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| MTF SOLAR 1 |
| Topic covered: |
| 1. RESPIRATION |
| **2.INTRODUCTION OF SCIENCE** |
| **3.CELL AS BASIC UNIT OF LIFE** |
| **4. MATTER** |

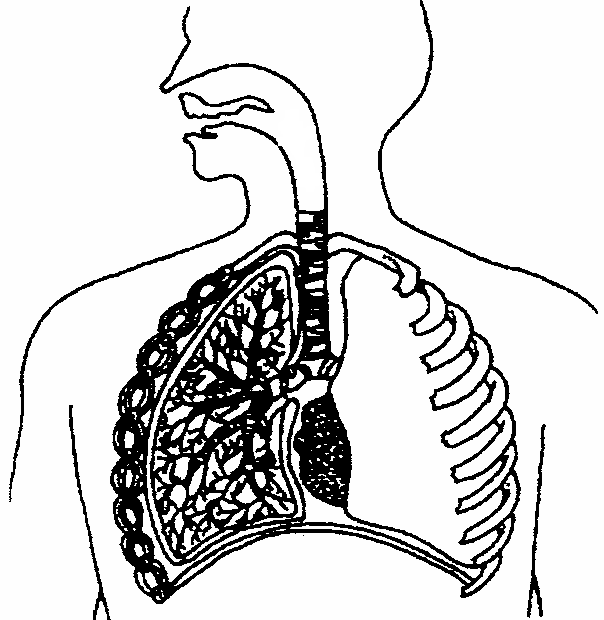
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|  |



1. (a) Label the human respiratory system below

R:

T:



P \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Q: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

S: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

R:

FIGURE 19

(b) Draw lines to show the correct match between the structures and their functions.

Draw the lines as shown below.

Structure Function

Contract and relax to increase the volume of the thoracic cavity

Allows air to flow from the nasal cavity into the lungs

Move up and down to increase the volume of the thoracic cavity

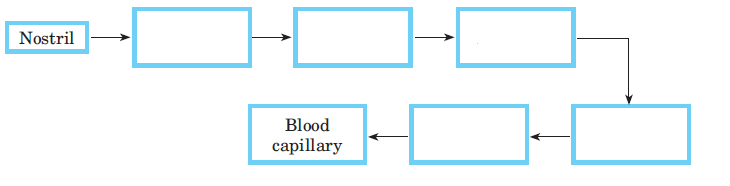
P

Q

S

© Complete the spaces below to show the movement of air through the breathing

organs.



|  |  |
| --- | --- |
| 2. | The figure below shows a model representing the human respiratory system. |

|  |  |
| --- | --- |
|  | **Model Respiratory organ**  Bell jar  Stopper  Glass tube  Balloon    Rubber sheet   1. Name the parts of the model that represent the parts of the human respiratory system. |

b) From the results of the activity, state the process that happens in human beings.

i. When the rubber sheet is pulled down - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

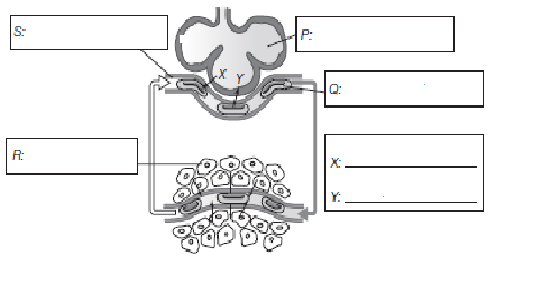
ii. When the rubber sheet is pushed up - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |
| --- | --- |
| 3. | Diagram below shows the process of inhalation and exhalation in the human breathing mechanism. |
|  |  |

1. During inhalation the rib cage moves \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_and \_\_\_\_\_\_\_\_\_\_\_. The diaphragms \_\_\_\_\_\_\_\_\_\_\_\_ and moves \_\_\_\_\_\_\_\_\_\_\_\_\_. The actions of the rib cage and the diaphragm \_\_\_\_\_\_\_\_\_\_\_\_ the volume of the thoracic cavity and the lungs. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the lungs is less than the air pressure \_\_\_\_\_\_\_\_\_\_\_\_\_ the body. This difference in air pressure \_\_\_\_\_\_\_\_\_\_\_\_\_\_ air into the lungs.
2. During exhalation, the rib cage moves \_\_\_\_\_\_\_\_\_\_\_\_\_\_ and inwards. The diaphragm \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and moves upwards. The action of the rib cage and the diaphragm \_\_\_\_\_\_\_\_\_\_\_\_\_\_ the volume of the thoracic cavity and the lungs. The air pressure in lungs is \_\_\_\_\_\_\_\_\_\_\_ than the air pressure outside the body.
3. (a) Study the given diagram and label the diagram based on the words given.

