

Name: _____

Fill in the missing words using the supplied vocabulary list. Use each word only once.

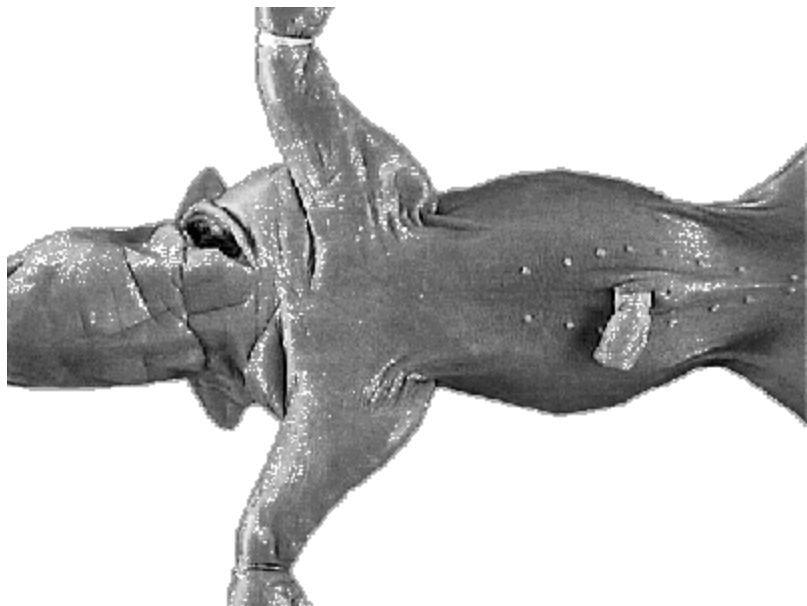
Some Interesting Pig Facts

Pigs were first domesticated approximately 9000 years ago by the Chinese. There are no pigs native to North America. They first arrived with Columbus on his second voyage in 1493. The wild pigs of North America, the American Razorbacks, are all descended from 13 pigs that the explorer DeSoto released in 1539. Pigs and bears are closely related. Female pigs and bears are called sows while male pigs and bears are called boars. The pig's pancreas was an important source of _____ for the treatment of diabetes but has now been replaced by genetically engineered human insulin produced by _____.

A pig walks on all four limbs and is considered to have four legs unlike humans who walk upright and are considered to have only two legs. Structurally however, the pig's front limbs are very similar to a _____. The naming of the parts of the pig's front legs suggests this is true since the terms wrist, elbow, and shoulder are used instead of ankle, knee, and hip. The hind legs of the pig are similar to the legs in humans.

Each contains the three main bones the _____
_____. From the toes, the first bend in the pig's leg is similar to our heel.

The _____ was once joined to the mother pig's _____. This organ provides



_____ through the cord for the fetal pig. This is exactly comparable to a human fetus. When the cord dries up and falls off a week or two after birth we are left with our _____.

The Digestive System

The pig's digestive system is very similar to yours. The purpose of any digestive system is to take the food that is eaten and break it down into _____ that it can be _____ through a membrane and used by the body. Most food enters the system as fats, protein, or carbohydrates. Fats must be broken down into smaller molecules such as _____. Protein must be broken down into _____, and _____ must be broken down into simple sugars. The process starts when food enters the mouth. First it is mechanically smashed into smaller particles by the _____ of the teeth. When an animal eats both meat and vegetables it is called an _____.

Some chemicals that help reactions take place faster (called _____) are added to the food while it is in the mouth to start the process of _____ digestion. The enzymes come from three sets of glands located in the cheeks and under the tongue. These three glands are called the _____ since they produce the fluid called saliva. They produce fluid to moisten the food and they also produce the enzyme _____, which chemically breaks carbohydrates down into _____.

The food is manipulated by the tongue into the back of the throat where strong muscles push it into the top of the long tube that joins the mouth to the stomach called the _____. No additional digestion occurs in this tube. The food is pushed along by rhythmic wavelike contractions of _____ muscles called _____, until it arrives in the stomach. The stomach has a very strong liquid in it called _____ which is needed to activate the enzyme _____, which is released by the stomach cells. This enzyme is responsible for starting the breakdown of _____ into amino acids.

