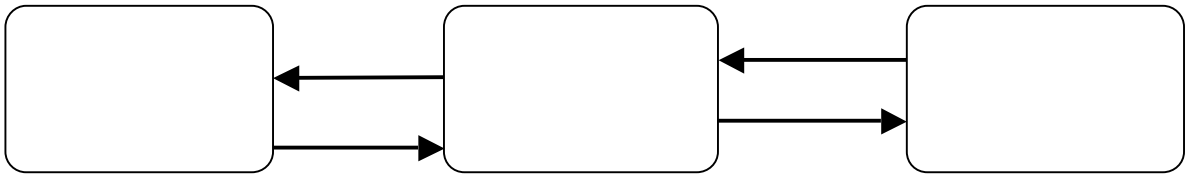
Respiration: Worksheets

Students' worksheet

<u>The three stages in respiration</u>

Skim through the three sections on the process of respiration and **label the boxes to show the three stages in respiration**



Teacher's planning

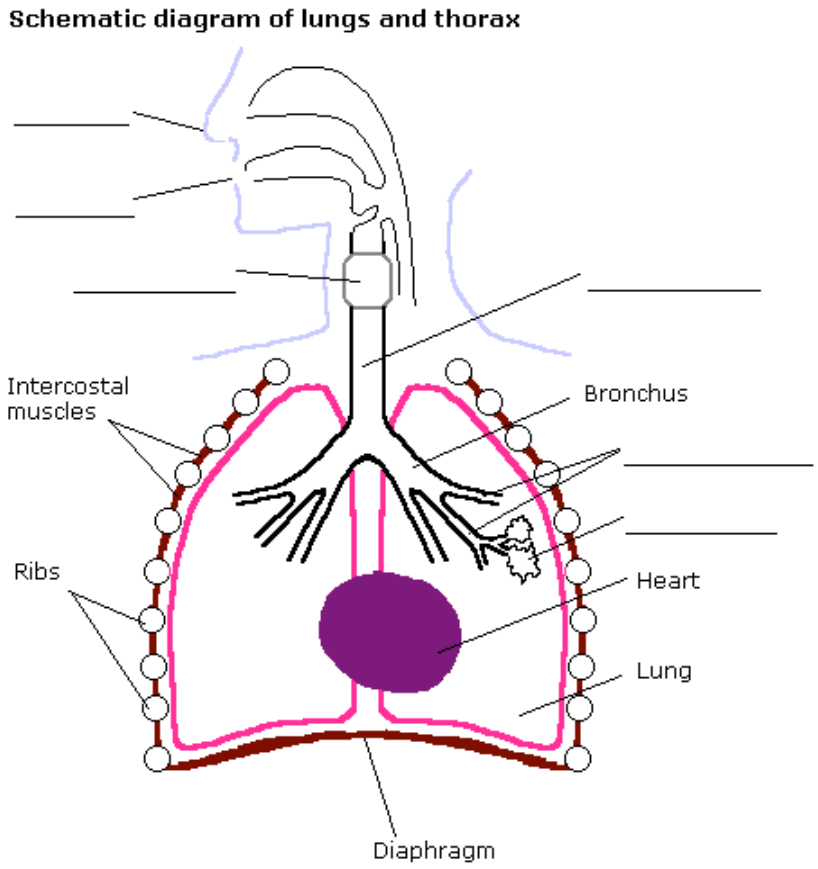
Content objective:
Students should be able to name the 3 stages in respiration in the correct sequence.

Knowledge structure:
Sequence

Language objective:
Students should be able to use the following phrases to name the 3 stages in respiration in the correct sequence.
Vocabulary: *ventilation of the lungs, gaseous exchange, tissue respiration*

Ventilation of the lungs

Read the last paragraph about ventilation of the lungs. **Label the diagram below and draw the route the air takes to go in and out of the lungs.**



Content objectives:

1. Students should be able to name the organs in the respiratory system and show understanding of the route the air takes to go in and out of the lungs.
2. Students should be able to describe the process of ventilation of the lungs.

Knowledge structure:
Sequence

Text structure:
Process description [Definition of the process to describe ^Description sequence]

Language objectives:

1. Students should be able to use the following vocabulary to name the organs of the respiratory system.
   Vocabulary: *larynx, trachea, bronchus, bronchiole, alveoli, inhale, exhale*
2. Students should be able to write a description sequence to describe the process of ventilation of lungs.
   Sentence structures:
   …… is the process by which ……
   This process is the … stage in …
   When we inhale / exhale, ……
   enters, passes through, goes/gets into/out of,
   the which relative clause

[Diagram adapted from http://en.wikibooks.org/wiki/GCSE_Science/Breathing_and_Respiration (25/09/08)]

Use the reading text and the diagram above to **write a 'process description' to describe the process involved in the ventilation of the lungs**. Remember when describing a process, you need to include 2 parts in your writing: the first part is the definition of the process to describe; the second part is the description sequence. Remember the purpose of each part and make sure what you write achieves the purpose. Both parts are partly written for you.

