THE CIRCULATORY & RESPIRATORY SYSTEM WEBQUEST

VISIT: webquesters.weebly.com - click on the corresponding links to complete this webquest.

Let's start with the circulatory system!

   1. Where is your heart located? Use the stethoscope to find the location of the heartbeat and place a star on the body below where the heart is located.

B. http://www.smm.org/heart/heart/circ.htm
   2. Observe the heart pumping blood. Which additional organ works with your circulatory system to give oxygen to all of your cells? ________________________________

   3. Roll your cursor over the heart to IDENTIFY the parts of the human heart!

WORD BANK:
- Superior Vena Cava
- Inferior Vena Cava
- Left Atrium
- Right Atrium
- Left Ventricle
- Right Ventricle
- Aorta
- Pulmonary Vein
- Pulmonary Artery
4. Flash Cards on Parts of the Heart


Step One: View the flash cards several times.
Step Two: Press on the box that is titled “LEARN.” Try to type in the correct term that matches each description.
Step Three: Press on the box that is titled “TEST.” When you are done with the test, record the number of questions you had that were correct and the number that were incorrect. In addition, have your teacher sign the box that says “Completed Practice Test.”

Number of Questions Correct _____________/14

Number of Questions Incorrect ____________/14

Completed Practice Test (Teacher’s Signature)

NOTE: You do not need to know all of the terms in this activity. See the list below:

Terms you ARE responsible for:
- Aorta
- Pulmonary Artery
- Oxygenated
- Deoxygenated
- Right Atrium
- Vena Cava
- Pulmonary Vein
- Left Ventricle
- Arteries
- Veins

Terms you are NOT responsible for:
- Coronary Vessels
- Bicuspid Valve
- Tricuspid Valve

5. Practice will make perfect! Play the game to identify the parts of the heart below. Let your partner have a turn too!

How long did the game take you? (Does not matter how long as long as you can identify all of the parts!)

____________________________________________

6. What are the two main parts of the circulatory system?

A. ______________________ B. ______________________

7. Define the two types of circulation in the human body.

Pulmonary Circulation: ________________________________________________

Systemic Circulation: ________________________________________________
Click on "Body Basics: Heart" View the animation of blood flow through the heart and fill in the blanks below.

When blood circulates in the body, it enters the heart through the __________________________, passes through to the __________________________, and flows out through the __________________________ to the __________________________-where it picks up __________________________ and gets rid of __________________________. From the lungs, blood returns to the __________________________ and enters the __________________________ where it is pumped to the body through the _______________.

Watch the animation on the pathway of blood. Read the text below the animation to write out the flow of blood from the time it enters the heart to the time it leaves the heart. In addition, outline each box with a red or blue pen/colored pencil to show low levels of oxygen (BLUE) and high levels of oxygen (RED).

http://www.aboutkidshealth.ca/En/HowTheBodyWorks/IntroductiontotheHeart/TheHeartbeat/Pages/BloodFlowThroughtheHeart.aspx

From above the heart

or

From below the heart

Pulmonary Artery

The entire body
4. Which blood vessel is the site of diffusion, where oxygen is dropped off and carbon dioxide is picked up?
   a. artery  b. capillary  c. vein

5. Veins contain blood that is
   a. high in oxygen.  b. low in oxygen.  c. both high and low in oxygen.

6. Veins carry blood
   a. away from the heart.  b. to the heart.  c. both away and to the heart.

1. Why can having low blood pressure be just as dangerous as having high blood pressure? ____________
   ___________________________________________________________________________________

Click "Main Menu"
Click "Arteries"

2. Why is the blood in your arteries bright red? _______________________________________________________

3. As arteries get farther and farther away from the heart they get smaller and smaller and branch into tiny blood vessels called ____________________________.

Click "Main Menu"
Click "Capillaries"

4. What is the function of capillaries in your body? ______________________________________________________

5. Label the diagram below:

   ![Diagram of blood circulation]

6. Why does the blood change color as it leaves the capillaries? _______________________
   ___________________________________________________________________________________

Click "Main Menu"
Click "Veins"

7. Veins collect blood from __________________________ and bring it back to the heart.

8. Why is the blood in veins dark red (blue)? _________________________________________________________

9. Inside your veins there is __________________________ pressure.
   a. high  b. low
Now, it is time to see how much you have learned!
Take the quiz below on the blood vessels found in your body!

