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## The circulatory system worksheet answer key

The heart is a hollow and muscular organ that maintains blood circulation throughout the body. Learn how the circulatory system - heart, blood vessels and blood - brings nutrients to the body. Advertising Advertising Advertising On newer cars, keys do much more than just lock and unlock doors. A signal from an invalid keyfob can activate an alarm system or even disable the engine. This way, if someone enters the car without a valid ignition key, they will not be able to get away. For those who don't want to go through the hassle of pressing a button whenever they want to open the doors, there is another option available. Several automakers, particularly those that produce luxury and hybrid cars, are switching to systems that use smart keys. Smart keys are part of a computer system that uses sensors and microchips to automatically unlock doors and start the vehicle without the use of a key [source: Toyota]. Smart keys often take the form of more plastic cards than real keys. On smart key systems like these, the driver only needs to reach the car and the doors unlock automatically. When he or she sits inside, they press an engine start button to start the car without physically turning a button. As long as they have the smart key somewhere in the vehicle, maybe in the pocket or bag, the engine starts. The key can also store information such as power seat and mirror settings [source: Braunstein]. How good are these smart keys when it comes to anti-theft technology? Well, first, they also use rolling codes. A computer inside the vehicle recognizes the rolling code projected by the smart key, then checks it before starting the engine. BMW's smart keys also use computer-encrypted microchips to ward off car thieves who want to take advantage of this technology [source: Popular Mechanics]. In this way, no one can use any smart key to open the vehicle doors or start the engine. The technology may be more advanced, but the effect is basically the same: your key matches your car. So this new advanced key configuration is a better way to protect your vehicle? In many ways, it is, but researchers, hackers and they would be car thieves are always coming up with new ways to try to steal what's yours. If and when these criminals crack the latest technology, you can be sure that automakers will be ready to offer something new. You can read more about automotive electronics and other related topics by following the links below. HowStuffWorks articles related Braunstein, Janet. Car safety: Card. AutoTrader.com. (February 11, 2009) Channel. MythBusters: remote control for mobile phone. February 13, 2008. (February 11, 2009) Matt. HOW IT WORKS: Remote keyless entrance: Stay one step ahead of car thieves. The New York Times said so. June 7, 2001. (February 11, February, John. Radio spectrum assignment in the United States. May 26, 2002. (February 11, 2009) Mechanics. Are the keys getting too smart? The new car keys bring advanced technology to the driver's seat. October 28, 2008. (February 11, 2009) Toyota glossary. (February 11, 2009) Kim. Researchers decipher the Keeloq code for car keys. Wired.com August 24, 2007. (February 11, 2009) The circulatory system is important because it carries blood and other materials throughout the body. Without the circulatory system, the body does not receive oxygen, and the heart and lungs do not work. The main organ of the circulatory system is the heart, which is responsible for pumping oxygenated blood throughout the body. Without the heart, a human being cannot live. Other parts of the circulatory system include blood and blood vessels, such as arteries and veins. The arteries are responsible for transporting blood away from the heart, and the veins are responsible for transporting blood to the heart. Capillaries are also blood vessels; are the structures that connect the arteries to the veins throughout the body. The blood itself has many different types of cells that help the body function, such as red blood cells, white blood cells and platelets. Red blood cells are carriers of oxygen and carbon dioxide, and white blood cells serve to protect the body from germs and harmful diseases. Platelets are thick blood cells that stop the bleeding of the body when there is an injury, such as a cut or wound. Plasma is the liquid part of the blood that carries blood cells throughout the body. BSIP/UGC/Getty Images The circulatory system, also known as the cardiovascular system, is a simple cycle that begins, and ends, with the heart. It is a closed system, which means that the blood does not enter or leave the system during its journey from the heart to the body and back. In such a system, a continuous flow of the same liquid can be pumped through the cycle again and again. Blood is spread throughout the body through the arterial system - arteries, arterial and capillaries - and returned to the heart through the venous system - veins and venules. Your blood is vital to your well-being and circulates nutrients including electrolytes, oxygen, carbon