Oxygen capillary body cell

Alveolus carbon dioxide red blood cell



(b) Fill in the blank with the correct answer

1. Name the gas that diffuses into the blood capillaries from the alveolus.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Name the gas that diffuses from the blood capillaries into the alveolus.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**3** What is the process that occurs in the alveolus?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**4** State **two** characteristics of the alveolus that can increase the efficiency in the gaseous exchange.

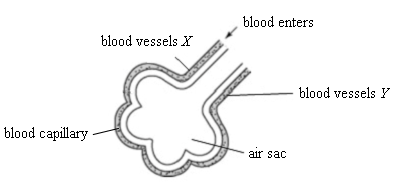
i.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

ii. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**5** In the blood, oxygen combines with haemoglobin to form\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6. The exchange of gases between the alveolus and the blood capillary is by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5.



The figure above shows an air sac surrounded by blood capillaries in the lung.

(a) What is the difference in oxygen concentration between blood vessels *X* and *Y*?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(b) in the diagram, draw arrows () to show the flow of oxygen and () to show

that of carbon dioxide.

(c) What is the name of the air sac in the lung?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(d) State **three** characteristics of the air sac which can increase the efficiency of gas

diffusion.

(i)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(ii)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(iii)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(e) What happens to the oxygen that diffuses into the blood in the blood capillaries?

Oxygen combine with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to form \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6. Diagram 4 shows the model of the human respiratory system.

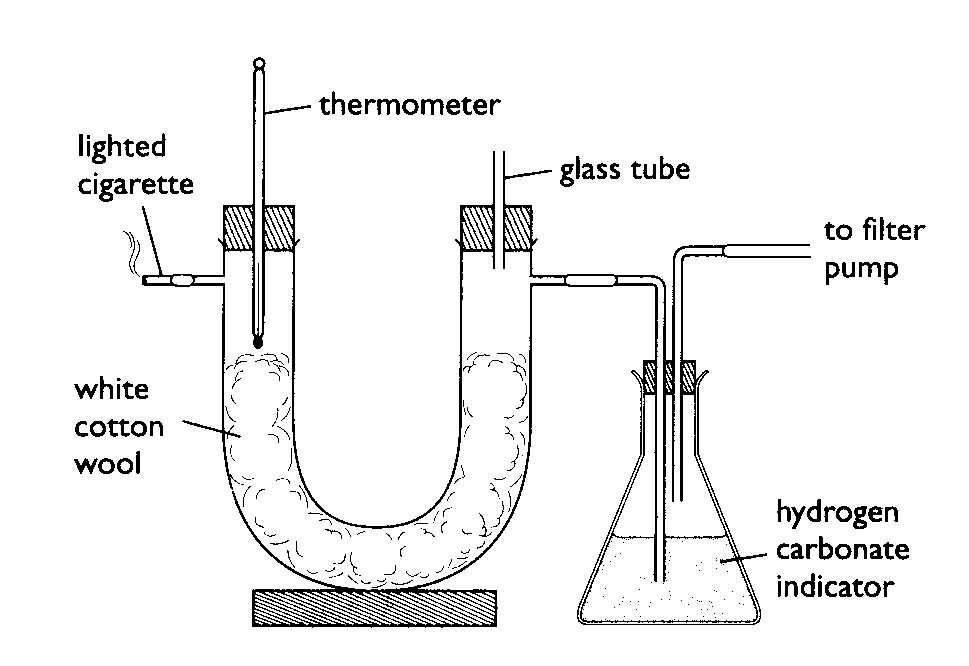


Diagram 4

1. When the cigarette is lighted, state your observations on the following.

|  |  |
| --- | --- |
| Materials | Observation |
| Thermometer | The temperature \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| White cotton wool | Changes to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Hydrogen Carbonate Indicator | Changes from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

1. Complete the table below on the effect of the contents of cigarette smoke on the lungs.

|  |  |
| --- | --- |
| **Content** | **Effect of the lung** |
|  | Increases the temperature of the lungs |
|  | Blackens the lungs |
|  | Corrodes the lungs |
|  | causes addiction |
|  | stimulate the growth of cancerous cells, causing lung cancer  and throat cancer |

1. State **three** good habits that can help to improve the quality of air.

i)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

ii)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

iii)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

d) State **two** diseases of the respiratory system caused by cigarette smoke.

i) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

ii) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Revision chapter 1,2 and 3 Form 1

1. Answer the following questions based on the diagram given.



1. Name apparatus *X*.

-------------------------------------------------------

1. What is the method used to measure the volume of the lead block?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. What are the initial and final readings of the volume of water in apparatus *X*?
2. Initial reading \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Final reading:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Calculate the volume of the lead block.
5. State **two** precautionary steps need to be taken in this experiment.
6. The lead block should be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ into the water.
7. The reading has to be taken at\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
8. Determine the volume of the solid object shown below. Then, answer the questions.



1. Volume of copper lump = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(ii) Volume of cork = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Diagram 5 shows the structure of a cell.

