

Name: \_\_\_\_\_

Class: \_\_\_\_\_

**WORKSHEET****6.1 Cellular respiration**

Read pages 66–9 of *Human Perspectives Units 1 & 2* and fill in the missing words to complete this summary of cellular respiration.

**Glucose metabolism****Cellular respiration = glucose oxidation****Glucose + oxygen → carbon dioxide + water + energy (ATP)**

This reaction does not occur in one simple reaction, but involves over \_\_\_\_\_ individual reactions, each controlled by specific enzymes.

What is an enzyme?

Explain why each step in the complete breakdown of glucose to carbon dioxide and water requires a different enzyme.

Approximately 60% of the energy is released as \_\_\_\_\_. This is important in keeping the \_\_\_\_\_ constant.

ATP, or \_\_\_\_\_ is a compound formed when an inorganic \_\_\_\_\_ group is joined to a molecule of \_\_\_\_\_, or ADP.

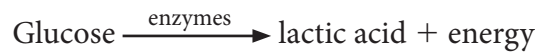
This cycle of energy release and storage can be illustrated using a flow diagram. Draw this in the space below. (Referring to Figure 6.5 in your textbook may be helpful.)

The first phase in the breakdown of glucose is called \_\_\_\_\_.

When oxygen is in short supply or absent \_\_\_\_\_ (without oxygen)  
\_\_\_\_\_ takes place.

This occurs in the \_\_\_\_\_ of the cell. For example, in times of intense exercise, an  
\_\_\_\_\_ debt may be incurred.

Complex compounds are broken down to release energy, but are not completely broken down.



The energy released is only  $\frac{1}{16}$  that of \_\_\_\_\_ respiration.

Lactic acid must be removed from cells and taken to the \_\_\_\_\_ where it is  
converted into \_\_\_\_\_.

Too much lactic acid may cause pain and muscle cramps. Intense exercise incurs an oxygen debt which is  
'repaid' by \_\_\_\_\_.

The complete breakdown of glucose to  $\text{CO}_2 + \text{H}_2\text{O}$  requires oxygen and is referred to as  
\_\_\_\_\_.

It occurs in the \_\_\_\_\_ of the cell.

From one molecule of glucose, there is a maximum yield of \_\_\_\_\_ ATP molecules.

Mitochondria are known as the '\_\_\_\_\_ ' of the cells because  
\_\_\_\_\_.

Mitochondria have a folded inner membrane. This is important because \_\_\_\_\_  
\_\_\_\_\_.