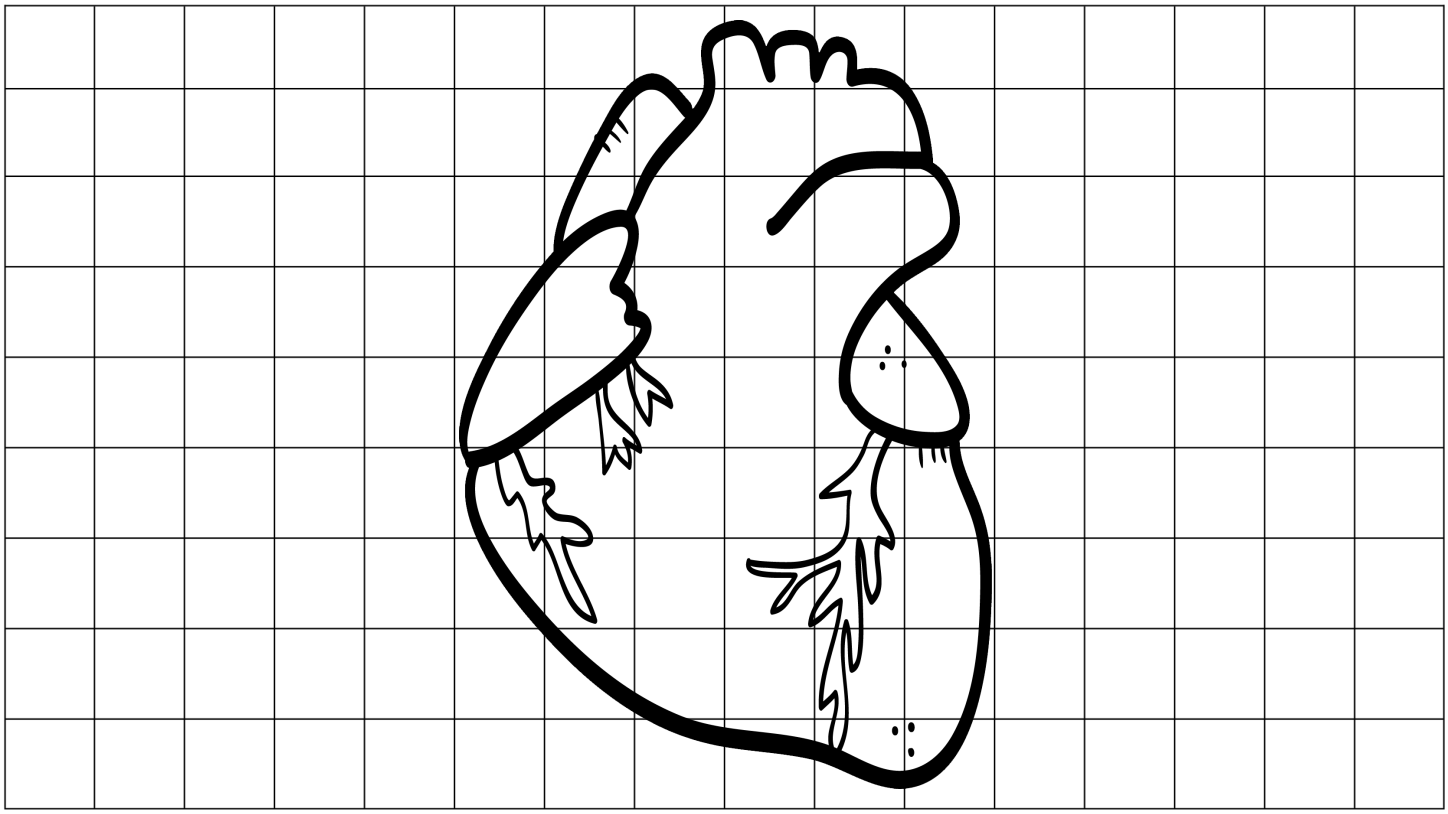
Heart

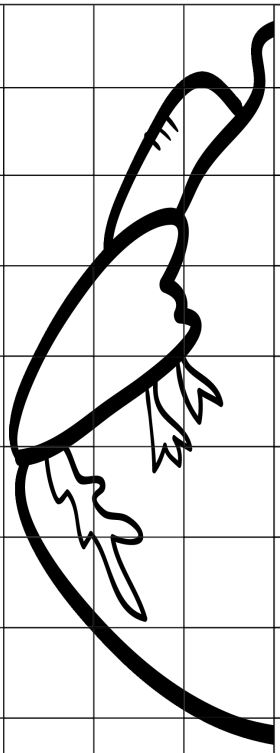
The heart is the main organ in your circulatory system. It is a hollow organ made of special muscle called cardiac muscle. It is covered by a membrane called the epicardium. This membrane is surrounded by another membrane called the pericardium, and there is a slippery fluid between the two membranes. Strong ligaments help hold the heart in place. The heart works automatically. At times, the heart beats faster or slower, depending on what the body needs, but it is not something a person can control to a great degree.

The heart works like a pump to keep blood moving in a cycle through the body. Blood travels through the veins as it is collected from throughout the body and goes into the right side of the heart. Valves inside the heart direct the flow of the blood through parts of the heart and into the lungs. The blood gets oxygen from the lungs and goes back into the heart through the heart's left side . Here, valves direct the blood flow to the correct places to leave the heart and start the journey through the body again. The blood delivers oxygen and nutrients to the cells using a long system of blood vessels. The blood vessels act like a system of roads, transporting the blood everywhere it needs to go. The blood drops off oxygen and nutrients and takes away waste the cells don't need anymore.

Follow these instructions to draw a heart on the next page like the one shown below:

- In the first grid, draw the half of the picture that is missing.
- In the second grid, see if you can draw the entire picture.





Lungs

The main organs of your respiratory system are your lungs. The lungs are located in the chest, with one on the right and one on the left. They are covered with a membrane called the visceral pleura. When you breathe in, called inhalation, you draw air into your lungs. The air travels down your windpipe (called the trachea) and down into two tubes that travel to your lungs. These tubes are called bronchi.

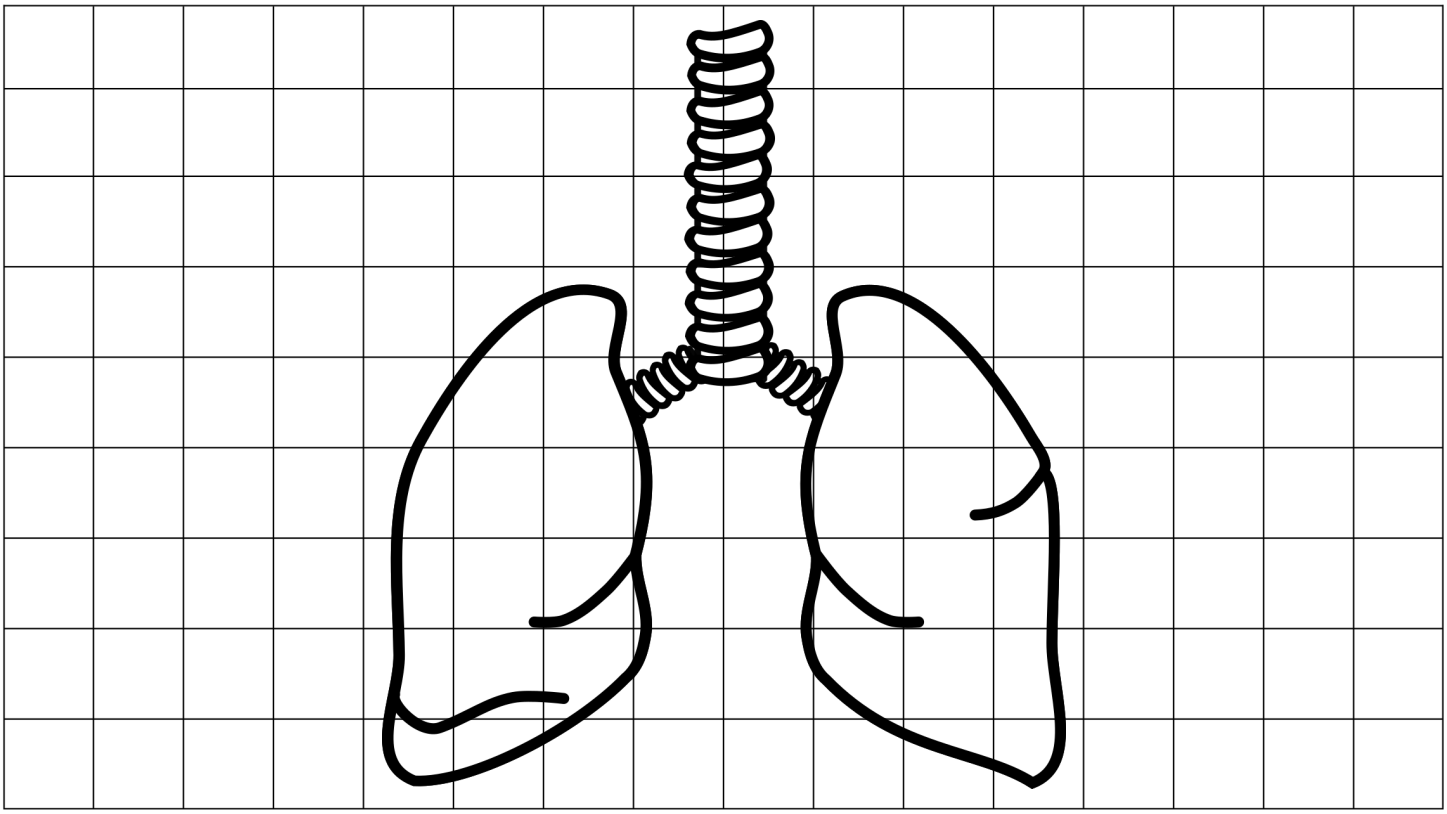
Once inside your lungs, your bronchi split into smaller and smaller branches until they reach extremely tiny air sacs. These air sacs have very thin walls and are filled with capillaries. Oxygen leaves the air sacs and travels through the walls into the blood, where it is taken to the heart. The heart can then pump this oxygen-rich blood to all the cells in the body.

