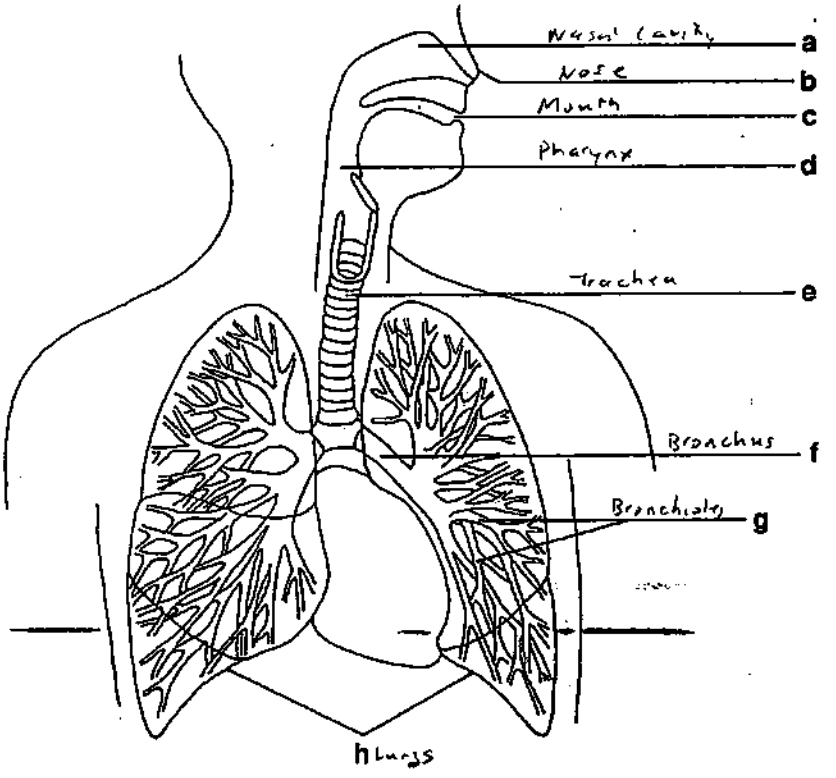
Name Ms. Chen (KEY) Class _____ Date _____



## The Respiratory System

**Part A:** *Label each part of the respiratory system on the lines provided.*




a. Nasal Cavity
b. Nose
c. Mouth
d. Pharynx
e. Trachea
f. Bronchus
g. Bronchiole
h. Lung

**Part B:** *Complete the following sentences by writing the correct letter from the diagram of the respiratory system in the space provided.*

1. The a (nasal cavity) is a hollow opening between the nose and throat.
2. The larynx is found at the top of the e (trachea).
3. Alveoli are found in the h (lungs).
4. Air usually enters the respiratory system through the b (nose).
5. The g (bronchioles) are small tubes whose walls are made up only of smooth muscle.
6. The d (pharynx) is a pathway for both food and air.
7. Each f (bronchus) extends into a lung.
8. Gas exchange takes place in the h (lungs).
9. Air moving through the b (nose) is warmed, moistened, and filtered.
10. The epiglottis is located at the place where the esophagus and e (trachea) meet.

**Part C:** *Match the terms with the descriptions. Write the term in the space provided.*

cilia nostrils larynx epiglottis mucus

Mucus 1. Keeps respiratory tissues from drying out

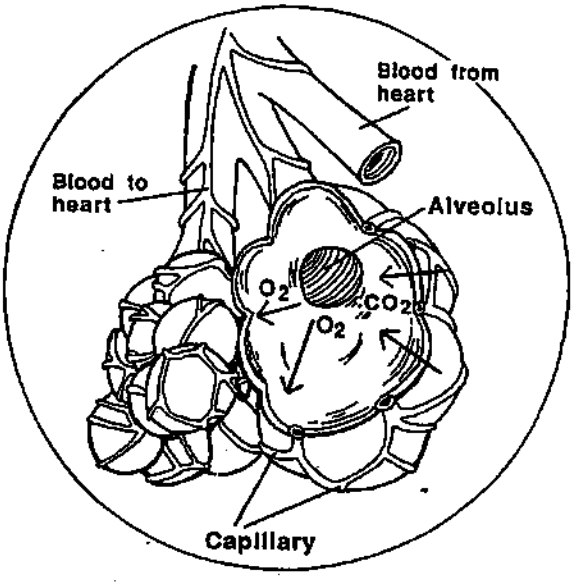
Epiglottis 2. Covers the trachea when you swallow

