1. Short answer questions:

i. **State two ways in which the air we breathe out is different from the air we breathe in.**

Higher Carbon Dioxide: The air we breathe out contains a higher concentration of carbon dioxide, as it is a waste product of cellular respiration.

Lower Oxygen: The air we breathe out has a lower concentration of oxygen because some of the oxygen has been taken up by body cells for energy production.

ii. **Describe how the diaphragm moves when we breathe in and out.**

When we breathe in, the diaphragm contracts and moves downward, expanding the chest cavity. When we breathe out, the diaphragm relaxes and moves upward, reducing the chest cavity's volume.

iii. **Make a list of all the parts of the body that air flows through on its way to the lungs.**

The respiratory system includes the nose, mouth, throat, voice box, windpipe, lungs, and diaphragm.

iv. **Why is it better to breathe through your nose than through your mouth?**

Nose breathing is more beneficial than mouth breathing. Breathing through your nose can help filter out dust and allergens, boost your oxygen uptake, and humidify the air you breathe in. Mouth breathing, on the other hand, can dry out your mouth.

v. **What are alveoli?**

Alveoli are tiny air sacs present within the lungs which appear as a bunch of grapes. They mainly promote the exchange of gases.

vi. **What is the role of cilia in our respiratory system?**

Tiny hair called cilia protect the nasal passageways and other parts of the respiratory tract, filtering out dust and other particles that enter the nose through the breathed air.

2. Long answer questions:

i. What is the difference between breathing and respiration?

Breathing	Respiration
Breathing involves the process of inhaling oxygen and exhaling carbon dioxide	Cellular respiration is the process of breaking down glucose to produce energy.
Breathing takes place in the lungs.	Respiration takes place in cells
There is no production of energy in this process.	Energy is produced and released in the form of ATP.
No enzymes are used during the process.	A large number of enzymes are used during the process.

ii. Burning and respiration both use oxygen and both produce energy. Make a table to show the similarities and differences between burning and respiration.

Differences:

Aspect	Burning	Respiration
Type of Reaction	Combustion (Chemical Reaction)	Biological Process
Location	External (outside the body)	Internal (within cells)
Byproducts	Produces various waste gases and ash	Produces carbon dioxide and water
Energy Production	Generates heat and light energy	Generates chemical energy (in the form of ATP)
Efficiency	Less efficient in terms of energy production	More efficient in terms of energy production
Purpose	Often used for heating, cooking, or producing energy in machines	Fundamental process for producing energy in living organisms

Similarities:

- Both burning and respiration involve the utilization of oxygen.
- Both processes result in the production of energy.
- Both processes involve chemical reactions.
- Both burning and respiration release carbon dioxide as a byproduct.

iii. Why do you breathe faster, and your chest rate increases when you run?

When you run, your body needs more oxygen to power your muscles. To supply this extra oxygen, you breathe faster. Your heart rate increases to pump oxygen-rich blood to your muscles faster. This helps your muscles get the oxygen and nutrients they need for energy, allowing you to keep running and meet the increased demands of physical activity.

3. Tick the right option.

1. The gas which passes in and out of the lungs unchanged is:			
I. Oxygen	II. Nitrogen	III. Carbon dioxide	IV. Water vapours
2. When the muscles of diaphragm relax:			
I. Air rushes into the lungs	II. The volume of the thorax increases	III. The pressure in the thorax increases	IV. The diaphragm is lowered
3. The may need to use anaerobic respiration during:			
I. Exercise	II. Illness	III. Sleep	IV. Walking
4. The first part of the respiratory system is:			
I. Nose	II. Pharynx	III. Larynx	IV. Trachea
5. The length of pharynx is			
I. 4 inches	II. 5 inches	III. 6 inches	IV. 7 inches

