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# BONDING:

## Students' Notes

The program starts by drawing an outline of the beginning of the periodic table containing the first 18 elements. It then asks you to choose two elements, at least one of which must be a non-metal. The metals are shown in red and the non-metals in green or yellow. This means that you must not have two 'red' elements together. Some of the non-metals are marked in green to indicate that they don't form simple compounds with one another. (They probably form giant polymers which are too complicated to display on the screen).

When you have decided which pair of elements you want to use you should type the chemical symbol for them one at a time pressing the RETURN key after each one. The computer checks what you type against the list of symbols of the first 18 elements and will ask you to input the symbols again if it doesn't recognise what you typed. For the computer to understand the symbols you must use the correct large and small letters for the element. For example Li must be used for lithium and Ne for neon.

When the computer has identified the two elements you have typed it will try to display the structure of the compound on the screen showing how many electrons each atom has. If the two elements you choose don't form a simple compound, for example if they were both metals, then the computer won't be able to draw the structure and will return to the picture of the periodic table to allow you to choose another pair.

If the compound formed by the elements is a covalent one then the structure will be shown by using overlapping circles in different colours and different sizes. The electrons from each atom will be marked in as pairs of dots to indicate the bonds between the atoms. If the atoms are joined by double bonds then four dots will be put in to show the two pairs of electrons making up the double bond.

If the compound is ionic the non-metal atoms will be drawn first followed by the metal atoms. These will not have overlapping circles to show that the substance is composed of separate particles. The electrons which are transferred from metal to non-metal when the compound is formed are then made to move across the screen from the metal atoms to their correct places in the non-metal atoms. Finally the charges are marked in to show that they are now ions.

When you have finished with the structure you can return to the picture of the periodic table and choose another pair of elements by replying 'Y' to the question 'Do you want another go?' You can leave the program by replying 'N'.

Pressing the ESCAPE key at any time returns you to the start of the program.

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