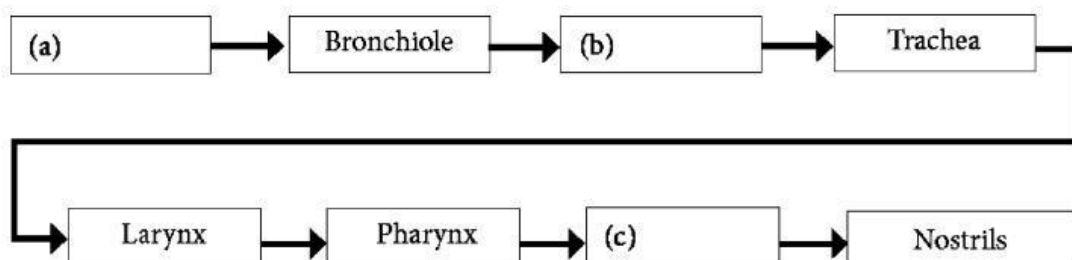


Answer the following questions:

1. Complete the following flow chart to show the direction of air that is breathed out from the lungs.



2. Figure 1 shows the human respiratory system.

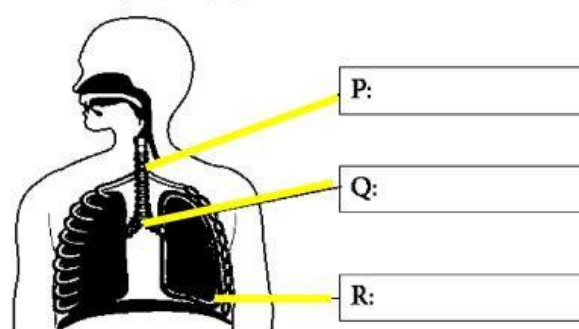


Figure 1

Label P, Q and R in Figure 1 using the following words:



3. Figure 2 shows the breathing mechanism during exhalation.

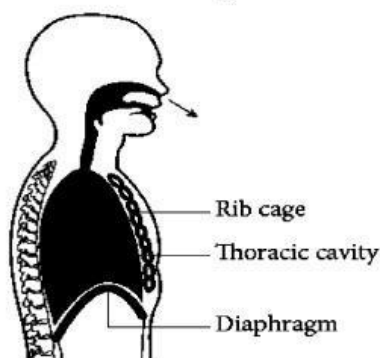


Figure 2

Write TRUE or FALSE for each statements in the column below

(a) Air leaves the lungs when the diaphragm moves inwards	
(b) When exhaling, the rib cage moves downwards.	
(c) Air pressure is higher in the lungs	
(d) Volume of thoracic cavity increases	

4. Write true or false at the statements below

- (a) Percentage of oxygen in inhaled air is lower than in exhaled air.
- (b) Percentage of oxygen in inhaled air is higher than in exhaled air.
- (c) Percentage of carbon dioxide in inhaled air is lower than in exhaled air.
- (d) Percentage of carbon dioxide in exhaled air is higher than in inhaled air.


5. Fill in the blanks for all questions below

(a) What is the function of haemoglobin in the human respiratory system?

Answer: Haemoglobin \_\_\_\_\_ oxygen from the red blood cell to \_\_\_\_\_ cells

(b) What is the importance of the characteristic of oxyhaemoglobin as an unstable compound in gaseous exchange in the body?

Answer: Oxyhaemoglobin easily \_\_\_\_\_ into haemoglobin and oxygen when it reaches body cells so that oxygen can \_\_\_\_\_ into the cells.

6. Salma is an asthma patient.

(a) Why does the doctor advise Salma to reduce her visits to botanical gardens during Spring?

Answer: Salma may be allergic to \_\_\_\_\_. In Spring, more pollen is released from \_\_\_\_\_. When Salma \_\_\_\_\_ air containing pollen, there is a higher risk of her getting an \_\_\_\_\_ attack

(b) Explain why industrial areas, and construction sites should be avoided by Salma.

Explanation : That areas produces a lot of haze, \_\_\_\_\_ and \_\_\_\_\_ that also cause asthma attacks in asthma patients.

7. (a) Choose the correct adaptation for each factors that affect the efficiency of the alveolus to maximise gaseous exchange in the human body.

- i) Thickness of the wall
- ii) Moisture of the wall
- iii) Surface area
- iv ) Network of capillaries


(b) Match the respiratory diseases below with its correct symptoms

**RESPIRATORY DISEASE**

<b>Asthma</b>	shortness of breath, persistent coughing and insomnia.
<b>Bronchitis</b>	Persistent coughing, blood in the phlegm and feeling pain when breathing
<b>Emphysema</b>	shortness of breath, pain when breathing and feeling tired from doing even a light task. Cannot be cured
<b>Lung cancer</b>	shortness of breath, wheezing and coughing.

c) Choose the correct causes for every respiratory diseases below

i)	Asthma is caused by		dust , haze and		
ii)	Bronchitis is caused by		and irritants in		smoke
iii)	Emphysema is caused by		in cigarette smoke		
iv)	Lung cancer is caused by		in cigarette smoke		

8. Select the correct **answer about** ways to maintain the health of the respiratory system.

i) You have to \_\_\_\_\_ smoking to avoid \_\_\_\_\_ substances found in cigarette smoke from entering the \_\_\_\_\_ and harming the \_\_\_\_\_ system.

ii) You have to avoid places with \_\_\_\_\_ air. To avoid \_\_\_\_\_ air that contains harmful substances such as \_\_\_\_\_ tar, carbon \_\_\_\_\_, \_\_\_\_\_ dioxide, nitrogen \_\_\_\_\_, haze, dust and \_\_\_\_\_.

iii) Have proper \_\_\_\_\_ and lead a \_\_\_\_\_ lifestyle.

