

# \* Aerobic Cellular Respiration

# Starter

Time:

Noise Level

## • Marathon!

- \* Mr Williams and Mr Barlow are going to run a marathon (HA!)
- \* Mr Williams has three bottles of lucozade sport during the marathon. Mr Barlow has just has water.
- \* Who is going to feel better and do better during the marathon?
- \* WHY?!



# AMCAN

## Learning Outcomes

### Challenging:

To Know that Respiration is a different process to breathing

### More Challenging:

To describe where and how cells obtain energy

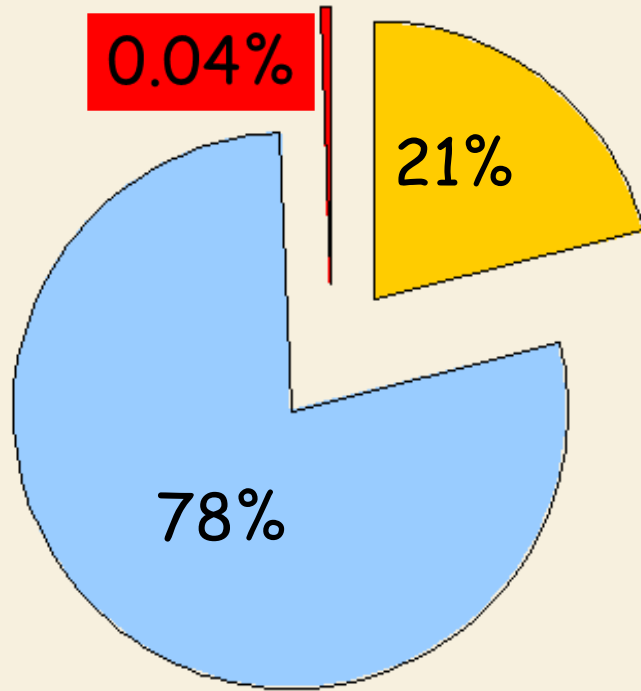
### Most Challenging:

To explain why some Cells need more energy than others.

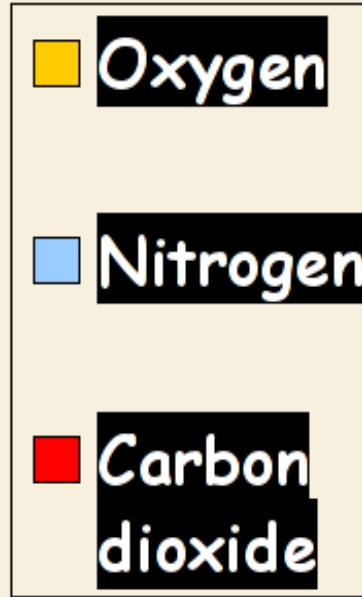
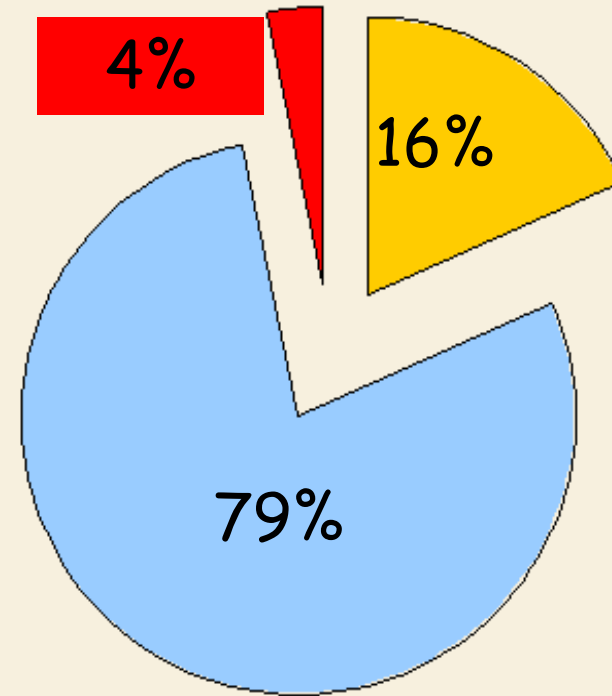
# Task 1

# Gas Exchange

Air breathed in



Air breathed out



# Task 1

## \* How is digested food used by the body?

The body needs a constant supply of **energy** which comes from digested food.

