GUIDED NOTES: THE RESPIRATORY SYSTEM

(Textbook Section 2.1, pages B37–B43)

Your Body Needs Oxygen!

- **Respiratory System** - The body system that brings _____ into the body from the environment and removes _____ (CO_2) and other waste products out from the body.
- Main purpose: _____Exchange (Oxygen IN, Carbon Dioxide OUT)
- The process of using oxygen involves both mechanical movement and chemical reactions.
  - Air is transported into your lungs by _____movements.
  - Oxygen is used during _____ reactions that release energy in your cells.

Exchanging Oxygen and Carbon Dioxide

- Without oxygen, cells in the body _____ quickly.
- Oxygen enters the body when you _____.
- Oxygen is then transported to cells throughout the body by _____ cells.
- The air you breathe contains only about _____% oxygen and less than _____% carbon dioxide.
- It is important to exhale CO_2 because high levels of it will _____cells.
- Proper levels of CO_2 and oxygen are required for our body to maintain _____. If levels of oxygen or CO_2 levels change too much, your _____ signals the body to breathe faster or slower.

Cellular Respiration

- Cellular Respiration – A process in which cells use _____ to release energy stored in sugars.
  Cellular respiration occurs in cells as they use oxygen in chemical reactions to release energy.
- The respiratory system works with the circulatory system and digestive system to make cellular respiration possible.
- Cellular respiration requires _____ (sugars from food) and oxygen (from breathing) to release energy. Carbon dioxide is a _____ product of the process and must be removed from the body.
- Remember:

glucose + oxygen → carbon dioxide + water + energy

♦ Structures in the Respiratory System

- Nose, Nasal Cavity, Throat, Epiglottis, Trachea
  - When you _____, air enters your body through your nose or mouth.
  - Inside your nose, tiny hairs called _____ filter dirt and particles out of the air.
  - _____, a sticky liquid in your nasal cavity, also filters the air by trapping particles.
  - The nasal cavity _____ the air before it moves down your throat and into your windpipe (trachea).
  - The trachea is a tube surrounded by _____ of cartilage, which keep the tube open.
  - The epiglottis is a _____ in your throat that keeps food and liquids from entering your lungs. It also helps keeps most air out of your stomach.

- Lungs and Bronchial Tree
  - The lungs are two large _____-like organs located on either side of the heart. They are protected by the _____.
  - When you breathe, air enters the throat, passes through the trachea, and moves to the lungs through structures called "bronchial_____."
  - The bronchial tubes branch throughout the lungs into smaller and smaller tubes called "_____."
  - At the end of the smallest tubes (bronchioles), air enters tiny _____ sacs called "alveoli."
  - The walls of alveoli are only one cell thick!
  - Oxygen passes from the inside of the alveoli into the blood, and carbon dioxide waste is passed from the blood into the alveoli.
  - Alveoli are an important part of the body's _____!
  - The bronchial system (bronchial tubes, bronchioles, alveoli) in the lungs is sometimes referred to as the "bronchial tree," because it looks a lot like an upside-down _____.

- Ribs and Diaphragm
  - The rib cage encloses a space inside your body called the "thoracic cavity."
  - Some ribs are connected by cartilage to the sternum or to each other, making the rib cage flexible. This flexibility allows the rib cage to _____ when you breathe, making room for the lungs to expand and fill with air.
  - The _____ is a large muscle that stretches across the floor of the thoracic cavity.
    - When you inhale, your diaphragm _____, making the lungs expand.
    - When the diaphragm relaxes, the process reverses and you exhale.

Other Respiratory Movements

- Speech and other vocal sounds
- Coughing and sneezing
- Crying
- Sighing
- Yawning
- Hiccupping
- Laughing

Most respiratory movements release _____ from your body out to the environment. Water is lost through sweat, urine, and exhalations of _____.