The liquid content of the stomach is called _____. When it is sufficiently liquidy the pyloric sphincter will open and allow the liquid to enter the first part of the _____. An opening from the _____ squirts bile into the chyme to _____ the fat. The fat up until now has been in several large fluid drops but the bile begins the process of making large drops into small droplets. The pancreas also releases three enzymes, one called pancreatic amylase continues the process of digestion of carbohydrates. Another called trypsin continues the process of breaking down protein, which was started in the stomach by pepsin. Finally we start the digestion of fat by the action of lipase.

As the food passes down the small intestine it is _____. The small intestine has a very rough inner surface to provide lots of _____ for the absorption to take place. There are finger-like projections called _____.

When the unabsorbable material reaches the end of the small intestine it passes into the _____. A pig (unlike humans) does not have the worm like appendage called an _____. As the waste material moves along _____ is withdrawn from it and mucus is added to keep it moving along. Finally the waste products reach the rectum and are expelled through the _____.

The _____ is the largest organ in the abdominal cavity and the largest gland in the body. The liver produces bile, a yellowish green fluid that also contains _____. The bile salts emulsify fat in the small intestine. The liver acts as the gatekeeper to the blood. Poisonous substances are removed from the blood by the liver. Excess glucose (a simple sugar used as energy by the body) is removed and stored by the liver as _____. The liver removes _____, a toxic waste product from the break down of protein, from the blood and makes _____ the main nitrogenous waste product in _____.



Figure 1: Gastro intestinal organs with liver retracted

The Circulatory System

The heart is often referred to as a _____. The _____ sends blood to the lungs via the pulmonary arteries. The _____ receives blood from the lungs via the pulmonary veins and then pumps that blood to the body. _____ carry blood away from the heart, and _____ carry blood back to the heart. The pig's heart is very similar to yours. It has _____ chambers. The two upper chambers, called the _____ sit on top of the heart. They have thin muscular walls. The two lower chambers, called the _____, have thick muscular walls. In an adult pig the blood flows from the right atrium to the right ventricle. The term RIGHT refers to the owner of

the heart. When you look at a picture of the front of the heart your left is the heart owner's right. After the blood has entered the right ventricle, it leaves the heart and goes to the lungs. From the lungs, it returns to the left side of the heart and enters the left atrium. From the left atrium it enters the left ventricle, and is then sent to the body. The heart has four _____ to keep the blood from flowing in the wrong direction. The first valve is between the right atrium, and the right ventricle. It has three flaps called cusps and is called the tricuspid valve. This valve closes when the ventricle contracts to prevent blood from flowing back into the right atrium. There is tremendous pressure on this valve. To keep the valve from inverting there are strong tendons along the edges. As the right ventricle contracts, the blood is squeezed into the pulmonary trunk to begin its trip to the lungs. To prevent the blood from flowing back into the ventricle when it stops contracting, there is another valve. When the blood returns from the lungs it enters the left atrium. There is also a valve separating the left atrium from the left ventricle but it has only two cusps and is called the bicuspid valve. When the left ventricle contracts, the fourth valve shuts and the blood is pushed into the _____ and out to various places in the body. The blood then returns to the right side of the heart via the _____.

