### Respiration: Worksheets

#### Students’ worksheet

**The three stages in respiration**

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
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.
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.

<table>
<thead>
<tr>
<th></th>
<th>Aerobic respiration</th>
<th>Anaerobic respiration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxygen supply</td>
<td>Requires ___________</td>
<td>Does not require ________</td>
</tr>
<tr>
<td>Condition under which it takes place</td>
<td>When there is enough __________ supply.</td>
<td>When you need more _______ but have less ______ supply than you need. For example, when ______________.</td>
</tr>
<tr>
<td>Amount of energy produced</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Products</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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
**Points of comparison:**

<table>
<thead>
<tr>
<th>Points of comparison</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
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<tr>
<td>2</td>
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<td>9</td>
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<td>10</td>
<td></td>
</tr>
</tbody>
</table>

**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.
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.

<table>
<thead>
<tr>
<th>Statement of comparison:</th>
<th>Text structure:</th>
</tr>
</thead>
<tbody>
<tr>
<td>In bright light, such as on a sunny day,</td>
<td>Language objective(s):</td>
</tr>
<tr>
<td>________________________</td>
<td></td>
</tr>
<tr>
<td>In darkness, such as at night,</td>
<td></td>
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<tr>
<td>________________________</td>
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<tr>
<td>In dim light,</td>
<td></td>
</tr>
<tr>
<td>________________________</td>
<td></td>
</tr>
</tbody>
</table>
Summary of comparison:

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