Jonathan Quang 12/1/14

Biology- Ms.Prabhu

Homework #12A

2)Heimlich Maneuver: A series of actions where one grasps their hands between the navel and breastbone of another person, and then quickly and forcefully pulls upwards and towards one's body to expel food blocking the trachea.   
Inhalation: The process of breathing in that occurs when the chest cavity is enlarged by the diaphragm contracting downward.  
Exhalation: The process of breathing out that occurs spontaneously when the muscles that cause inhalation are relaxed.  
Diaphragm: A sheet of muscle that forms the lower boundary of the chest cavity that controls the lungs.  
Hemoglobin: A large protein in red blood cells that gives them their color that also bonds to O2.  
Larynx: A part of the conducting portion of the respiratory system where sounds are produced. When inhaling, the air travels from the pharynx to the larynx   
Trachea: A flexible tube whose walls are reinforced with semicircular bands of stiff cartilage that inhaled air travels to after passing through the larynx.  
Bronchi: Two large branches that the trachea splits into that lead into each lung.  
Bronchioles: Tubes that are about 1mm in diameter that branch off from each bronchus.  
Alveoli: Tiny air sacs that bronchioles lead into where gas exchange occurs

3)  
3. The effects on smoking on the developing fetus and young children are negative. Smoking deprives developing fetuses of oxygen, which leads to an increased chance of miscarriage, lower birth weight babies, and more learning and behavioral problems. Children whose parents smoke have decreased lung capacity, a higher likelihood of contracting bronchitis, pneumonia, ear infections, coughs, colds, and a higher likelihood of developing asthma. If a pregnant friend continued to smoke, I would suggest to her to stop smoking, and if she agrees she should stop, I would assist in her quest. However, if she says no, I will attempt to persuade her to stop. If that fails, I would give up. There is no point in helping her if she is not willing to make the commitment.  
4. A brief exposure to carbon monoxide is much more dangerous than a brief exposure to carbon dioxide because carbon monoxide is potentially lethal at only a concentration of 0.1%. Carbon monoxide bonds to hemoglobin, but adheres 200 times as tightly. Carbon monoxide remains adhered for hours, preventing hemoglobin from transporting oxygen. What makes matters even worse is that carbon monoxide and hemoglobin is also red, so looking for bluish lips and nail beds will not work. Brief exposure to carbon dioxide is less lethal because a higher concentration is needed, and if the carbon dioxide causes asphyxiation, then it is noticable.  
5. If a strong-willed 3-year-old threatens to hold her breath until she dies if she doesn't get her way, such as Mary, then her threat should not be obeyed. If such a child were to hold her breath for a sustained amount of time, at most, she would be rendered unconscious. While unconscious, her body will automatically breathe for her. When she wakes up, she would be unlikely to carry out the threat again as she would know the pain.  
4) Check attached diagram  
5)Crash Course Questions:  
1.Capillarise collect carbon dioxide that is to be removed from the body.  
2.Arthropods take in oxygen using pores located around their body. These pores allow oxygen to wander into the body where it is absorbed by special respiratory structures.  
3. Oxygen enters the bodies of amphibians through their skin, however amphibians are also assisted by gills or lungs in absorbing oxygen.   
4. Humans need specialized lungs for three reasons. One reason is that humans are large in the animal world. Larger animals require more oxygen, so air must be forced into their bodies. Another reason is that mammals and birds have to regulate their temperature. Doing so requires many calories. To use those calories requires a large amount of oxygen. The third reason is that oxygen must be diffused through a liquid. If a human were to absorb oxygen through the skin, then the human would have to be moist all the time. By having a dedicated internal structure for this job, the human can remain dry.  
5.Lungs are kept moist by mucus called surfactant fluid.  
6. What may or may not be surprising about the surface area of lungs is that the surface area is very high. The surface area of an average human lung is about 75 square meters or about 807 square feet. Such high surface areas are actually greater than the surface area of some roofs.  
7.When air is inhaled, it travels through the larynx, through the trachea, then branches off into one of two bronchi, which then branches off into bronchioles, and finally ends up in alveoli where diffusion of gases takes place.  
8. The average human has about three hundred million alveoli.  
9.Capillaries surround alveoli. These capillaries aid in distributing gases because the oxygen will diffuse into the red blood cells in the capillaries and the carbon dioxide will diffuse out of the plasma or red blood cells directly or indirectly into the alveoli.  
10. Air containing the carbon dioxide waste product is squeezed by the alveoli through the bronchioles, the bronchi, and through the trachea. Eventually, the air leaves through the nose or mouth.  
11. Lungs do not have internal muscles that help it pump, instead, it relies on the: diaphragm   
12. When inhaling, the diaphragm contracts and arcs downwards. This expands the lungs allowing air in. To exhale, the diaphragm relaxes and allows the lungs to contract. This contraction forces air out.  
13. The pressure in a container goes down as the volume expands.  
14.When the diaphragm contracts, the lungs increase in volume. The air pressure in the lungs is lower than the air pressure outside of the lungs, so air flows down the pressure gradient into the lungs.  
15. The two major destinations of blood in the human body are the lungs and the heart. The lungs allow the diffusion of oxygen in and carbon dioxide out. The heart pumps the blood to where it needs to go.  
16.Arteries are muscular to retain high blood pressure.  
17. Blood flows from arteries into arterioles. These arterioles branch off into capillary beds where nutrients and some wastes are diffused into other body cells. These capillary beds then lead to veins.  
18. All veins eventually drain into the right atrium through the inferior vena cava and the superior vena cava.  
19.The right ventricle sends blood into the lungs.  
20. Endotherms are warm-blooded animals. These animals maintain a certain temperature, and are thus less vulnerable to fluctuations in the external environment in comparison to ectotherms. However, endotherms must also eat more food to supply the higher metabolism that keeping a certain temperature requires and require more oxygen to use in cellular respiration. In contrast, ectotherms must find an environment that suits them, eat less food, and can have less efficient circulatory systems because they need less oxygen.  
21. The energy that fuels respiration and circulation ultimately comes from food that is processed by the digestive system.