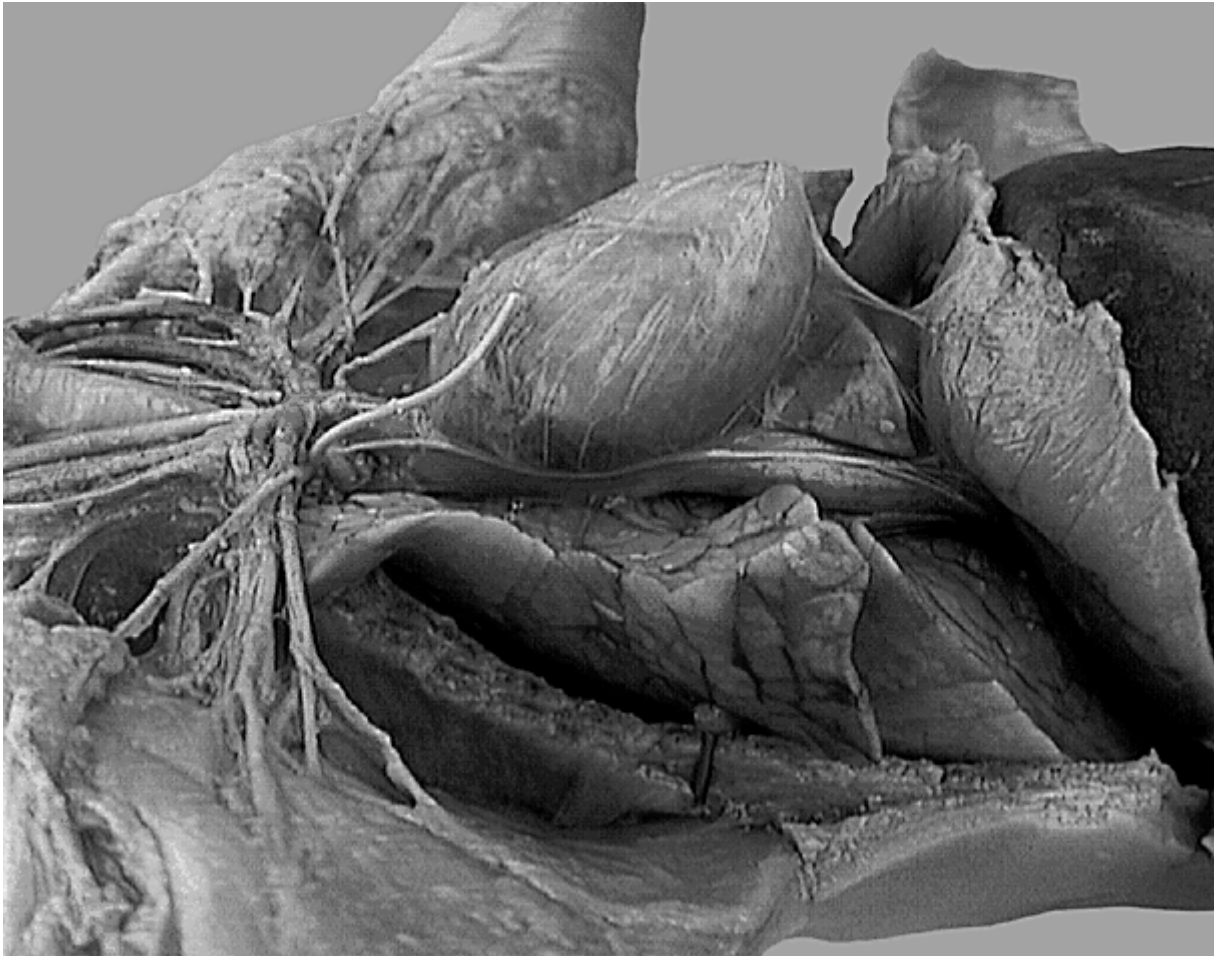


Figure 2: Chest cavity including heart

The Excretory System

The excretory system filters _____ and other waste products from the blood forming urine to be expelled from the body. The _____ are the _____ of the system. There are three tubes that enter the kidney; the _____, the renal vein, and the ureter. The filtering units of the kidney are called the _____. Each nephron is entered by an arteriole and exited by a _____. Most of the fluid is squeezed out of the arteriole and then returned to the venule as the filtrate passes down the nephron's tubules. Finally when only the wastes and some water remain, the filtrate is called urine and is deposited into the _____. The urine drains down this tube

under peristalsis and enters the _____ for storage. When the storage area has stretched to a certain degree a _____ is sent to the brain indicating that _____ should occur and when an appropriate place has been found the urine through the _____.

