Teaching notes

When answering GCSE exam questions about these two processes students can get muddled between the details of each.

This resource is designed to improve the accuracy of their instinctive response to questions about photosynthesis and respiration.

Activity 1

Suggested activities using the words/phrases printed on a set of cards.

- Students time how quickly they can sort the cards into 'photosynthesis' or 'respiration' categories. A partner would check and verify each group when completed.

- Students have their own set of cards which they colour/cross-hatch/highlight in red (for respiration) or green (photosynthesis).

Alternatively, as a whole class activity, the words or phrases appear on the board. Students respond by standing or sitting, holding up red or green cards or by raising a different hand for each process.

The element of physical activity is designed to help cement the ideas in the minds of students.

Activity 2

Working in small groups or pairs a student takes the top card from the face down pile.

Using questions which require only 'yes' or 'no' responses how quickly can the group identify what is written on the card?

Carbon dioxide reactant	**Carbon dioxide product**	**Water reactant**
Water product	**Oxygen reactant**	**Oxygen product**
Glucose reactant	**Glucose product**	**Simple sugar reactant**
Simple sugar product	**Carbohydrate product**	**Carbohydrate reactant**

CO_2 reactant	CO_2 product	H_2O reactant
H_2O product	O_2 reactant	O_2 product
$C_6H_{12}O_6$ reactant	$C_6H_{12}O_6$ product	Uses energy
Produces chemical energy	Requires light energy	Requires chemical energy

$6CO_2$ reactant	**$6CO_2$ product**	**$6H_2O$ reactant**
$6H_2O$ product	**$6O_2$ reactant**	**$6O_2$ product**
$C_6H_{12}O_6$ reactant	**$C_6H_{12}O_6$ product**	**Energy transferred to environment**
Energy transferred from environment	**Requires light energy**	**Requires chemical energy**

Requires Carbon dioxide	**Produces Carbon dioxide**	**Uses Water**
Produces Water	**Needs Oxygen**	**Oxygen is a by-product**
Uses Glucose	**Makes Glucose**	**Takes place in Chloroplasts**
Takes place in Mitochondria	**Requires Chlorophyll**	**Only occurs in plant cells**

Occurs in plant and animal cells	**An exothermic reaction**	**An endothermic reaction**
Takes in energy	**Releases energy**	