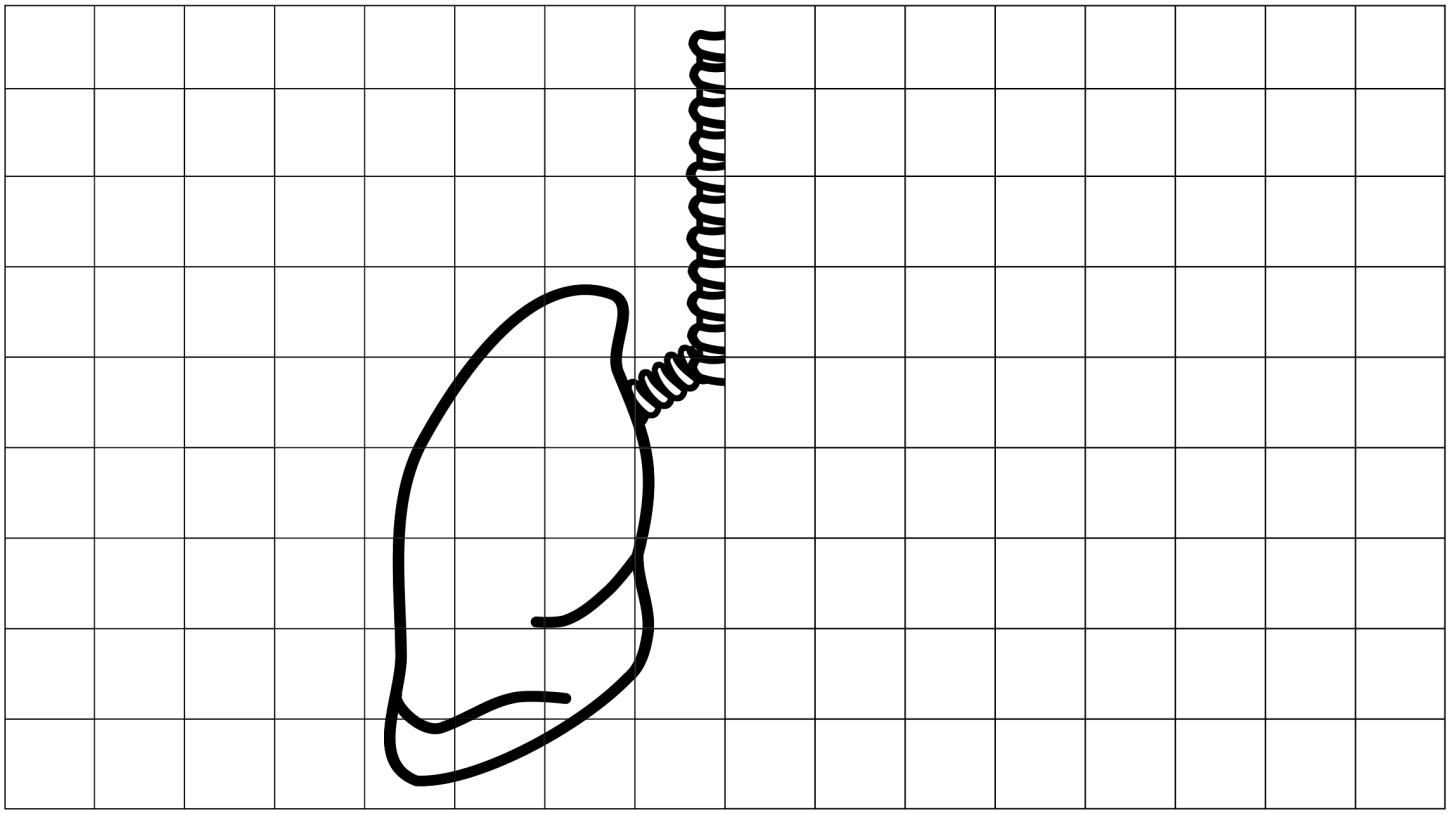
The airs sacs have another job, too. Once they have gotten rid of their oxygen, they pick up waste through the capillaries. Our cells use this type of trash pickup to get rid of gasses like carbon dioxide that they don't need. The capillaries deliver it to the air sacs, and the air sacs push it back out of your nose or mouth when you breathe out, called exhalation.

Besides exchanging oxygen and carbon dioxide, the lungs also trap harmful substances in the air in a sticky fluid called mucus. This mucus is then moved up the throat where it can be coughed up or swallowed.

Follow these instructions to draw a pair of lungs on the next page like the pair shown below:

- In the first grid, draw the half of the picture that is missing.
- In the second grid, see if you can draw the entire picture.





