Urine's Route

Locate the organs that make, move, store, and release urine

HS-AP12-1 "Identify and locate major organs of the urinary system and discuss their functions."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline the first mention of each of the four major urinary organs, number those names in the order urine travels, and circle a phrase that locates each organ.

What Happens During a Hike?

1. During a long hike, your body must balance the water in your blood even when you cannot stop for a drink. Two kidneys do much of this work. They sit toward your back, one on each side of your spine, just below your rib cage. Blood enters each kidney through a renal artery. Inside, tiny filtering units remove wastes and extra water from the blood while returning needed substances to it. The result is urine. A renal vein carries filtered blood away. By adjusting how much water leaves in urine, the kidneys help maintain a steady balance of fluids.

2. Urine does not travel from the kidneys directly to the outside of your body. Each kidney drains into a narrow tube called a ureter, so there are two ureters. These tubes run downward from the kidneys into the pelvis. Gentle waves of muscle contraction move urine through each ureter, even when you are lying down. Both ureters empty into the urinary bladder, a hollow muscular organ low in the pelvis. As the bladder fills, its stretchy walls expand to store urine until you are ready to release it. During the hike, this storage lets you keep walking without stopping each time your kidneys make urine.

3. When you find a restroom, the bladder contracts and sends urine into the urethra. This single tube starts at the bottom of the bladder and leads to an opening outside the body. Muscles called sphincters help control when urine can pass through it. The urethra is not the same as a ureter: ureters carry urine from kidneys to bladder, while the urethra carries it from bladder to the outside. The urethra is longer in typical male anatomy than in typical female anatomy, but it has the same urinary exit role in both. Following this route links each organ's position to its job.

2 ANSWER WITH EVIDENCE

Use the passage

1. Where are the kidneys located, and what do they do to blood?

2. Where do the ureters run, and how do they move urine?

3. Where is the urinary bladder, and what is its job during the hike?

4. Where does the urethra begin, and where does it carry urine?

3 YOUR TURN

Your own words

In exactly six sentences, explain to someone who thinks urine goes straight from the kidneys out of the body why that idea is wrong. Locate the kidneys, ureters, bladder, and urethra, give each organ's job, and trace urine's route.

ANSWER KEY

Urine's Route

PART 1 · READ AND MARK

Underline the first mention of each of the four major urinary organs, number those names in the order urine travels, and circle a phrase that locates each organ. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Where are the kidneys located, and what do they do to blood?	**The kidneys sit toward the back on either side of the spine, below the rib cage. They filter wastes and extra water from blood to make urine while returning needed substances to the blood.**
2	Where do the ureters run, and how do they move urine?	**The ureters run downward from the kidneys into the pelvis and move urine to the bladder through waves of muscle contraction.**
3	Where is the urinary bladder, and what is its job during the hike?	**The bladder is low in the pelvis. It expands to store urine until the person is ready to release it.**
4	Where does the urethra begin, and where does it carry urine?	**The urethra begins at the bottom of the bladder and carries urine to an opening outside the body.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

Urine takes a route with a stop, not a shortcut. The two kidneys sit toward your back on either side of your spine below the ribs, and they filter blood to make urine. From each kidney, a ureter runs downward into the pelvis and carries urine toward the bladder. The bladder sits low in the pelvis and stores urine until you are ready to release it. When the bladder contracts, urine enters the urethra, which starts at the bottom of the bladder. The urethra carries urine out of the body, so urine does not leave directly from the kidneys.

Accept equivalent location descriptions and explanations of each organ's function. For Part 3, check that the six sentences distinguish the two ureters from the single urethra and include the bladder between them in the urine route.