dioxide and amino acids throughout the body. Your heart is responsible for most of the function of the circulatory system and that's where the process begins. The circulatory system begins in the right atrium, the upper right chamber of the heart. As the blood moves through the heart, it passes through each four rooms (top right, bottom right, top left, bottom left), makes a quick detour to the lungs to get rid of carbon dioxide and choose oxygen, and ends up in the lower left chamber, called the left ventricle. When it comes to circulating blood throughout the body, the left ventricle is the most important chamber of the heart. The left ventricle is the largest of the four chambers and is responsible for generating the force needed to push blood out of your aorta, the first artery your blood enters as it leaves your heart. Your blood travels from your aorta through a series of smaller blood vessels until you reach capillaries. Before reaching capillaries, however, blood must travel through the arterioles, where its speed and pressure are constantly adjusted as different segments of the arterials change diameter in response to pressure and chemical sensors placed nearby. These sensors regulate blood flow through arterioles in response to changing conditions in your body. Due to arterial action, when your blood reaches capillaries, it no longer travels pulsatingly. Blood flows continuously through the capillaries, does not squirt and stops as your heart beats. This continuous flow is necessary because there is a constant exchange of oxygen and nutrients that take place in the capillary walls. No cell in the body is far from a capillary. As blood travels through capillaries, its oxygen supply is reduced and it has also collected waste products. From the capillaries, the blood enters the veins, veins, and then returns to the heart to be refreshed and sent once again. In conclusion, your heart functions as a pump that provides nutrients to every organ, tissue and cell throughout the body. In turn, your cells discharge waste products, such as carbon dioxide, into your blood to be returned to your heart. Thank you for your feedback! What are your concerns? There are about 1.5 gallons (or 5.5 liters) of blood in the average adult body. Blood regenerates every second. Two million new red blood cells per second, to be exact. We all know that the circulatory system carries oxygen throughout the body. But did you know that it also carries electrolytes, carbon dioxide, hormones and amino acids? Blood consists of red blood cells, white blood cells, platelets and plasma. The circulatory system refers strictly to the lymphatic system. Lymphatic fluid is plasma that has filtered through the body and returned to the lymphatic system. The circulatory system is prone to cardiovascular disease. For example, stroke, high blood pressure and heart failure affect these areas. Healthy eating, exercise and limiting tobacco and alcohol intake prevent conditions like these. Some conditions, such as hypertension and low blood pressure, are hereditary. It's important to know your family history. Tell your doctor any history of heart problems. We see and hear about hearts everywhere. A long time ago, people even thought that their emotions came from their heart, perhaps because the heart beats faster when a person is scared or excited. Now we know we know emotions come from the brain, and in this case, the brain tells the heart to accelerate. So, what's the heart? How do you keep busy? What does it look like? Let's find out. The heart is a muscle Your heart is really a muscle. It is located a little to the left of the center of the chest, and is large about the size of your fist. There are many muscles all over the body - in the arms, legs, back, even behind. But the heart muscle is special because of what it does. The heart sends blood around your body. Blood provides your body with the oxygen and nutrients it needs. Take away the waste, too. Your heart is a bit like a pump, or two pumps in one. The right side of the heart receives blood from the body and pumps it to the lungs. The left side of the heart does the exact opposite: it receives blood from the lungs and pumps it towards the body. How does the heart beat How does the heart beat? Before each beat, your heart fills with blood. Then his muscle contracts to spray the blood along. When the heart contracts, it tightens - try to shake hands in a fist. It's a bit like what your heart does so it can spray blood. Your heart does it all day and all night, all the time. The heart is a great worker! Parts of the heart The heart consists of four different areas filled with blood, and each of these areas is called the chamber. There are two rooms on each side of the heart. One room is at the top and one room is at the bottom. The two rooms at the top are called atria (e.g.: AY-tree-uh). If you're just talking about one, call it an atrium. Atria are the chambers that fill with blood that returns to the heart from the body and lungs. The heart has a left atrium and a right atrium. The two chambers at the bottom are called