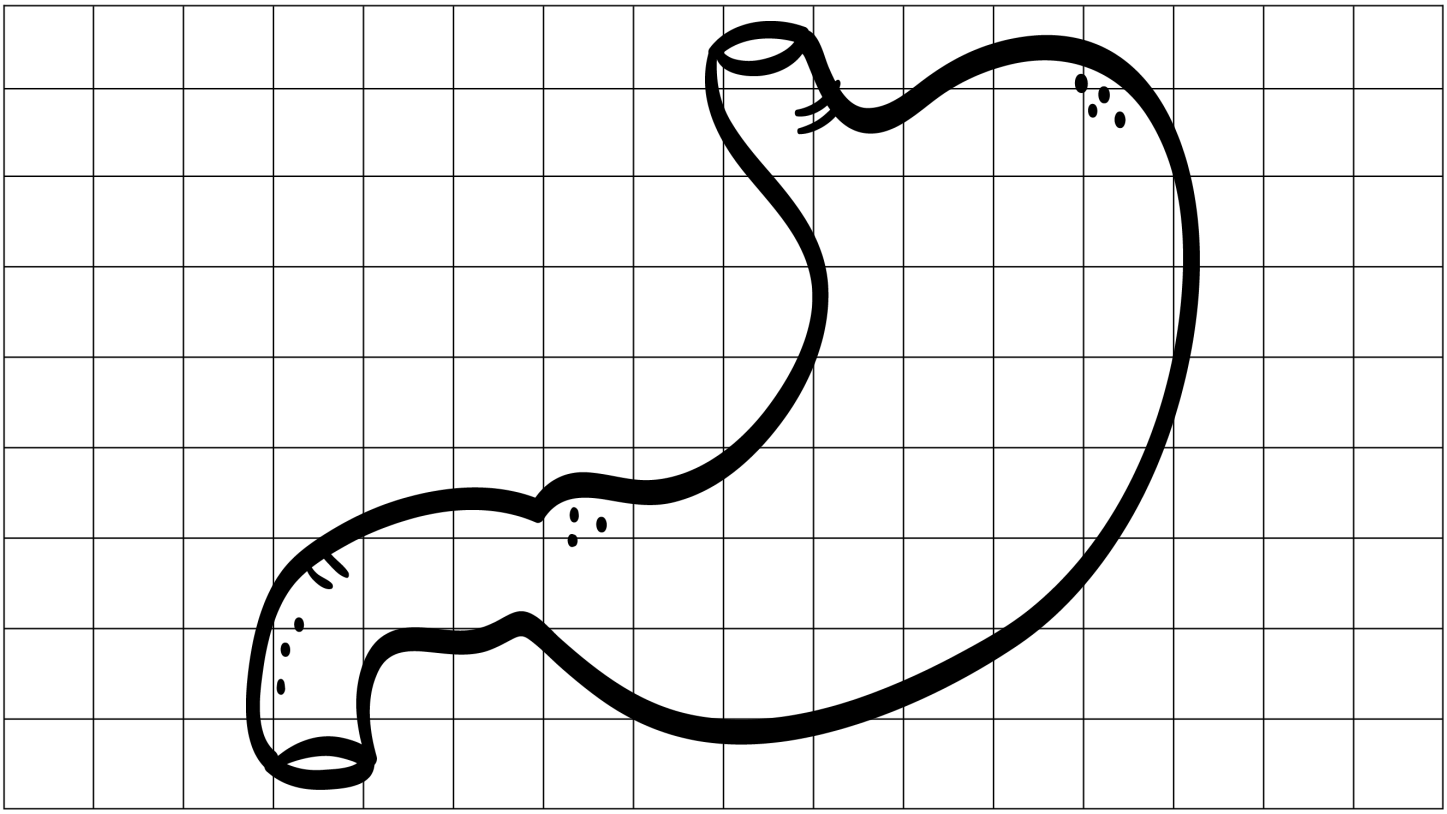
Stomach

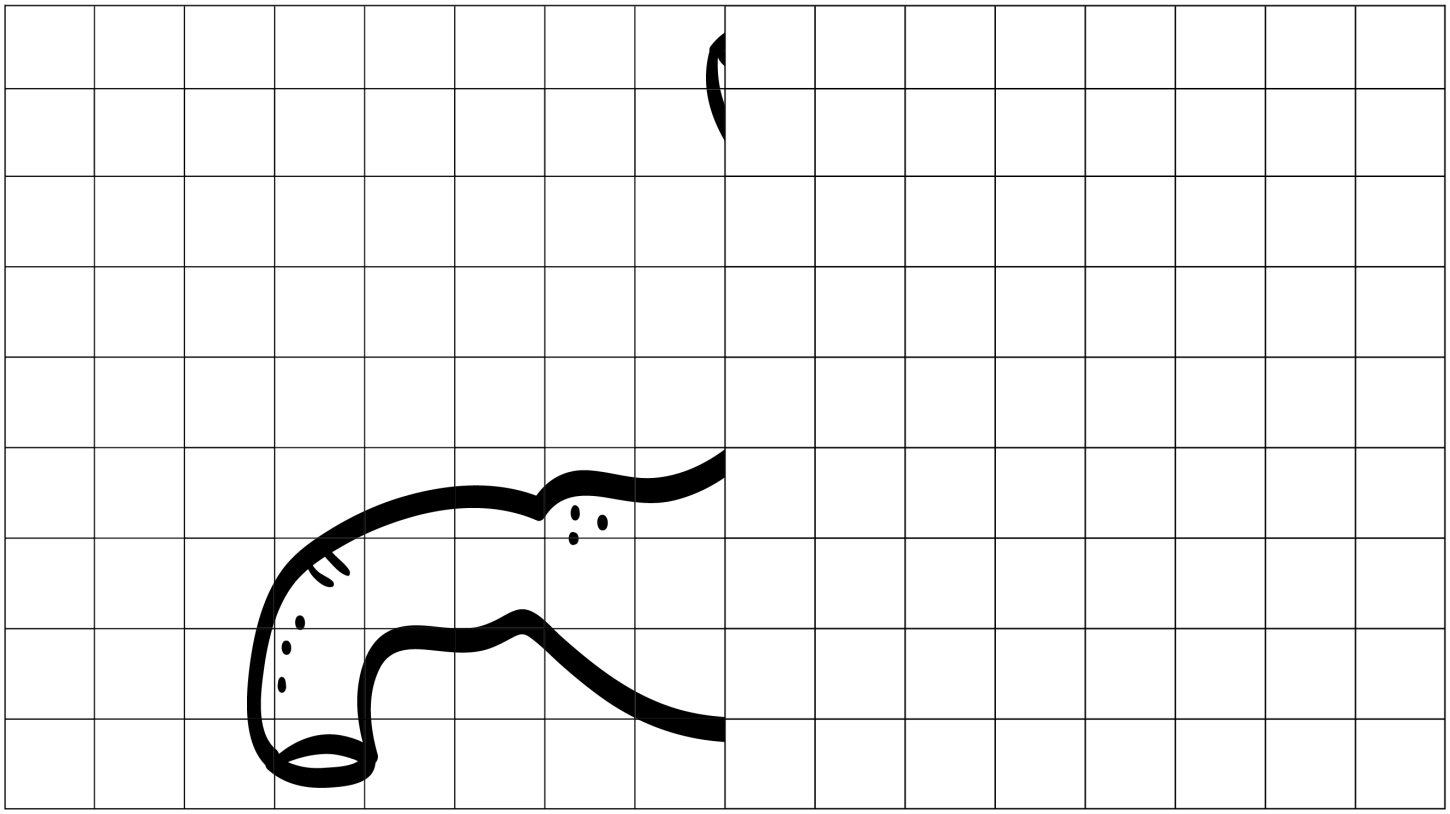
The stomach is an organ made of strong muscle. It helps the body store and digest food. The food you swallow travels down the esophagus to the stomach. When food reaches the stomach, it mixes with chemicals that break it down further and kill some things that may be in your food that could be harmful. A hormone called gastrin prompts the release of digestive juices that start to break down the proteins in food. Other substances that are released kill harmful bacteria that may be in food, and still others help your body to absorb vitamins that are needed.

After the stomach has churned the food around, it moves it toward the pyloric sphincter, which is a muscle that controls the opening to the upper part of the small intestine. When the churned food is almost a liquid, the pyloric sphincter relaxes and allows some of the partially digested food to enter the small intestine.

Follow these instructions to draw a stomach on the next page like the one shown below:

- In the first grid, draw the half of the picture that is missing.
- In the second grid, see if you can draw the entire picture.





Pancreas

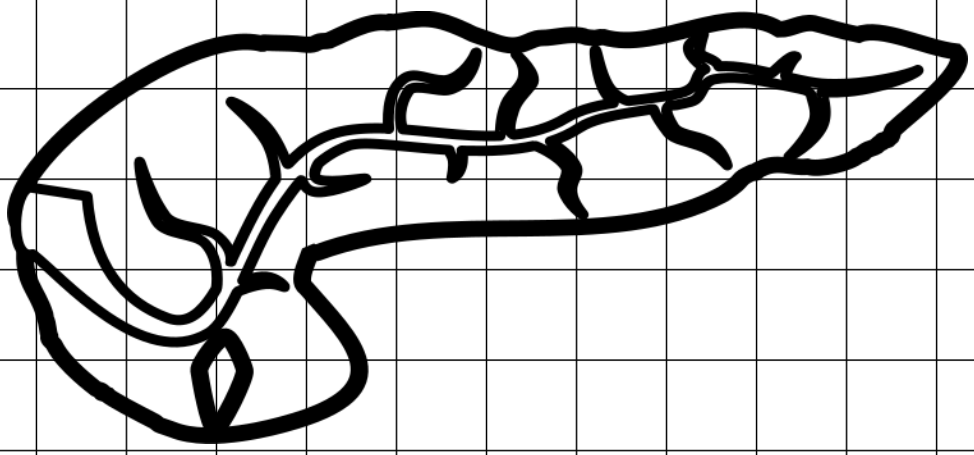
The pancreas produces digestive juices to help the body break down food as it travels through the digestive system. The pancreas secretes these juices into the first part of the small intestine, called the duodenum. The water and salts that are part of the digestive juices not only help to more completely break down the proteins, starches, sugars, and fats from the stomach, they also help neutralize acid that was produced by the stomach.

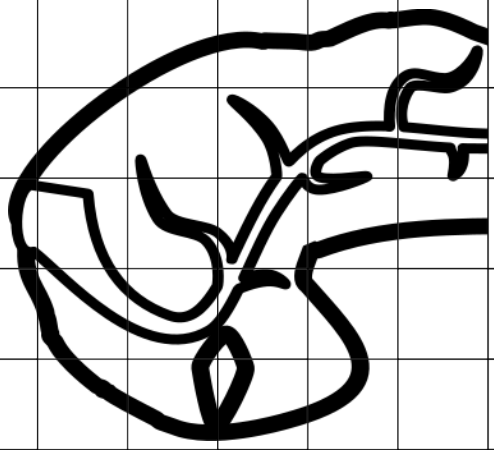
Another job of the pancreas it to produce insulin. This insulin travels through the bloodstream to your cells. Insulin helps cells take in and use glucose in the blood. The sugar glucose is the main fuel for the cells in the body.

The pancreas also secretes glucagon. Glucagon prompts the liver to release stored glucose. The work of glucagon and insulin together helps to regulate the amount of glucose in the blood.

Follow these instructions to draw a pancreas on the next page like the one shown below:

- In the first grid, draw the half of the picture that is missing.
- In the second grid, see if you can draw the entire picture.





