


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.

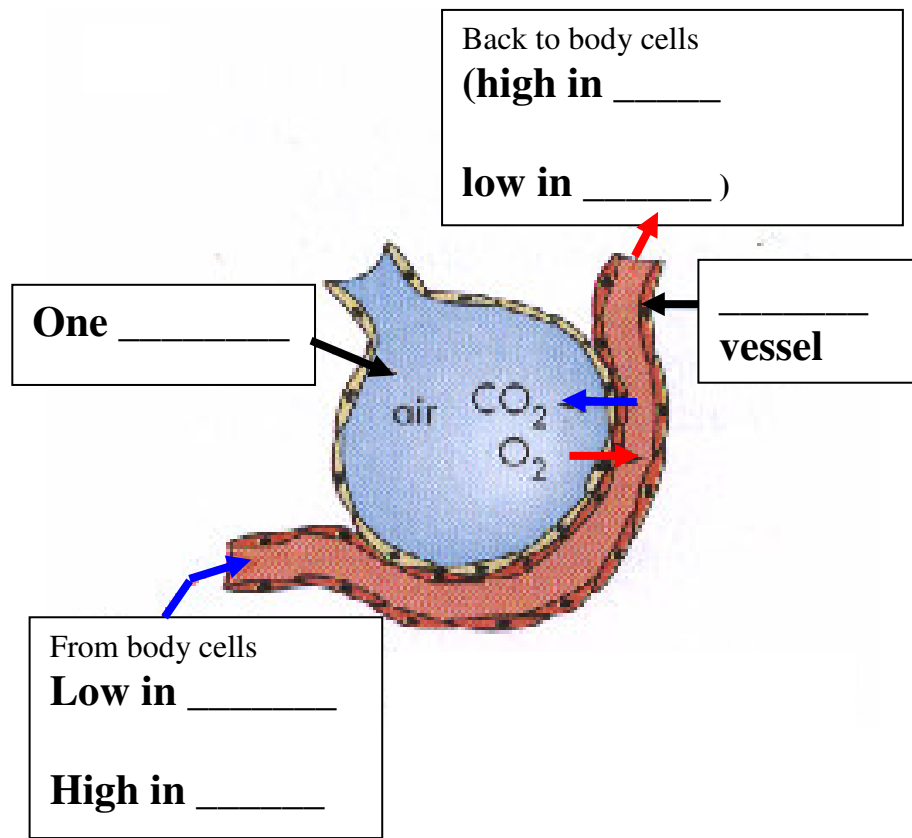
8. Sketch the three diagrams on the top middle and right of page 161. These show how the cilia on the cells lining the air passages move mucus toward the nose.



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 CO₂ 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)

