

- Uric acid isn't water soluble and therefore it can be stored within the egg as the embryo develops
- Energy inexpensive and the animals don't need to drink water so often

Anatomy of the kidney

- The function of the kidneys is to filter waste products from the blood
- The *renal artery* takes blood into each of the kidneys and the filtered blood goes away from them by the *renal vein*
 - The blood is filtered in the *renal cortex* and *renal medulla*
- Excess water and waste products make up the urine which is collected in an area called *renal pelvis* and later it's taken away to the bladder by the *ureter*
- The composition of blood plasma in the renal artery compared with the renal vein is different, since the levels of water, salts and urea differ

Nephrons

- Each kidney is made up of filtering units called *nephrons*
- Each nephron consists of:
 - A *glomerulus* ⇒ a capillary bed which filters substances
 - The *Bowman's capsule* ⇒ a capsule that surrounds the glomerulus
 - A *tubule* that extends from the Bowman's capsule ⇒ includes the proximal and distal convoluted tubule, loop of Henle and the collecting duct
 - The peritubular capillary bed which surrounds the tubule mentioned above

Bowman's capsule

- The *afferent arteriole* is a small branch of the renal artery that brings unfiltered blood to the nephron and branches into the glomerulus
- The glomerulus has small slits in the walls called *fenestrations* which open when the blood pressure increases
 - The blood is provided by the efferent arteriole
- The *efferent arteriole* drains blood from the glomerulus and has smaller diameter than the afferent arteriole
 - That's why the pressure increases when they join at the glomerulus
- *Ultrafiltration* describes the process by which various substances are filtered through the glomerulus and its fenestrations under the unusually high blood pressure in the capillary bed
 - The fluid that is ultrafiltered passes through the basement membrane