


Science 9-Biology

Worksheet 8-2—A Single Breath & Taking Care



20

No pen or pencil

No Textbook

Name \_\_\_\_\_

Due Date \_\_\_\_\_

Show Me  Hand In

*Correct and Hand In Again By* \_\_\_\_\_

*Read pages 159-167 of SP to help you answer the following questions:*

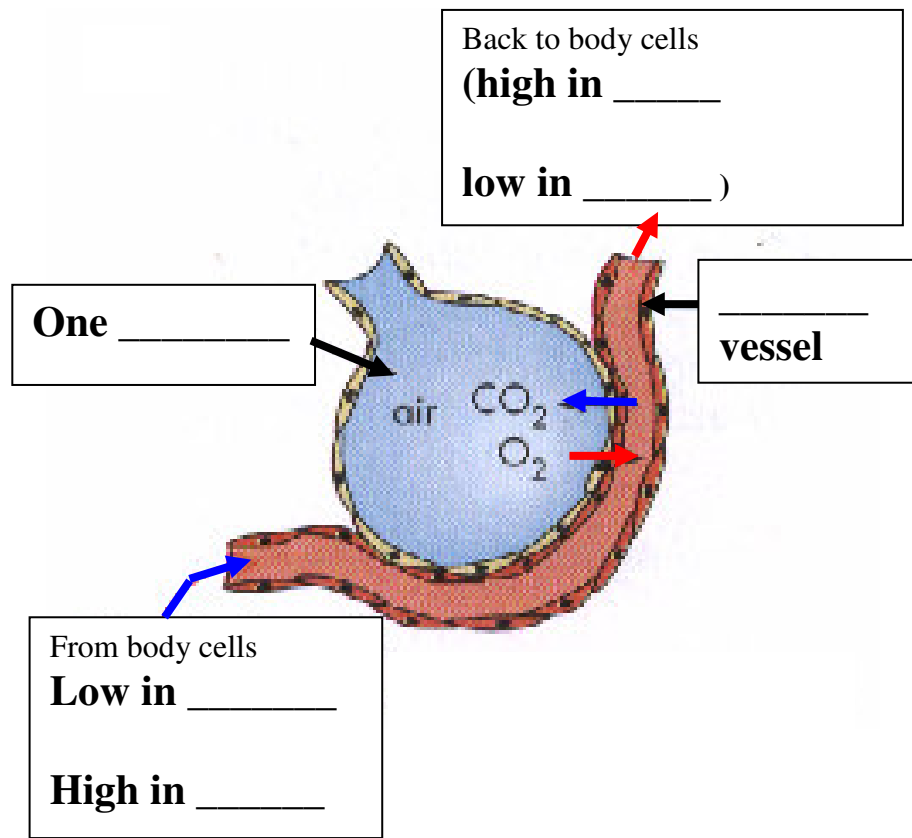
1. Give 4 important advantages to breathing through your **nose**. \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
  
2. Give an example of a situation where breathing through your **mouth** is better than breathing through your nose. \_\_\_\_\_
  
3. The hollow space behind your nostrils is called the \_\_\_\_\_
  
4. What is the function of hairs inside your nostrils (other than to make you look good!)  
 \_\_\_\_\_
  
5. The **trachea** has rings of bone-like material called \_\_\_\_\_  
 which hold the trachea \_\_\_\_\_ at all times so you can breathe.
  
6. Your air passages are all coated with a sticky substance called \_\_\_\_\_  
 This traps \_\_\_\_\_, \_\_\_\_\_ and other materials.
  
7. Air passages are lined with cells that have hair-like projections coming from them. These hair-like projections are called \_\_\_\_\_. They wave back and forth and move \_\_\_\_\_ with trapped \_\_\_\_\_  
 (toward/away from) \_\_\_\_\_ the lungs and (toward/away from) \_\_\_\_\_ the nose.

8. Sketch the three diagrams on the top middle and right of page 161. These show how the cilia on the cells lining the air passages move mucus toward the nose.



9. The mucus and trapped particles are expelled from the body by \_\_\_\_\_ing, \_\_\_\_\_ing , \_\_\_\_\_ing your nose or being swallowed.
10. Your nasal cavity and trachea have many **blood vessels** surrounding them. Nothing is absorbed into these blood vessels. What purpose do these blood vessels serve?  
\_\_\_\_\_
11. How is **moisture** added to incoming air? \_\_\_\_\_
12. The **trachea** branches into 2 tubes called the \_\_\_\_\_. Explain why there have to be two tubes. \_\_\_\_\_
13. Each **bronchus** branches and these branch more forming \_\_\_\_\_er and \_\_\_\_\_er tubes.
14. Tiny balloon-like air sacs at the ends of the smallest tubes are called \_\_\_\_\_ (singular \_\_\_\_\_)
15. Each alveolus is surrounded by very small \_\_\_\_\_.  
When the **blood** comes to these, it is **low** in \_\_\_\_\_ and **high** in \_\_\_\_\_.