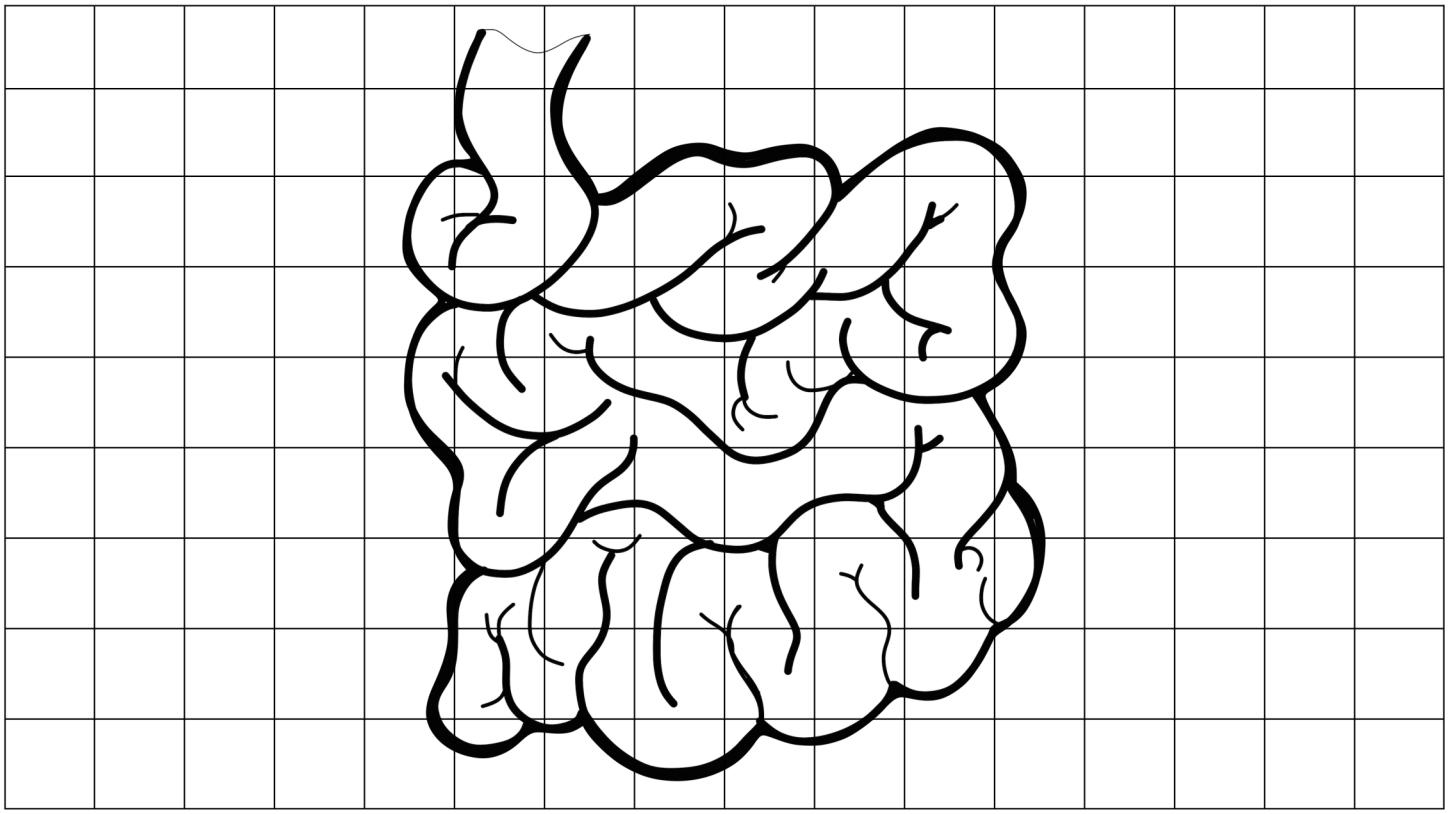
Small Intestine

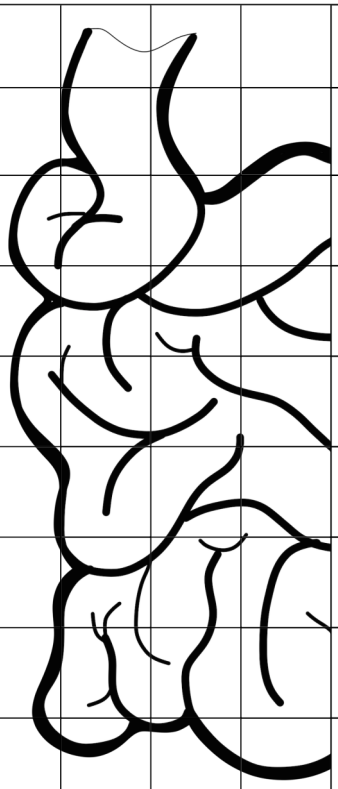
Small intestine is something of a confusing name. The small intestine got its name because it is narrower than the large intestine, but it's certainly not small in any other way! The small intestine is about 22 feet (7 meters) long and is where most of your digestion takes place. Digestive juices from the small intestine, along with enzymes from the pancreas and liver, finish the breaking down of food into something the body can use.

Most of the absorption of the nutrients needed by the body also takes place in the small intestine. The small intestine is lined with villi, tiny fingerlike groups of cells that reach out and absorb nutrients from digested food. The nutrients then pass from the villi to the blood so the nutrients can reach your cells.

Follow these instructions to draw a small intestine on the next page like the one shown below:

- In the first grid, draw the half of the picture that is missing.
- In the second grid, see if you can draw the entire picture.





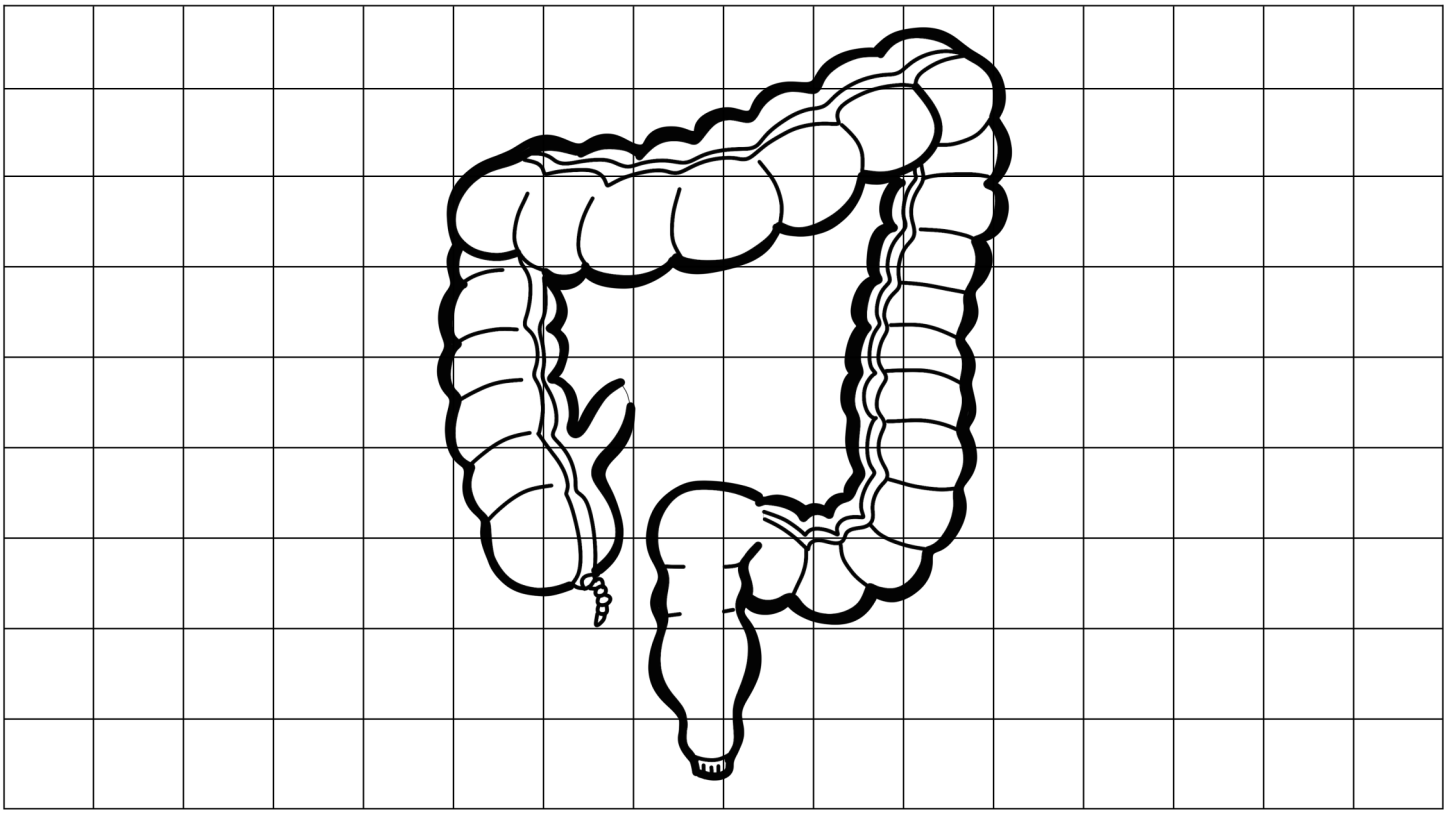
Large Intestine

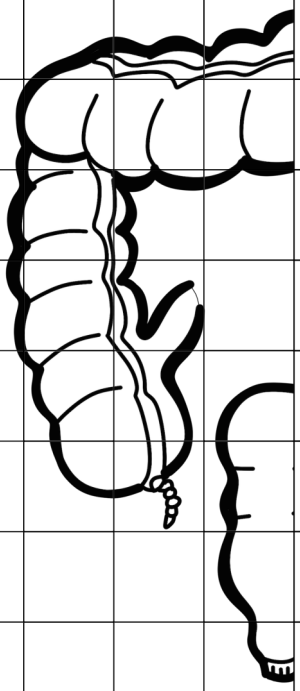
Once the small intestine has finished its job of digesting the food, it passes what is left to the large intestine, sometimes called the colon. The large intestine wraps around the outside of the small intestine and is about 5 feet (1.5 meters) long.