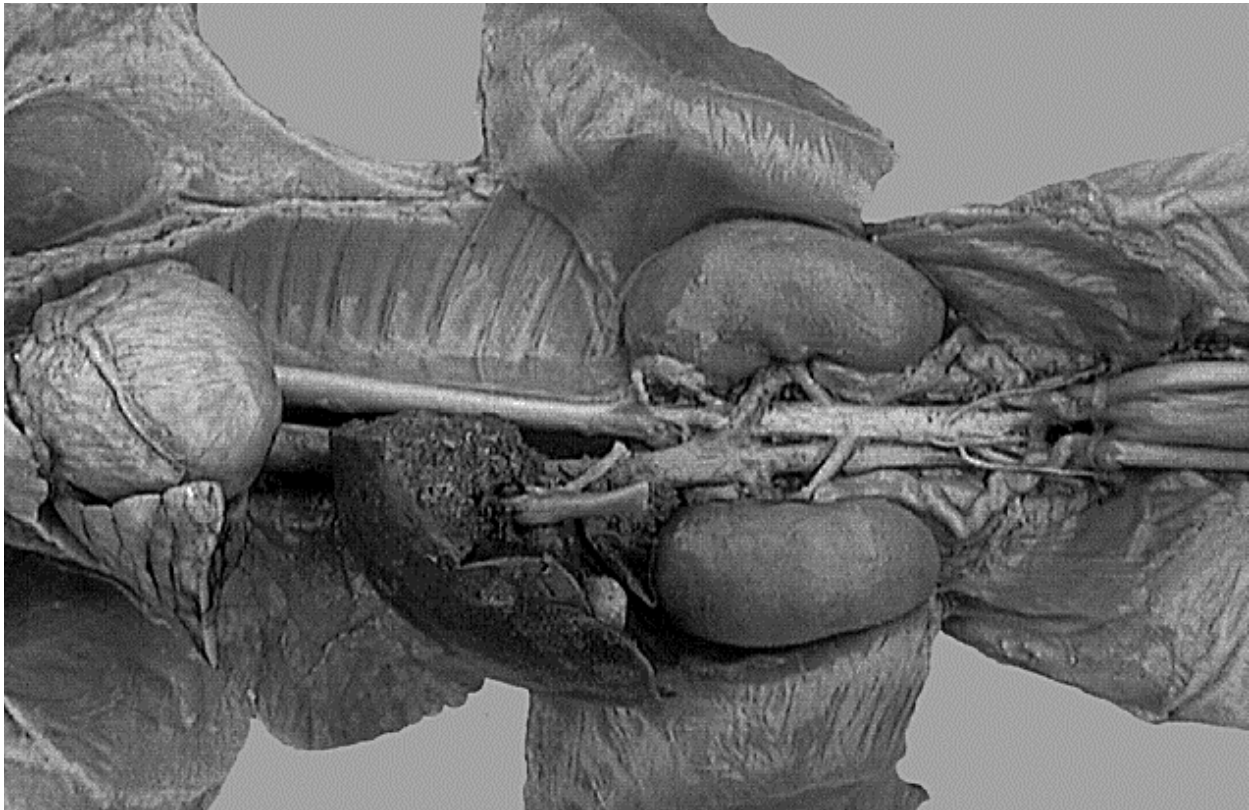


Figure 3: Abdominal cavity with gastro intestinal organs removed

The Nervous System

The nervous system sends and receives information from the body. It is traditionally broken down into two areas, the _____, and the _____. The CNS consists of the _____. The PNS consists of the nerves that come from and go to the brain and spinal cord. The CNS is

protected by a covering of bone, the vertebral column and the skull. Inside the bony structure of the skull is a three layer membrane called the _____.