4. Fill ups

i. Respiration is a chemical reaction that produces **energy.**

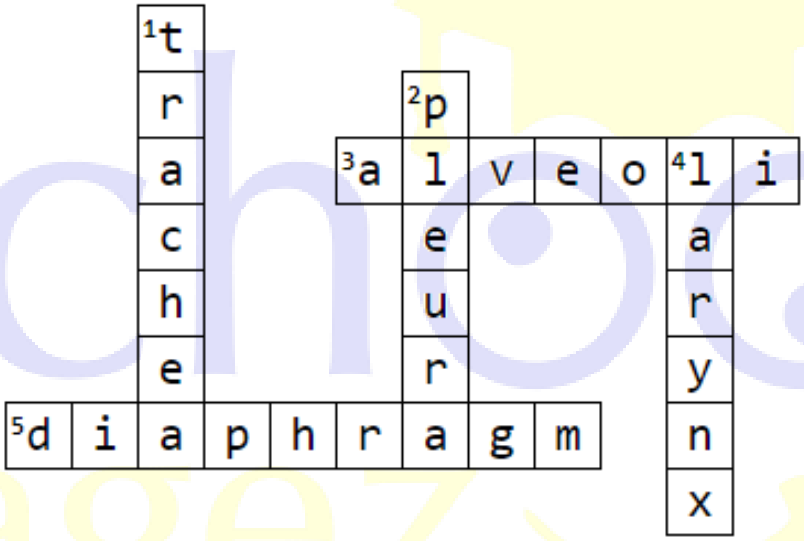
ii. At the end of each bronchiole is a tiny group of air-sacs called **alveoli.**

iii. Respiration occurs in the **mitochondria.**

iv. The two openings of nose are called **nostrils.**

v. The **pharynx** is a muscular tube that connects the nose and mouth.

4. Crosswords



Across	Down
3.tiny air sacs	1.wind pipe
5.muscle that separates chest cavity from abdomen	2.membrane that surrounds lungs
	4.voice box

5. Words Search

Find the following word in the words search.

Lungs	Respire	Inhale	Exhale	Bronchi

R	C	A	T	S	A	L	T	C
E	Y	A	G	E	N	E	V	A
S	T	I	N	H	A	L	E	R
P	L	O	U	R	C	E	X	R
I	P	U	K	H	E	A	H	D
R	L	I	N	E	E	R	H	I
E	A	L	V	G	T	I	A	A
E	S	P	I	N	S	L	L	C
B	M	B	T	U	I	M	E	T
B	R	O	N	C	H	I	E	W