In the upper part of the large intestine, enzymes from the small intestine finish digestion. B vitamins and vitamin K are also produced there. The main job of the large intestine, though, is to take out any water and salts that the body needs that are still left in the digested food and then store the rest until it can be moved on to the rectum, where waste can be passed out of your body.

Follow these instructions to draw a large intestine on the next page like the one shown below:

- In the first grid, draw the half of the picture that is missing.
- In the second grid, see if you can draw the entire picture.





Liver

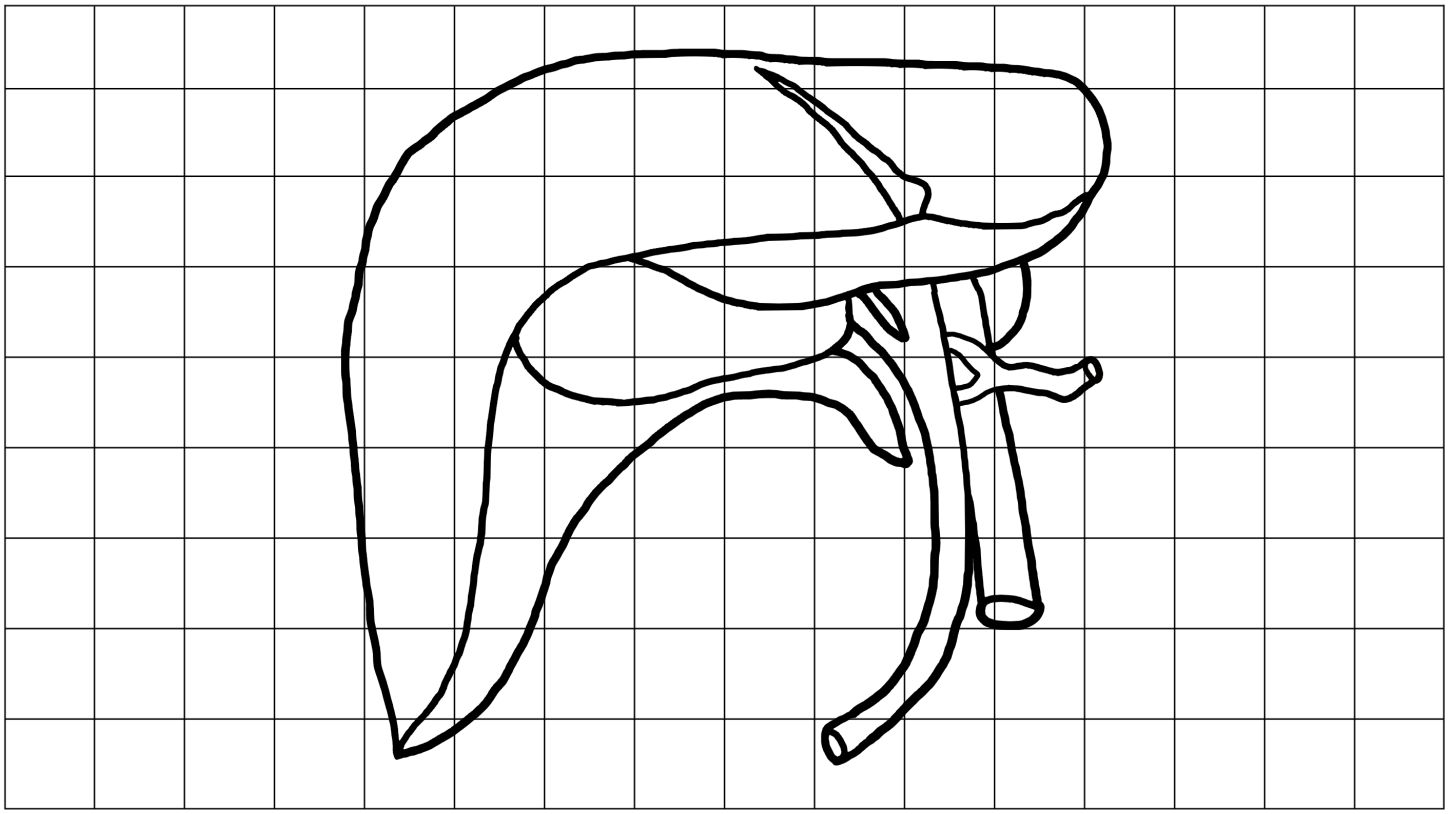
The liver has four sections, called lobes. Because of its structure, it is able to hold large amounts of blood. The liver receives blood both from the heart and from the small intestine. The blood from the heart contains oxygen, and the blood from the small intestine contains nutrients. While traveling through the liver, the blood picks up minerals, sugar, vitamins, and other substances that the liver secretes into the blood. The secretions from the liver into the blood include substances to help fight disease and substances to help blood clot. The liver also filters poisons and wastes from the blood as it passes through.

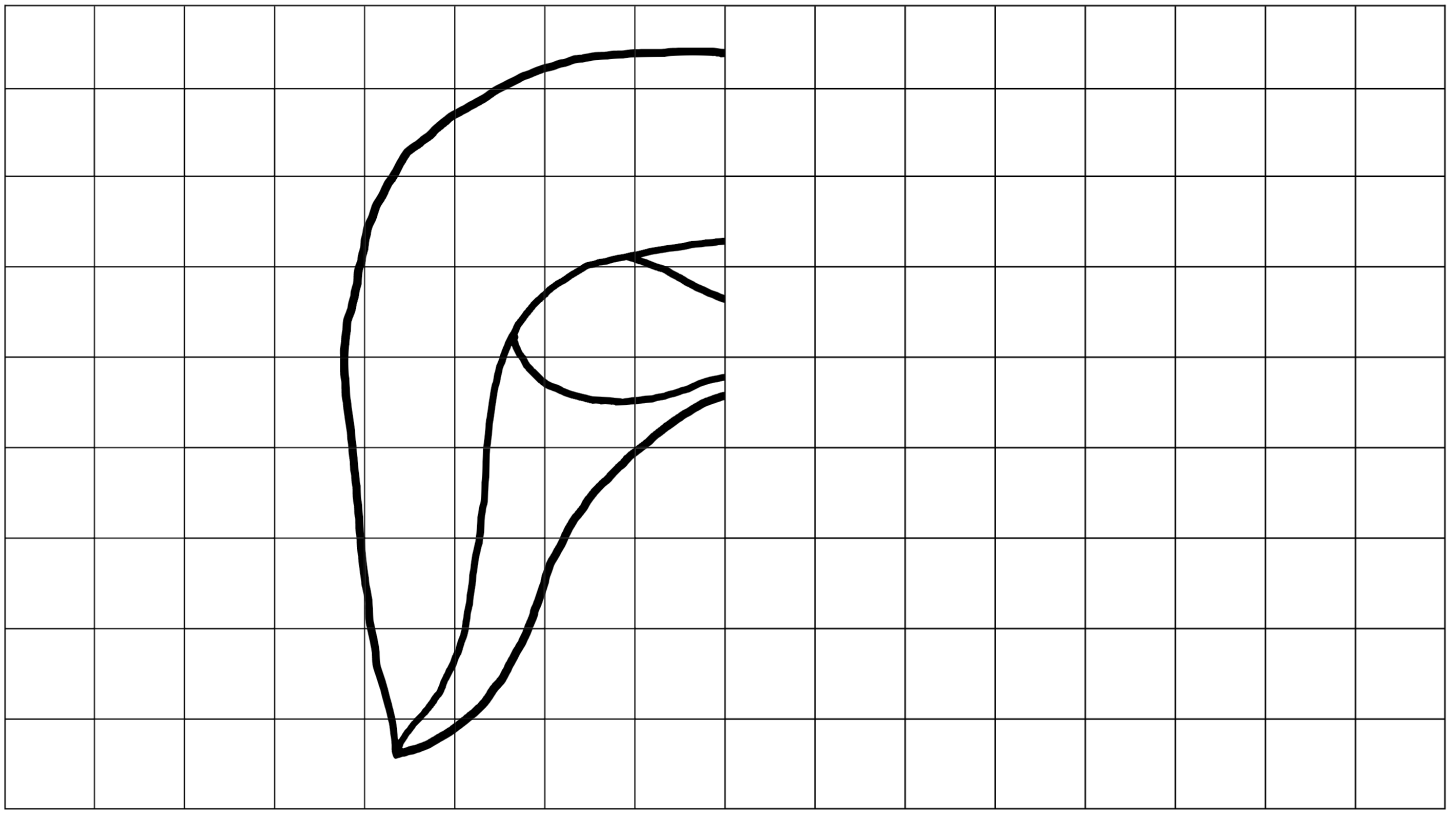
The liver sends a greenish-yellow liquid called bile to the small intestine to help it break down the fats in your food. Any bile that is not immediately needed in digestion is stored in the gallbladder. The liver also works like a big power plant. It collects nutrients and determines how to best use them. It stores some to use as energy later when your body needs it. It turns some into chemicals your body can use.

In addition, the liver is amazingly able to heal itself under some conditions. If a section of an adult's healthy liver is removed to be transplanted into a child, the adult's healthy liver will replace the part that has been removed. The partial liver placed in the child will grow to serve the child as the child grows.