9. Why should waiting areas for public transport such as LRT stations and bus stands be designated as non-smoking areas?

Users at the waiting areas will become \_\_\_\_\_ smokers if there are other users nearby who smoke. This is \_\_\_\_\_ to their health.

**10. (a)** Fill in the blank at the statements about the similarity in the gaseous exchange between insects and plants.

Gaseous exchange is through \_\_\_\_\_ process into cells.

**(b)** Fill in the blanks by choosing the correct answers given about Insects respiratory system

The insect respiratory system is \_\_\_\_\_ effective compared to the human respiratory system because the gaseous \_\_\_\_\_ through \_\_\_\_\_ diffusion into the cells of insects is easier, \_\_\_\_\_ and more efficient compared to gaseous exchange through \_\_\_\_\_ of gases by \_\_\_\_\_ in the human body.

**11. (a)** Gas X is harmful to the human respiratory system. Gas X can diffuse into a stationary car with its air conditioning on, windows closed and engine running. Name gas X and explain the effects of the gas in the situation

- Name of gas : \_\_\_\_\_
- Explanation about the effects of the gas

When the air in a car which contains \_\_\_\_\_ is inhaled, the gas will combine with \_\_\_\_\_ to form \_\_\_\_\_. Therefore, a person in the car will not have \_\_\_\_\_ oxygen supply which can be fatal



Changes in the volume of air in the lungs of runners X and Y are as shown in Figures 3 (a) and 3 (b).

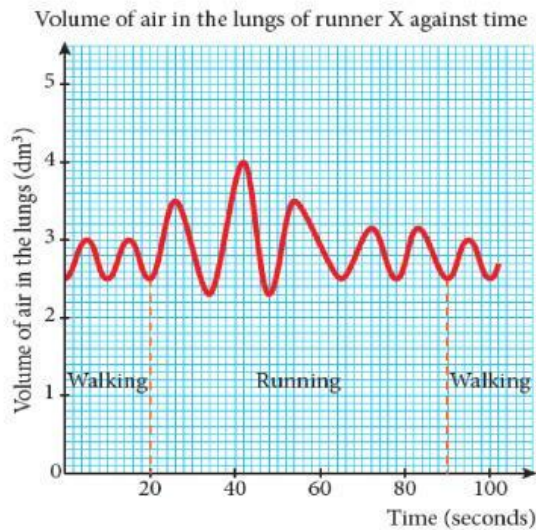


Figure 3(a)

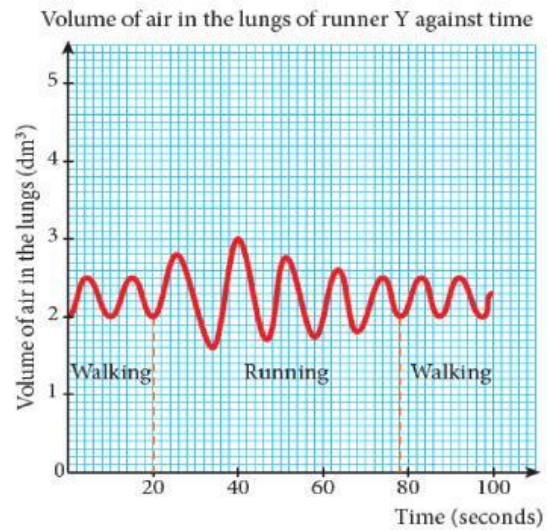


Figure 3(b)

(a) State the maximum volume of air in the lungs of the following runners while walking.

(i) Runner X \_\_\_\_\_ (ii) Runner Y: \_\_\_\_\_

(b) State the maximum volume of air in the lungs of the following runners:

(i) Runner X: \_\_\_\_\_ (ii) Runner Y: \_\_\_\_\_

(c) From the graphs in Figures 3 (a) and 3 (b), state the relationship between **the types of activity performed and the maximum volume of lungs** of each runner.

The \_\_\_\_\_ active the activity that is performed, the \_\_\_\_\_ the maximum volume of the lungs.

d) If one of the runners X or Y is a smoker, which one is the smoker? Explain.

Runner : \_\_\_\_\_

Reason : Cigarette smoke which \_\_\_\_\_ the \_\_\_\_\_ will reduce the maximum volume of air in the human lungs. The maximum volume of air in the lungs of runner Y is \_\_\_\_\_ therefore runner \_\_\_\_\_ is a smoker.

(e) How does the **increase in the maximum volume of the lungs** affect the **respiration rate**? Explain.

Increase in the maximum volume of the lungs will \_\_\_\_\_ the rate of respiration because the rate of gaseous \_\_\_\_\_ in the lungs is increased