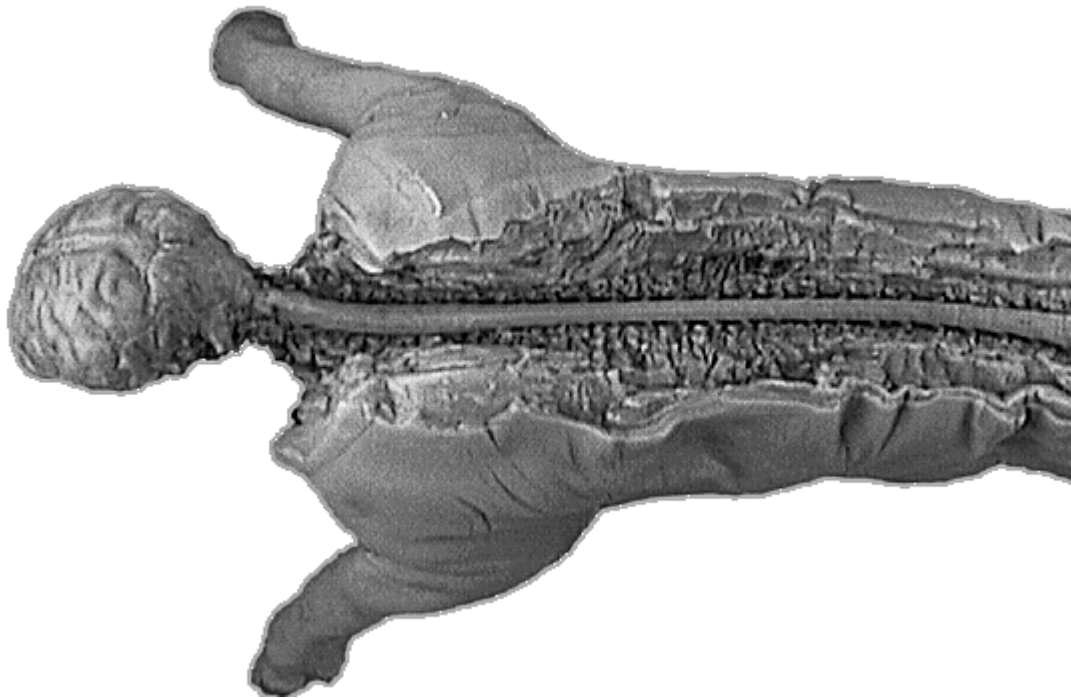


Figure 4: Central nervous system

The Respiratory System

Air enters the body through the nostrils and through an opening in the soft palate that leads the air into the _____ (a common area into which the mouth and esophagus open) When you open your mouth and using a mirror, look as far back into your mouth as you can, you are looking at it. The air passes from here into the _____, also known as your voice box. It contains the vocal cords, which vibrate as air passes over them, making a sound. You modify that sound with your tongue and mouth. The sound can also be modified by the tension you place on your vocal cords. As the tension increases the sound has a higher pitch.

It is just below this area that paramedic will make an opening to save a choking victim. But how did the victim start choking in the first place? We have missed a very important cartilage at the top of the larynx. It is called the _____. When a pig (or person) swallows it folds over and prevents food from entering the larynx. This forces the food to go into the opening of the _____. Sometimes it gets tricked, often with fluids. You have probably had the experience of something going down the wrong 'pipe'. Not a nice feeling.

As the air leaves the bottom of the larynx, it enters the _____. Unlike the esophagus which is a soft tube that remains closed except when food is passing down it into the stomach, the wind pipe remains open all of the time. It is held open by c-shaped _____, which are open at the back so you can swallow something large. At the base of the trachea the air has a choice of _____ it can take to enter the _____. Inside the lung the _____ lead to very tiny open round chambers called _____. It is here that _____ is exchanged for _____.

So, what makes the lungs work? Well, it's the most important part of the respiratory system, the _____. This is broad flat muscle separates the thoracic cavity from the abdominal cavity. When this muscle _____ it causes air to enter the lungs. When it _____ air is forced out of the lungs.