**Quiz on Blood Vessels**

1. Which is the largest vein in the human body?  
   - A. Capillaries  
   - B. Pulmonary  
   - C. Veins  
   - D. Arteries

2. Which type of blood vessels have thin non-elastic walls & carry blood back to the heart?  
   - A. Capillaries  
   - B. Pulmonary  
   - C. Veins  
   - D. Arteries

3. All arteries carry oxygen-rich blood except for which artery?  
   - A. Capillaries  
   - B. Pulmonary  
   - C. Veins  
   - D. Arteries

4. Which type of blood vessels contain valves to prevent the back-flow of blood?  
   - A. Capillaries  
   - B. Pulmonary  
   - C. Veins  
   - D. Arteries

5. Which type of blood vessels have thick elastic walls & carry blood away from the heart?  
   - A. Capillaries  
   - B. Pulmonary  
   - C. Veins  
   - D. Arteries

6. Which is the largest artery in the human body?  
   - A. Capillaries  
   - B. Pulmonary  
   - C. Veins  
   - D. Arteries

7. Which blood vessels allow exchange of gases and nutrients between blood and the body cells?  
   - A. Capillaries  
   - B. Pulmonary  
   - C. Veins  
   - D. Arteries

8. Name the tiny, thin-walled blood vessels that connect arteries and veins?  
   - A. Capillaries  
   - B. Pulmonary  
   - C. Veins  
   - D. Arteries
1. Be a scientist and take a closer look at the components of blood! Click on each cell to find out more about it and answer the questions below. Note: You will have to click "Main Menu" to view the function of each part of blood.

<table>
<thead>
<tr>
<th>Component (Part) of Blood</th>
<th>Function</th>
<th>What do they look like?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red Blood Cells</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White Blood Cells</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Monocytes/Macrophages)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lymphocytes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basophil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Platelets</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

See the facts below the blood vessel to answer the questions below.

Click on red-yellow circle "where is blood made?"

1. Where are blood cells made? ____________________________________________

2. True or False: White blood cells can leave the blood vessels and travel into your tissues. Why would this be an advantage? ____________________________________________

Click on blood bag type "A"

3. What are the four blood types?
   A. ____________________  B. ____________________  C. ____________________  D. ____________________

4. Which blood type is most common? ______________________

Click on blood test tube

5. What is "blood count?" ____________________________________________

Click on "Yukky Bits"

6. What is in pus? ____________________________________________

7. Why does blood taste salty? ____________________________________________
Let's explore the respiratory system!

The Breath of Life-National Geographic

1. Our lungs are, essentially, a network of connected ________________ that bring _________________ from the air into our ________________, nourishing the trillions of cells that make up our bodies. The lungs also _______________ the blood of _______________________ waste created when cells use oxygen. We breathe in ________________ times per day!

**Click on "Lung Anatomy" at the bottom of the page**

2. Using the information in this section, to label the diagram.

Also known as the windpipe
__________________________________________

Larger branches that lead from the trachea are called
__________________________________________

Tiny tubes branching out from bronchi
__________________________________________

Muscle that lies beneath the lungs is called the
__________________________________________

**Click on "Alveoli"**

3. What occurs at the alveoli?

A. What is dropped off at the lungs by the blood vessels? ___________________________

B. What is picked up at the lungs by the blood vessels? ___________________________

4. Using the information in this section, to label the diagram.

Tiny air sacs found at the end of the bronchioles are called
__________________________________________

These surround the tiny air sacs
__________________________________________

**Click on "Lung Functions"**

5. What part makes your lungs inflate (expand) and deflate (contract)? ____________________________

6. What happens when the diaphragm is pulled down (Do you inhale or exhale)? ____________________________

7. What gas do you take in when you inhale? ____________________________ When you exhale? ____________________________

8. What happens when the diaphragm relaxes (Do you inhale or exhale)? ____________________________
9. Summarize the pathway of air from the previous page by completing the following flowchart.