Follow these instructions to draw a liver on the next page like the one shown below:

- In the first grid, draw the half of the picture that is missing.
- In the second grid, see if you can draw the entire picture.





Kidneys

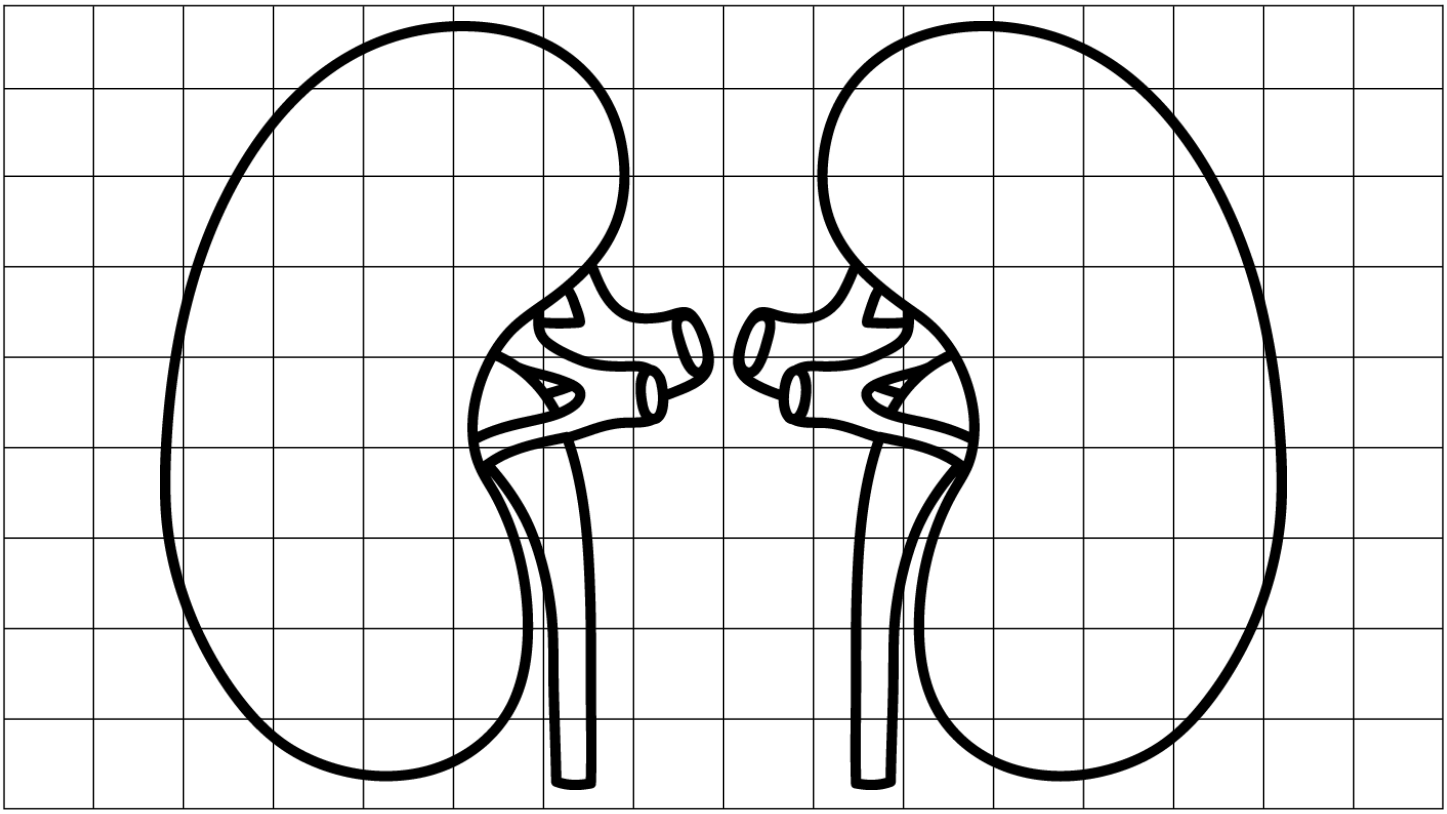
The kidneys have an important job to do. They come in a pair, and one sits to the right of your spine and one sits to the left of the spine, below the middle of your back. Each one is about the size of a person's fist. Blood is filtered through the kidneys, taking out the wastes that would build up as poisons in the body. Healthy kidneys can filter about 500 gallons (1,900 liters) of blood each day.

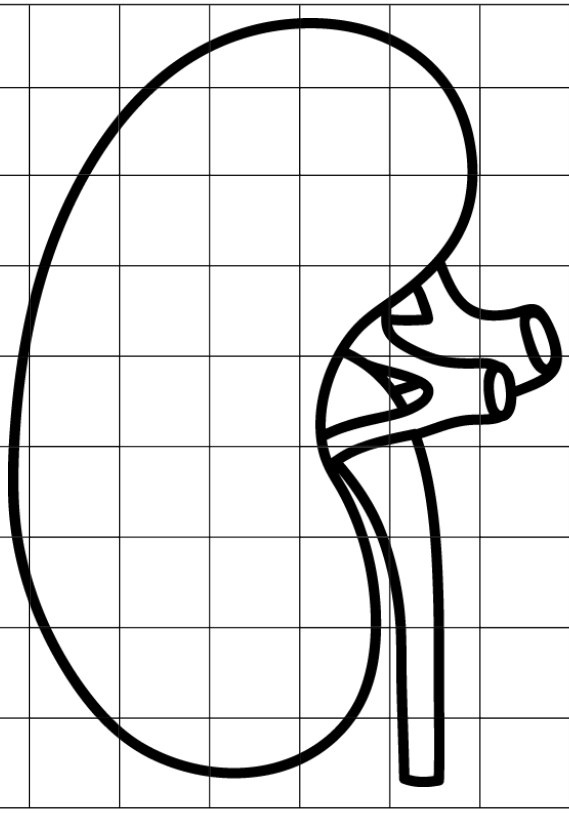
The kidneys have millions of tiny filters in them that send some water and important chemicals back to the body. The rest is sent out as waste to the bladder. Up to 1 to 2 quarts (0.95 to 1.9 liters) of waste is produced each day by healthy kidneys.

The kidneys also secrete a hormone that helps control the body's production of red blood cells, they convert vitamin D to an active form that can be used by the body, and they release an enzyme that helps keep blood pressure at normal levels.

Follow these instructions to draw a pair of kidneys on the next page like the pair shown below:

- In the first grid, draw the half of the picture that is missing.
- In the second grid, see if you can draw the entire picture.



