The City School

North Nazimabad boys campus

Biology Reinforcement Worksheet Grade 11

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Section: \_\_\_\_\_\_Date: \_\_\_\_\_\_\_\_\_\_

 **BREATHING**
1 **Introduction**
(a) name some processes carried out by the body that need energy
…………………………………………………….
…………………………………………….
(2)

(b) from where the animals obtain energy needed to carry out these processes. Describe ……………………………………………………
(1)

(c) the animals use energy in the form of ATP .Name the processes that convert light energy into chemical energy and transfer energy of chemicals of food to ATP.
Light energy --------------------> Chemical energy of food
Chemical energy ---------------> ATP
(2)
(d) Define tissue respiration ………………………………………………………………………………………………..……………………………………………………………………………………………….. (2)
(e) Name an organism that takes oxygen from the environment
i. outer entire boundary ………………………………………………
ii. gills …………………………………………………………………
iii. lungs ………………………………………………………………..
(3)
(f) state any two functions of lungs
i. ……………………..……………………………………………………………………..
ii. …………………………………………………………………………………………….. (g) Describe four common characteristic features of all gases exchange surfaces · …………………………………………………………………………………………… · …………………………………………………………………………………………… · …………………………………………………………………………………………… · …………………………………………………………………………………………… (4)2 **Lungs** (a) Lungs are respieratory organs in all mammals.
(i) Describe their location in humans ……………………………………………………………………………….. (1)
(ii) How do they communicate with the atmosphere ……………………………………………………………………………….. (1)
(iii) Name the structures that help lungs to perform their function of ventilation.
i ………………………………………………..
ii ……………………………………………….. (2)
(iv) they are enclosed in tough membrane on around. Name it ………………………………………………………………………………… (1)
(b) **Lung structure**
(i) how many bronchi are present in an individual ………………………………………………………………………………… (1)
(ii) name the channels that branch off from each bronchi …………………………………………………………………………………… (1)
(iii) describe the structure of alveoli. Also describe their functions Structure ………………………………………………………………………….…………………………………………………………………………………… ………………………………………………………………………………………………………………………………………………………………………… (3) Functions \* ……………………………………………………………….. \* ……………………………………………………………….. (2)
(iv) the walls of the trachea and bronchi contain C-shaped cartilage rings. State their function \* ……………………………………………………………….. \* ……………………………………………………………….. \* ……………………………………………………………….. (3)
(v) Name the tissue lining inner of the trachea.
i Name ……………………………………………………………..
ii Describe the structure of this tissue ……………………..……………………………………………………………….. (1)
iii State its function ……………………..……………………………………………………………….. ……………………..……………………………………………………………….. (2)
iv Explain how the structure of inner lining of the trachea is adapted to perform its role. ……………………..………………………………………………………………..……………………..……………………………………………………………….. ……………………..………………………………………………………………..……………………..……………………………………………………………….. ……………………..………………………………………………………………..
(4)
v Describe the location of epiglottis. ……………………..………………………………………………………………..
(1)
vi How swallowing is facilitated by the epiglottis. ……………………..……………………………………………………………….. ……………………..………………………………………………………………..
(2)
vii How does choking and coughing help in survival of an individual? ……………………..……………………………………………………………….. ……………………..……………………………………………………………….. (2)
(c) Alveoli
(i) What is the thickness of epithelium of alveoli (1) ……………………..………………………………………………………………..
(ii) How does this feature help in exchange of gases. (2) ……………………..……………………………………………………………….. ……………………..……………………………………………………………….. ……………………..………………………………………………………………..
(iii) Alveoli have dense network of capillaries around them. Explain how they are important in their presence. ……………………………..……………………………………………………………….. ……………………………..………………………………………………………………..……………………………..……………………………………………………………….. ……………………………..………………………………………………………………..(3)
(iv) Describe the location of pleural membranes. ……………………………..……………………………………………………………….. ……………………………..……………………………………………………………….. (2)
(v) Explain the function of these membranes. ……………………………..……………………………………………………………….. ……………………………..……………………………………………………………….. (2)
3 Gases exchange
(i) describe the path followed by an oxygen molecule from the air sac to the blood capillary surrounding it ……………………………..……………………………………………………………….. ……………………………..………………………………………………………………..……………………………..……………………………………………………………….. ……………………………..………………………………………………………………..(5)
(ii) How an oxygen molecule is carried from the blood capillaries in the lungs to the heart. Explain. ……………………………..……………………………………………………………….. ……………………………..………………………………………………………………..……………………………..……………………………………………………………….. (4)
(iii) The carbon dioxide concentration in the capillaries is higher than in the alveli. Explain how this difference is maintained. ……………………………..……………………………………………………………….. ……………………………..……………………………………………………………….. (2)
(iv) What is the role of enzyme Carbonic anhydrase present in the rbc’s. ……………………………..……………………………………………………………….. (1)
(v) How much volume of oxygen is absorbed in the lungs per minute. ……………………………..……………………………………………………………….. (1)
(vi) Complete the table below to show a comparison between inhaled and exhaled air.

