Photosynthesis Recipe

Handout 2

PHOTOSYNTHESIS RECIPE: A Creative Dramatics Simulation

Green plants make their own food
Food is needed to exist
The way that green plants make food is
PHO - TO - SYN - THE - SIS!

Sunlight provides the energy (If some children have been given green squares, they come to the clear space.)
And next comes H_2O (Four H_2O molecules come to the open space.)
That's a fancy name for water,
In case you didn't know.

Some water is made within the leaf (Invite four more H_2O's to join the group in the open space.)
By chloroplasts, special cells
But water is sucked up through the roots
To provide H_20 as well. (Call four more H_2O's to join the team. Have them join H_2O's in the space.)

Within the leaf, the chloroplasts
Split H's from the O's (The children with green squares collect the blue circles in sets of two.)
The tiny O's find partners
And from the leaf they go! (The sets of two blue circles are given to the instructor.)

This O_2 given off by plants,
Animals need to stay alive
They inhale the oxygen
And need it to survive.

The hydrogen molecules left behind
Wait for CO_2 to join their dance. (H's circle left and right.)
And CO_2's arrival is not left up to chance!

In leaves, holes called stomata
Take CO_2 from the air (Three CO_2 children are invited to join the circling H's.)
Animals exhale it
And so it's everywhere! (Three more CO_2 children join the group and circle.)

The plant now has just what it needs
To produce a meal that's sweet
The recipe for making lunch
Is really rather neat!

To 12 H's add 6 oxygen (Six CO_2 children exchange an oxygen circle for a hydrogen circle with the 12 hydrogen children.)
Add 6 carbon to the dozen
Mix well, but very gently (All the children weave in and out, under and over, and drop their circles on the floor as they "dance".)
The light provides the oven!

The meal when finished
Looks like this: (All the children sit in a circle around the dropped atoms.)
C_6, H_{12}, O_6

1. Put the formula on the board, pointing out the number of each kind of atom that is needed.
2. Have each child choose a circle (an atom) from the floor, which they will be able to add to the recipe.
3. Tally the type of atom chosen to help children select one they can contribute.
4. Have the children take turns and place their chosen atom in the center to form the pattern $C_6\ H_{12}\ O_6$.

Photosynthesis Recipe

Handout 2

There are some atoms left over. (12 hydrogen atoms and 6 oxygen atoms will not be used.)
Do you know what they do? (Guide the children to realize that these left over atoms can be used to make 6 water molecules: H_2O.)

And so the plant begins again
To produce a tasty treat
With sunlight, CO_2 and chlorophyll
They'll make a meal that's sweet!