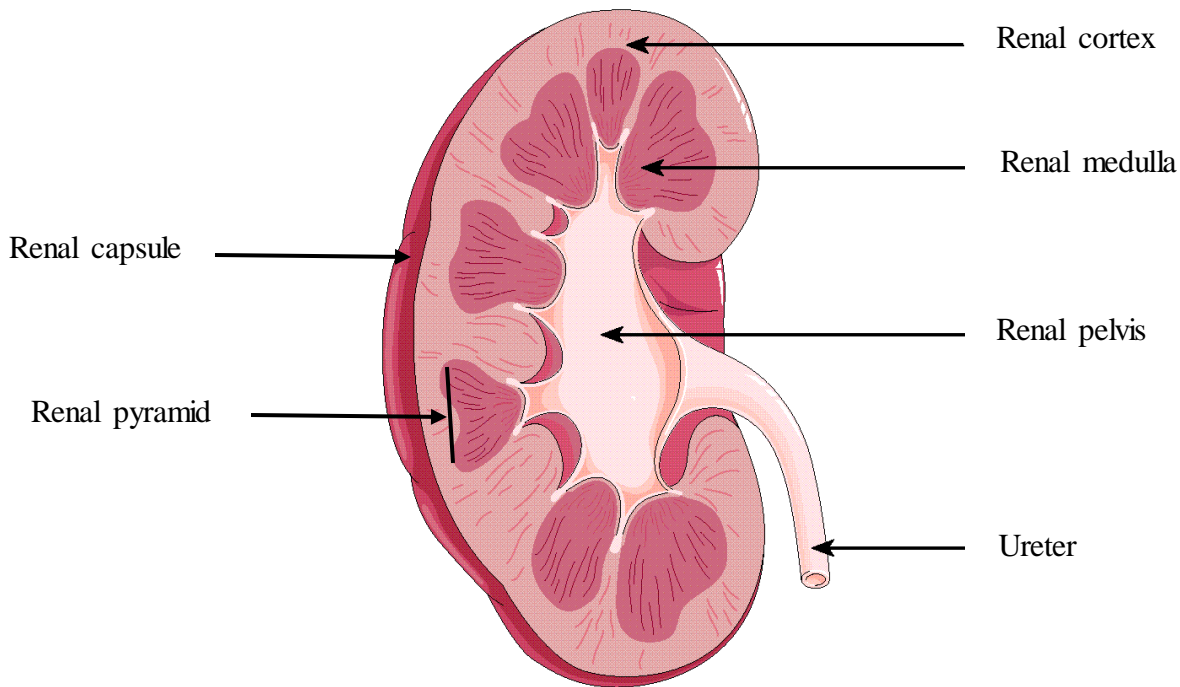


## Anatomy of the Kidney

Everyday your body filters about **180 L** of water in the blood. Obviously the fluids in the blood are filtered **more** than once, since the body's total volume of the blood is about 5 L. From these 180 L about 2 L of urine is produce each day.

Structurally, the kidneys have 3 major divisions: **cortex** (outer layer), **medulla** (middle, striated), and **pelvis** (inner cavity).

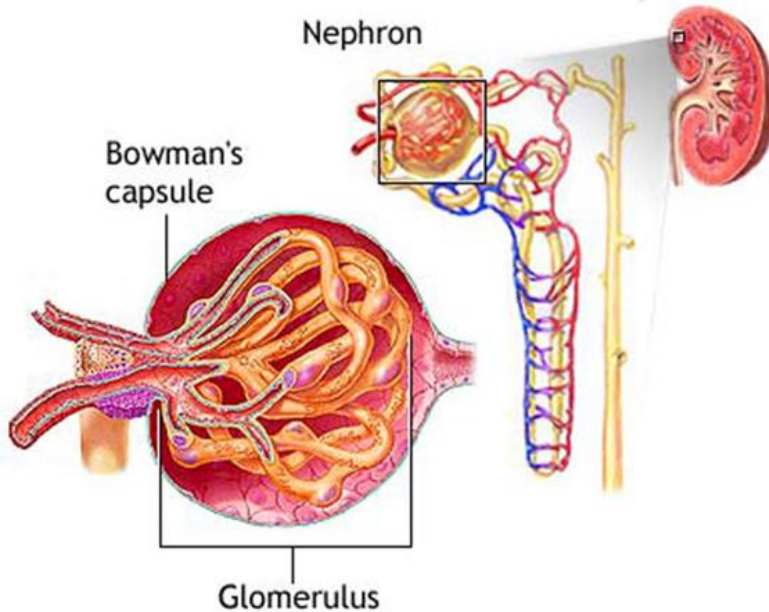


Complete the following table using the definitions and words from the previous activity.

Structure	Function
Kidneys	Main organ in excretion, water balance and Na <sup>+</sup> ion regulation; also involved in secretion of the hormones renin and erythropoietin
Renal pyramid	Region of the kidney which contains nephrons, the urine-forming structures of the kidney
Renal cortex	Outer region of the kidney that contains most of the nephrons, excluding the collecting ducts
Renal medulla	Central region of the kidney that contains the collecting ducts
Renal pelvis	Receives urine from the collecting ducts; the central part of the kidney

## Nephron Structure

The nephron the unit of filtration in the kidney. Each kidney contains at least a million nephrons. A nephron is composed of a capsule (Bowman's capsule) into which fluids and dissolved molecules and ions are squeezed under pressure. This fluid then passes through a series of tubules that selectively reabsorb molecules needed by the body, leaving the wastes in the fluid. Eventually the remaining fluid is expelled from the kidney in the form of urine.



- BOWMAN'S CAPSULE - Cup-like end of nephron where **wastes are forced out of the blood** and into the nephron. The blood enters a **capillary knot** called the GLOMERULUS.
- AFFERENT ARTERIOLE - carries blood to glomerulus
- EFFERENT ARTERIOLE - carries blood from glomerulus

- From the capsule, nephron narrows into PROXIMAL CONVOLUTED TUBULE, which makes a turn to FORM LOOP OF HENLE, which is surrounded by the PERITUBULAR CAPILLARY NETWORK. Loop leads to the DISTAL CONVOLUTED TUBULE, which finally enters a COLLECTING DUCT.