|  |  |
| --- | --- |
| Component | Percentage volume  |
| Inspired | Expired |
| Oxygen |  |  |
| Carbondioxide |  |  |
| Nitrogen |  |  |
| Water vapours |  |  |
| Dust particles |  |  |
| Temperature |  |  |

(6) 4 Diffusion gradient
(i) define diffusion gradient ……………………………..……………………………………………………………….. ……………………………..……………………………………………………………….. (2)
(ii) what is significance of steeper diffusion gradient ……………………………..……………………………………………………………….. (1)
(iii) Explain how a steeper diffusion gradient is maintained for oxygen in the alveoli and the blood capillaries ……………………………..……………………………………………………………….. ……………………………..………………………………………………………………..……………………………..……………………………………………………………….. ……………………………..………………………………………………………………..……………………………..………………………………………………………………..
(4)
5 Ventilation of the lungs
(a) Make a comparison between inspiration and expiration

|  |  |  |
| --- | --- | --- |
|  | Inspiration | Expiration |
| Energy  | …………………………….. | …………………………… |
| Internal intercoastal muscles | …………………………….. | …………………………….. |
| External intercoastal muscles | …………………………….. | …………………………….. |
| Ribs movement | …………………………….. | …………………………….. |
| Diaphragm muscles | …………………………….. | …………………………….. |
| Diaphragm shape | …………………………….. | …………………………….. |
| Volume of chest cavity | …………………………….. | …………………………….. |
| Pressure on lungs | …………………………….. | …………………………….. |
| Air movement | …………………………….. | …………………………….. |

(9)
6 Lung capacity
(a) Define lung capacity ……………………………………………………………………………………………………………………………………………………………………………………………… (2)
(i) what is total lung capacity of an average man. ……………………………………………………………………………………………… (1)
(ii) Define the tidal air ……………………………………………………………………………………………………………………………………………………………………………………………… (2)
(iii) Define vital capacity ……………………………………………………………………………………………………………………………………………………………………………………………… (2)
(iv) Define residual volume ……………………………………………………………………………………………………………………………………………………………………………………………… (2)
(v) Define dead space ……………………………………………………………………………………………………………………………………………………………………………………………… (2)
(b) Control of breathing rate.
(i) What is the breathing rate of an average adult ……………………………………………………………………………………………… (1)
(ii) What part of the brain control the braethintg movements ……………………………………………………………………………………………… (1)
(iii) The exercise effect the breathing pattren of an individual. Describe two ways the breathing pattern is changed in an exercising individual
i …………………………………………………………………………
ii ………………………………………………………………………… (2)
(iv) Explain how do these changes benefit an individual. ……………………………………………………………………………………………………………………………………………………………………………………………… ……………………………………………………………………………………………………………………………………………………………………………………………… (3)
(v) Describe three factors other than nervous control that effect the breathing rate.
i …………………………………………………………………………
ii …………………………………………………………………………
iii ………………………………………………………………………… (3)
(vi) Hold your breath and note the maximum time you can hold breath. Time …………………………………………………………….in seconds (1)
(vii) Do 10 sit ups and then hold your breath and note the maximum time you could hold your breath. Time ……………………………………………………………..in seconds
(1)
(viii) What is the difference in the breath hold? ……………………………………………………………………………..
(1)
(ix) Explain this difference ……………………………………………………………………………………………………………………………………………………………………………………………… ………………………………………………………………………………………………(3)