Cilia 3. Hairlike structures

Nostrils 4. Openings used to take in air through the nose

larynx 5. Contains the vocal cords

**Part D:** *Study the diagram. Then, answer the questions in the space provided.*




1. What does the diagram illustrate? Gas Exchange at alveoli
2. Between what structures are gases exchanged? alveoli and capillary
3. How many cells thick are the walls of the alveoli? one
4. How many cells thick are the walls of capillaries? one
5. What two gases are exchanged in the lungs? $CO_2$ and $O_2$
6. Does air entering the alveoli have a high level or a low level of oxygen? High level
7. Does air entering the alveoli have a high level or a low level of carbon dioxide? Low level
8. Does blood coming from the heart have a high level or a low level of oxygen? low level
9. Does blood coming from the heart have a high level or a low level of carbon dioxide? High level
10. By what process does the exchange of oxygen and carbon dioxide take place? diffusion

# Respiration and Excretion

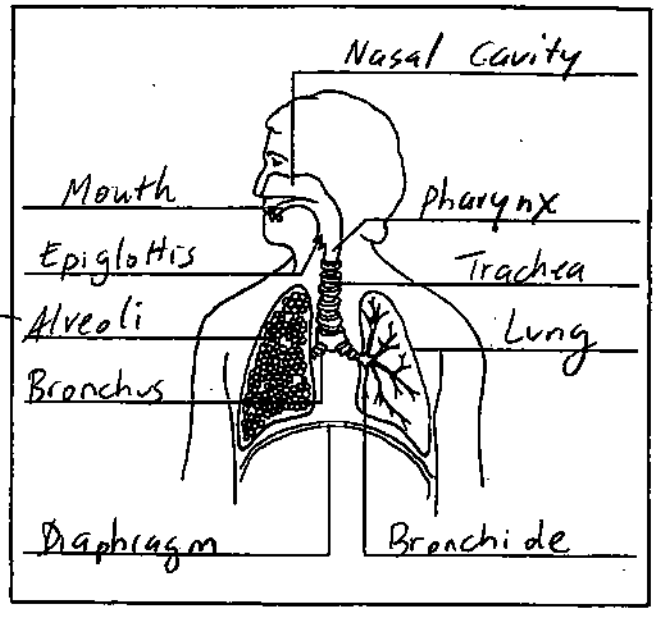
NAME _____

CLASS _____ DATE _____

## A. STRUCTURE AND FUNCTION OF THE LUNGS

Textbook reference: Sections 39–2, 39–4

The lungs are the organs that enable the exchange of gases between the blood and the atmosphere. Without the action of the lungs, the blood would become filled with the waste gas carbon dioxide, and the cells of the body would be unable to burn food due to lack of oxygen. Study the diagram on the right, which shows the human respiratory system. Supply the missing labels, and then complete the chart below.



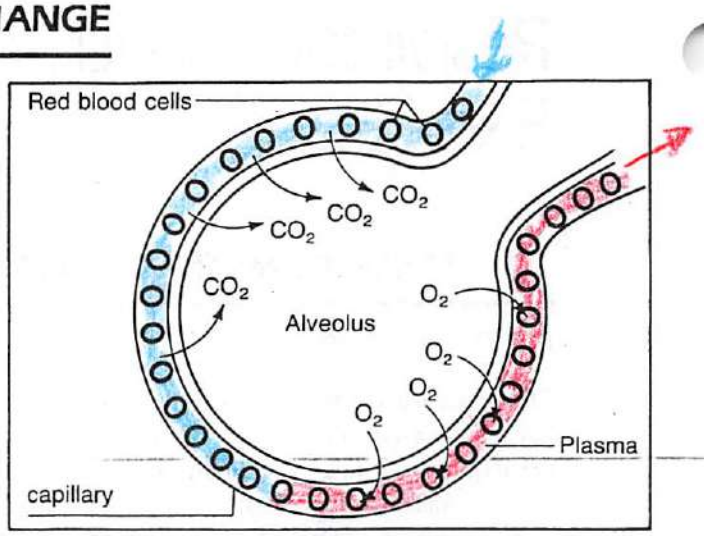

(The little circles)

| Part | Function |
|---|---|
| Nasal passages | passage way for air flow through the nose |
| Epiglottis | Flap of tissue that covers trachea opening while swallowing to prevent food from entering trachea (prevent choking) |
| Larynx | Voice box |
| Trachea | windpipe, lined w/ cartilage to prevent it from collapsing |
| Lungs | primary respiratory organ that draws air in + out for gas exchange |
| Diaphragm | sheet of muscle below the lungs that help you breathe |