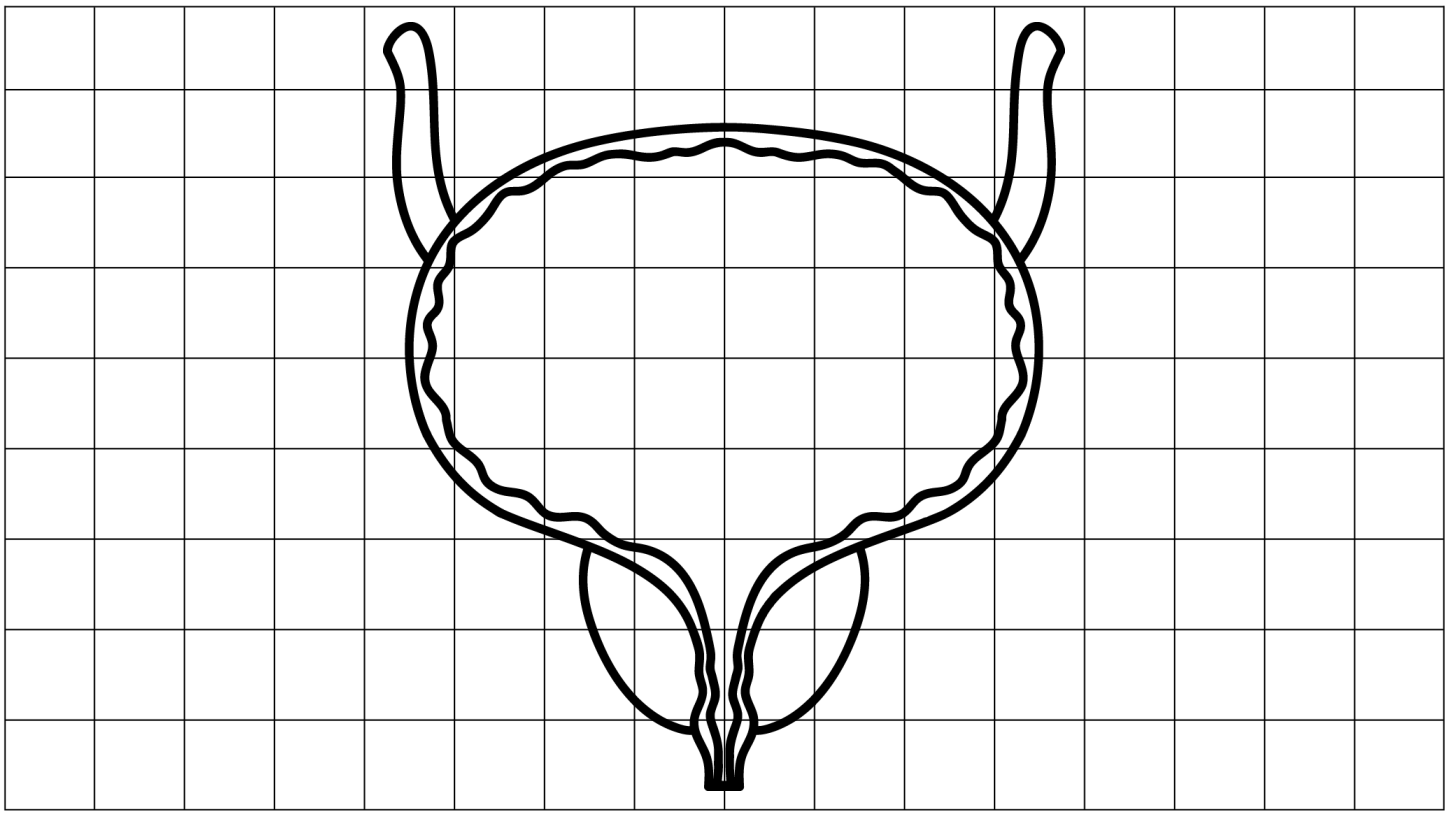


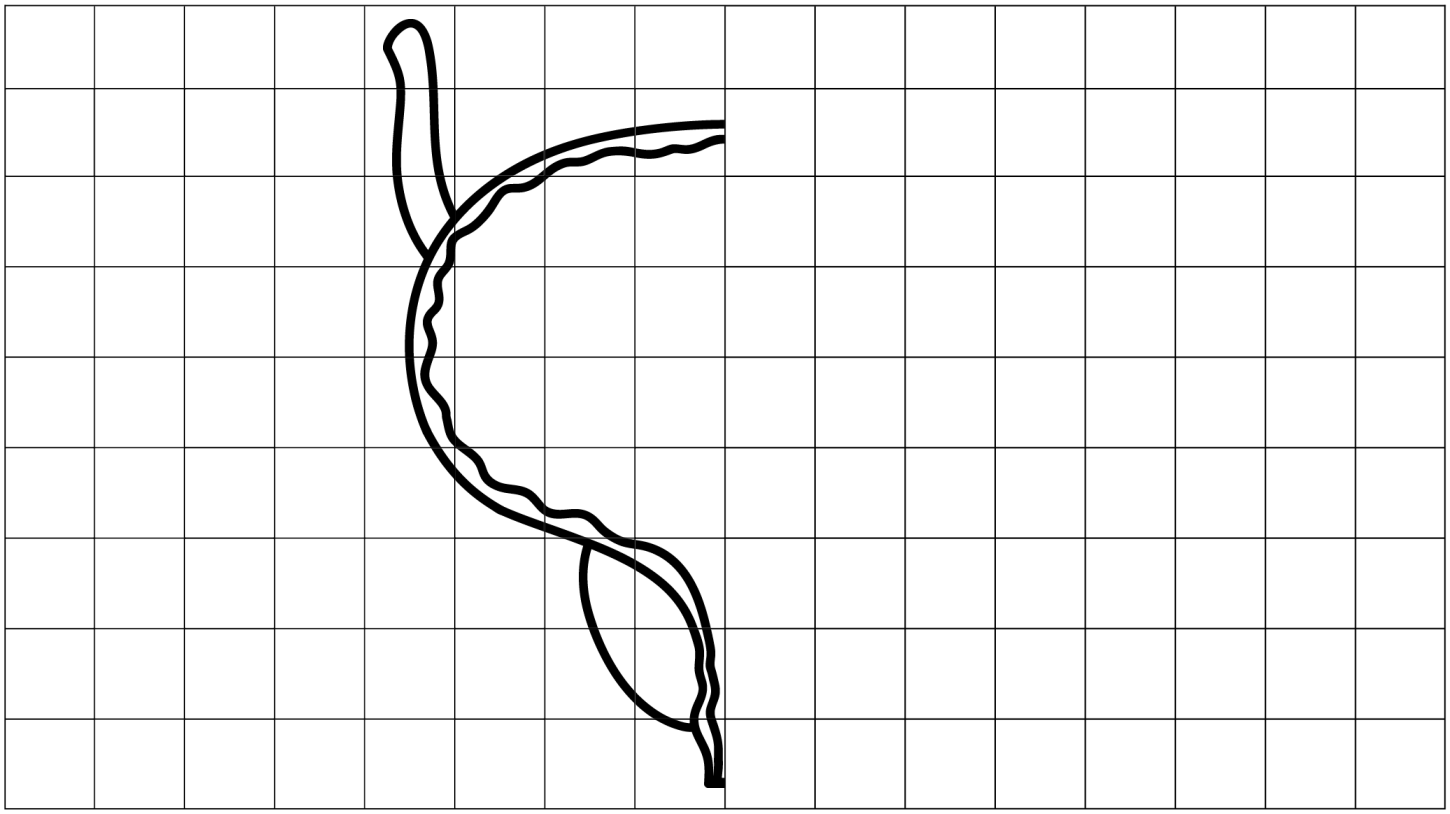
Bladder

The bladder is a hollow organ made for storing liquid, called urine, until it is full enough to need emptied. The urine drains from the kidneys through tubes called ureters. The bladder can normally hold over a pint (0.5 liter) of urine. The muscles in the wall of the bladder relax as the bladder fills. As it fills, it sends signals to the brain, telling it that it is time to empty the bladder. When that happens, the bladder is emptied by going to the bathroom. The muscles in the wall of the bladder tighten to force the urine out through a tube called the urethra.

Follow these instructions to draw a bladder on the next page like the one shown below:

- In the first grid, draw the half of the picture that is missing.
- In the second grid, see if you can draw the entire picture.





Brain

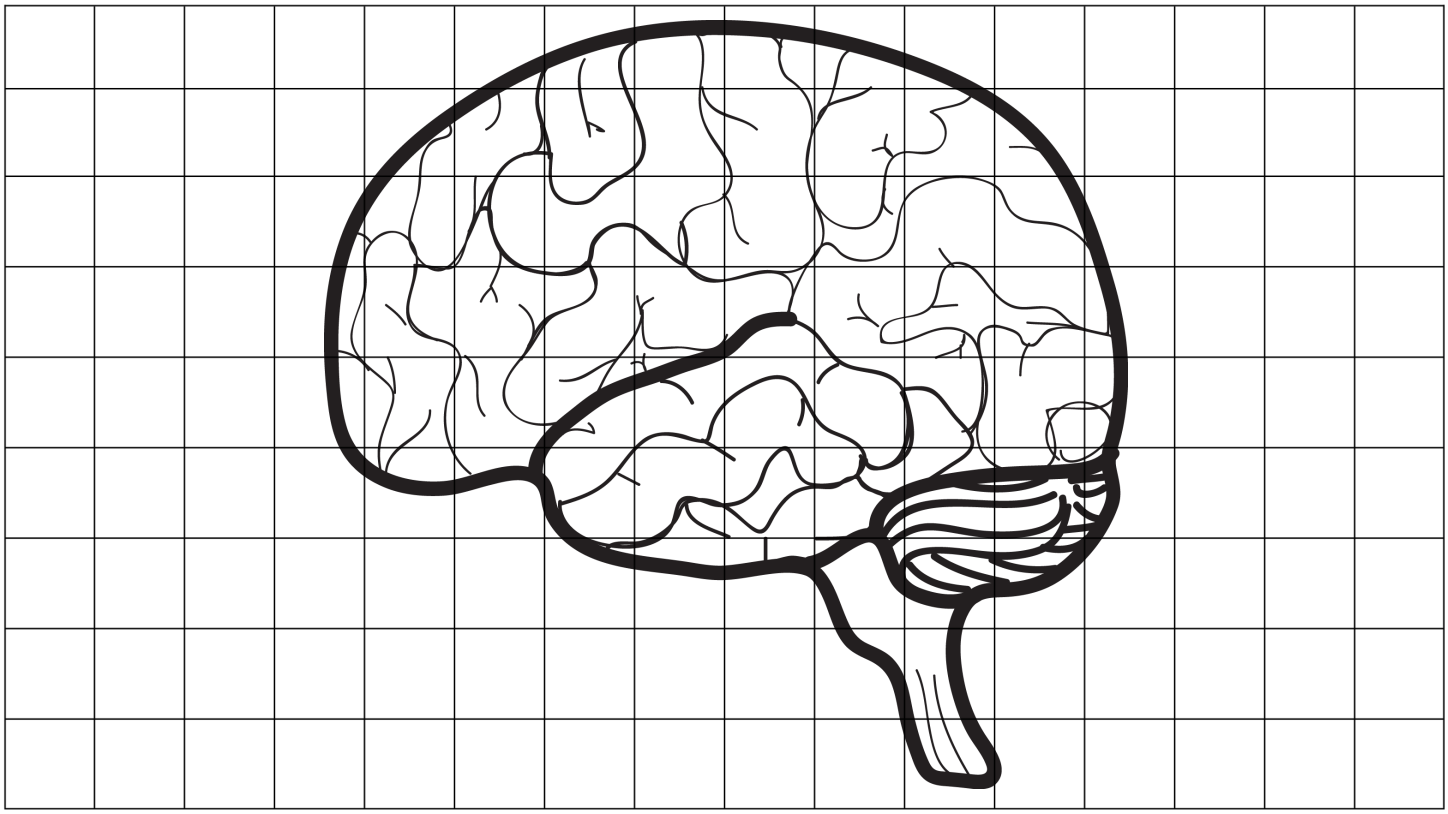
The main organ of the nervous system is the brain. It is the headquarters of everything for a person's body. It connects to and sends messages to all other parts of the body through the nervous system. It tells muscles when to move, lets you know if you are hot or cold, enables you to keep your balance, recognizes smells and tastes, and reads the words on this page. It coordinates all the information your body receives every single day and keeps all of your vital organs working together.