1. The **nasal cavity** has two functions. One is to ________________ the air that is entering and the other is to trap particles in its ________________.

2. What is the **epiglottis**? ________________________________________________________________________________________________________________

3. What is another name for the **larynx**? ________________________________________________________________________________________________________________

   Why is this a good nickname for the larynx? ________________________________________________________________________________________________________________

Information about breathing and yawning:

1. **Hypothesis #1**: We yawn when we are ________________ or ________________, we just don't breathe as deeply as we usually do. As this theory goes, our bodies take in less ________________ because our breathing has ________________. Therefore, yawning helps us bring more ________________ into the blood and move more ________________ out of the blood.

2. **Hypothesis #2**: Another theory is that yawning stretches the ________________ and lung tissue. Stretching and yawning may be a way to flex muscles and joints, increase heart rate, and feel ________________.
We all know that humans use lungs in order to get oxygen, however not all organisms have lungs. Using the information found on the website, describe how the following organisms get oxygen:

<table>
<thead>
<tr>
<th>Organism</th>
<th>How does this organism get its oxygen?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sally the Salamander</td>
<td></td>
</tr>
<tr>
<td>Big Bird</td>
<td></td>
</tr>
</tbody>
</table>

Both humans and birds have lungs, but the lungs of a bird are different. Explain how:

Maggie the Mosquito

Patty the Plant

Both humans and reptiles have lungs, but the lungs of a reptile are different. Explain how:

Our diaphragm allows us to move air in/out of our lungs. Reptiles do not have a diaphragm. How are reptiles able to move air in/out of their lungs?

http://kidshealth.org/kid/htbw/lungs.html

1. True or False: Just like your eyes, your lungs are the same size.
2. Your lungs are protected by your _______________________________
3. What is the diaphragm? _______________________________________________________________________
4. Go onto the next page and find the picture of the lungs. Draw a picture that includes the location of the lungs and the diaphragm.

http://kidshealth.org/kid/watch/er/choking.html?tracking=K_RelatedArticle

1. True or False: You have two "pipes" or "throats? When you choke, food or liquid goes down the wrong "pipe" or "throat."
2. Which pipe does it go down when choking? _ ___________which leads to the ______________________.
3. Which pipe/throat SHOULD it go down? _ __________________________which leads to the _ ______________________.

Hypothesis #3: The people believe that yawning is a _____________________________ to redistribute the oil-like substance called _____________________________ that helps keep lungs lubricated inside and keeps them from _____________________________. So, if we didn’t yawn, according to this theory, taking a deep breath would become ___________________________ and ___________________________ — and that would not be good!

http://kidshealth.org/kid/talk/qa/sneeze.html Solve some everyday mysteries about SNEEZING!

1. Why do you sneeze?______________________________________________________________
2. TRUE or FALSE: The only muscles involved in a sneeze are the chest and abdominal muscles.
3. TRUE or FALSE: A photic sneezer sneezes when exposed to bright light.
4. Write out a summary of another fact you find interesting: ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
**FINAL CHECK!**

Label all of the parts of the respiratory system shown below. In addition, use arrows to show where the oxygen flows from outside the human body until it reaches the capillaries.

<table>
<thead>
<tr>
<th>Part #</th>
<th>Name of Part</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Voicebox</td>
</tr>
<tr>
<td>4</td>
<td>Lung</td>
</tr>
<tr>
<td>5</td>
<td>Will have the same name as #9</td>
</tr>
<tr>
<td>6</td>
<td></td>
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<td>7</td>
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<td>8</td>
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<tr>
<td>9</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Smallest Branches</td>
</tr>
<tr>
<td>11</td>
<td></td>
</tr>
</tbody>
</table>

1. Bronchi carries air into the ______________________________.

2. At the end of each bronchiole, there are clusters of tiny sacs called ________________________________.

3. Where does the exchange of oxygen and carbon dioxide takes place?
   ________________________________ and ________________________________.

4. What is the muscle beneath your lungs that helps to move air in and out of the lungs? _________________

5. What is the flap of tissue that prevents food from entering the trachea and lungs? _________________