## B. CRITICAL THINKING: GAS EXCHANGE

Textbook reference: Section 39–3

External respiration takes place at the alveoli. Study the diagram of an alveolus on the right. Using two different colored pencils, draw arrows to trace the path of deoxygenated blood and oxygenated blood. Then describe the process depicted on the lines provided. Finally, answer the question that follows.




As deoxygenated blood flows around the alveolus, $CO_2$ diffuses from blood into alveoli and $O_2$ diffuses from alveoli into the blood (Gas exchange)

Explain how cellular respiration sets up the conditions under which internal respiration occurs.

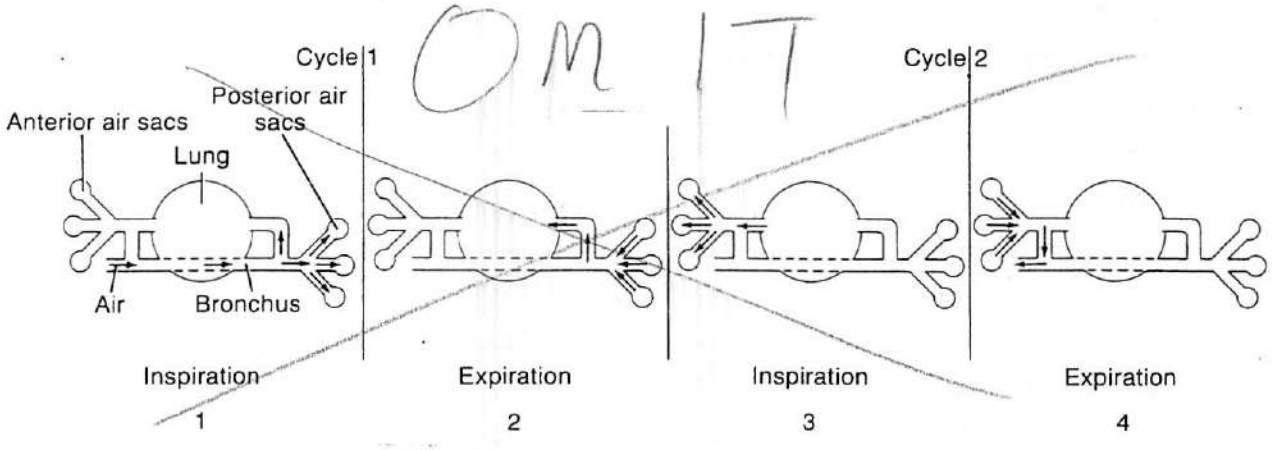
Internal Respiration refers to gas exchange between body cells (skin cells, muscle cells) that perform cell respiration and require $O_2$ to diffuse into them from the capillary. These same cells produce $CO_2$ during cell respiration that diffuses from the cells into the blood