To do its job, the brain needs to receive messages from the senses. It analyzes the information it receives and sends signals out to the body telling it how to respond. It is also involved with the body functions that happen without even thinking about it, such as keeping a steady heartbeat and breathing.

The brain stores information that it can access whenever necessary. The brain uses this stored information to help with learning and remembering even more. The brain also serves as the center for all the emotions, moods, and thoughts that are part of everyday life.

Follow these instructions to draw a brain on the next page like the one shown below:

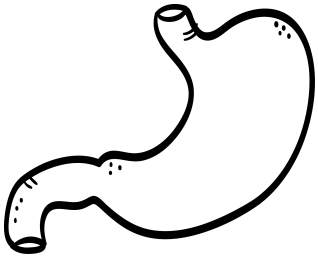
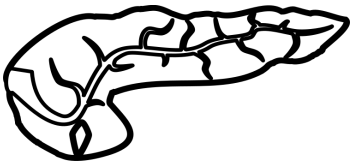
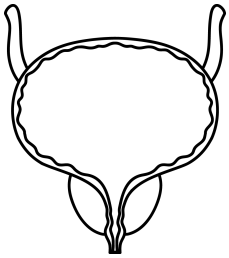
- In the first grid, draw the half of the picture that is missing.
- In the second grid, see if you can draw the entire picture.



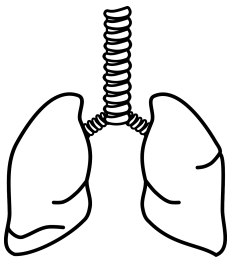
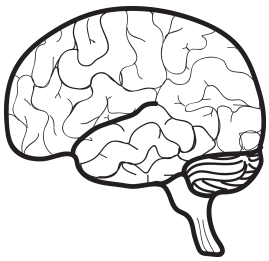
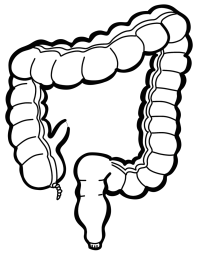


Identify the Organ

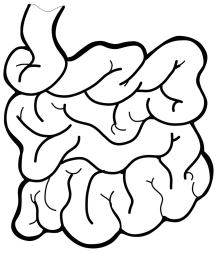
1. Which picture shows a stomach? Circle it.

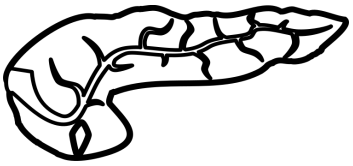




2. Which picture shows a brain? Circle it.

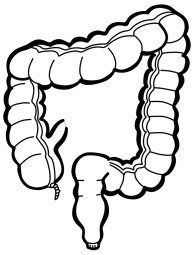
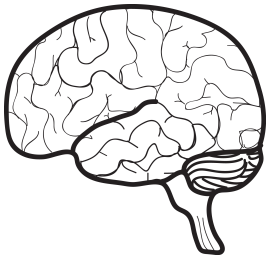
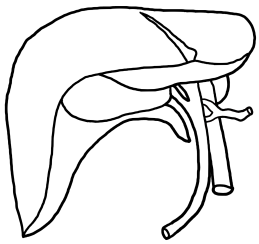




3. Which picture shows a pancreas? Circle it.

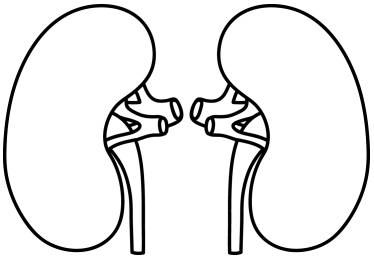
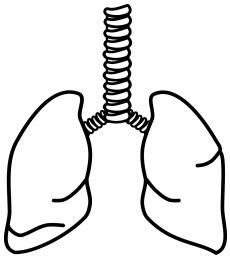
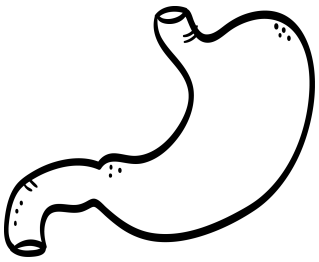




4. Which picture shows a large intestine? Circle it.

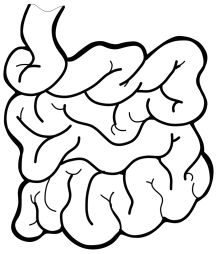
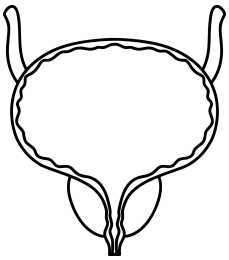
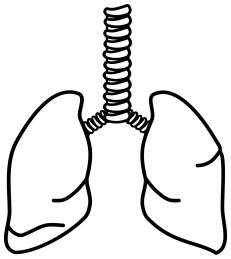




5. Which picture shows a pair of lungs? Circle it.

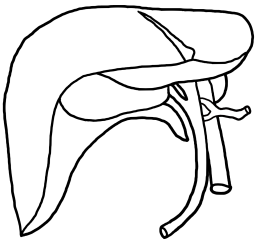
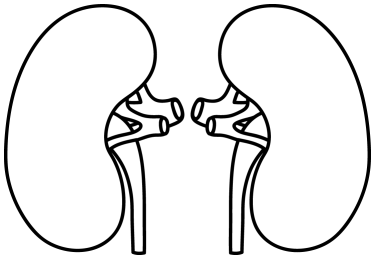




Identify the Organ (continued)

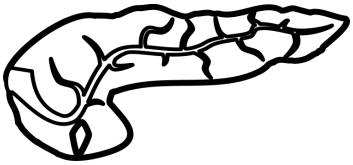
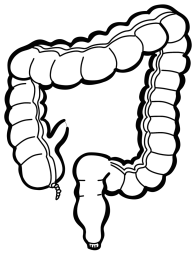
6. Which picture shows a small intestine? Circle it.

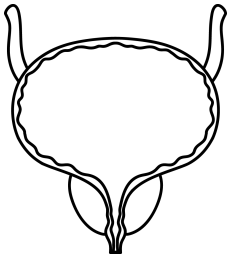
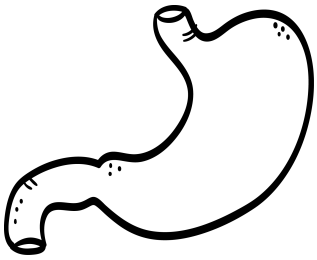
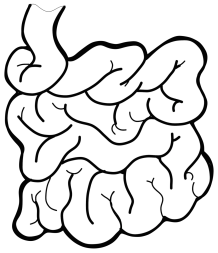
7. Which picture shows a pair of kidneys? Circle it.

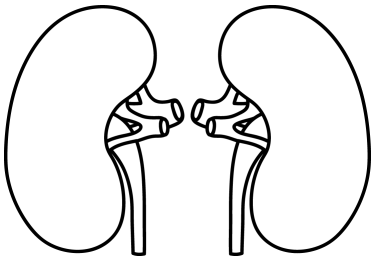
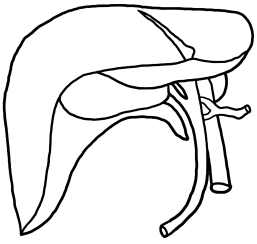
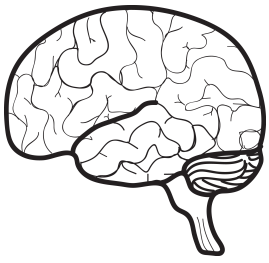

8. Which picture shows a heart? Circle it.

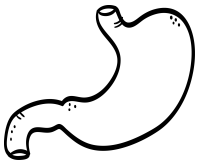
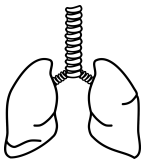
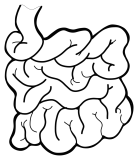
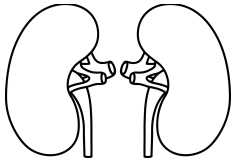
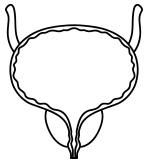
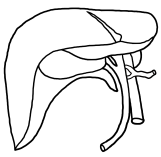

9. Which picture shows a bladder? Circle it.

10. Which picture shows a liver? Circle it.

Answer Key

1. 
2. 
3. 
4. 
5. 
6. 
7. 
8. 
9. 
10. 

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