S

T

P

Q

U

R

**Diagram 5**

Match the labeled cell structures to their names and functions.

**Cell structure Name Function**

P Nucleus Maintains the shape of cell

Q Cell membrane Controls all cell activities

R Cytoplasm Absorb sunlight for

photosynthesis

S Chloroplast Stores water and

dissolved minerals

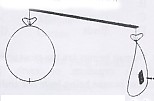
T Cell wall Site of chemical

processes

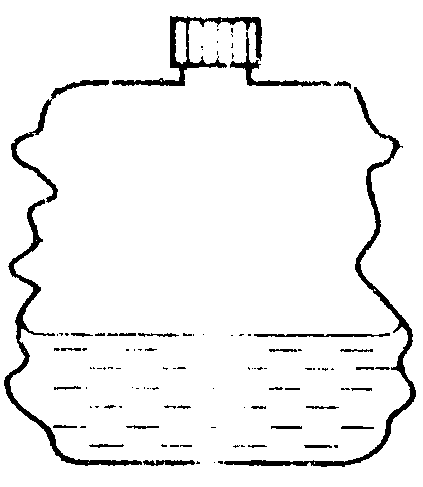
U Vacuole Control the movement of

Substances in and out of

The cell

3. Classify the following matter into solids, liquids or gases

1. e)

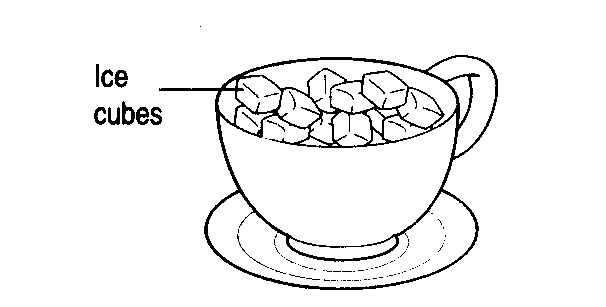


Air in the

balloon

hot water

\_\_\_\_\_\_\_\_\_\_\_\_\_

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

f)

` b)

Hot air

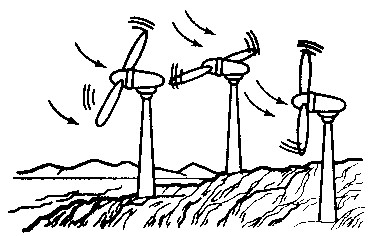
balloon

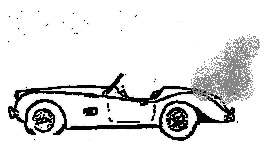
\_\_\_\_\_\_\_\_\_\_\_\_\_\_

g)

Wind from windmill

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

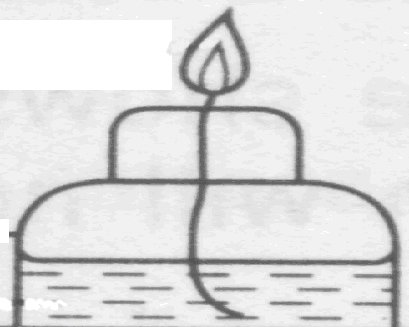




c)

Carbon monoxide

­­­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ h)



d)

aeroplane

kerosene

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. Match objects/substances below to their arrangement of particles

a) glue

b) coffee

c) smoke

i

d) breeze

e) mercury

f) blood

ii.

g) book

h) steam

i) oxygen

j) rainwater

iii.

k) thumbtack

l) cloth

m) droplets

n) salt solution

5. Table 1 shows the density of different liquids

|  |  |
| --- | --- |
| Liquid | Density g / cm 3 |
| J | 0.63 |
| K | 0.87 |
| L | 1.0 |
| M | 0.80 |

Table 1

a) Liquids J , K , L and M are poured into the gas cylinder and left for a few minutes. Label the position of liquids J and L in the figure 2

…

P

FIGURE 2

b) The most dense liquid is

……………………………………………………………..

c) If solid P is put in the cylinder and its position as shown in figure 2, describe the density of solid P compare to other liquids

……………………………………………………………………………………

……………………………………………………………………………………

d) The mass 5 cm 3 of copper is 44.5g.

What is the density of copper? ( Show your calculation)

6. Fill in the blanks with suitable words about mass and weight.



The \_\_\_\_\_\_\_\_\_\_\_\_of an object is the amount of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ contained in the object.

The SI unit for mass is \_\_\_\_\_\_\_\_\_\_\_ and the symbol for this unit is \_\_\_\_\_\_\_ . The units of

mass that are smaller are \_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_ . The mass of an object is

constant or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ , regardless where that object is.

The weight of an object is influenced by the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, which \_\_\_\_\_\_\_\_\_\_\_\_

according to place. Therefore, the weight of an object may \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in a different place. The measuring unit of weight is\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_and its symbol is *\_\_\_\_\_\_\_\_\_* .