## C. SYNTHESIS: COMPARISON OF THE BIRD AND THE HUMAN RESPIRATORY SYSTEMS

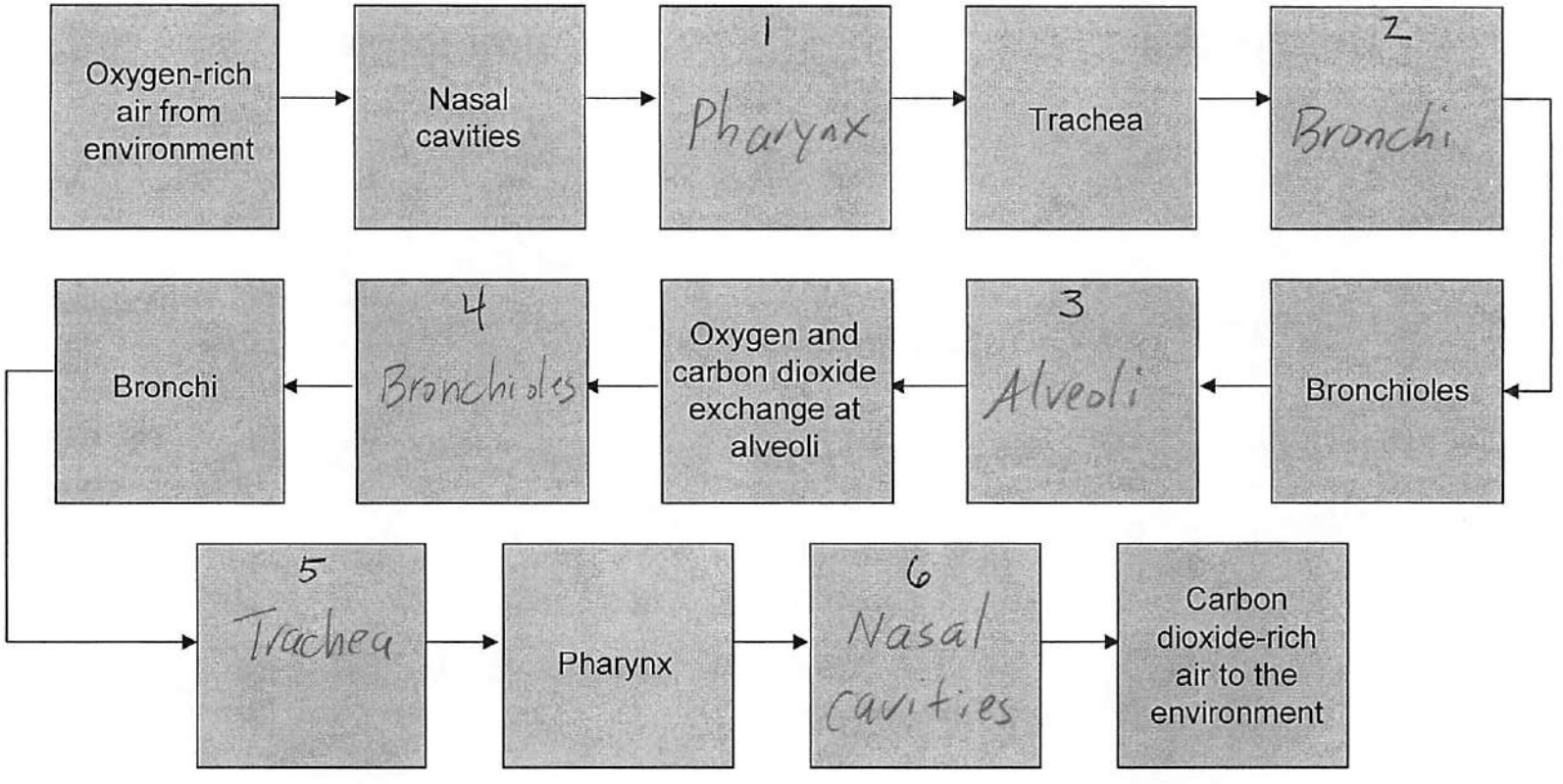
Textbook reference: Sections 35–7, 39–4

Bird lungs are more efficient than mammalian lungs. To see why this is so, trace the passage of air through the respiratory system of a bird below. Compare it with the passage of air in the human respiratory system in the diagram in exercise A. Then complete the paragraph that follows.