Definition of the process to describe:

_____ *is the process by which air is inhaled into and* _____ *the lungs. This process is the* _____ *stage in respiration.*

Description sequence:

When we _____*, air containing 21%* _____ *enters the respiratory system through the mouth and the nose. The air passes through the* _____ *and the trachea into the two* _____*, which divide into many bronchioles. The air passes into these* _____*, which connect to tiny sacs called* _____*. Gaseous exchange takes place in these* _____*. When we exhale, air containing less* _____ *but much more* _____ *goes back from the alveoli to the bronchioles and then to the bronchi. From the bronchi, air goes back to the* _____ *and then goes out of the respiratory system through the* _____*.*

OR

Definition of the process to describe:

Ventilation of the lungs is the _____ *by which air is inhaled into and exhaled out of the lungs. This process is the* _____ *stage in respiration.*

Description sequence:

_____ *we inhale, air containing 21% oxygen* _____ *the respiratory system through the mouth and the nose. The air* _____ *the larynx and the trachea* _____ *the two bronchus, which divide into many bronchioles. The air* _____ *the bronchioles, which connect to tiny sacs called alveoli. Gaseous exchange takes place in these* _____*.* _____

we exhale, air containing less oxygen but much more carbon dioxide goes back from the alveoli to the bronchioles and then to the bronchi. From the bronchi, air _____ the trachea and the larynx and then _____ the respiratory system through the mouth and the nose.

Refer to the diagram on the breathing mechanism on the last page of the reading material. **Write a 'process explanation' to explain how air is forced into and out of the lungs.** Remember when explaining a process, you need to include 2 parts in your writing: the first part is the definition of the process to explain; the second part is the explanation sequence. Remember the purpose of each part and make sure what you write achieves the purpose.

Definition of the process to explain:

_____

_____

_____

Explanation sequence:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Content objective:
Students should be able to

Knowledge structures:

_____ + cause-effect

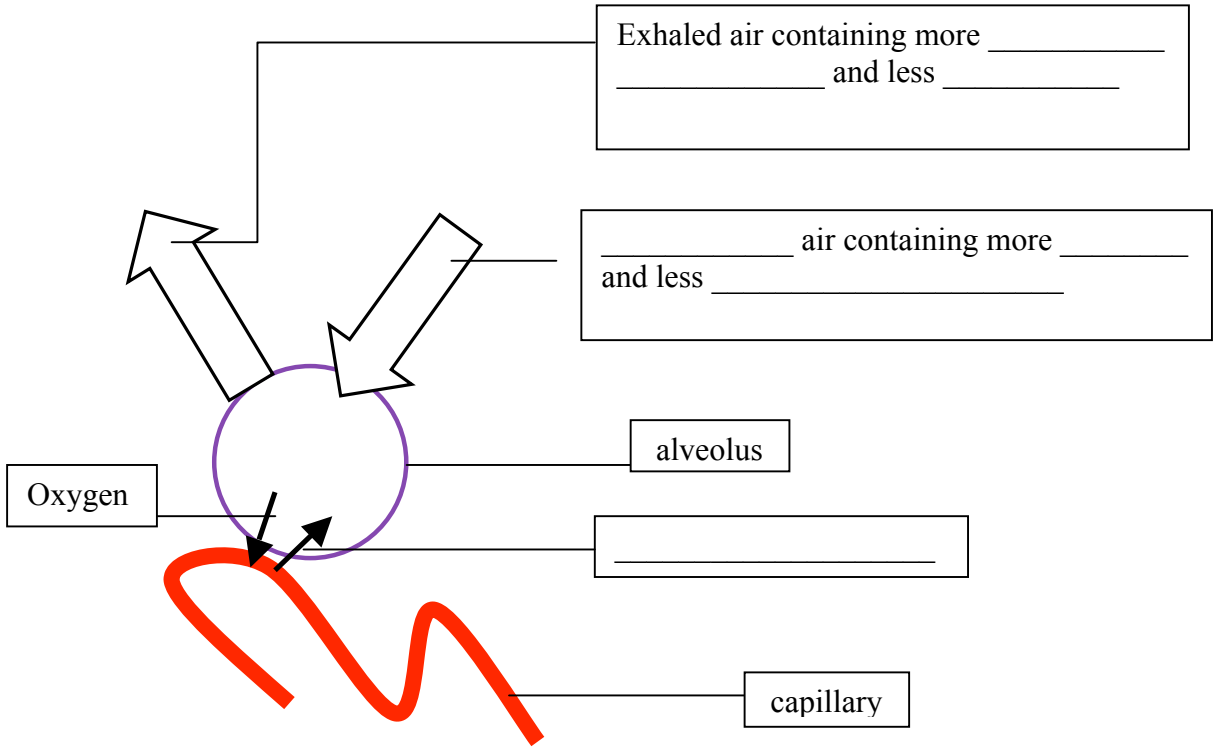
Text structure:

Language objective:
Students should be able to

_____ _____	

Gaseous exchange

There are billions of alveoli in our lungs. The following diagram represents one alveolus and the direction of gaseous exchange. Read the section on Gaseous exchange and **write in the missing words in the diagram**.



There are two important factors which allow gaseous exchange to take place quickly and easily in the lungs. **Use noun phrases describing these factors to complete the sentences below.**

1. _____ *allows gaseous exchange to take place quickly and easily in the lungs.*

Content objectives:
Students should be able to

Knowledge structures:

Language objective(s):
Students should be able to

2. _____ *allows gaseous exchange to take place quickly and easily in the lungs.*	

Tissue respiration

Read the section on tissue respiration

Copy the word equation for anaerobic respiration below:

_____

Now use the example of aerobic respiration in the reading to write what this equation means:

This word equation for anaerobic respiration means:

_____

Now read the explanation of anaerobic respiration in humans and write a word equation below:

_____

Definitions

Definition of aerobic respiration: *Aerobic respiration is the process by which glucose is broken down to release energy in the presence of oxygen.*

Now use the definition of aerobic respiration above to write a definition of anaerobic respiration:

_____

_____

Use the information in this section to write a definition of respiration:

_____

_____

Content objectives:

1. Students should be able to explain what the word equations of anaerobic respiration in general and in humans mean.
2. Students should be able to _____

_____

Knowledge structure:

Language objectives:

Students should be able to use the following ***sentence structure*** to write a definition:

_____

Comparing aerobic and anaerobic respiration in humans

The following table shows the differences between aerobic and anaerobic respiration in humans**. Fill in the table using information from the reading passage.**

	Aerobic respiration	**Anaerobic respiration**
Oxygen supply	*Requires _____*	*Does not require _____*
Condition under which it takes place	*When there is enough _____ supply.*	*When you need more _____ but have less _____ supply than you need. For example, when _____.*
Amount of energy produced		
Products		

Now, **write a comparison-contrast text** to explain the differences between aerobic and anaerobic respiration in humans using the information you have filled in in the table. Remember: In the Statement of comparison, you state the main difference between aerobic and anaerobic respiration. In the Points of comparison, you describe each point of difference as recorded in the table above. In the Summary of comparison, write a sentence to sum up the comparison.

Statement of comparison:
Both aerobic and anaerobic respiration take place in humans. Aerobic respiration requires

Content objective:
Students should be able to explain the differences between aerobic and anaerobic respiration.

Knowledge structure:

Text structure:

Language objective:

The table above shows 3 points of comparison.
Write one to two sentences to compare each point.

_____ _____.

Points of comparison:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Summary of comparison:
Aerobic respiration and anaerobic respiration in humans take place in different conditions and produce _____ products as according to the needs of the situations.

Respiration and photosynthesis in plants

Read the section on Respiration and photosynthesis in plants. **Write a comparison-contrast text to explain the differences of gaseous exchange in plants under different light conditions**. Remember, you are comparing the differences in gaseous exchange in plants under different light conditions but not comparing respiration and photosynthesis in plants. Use the information in the table in the reading passage to help you.

Content objective:

Knowledge structure:

Start with a sentence stating that both respiration and photosynthesis involve gaseous exchange. Then state the difference in the conditions under which gaseous exchange takes place in respiration and photosynthesis.

Statement of comparison:

_____

_____

_____

In this part, compare the rates of respiration and photosynthesis, and the amount of intake and release of gases in different light conditions. Write about each light condition in a separate paragraph.

Points of comparison:

In bright light, such as on a sunny day, _____

_____

_____

_____

_____

_____

In darkness, such as at night, _____

_____

_____

In dim light, _____

_____

_____

Text structure:

Language objective(s):

In this part, sum up the comparison by writing about the net intake and net release of gases in the 3 different light conditions.

Summary of comparison: