**FOOD: What is it? How do organisms get energy from it?**

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**FOOD** is composed of 3 kinds of molecules: **carbohydrates**, **fats**, and **proteins**. These molecules are made almost entirely of **C** (carbon), **H** (hydrogen), **O** (oxygen), and, in the case of proteins, **N** (nitrogen). The bodies of organisms are built from exactly the same 3 molecules. Why is this? Why are food and the bodies of organisms made of the same things? Because food IS the bodies of organisms (or their products)!

As you may know, food provides us with the energy we need for life. But how do we get energy from our food? All molecules contain specific amounts of energy, depending on the kind of molecule. Carbohydrates, fats, and proteins contain very large amounts of energy. Living things access the energy in these molecules (with the help of O2) by rearranging their atoms into low energy molecules of CO2 and H2O in a process called **cell respiration**. Because the starting molecules have high energy and the ending molecules have low energy, the excess energy is released when the atoms are rearranged. This released energy is what living cells use for their life functions. Although the energy from cell respiration is used inside the body, the matter (the rearranged atoms) leaves the body in the form of the products CO2 (which we exhale) and H2O (in urine and sweat).

Carbohydrates, especially the sugar glucose, are the easiest molecules for our bodies to use in cell respiration. When carbohydrates are available, the body uses them first to obtain energy. When we eat more food than our body needs, the excess is stored as fat. When our need for energy is greater than the available supply of glucose, we can mobilize our stored fat and use it for cell respiration, rearranging it into CO2 and H2O which then leave the body.

***SUMMARY***

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| **Paragraph** | **SUMMARY/MAIN IDEAS** |
| **1** |  |
| **2** |  |
| **3** |  |