OMIT



# Movement of Oxygen and Carbon Dioxide In and Out of the Respiratory System




Ms. Chen
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Ms. Chen
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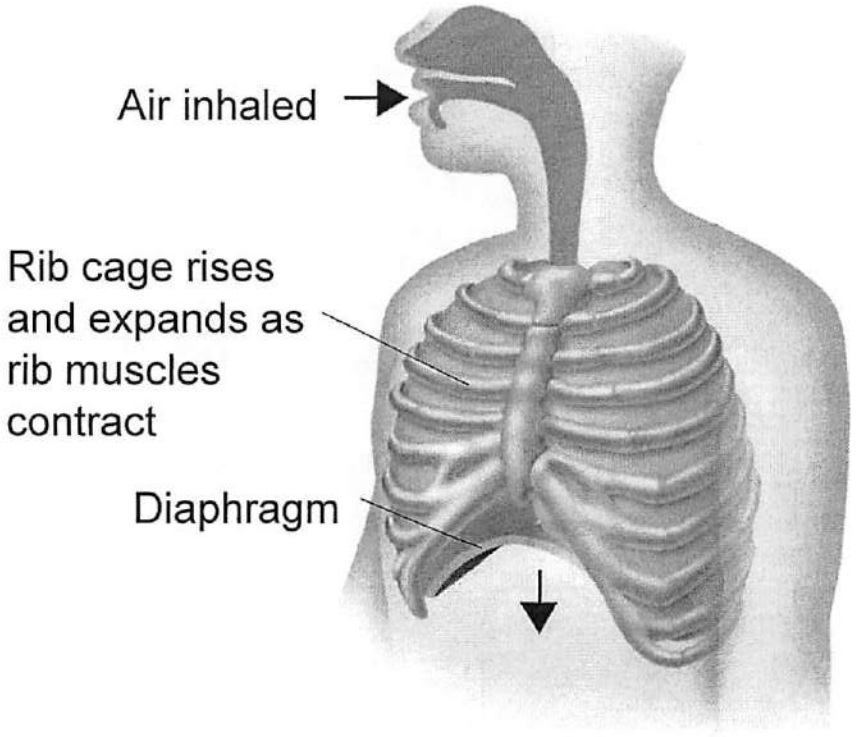
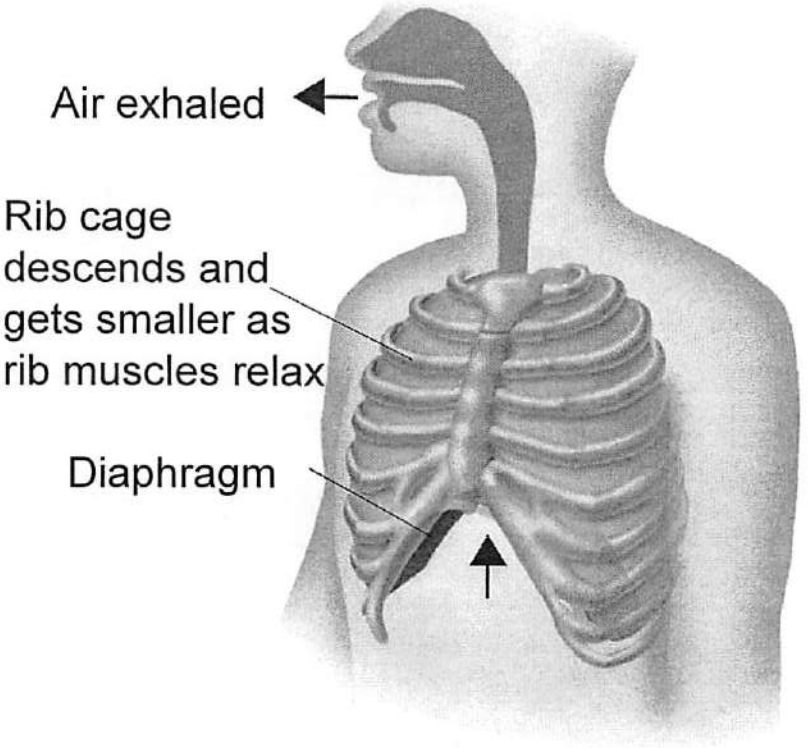
# The Mechanics of Breathing




## Inhalation

Air Rushes In

Diaphragm Contracts and Lowers

Rib cage Rises and Expands

Rib Muscles Contract

Pressure inside chest Lower than pressure outside body.

## Exhalation

Air pushed out

Diaphragm Relaxes and Rises

Rib cage Descends and Gets Smaller

Rib Muscles Relax

Pressure inside chest higher than pressure outside body.

# Respiration Vocabulary

1. **Nose** - lined with capillaries which warms the air. (Nose Bleeds!) Nose also moistens the air.

2. The nose, pharynx, and trachea are lined with cilia which filter and sweep unwanted germs and debris.

3. **Pharynx** - also known as the throat..

4. **Larynx** - also known as the voice box..

5. **Trachea** - also known as the windpipe, lined with rings of cartilage for support - so trachea does not collapse.

6. Epiglottis - flap of tissue that covers the trachea when swallowing food, prevents food from going down into lungs.

7. Alevoli - clusters of **air sacs**, thin walled, moist, where gas exchange occurs.

8. pleural Membranes - Membranes that cover the lungs.