6. Jumbled Words

i. thebrea Breathe

ii. eechsp Speech

iii. heatrac Trachea

iv. lagecarti Cartilage

v. olialve Alveoli

vi. chibron Bronchi

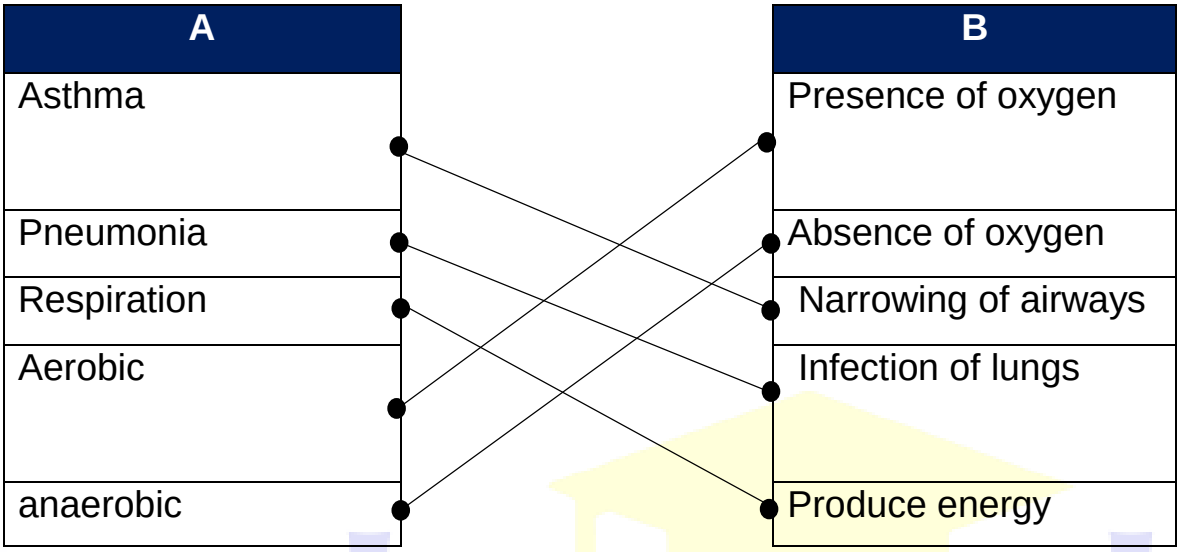
vii. trilsnos Nostrils

viii. thmaas Asthma

ix. tionravib Vibration

x. niamopneu Pneumonia

7. Columns

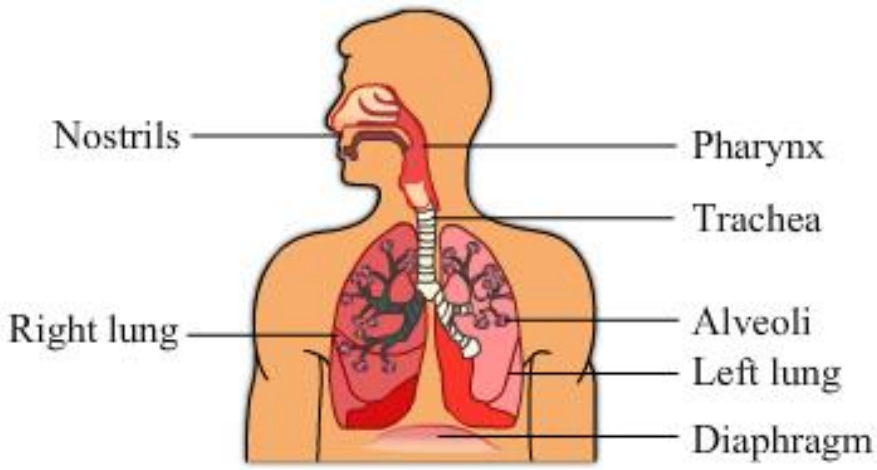


A	B
Asthma	Presence of oxygen
Pneumonia	Absence of oxygen
Respiration	Narrowing of airways
Aerobic	Infection of lungs
anaerobic	Produce energy

8. Write "T" for the true and "F" for the false statement.

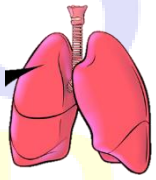
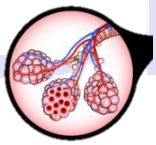
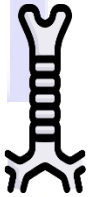
i.	The alveoli are surrounded by a network of blood vessels	**T**
ii.	The larynx allows food to pass from the mouth to the esophagus.	**F**
iii.	The bronchi are the smaller branches that lead to the alveoli.	**F**
iv.	Carbon dioxide is a waste product of cellular respiration	**T**
v.	Rings of trachea are made up of cartilage.	**T**

11. Label the diagram.



9. Drag and Drop

Look at the pictures and write their names in the relevant column.

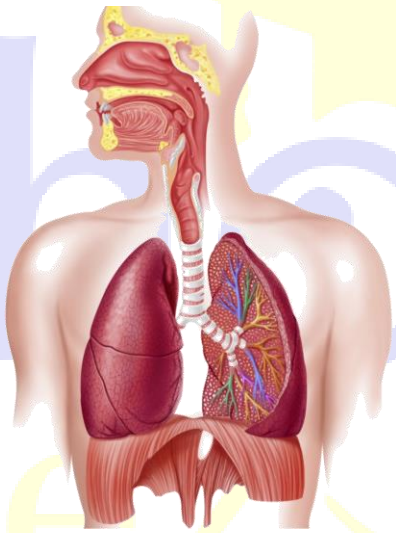
				
Lungs	**Alveoli**	**Trachea**	**Pharynx**	**Larynx**

Structure	Function
Lungs	Allow gaseous exchange
Alveoli	Tiny air sacs in the lungs where gas exchange takes place
Trachea	It connects larynx to bronchi
Pharynx	Common to both food and air
Larynx	Voice box

10. Comprehension

Answer the following questions after reading the paragraph and observe the picture carefully.

The respiratory system is our body's breathing system. It includes the lungs and airways, which are like a set of tubes. When we breathe in, air goes into our lungs, and when we breathe out, air comes out. The lungs are like sponges that take in the oxygen from the air we breathe. Oxygen is like the fuel our body needs to work properly. At the same time, the lungs help get rid of a waste gas called carbon dioxide when we breathe out. So, it's like a simple but essential process—breathing in to get oxygen and breathing out to remove waste. The respiratory system is like our body's way of taking in the good stuff and getting rid of the stuff we don't need.



I. What is respiratory system?

Ans: The respiratory system is our body's breathing system.

II. What happens when we breathe in and breathe out?

Ans: When we breathe in, air goes into our lungs, and when we breathe out, air comes out.

III. What is the role of oxygen?

Ans: Oxygen is like the fuel our body needs to work properly.