**Glucose** from digested carbohydrate is an important substance that contains stored chemical **energy**.

When glucose reacts with **oxygen** a lot of **energy** is released.

In the body's cells, glucose and oxygen react to release **energy**. Some of this is released as heat and the rest is used by the cells.

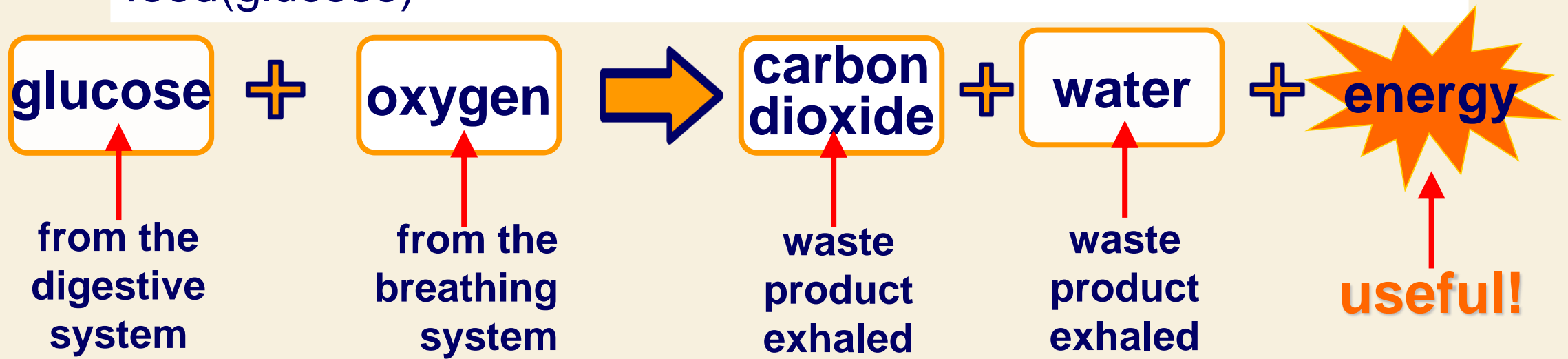
The release of energy from glucose is called...

**respiration**

## Task 2

# What is respiration?

**Respiration** is a chemical reaction that happens in animal and plant cells. It is the way that energy is released from digested food (glucose)



This type of respiration is called **aerobic** respiration because energy is released **with oxygen**.

How do the glucose and oxygen needed for aerobic respiration get to all the body's cells?

## Task 2

Match the word to its correct meaning:

- |                     |  |
|---------------------|--|
| 1 Respiration       | A is a poisonous by-product of respiration             |
| 2 Oxygen            | B Take materials to and from respiring cells           |
| 3 carbon dioxide    | C is needed to release energy from glucose in the body |
| 4 Water             | D the process that releases energy from food           |
| 5 Energy            | E is made when energy is released from food            |
| 6 transport systems | F is needed to do anything                             |

# Task 2

Match the word to its correct meaning:

1 respiration

2 oxygen

3 carbon dioxide

4 water

5 energy

6 transport systems

D the process that releases energy from food.

C is needed to release energy from glucose in the body.

A is a poisonous by-product of respiration.

E is made when energy is released from food.

F is needed to do anything.

B take materials to and from respiring cells.



## Task 3

True or false?