ventricles (for example: VEN-trih-kulz). The heart has a left ventricle and a right ventricle. Their task is to spray blood to the body and lungs. Running along the center of the heart is a thick wall of muscle called septum (for example: SEP-tum). The task of the septa is to separate the left side from the right side of the heart. The atria and ventricles work as a team - the atria fill with blood, then discharge it into the ventricles. The ventricles then squeeze, pumping blood from the heart. As the ventricles are squeezing, the atria fill up and prepare for the next contraction. So when the blood is pumped, how do you know which way to go? Well, your blood is based on four special valves inside the heart. A valve lets something in and holds it there closing - think about walking through a door. The door closes behind you and prevents you from going back. Two of the heart valves are the mitral valve (say: MY-trul) and the tricuspid valve (say: try-KUS-pid). They let blood flow from the atria to the ventricles. The other two are called an aortic valve (say: ay-OR-tik) pulmonary valve (e.g. PUL-muh-ner-ee), and are charged with controlling the flow as leaves the heart. All these valves work to keep the blood flowing forward. They open to let the blood move forward, then quickly close to prevent blood from flowing backwards. How blood circulates You probably guessed that blood doesn't prowl around your body once it leaves the heart. It moves through many tubes called arteries and veins, which together are called blood vessels. These blood vessels are attached to the heart. Blood vessels that take blood away from the heart are called arteries. Those who bring blood to the heart are called veins. Blood movement through the heart and around the body is called circulation (for example: sur-kyoo-LAY-shun), and your heart is really good at it - it takes less than 60 seconds to pump blood to every cell in your body. Your body needs this constant blood supply to make it work well. Blood provides oxygen to all cells in the body. To stay alive, a person needs healthy and living cells. Without oxygen, these cells would die. If that oxygen-rich blood doesn't circulate as it should, a person could die. The left side of your heart sends that oxygen-rich blood to your body. The body takes oxygen out of the blood and sent out of the body when we exhale. What's the next step? An inhale, of course, and a new breath of oxygen that can get into the blood to start the process again. And remember, it all happens in about a minute! Listen to the Lub-Dub When you go for a check-up, your doctor uses a stethoscope to listen carefully to your heart. A healthy heart makes a lub-dub sound with every beat. This sound comes from the valves that close on the blood inside the heart. The first sound (lub) occurs when the mitral and tricuspid valves close. The next sound (dub) occurs when the aortic and pulmonary valves close after the blood has been squeezed from the heart. Next time you go to the doctor, ask if you can listen to the lub-dub too. Pretty nice - It's my wrist! Even if your heart is inside you, there is a fantastic way to know that it works from the outside. It's your wrist. You can find your wrist by slightly pressing on the skin wherever there is a large artery running right under the skin. Two good places to find it are on the side of the neck and inside the wrist, just below the thumb. You'll know you found your wrist when to feel a little beat under the skin. Each beat is caused by the contraction (squeezing) of your heart. If you want to find out what your heart rate is, use a watch with a second hand and count how many beats you hear in 1 1 When you're resting, you'll probably hear between 70 and 100 beats per minute. When you run around a lot, your body needs a lot more blood full of oxygen. Your heart pumps faster to provide the oxygen-filled blood your body needs. You might as well feel your heart beating in your chest. Try running on site or jumping the rope for a few minutes and taking your wrist again - now how many beats do you count in 1 minute? Keep Your Heart Happy Most babies are born with a healthy heart and it's important to keep yours in good shape. Here are some things you can do to help keep your heart happy: remember that your heart is a muscle. If you want it to be strong, you have to exercise it. How do you do that? Being active in a way that makes you puff and puff, such as jumping rope, dancing or playing basketball. Try to be active every day for at least 30 minutes! An hour would be even better for your heart! Eat a variety of healthy foods and avoid foods rich in unhealthy fats, such as saturated fats and trans fats (reading food labels can help you figure out if your favorite snacks contain these unhealthy ingredients). Try eating at least five servings of fruits and vegetables every day. Avoid sugary soft drinks and fruit drinks. Don't smoke. It can damage the heart and blood vessels. Your heart deserves to be loved for all the work it does. He started pumping blood before you were born and he's going to keep pumping all his life. Life.