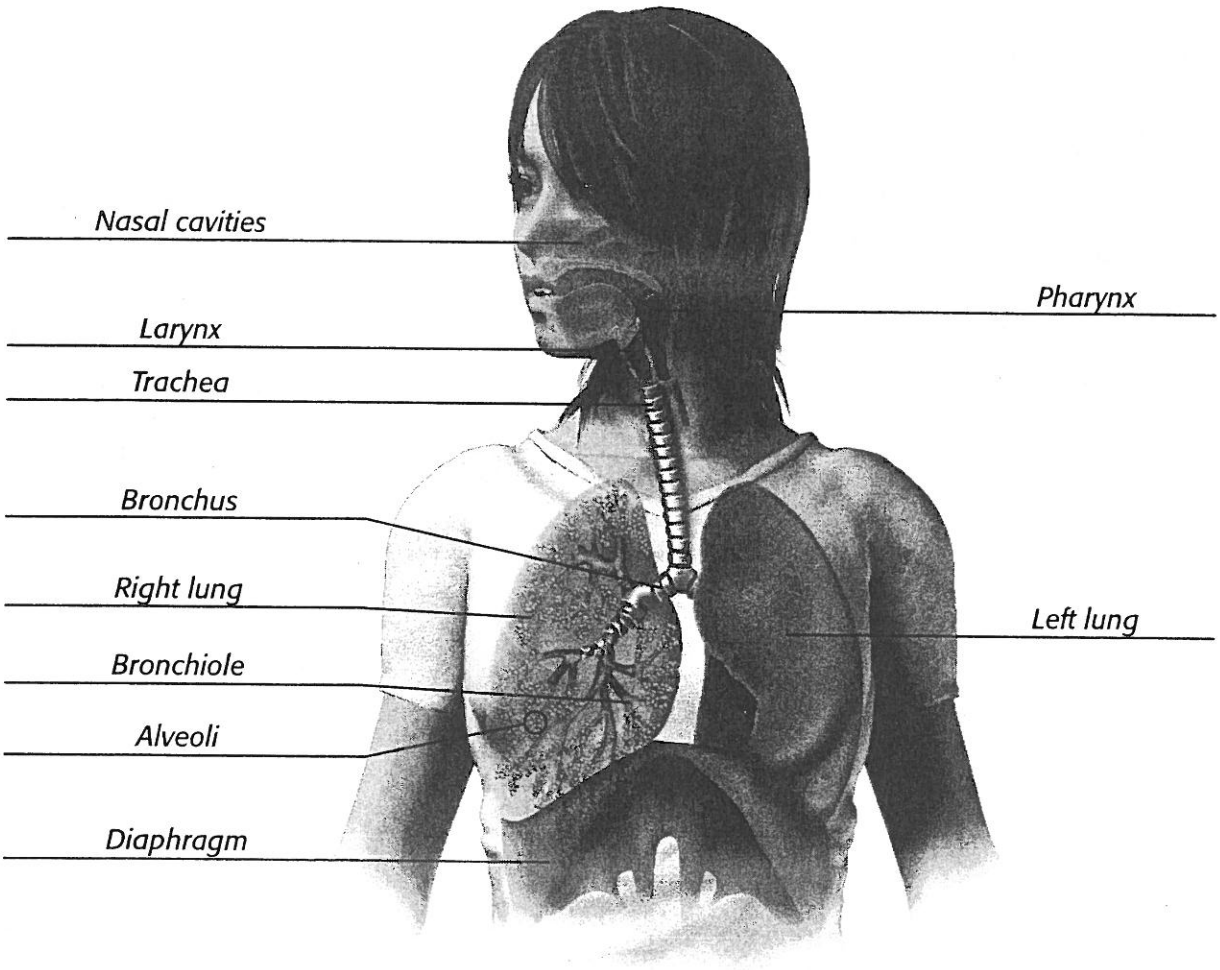
The Respiratory System

The dual role of the respiratory system

1. The respiratory system has a dual role:
   - First function: *Provides the organism's cells with oxygen so that controlled combustion can occur in them*
   - Second function: *Eliminates carbon dioxide, the toxic waste that is produced from cellular combustion*

The anatomy of the respiratory system

2. Fill in the different parts of the respiratory system to complete the following diagram:



3. A muscle that also plays a role in respiration: *The diaphragm*

The respiratory tract

4. Summary table of the respiratory tract

Parts of the respiratory tract	Description and role
Nasal cavities	Two cavities in the nose that are lined with hair, cilia and mucus-producing glands Role of the cavities: *To filter, warm and humidify air*
Pharynx	Part of both the respiratory tract and the *digestive* tract
Larynx	An organ consisting mainly of cartilage that contains the *vocal chords*
Trachea	Located in front of the esophagus and made up of cartilage rings, its inner surface is coated with mucus and small cilia. Role of mucus: *To trap the dust in the air we breathe* Role of cilia: *To push dust toward the top of the respirator tract to protect the lungs*
Bronchi	The trachea splits into *two* tubes that directly enter the right and left lungs. Like the trachea, they are made up of cartilaginous rings, *cilia* and *mucus-producing* glands. They divide into the *secondary bronchi*.

The lungs

5. Complete the following sentences:

The left and right lungs contain the *bronchioles* and the *alveoli*. They are enveloped in a double membrane called the *plura* that adheres to the walls of the rib cage and the diaphragm.

6. Summary table of the lungs

Parts of the lungs	Description
Bronchioles	Branches of the bronchi that end in clusters of *alveoli*.
Alveoli	Three hundred million of these make gas exchange possible, thanks to their *very thin and permeable membrane* and the *capillary networks that surround them*.

The physiology of the respiratory system

7. The movements that allow air to enter and exit the lungs in two steps: *inhalation* and *exhalation*

8. Summary table of respiratory movements

Organs or factors that operate during respiration	Inhalation	Exhalation
Ribs and sternum	*They lift when the intercostal muscles contract.*	*They lower when the intercostal muscles relax.*
Diaphragm	*It lowers by contracting.*	*It lifts as it relaxes.*
The volume of the thorax and lungs	*It increases.*	*It decreases.*
Air pressure in the lungs	*It decreases.*	*It increases.*
Air displacement	*The air enters.*	*The air exits.*

Gas exchange

9. Oxygen and carbon dioxide travel through the walls of the alveoli. They move from an area where the concentration of gas is great toward an area where the concentration of gas is lower. This phenomenon is called *diffusion*.

10. When gas exchange is taking place in the aveoli:
    - The oxygen in the air that has been inhaled is diffused through the thin walls of the *alveoli* to the *capillaries*.
    - The carbon dioxide is diffused through the *capillaries* to the *alveoli* and is eliminated during the exhalation.