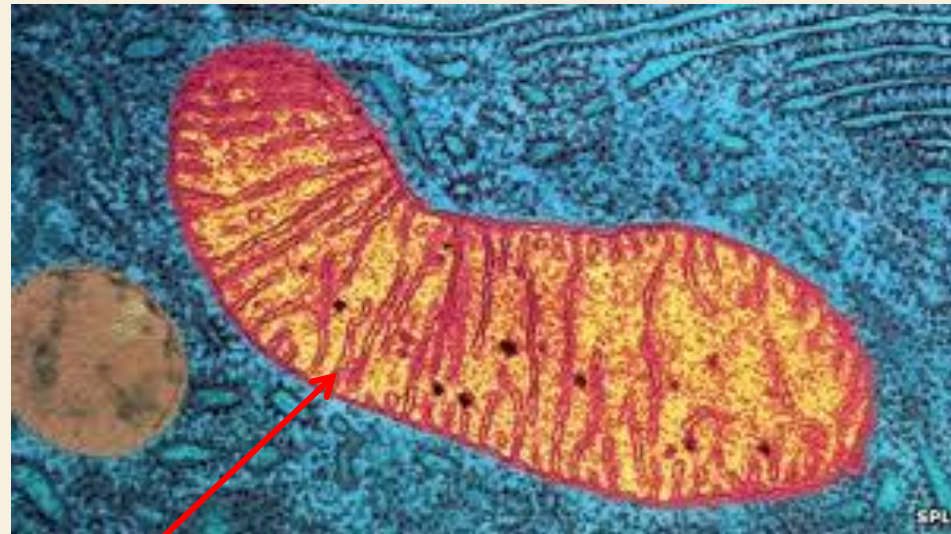
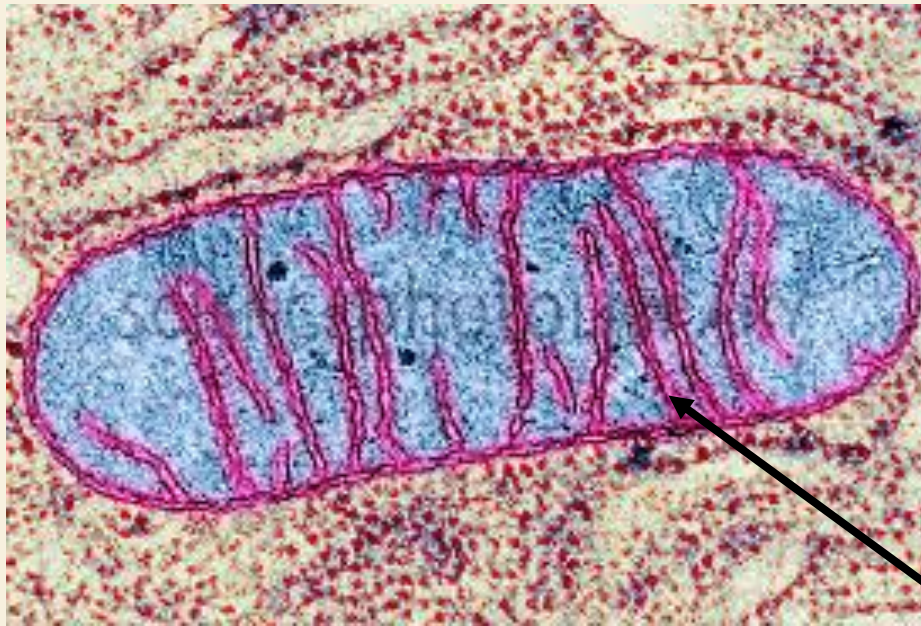
1. Respiration means breathing. **FALSE**
2. Respiration occurs in all body cells. **TRUE**
3. Respiration gives out oxygen. **FALSE**
4. Carbon dioxide is used up by respiration. **FALSE**
5. Respiration is a chemical process that releases energy. **TRUE**
6. Plants do not respire. **FALSE**

## Task 3

# \* Where does respiration take place?

<https://www.bbc.co.uk/bitesize/guides/zq349j6/revision/1>

- Respiration occurs in a specific organelle called a 'Mitochondria'
- The inner membrane is the **site** for respiration to occur.



Inner membrane is increased in structures called 'Cristae'.

# Plenary

Time:

Noise Level

True or false?

1. Respiration releases energy from glucose. **TRUE**
2. Oxygen is needed for respiration in humans. **TRUE**
3. We die without oxygen because we cannot respire. **TRUE**
4. Respiration is a bit like burning. **TRUE**
5. People do not respire while they are asleep. **FALSE**
6. The more energy we need, the less we respire. **FALSE**