold
What does this cover→ salpingopharyngeus
What forms the opening of the oropharynx→ oropharyngeal isthmus: fauces laterally, soft palate midline, tongue inferior (soft palate to laryngeal inlet)
What structures are found in the oropharynx→ palatine tonsil, palatoglossal arch, palatopharyngeal arch
What forms the fauces→ palatoglossal and palatophayngeal arches
What do they cover→ palatoglossus and palatopharyngeus mucles
What lies between the two arches→ palatine tonsils
Where are the lingual tonsils→ surface of the most posterior part of the tongue
What are the boundaries of the laryngopharynx→ epiglottis cartilage to the inferior border of the laryngeal inlet
What are the gutters to the side of the larynx in the laryngopharynx→ piriform recesses
What are the spaces anterior to the epiglottis cartilage/posterior to the tongue→ valleculae

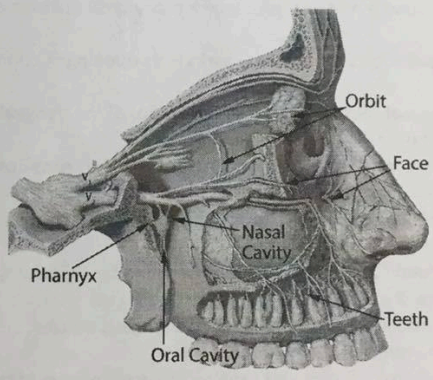
Osteology/PPG

What surrounds the perpendicular plate of the ethmoid bone→ air cells
What is longer, the crista galli or the perpendicular plate→ perpendicular plate
What passes through these foramina and what are they called→ olfactory nerve fibers, cribriform plate
Collectively, what are the ethmoidal air ells called→ left and right ethmoidal labyrinths
Why is an infection in the ethmoid sinus dangerous→ infection can accumulate in the air cells and break through the thin walls of the bone and spread into other spaces like the orbit
What spaces lie above, below, and beside the ethmoid bone→ superior= anterior cranial fossa, inferior= nasal cavity, lateral= orbit
Where does the greater palatine canal run and what does it contain→ down the perpendicular plate, neurovascular to the oral cavity
What does the horizontal plate do→ form part of the hard palate
What does the notch on the superior aspect of the bone eventually form, and with what other bone→ sphenopalatine foramen, sphenoid bone
Where in the bone are the sphenoidal sinuses→ Body
Where does the middle cranial fossa open into the bone→ Foramen rotundum
What is below this opening→ Pterygoid canal
Where is the pterygopalatine fossa→ posterior to maxilla, anterior to pterygoid process of sphenoid, lateral to the palatine bone (lateral to the nasal cavity)
What are the 7 passageways connecting the PPF to other spaces→

- Pterygomaxillary fissure→ connect with infratemporal fossa
- Foramen rotundum→ connect with middle cranial fossa
- Pterygoid canal→ connect with middle cranial fossa
- Sphenopalatine foramen→ connect with nasal cavity
- Inferior orbital fissure→ connect with orbit
- Greater palatine canal→ connect with oral cavity
- Palatovaginal canal→ connect with pharynx

What enters the PPF via the pterygomaxillary fissue→ pterygopalatine part of the maxillary artery (branch of ECA)
Where do the branches of the pterygopalatine part of the maxillary artery supply→ nasal cavity (sphenopalatine artery), hard palate (descending palatine artery), maxillary teeth (posterior superior alveolar artery), pharynx (pharyngeal artery, artery of pterygoid canal), orbit (infraorbital artery)