16. When you first breath air in, it is *(rich/poor)* \_\_\_\_\_ in **oxygen**. So the air inside the **alveoli** is *(rich/poor)* \_\_\_\_\_ in **oxygen**. The blood in the vessels surrounding the alveoli is *(rich/poor)* \_\_\_\_\_ in **oxygen**. So **oxygen** diffuses from *(inside/outside)* \_\_\_\_\_ the **alveoli**, through the thin walls of the alveoli and *(into/out of)* \_\_\_\_\_ the blood flowing by.
17. The level of **carbon dioxide** is *(higher/lower)* \_\_\_\_\_ in the blood than it is inside the alveoli, therefore CO<sub>2</sub> diffuses *(from/to)* \_\_\_\_\_ the blood and *(into/out of)* \_\_\_\_\_ the alveoli. When you exhale, air is pushed *(into/out of)* \_\_\_\_\_ your alveoli and *(into/out of)* \_\_\_\_\_ your body.
18. Fill in the blanks in the following diagram:



19. Does this **exchange of gases** between the **alveoli** and the **blood** take place while you are active? \_\_\_\_\_ While you are at rest? \_\_\_\_\_ When you hold your breath? \_\_\_\_\_
20. When a person has **pneumonia**, the alveoli become filled with \_\_\_\_\_ or **blood cells** or both. This makes it difficult for the exchange of \_\_\_\_\_ to take place. Two main causes of pneumonia are \_\_\_\_\_ and \_\_\_\_\_. The type caused by \_\_\_\_\_ can be treated with **antibiotics**, the type caused by \_\_\_\_\_ can't and the body's **immune system** has to fight it off.
21. Define **vital capacity** \_\_\_\_\_  
\_\_\_\_\_
22. An average adult has a **vital capacity** of about \_\_\_\_\_ Litres.
23. Do you think your **vital capacity** is greater than, less than or about equal to the average? \_\_\_\_\_ Give a reason for your answer. \_\_\_\_\_
24. Suggest some **factors** which might have an affect on the vital capacity of a person.  
\_\_\_\_\_
25. People that spend a long time at **high altitudes** like the Andes in South America often have very **high vital capacities**. Why do you think this happens? \_\_\_\_\_  
\_\_\_\_\_
26. Normally it doesn't take any effort to exhale except when you are \_\_\_\_\_ing or \_\_\_\_\_ a balloon. Why do you sneeze? \_\_\_\_\_  
\_\_\_\_\_
27. Normally, when you exhale, about \_\_\_\_\_ Litres of air remains in your lungs. This is called \_\_\_\_\_ **air**. After about \_\_\_\_ normal breaths, all this \_\_\_\_\_ **air** has been replaced.

28. Caring for your **respiratory system** has two parts: \_\_\_\_\_  
and \_\_\_\_\_.
29. **Regular exercise** strengthens all the \_\_\_\_\_ that are used in your respiratory system. Do your lungs have muscles? \_\_\_\_\_. Muscles that help you **inhale** are located in two places: between your \_\_\_\_\_ and in the \_\_\_\_\_ at the bottom of your chest cavity.
30. People often wear \_\_\_\_\_ to prevent dangerous substances from entering their lungs. Name some occupations in Summerland where people should wear equipment that protects their lungs. \_\_\_\_\_  
\_\_\_\_\_
31. What should you do if you have a cough that doesn't go away for a long time? \_\_\_\_\_  
\_\_\_\_\_. Why? \_\_\_\_\_  
\_\_\_\_\_
32. Cigarette smoke is a health risk to smokers and \_\_\_\_\_.
33. When a person inhales hot cigarette smoke, the hot gases in the smoke condense into \_\_\_\_\_ when they hit the cooler surfaces in the respiratory system.
34. **Tars** contain many harmful substances. They contain chemicals that stop the \_\_\_\_\_ from moving, therefore they stop moving mucus to the nose and mouth and the respiratory system cannot be cleaned properly.
35. What often causes “smoker’s cough”? \_\_\_\_\_  
\_\_\_\_\_
36. Does tar from cigarette smoke ever reach the surface of the alveoli? \_\_\_\_\_  
If it does, what affects does it have? \_\_\_\_\_  
\_\_\_\_\_

37. **Carbon monoxide** (CO) from cigarette smoke enters the blood instead of \_\_\_\_\_, so cells cannot carry out the process of \_\_\_\_\_ respiration.
38. Explain why lung cancer is hard to detect in its early stages. \_\_\_\_\_  
\_\_\_\_\_
39. What happens when a person has had lung cancer for a while and it has reached a later stage? \_\_\_\_\_
40. An inflammation of small air passages caused by infection is called \_\_\_\_\_
41. Do people exposed to smoke have a higher rate of this condition? \_\_\_\_\_
42. **Chronic bronchitis** is caused by \_\_\_\_\_ from cigarette smoke.
43. What happens to the alveoli when a person has **emphysema**? \_\_\_\_\_  
\_\_\_\_\_
44. Three known causes of **emphysema** are \_\_\_\_\_  
\_\_\_\_\_
45. \_\_\_\_\_% of smokers try to kick the habit by the time they are 30. Is nicotine addictive?  
\_\_\_\_\_.

**LUNG OF A NON-SMOKER**  
(Cast from real specimen)



A non-smoker's lung is pink in color.

**LUNG OF A SMOKER**  
(Cast from real specimen)