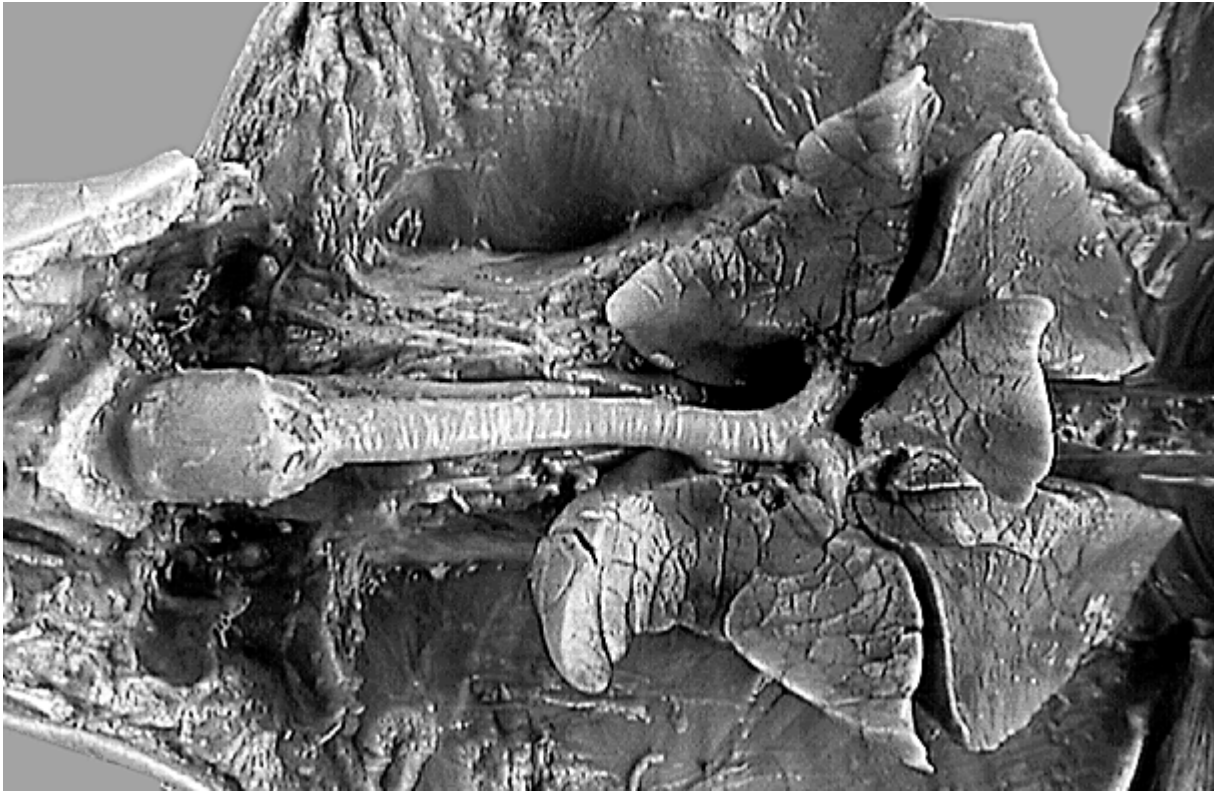


Figure 5: The respiratory system

The Male Reproductive System

The _____ descend from the abdomen during development and finally reside in the _____. _____ are produced in the _____ of the testes. The _____ is a tightly coiled mass of tubules lying along one side of the testis. As the sperm mature they leave the testes and are stored where they wait for mating to occur. The epididymis connects the testis to the _____, which connect to the urethra. There are two glands situated here, the _____, which sit one on each side of the urethra. Sitting on top of the urethra is the _____. It is quite small and often missed in a dissection. At the other end of the urethra are the _____ (Cowper's glands). These are relatively large in the pig and easy to see during a dissection. At this point the structure of the urethra changes to erectile tissue and becomes the _____.

Unlike humans, the pig's penis remains internal except during an erection for the purpose of mating. During _____ the sperm are propelled by peristalsis along the epididymis and into the vas deferens. The sperm reach the start of the urethra where the prostate gland, and the seminal vesicles add fluid to them. At the other end of the urethra, the bulbourethral glands also add more fluid.

There are three purposes for the fluid, which is added to sperm to form semen. 1) It provides bulk for peristalsis to work on during injection into the female vagina. 2) The sperm have been stored in a dormant state. The semen activates them and gets them swimming. 3) The male urethra and the female _____ are normally very acid environments that would kill sperm. The semen is basic and this _____ the acidity until the sperm have escaped from the vagina into the _____.

Vocabulary List for Pig Quiz

absorbed	filtering units	salivary glands
absorbed	Four	scrotum
alveoli	gallbladder	seminal vesicles
amino acids	glucose	seminiferous tubules
ammonia	glycogen	small intestine
anus	grinding action	small particles
Aorta	human's arms	smooth
appendix	hydrochloric acid	Sperm
Arteries	Insulin	surface area
Atria	kidneys	testes
Bacteria	large intestine	Trachea
belly buttons	Larynx	umbilical cord
bile salts	left pump	urea
bladder	liver	ureter
brain and spinal cord.	lung	urethra.
bronchi	Meninges	urination
bronchioles	microvilli	urine
bulbourethral glands	nephrons	uterus
carbohydrates	nervous signal	vagina
carbon dioxide	neutralizes	Valves
cartilage rings	nitrogenous	vas deferens
central nervous system	nutrients	Veins
chemical	omnivore	vena cava
chyme	oxygen	Ventricles
contracts	penis	venule
diaphragm	pepsin	water
double pump	peripheral nervous system	
ejaculation	peristalsis	
emulsify	Pharynx	
enzymes	placenta	
epididymis	prostate gland	
Epiglottis	proteins	
esophagus	relaxes	
Esophagus	renal artery	
fatty acids	right pump	
femur, tibia and fibula	salivary amylase	