Block 2 Week 6

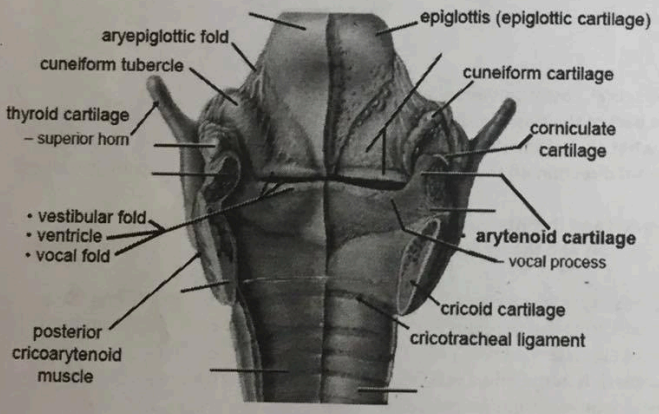
Larynx

What type of joint is the cricothyroid joint→ synovial
How do the cartilages in the larynx move→ arytenoids can swivel (moving vocal ligaments together or apart), thyroid cartilage can tilt on cricoid cartilage (tensing or slackening vocal ligaments)
What forms the conus elasticus→ vocal ligament, cricothyroid ligament
What are the parts of the arytenoid cartilage→ vocal process, apex, muscular process
What do the extrinsic laryngeal muscles do→ move the larynx as a whole
What do the intrinsic muscles do generally→ move the laryngeal parts/folds
What muscles close off the larynx during swallowing→ aryepiglottic, thyroepiglottic, thyroarytenoid, oblique Interarytenoid
What muscles are involved in phonation and respiration→ cricothyroid (tense vocal cords), lateral cricoarytenoid (adduct vocal cords), posterior cricoarytenoid (abduct vocal cords), transverse interarytenoid (adduct vocal cords), vocalis/medial thyroaretenoid (adjust tension along vocal cords)
What are the safety muscles and what do they do→ posterior cricoarytenoid, abduct vocal folds
What are the folds that form the vocal cords and what lies in between them→ vestibular fold (false vocal cord), ventricle, vocal fold (true vocal cord)
What are the two major nerves that innervate the larynx→ superior laryngeal nerve, recurrent laryngeal nerve (branches of vagus)
What are the two branches of the superior laryngeal nerve and what do they do→ internal laryngeal nerve (sensory above vocal folds), external laryngeal nerve (motor to cricothyroid)
What does the recurrent laryngeal do→ sensory to inferior surface of vocal folds and below, motor to all other intrinsic muscles
What are the two laryngeal arteries and where do they come from→ superior laryngeal a (branch of superior thyroid off ECA), inferior laryngeal a (branch of inferior thyroid off thyrocervical trunk, branch of subclavian)
What do the recurrent laryngeals loop around→ left→ ligamentum arteriosus, right→ subclavian artery
Rima vestibuli→ between vestibular folds
Rima glottides→ between vocal folds

Thorax and Thoracic Wall

What are the three parts of the sternum→ Manubrium, body, xiphoid
What ribs articulate at the manubriosternal joint→ rib 2
How many true ribs→ 7
How many false ribs→ 5
How many floating ribs→ 2 (part of false ribs)
Ribs form what joints and what type of joint→ costovertebral, costotransverse, synovial
What part of the vertebral bodies articulate with what part of the ribs→ articular facets, heads
What part of the transverse processes articulate with what part of the ribs→ articular facets, tubercles
What are the three layers of intercostal muscles and what direction do they run→ external (down/in), internal (up in), innermost (same as external)
How do you differentiate between the transversus thoracis and the intercostal→ TT spans two intercostal spaces
What is the relationship between the internal thoracic vessels and the transversus thoracis→ vessels run between the muscles and the ribs
What are the accessory respiratory muscles→ scalene muscles (elevate ribs), sternocleidomastoid (elevate sternum and ribs), pectoralis manor/minor, serratus anterior (elevate ribs with arms fixed), rectus abdominus, int/ext obliques (forced expiration)
What is the order sup-inf of the neurovascular bundle→ vein, artery, nerve (VAN)
When you place a chest tube where specifically do you place it in the intercostal space→ directly above the rib
What do the internal thoracic arteries turn into→ musculophrenic, superior epigastric
Where do the posterior intercostal arteries come from→ thoracic aorta branches
Where do the anterior intercostal arteries come from→ internal thoracic branches (upper 6-7), branches of musculophrenic
What do the internal thoracic arteries come off of→ subclavian
Where do anterior intercostal veins drain→internal thoracic vein
Where do posterior intercostal veins drain→ azygous
What is the histology of the pleura→ mesothelium
What separates the thoracic wall muscles from the costal pleura→ endothoracic fascia
Mediastinal parietal pleura→ fibrous parietal pericardium→serous parietal pericardium→ pericardial space→ visceral pericardium (epicardium)
What are the two pleural recesses→ costomediastinal recesses, costodiaphragmatic recesses
What are the three pleural reflections→ sternal line (costal-mediastinal), costal line (costal-diaphragmatic), vertebral line (costal-mediastinal)
What are the vertebral levels of the trachea→ C6-T4/5

