Make sure you can identify the organs and structures of the Urinary system on charts, models, and pictures.

### A. ORGANS AND DUCTS:
- **R & L Kidney**
- **Spongy or penile urethra (male)**
- **R & L Ureter**
- **Bulbospongiosus muscle**
- **Urinary bladder**
- **External urethral sphincter**
- **Urethra (female)**
- **Prostatic urethra (male)**
- **Membranous urethra (male)**
- **External urethral orifice**

### B. KIDNEY:
- **Renal capsule**
- **Renal sinus**
- **Renal cortex**
- **Minor calyx**
- **Renal medulla**
- **Major calyx**
- **Renal column**
- **Renal pelvis**
- **Renal pyramid**
- **Renal hilus**
- **Renal papilla**
- **(location = Retroperitoneal)**
- **Parietal peritoneum**

### C. NEPHRON:
- **Cortical nephron**
- **Proximal convoluted tubule**
- **Juxtamedullary nephron**
- **Loop of Henle**
- **Glomerular (Bowman's) capsule**
- **Descending limb**
- **Capsular space**
- **Thin ascending limb**
- **Glomerulus**
- **Thick ascending limb**
- **Capillary endothelial cell**
- **Distal convoluted tubule**
- **Collecting duct**
- **Papillary duct**
- **Juxtaglomerular apparatus**
- **Juxtaglomerular cells**
- **Macula densa**

### D. FILTRATION MEMBRANE:
- **Endothelial fenestrations**
- **Basement membrane (lamina densa)**
- **Podocytes**
- **Filtration slits**
- **Pedicels**
E. **URINARY BLADDER:**
- Trigone
- Rugae
- Internal urethral sphincter
- Visceral peritoneum
- Internal urethral orifice
- Detrusor muscle
- Ureteral openings

F. **KIDNEY BLOOD SUPPLY:**
- L & R Renal artery
- Segmental arteries
- Interlobar arteries
- Arcuate arteries
- Interlobular arteries
- Afferent arterioles
- Glomerular capillaries
- Efferent arterioles
- Peritubular capillaries
- Vasa recta
- Interlobar veins
- Arcuate veins
- Interlobar veins
- Segmental veins
- L & R Renal vein

G. **HISTOLOGY:**

**Slide #80** = Small kidney Cross Section
Observe: capsule, hilus, cortex, medulla, pelvis, renal pyramid

**Slide #81** = Kidney
Observe: glomeruli, bowmans capsule, juxtaglomerular apparatus (jga) cortex, medulla.
JGA = Juxtaglomerular cells in afferent arteriole and Macula Densa of ascending limb of Loop of Henle and start of Distal Convoluted tubule (DCT).
*JGA regulates arterial blood pressure and rate of blood filtration by the kidneys.*
*Parietal layer of glomerular capsule is lined with Simple Squamous epithelial cells.*
*Proximal Convoluted tubule (PCT) is lined with Simple Cuboidal epithelial cells with lots of microvilli for reabsorption.*
*DCT is lined with Simple Cuboidal cells with few microvilli.*

**Slide #82** = Urinary Bladder
Observe the Mucosa = Transitional epithelium
Observe the Laminia Propria = Areolar connective tissue
Observe the Muscularis = (Detrusor muscle) in bladder wall (Smooth Muscle) has three layers:
Outer = longitudinal smooth muscle
Middle = circular smooth muscle
Innermost = longitudinal smooth muscle

**Slide #83** = Ureter
Observe the Mucosa = Transitional epithelium
Observe the Laminia Propria = Areolar connective tissue
Observe the Muscularis = two layers of smooth muscle; inner longitudinal and outer circular.
Slide #84 = Urethra
Observe Mucosa = near bladder Transitional epithelium, middle area stratified columnar and pseudostratified columnar epithelium. Near urethral orifice nonkeratinized stratified squamous. **
Observe the Laminia Propria = Areolar connective tissue
Observe the Muscularis = circular smooth muscle.
**The male prostatic urethra has Transitional epithelium.
**The male membranous urethra and spongy urethra has Stratified columnar and Pseudostratified columnar epithelium.
**Near urethral orifice nonkeratinized stratified squamous

Nephron Tissue review
Bowman’s capsule (simple squamous)
PCT (Microvillated simple cuboidal)
Loop of Henle (thin) simple squamous
Loop of Henle (thick) simple cuboidal
DCT (simple cuboidal)
Upper CT (simple cuboidal)
Lower CT (simple columnar)
Papillary duct (simple columnar)