What are the rings of the trachea made of→ C shaped hyaline cartilage (about 20 rings)
What is the posterior of the trachea→ trachealis muscle
What cells line the trachea→ pseudostratified columnar epithelium with goblet cells
Where are the cardiac incisure and lingual→left lung (upper lobe)
Where would you access the pericardial sac for a pericardiocentesis→ cardiac notch
How many lobes in each lung→ right (3), left (2)
What are the fissures in each lung→ right (horizontal, oblique), left (oblique)
Trachea bifurcates into what→ right and left mainstem bronchi→ lobar bronchi→ segmental bronchi→ terminal bronchioles→ respiratory bronchioles→ alveolar ducts→ alveolar sacs
Where does inhaled food get lodged→ right bronchus (larger in diameter and straighter)
What does a bronchopulmonary segment contain→ segmental bronchus, segmental artery, lymphatics, autonomic nerves (segmental vein lies in the connective tissue between segments)
What kind of blood is in pulmonary arteries→ deoxygenated from RV
What kind of blood is in pulmonary veins→ oxygenated blood to LA
What are the bronchial arteries→ supply airways and lung parenchyma
Where do the lymphatics of the lung drain→ bronchopulmonary lymph nodes
What is the visceromotor (VE) innervation of the lung→ vagal para/pre and sym/post to the glands and smooth muscle of the airways
What is the viscerosensory (VA) innervation of the lung→ vagus to stretch, irritant receptors
What are the attachments of the diaphragm→ vertebrae, edge of the lower rub cage, xiphoid process
Where do the crura attach→ L1/L2 bodies
What are the levels of the hiatuses→ IVC (T8), esophagus (T10), aorta (T12)
What nerve supplies the diaphragm→ phrenic (C3-5)
What arteries supply the diaphragm→ pericardiacophrenic, intercostal, inferior phrenic
What does diaphragm contraction do→ increases vertical dimension
What does intercostal contraction do→ increases transverse dimension (bucket handle-rib), increased anteroposterior dimension (pump handle-rib/sternum)



Extra:
What does the phrenic nerve run down in the neck→ anterior scalene muscle
Pulmonary artery: RALS→ right anterior, left superior

- the paranasal sinuses have openings into the nasal cavities, so that the mucous produced by their mucosae will drain out of a sinus space and into the nasal cavity
    - frontal sinus- drains through the frontonasal duct into the infundibulum which empties into the middle meatus
    - anterior ethmoidal air cells- drain into the infundibulum, then into middle meatus
    - middle ethmoidal air cells- drain into the middle meatus through an opening in the center of the ethmoidal bulla
    - maxillary sinus- drains through its orifice into the hiatus semilunaris within the middle meatus
    - sphenoidal sinus- drains into the sphenoethmoidal recess
    - posterior ethmoidal air cells- drain into the superior meatus
- the nasolacrimal duct drains lacrimal fluid (tears) into the inferior meatus