BTR # [ ] **Chemistry of "Food" Review**

1) Fill out the chart below and COMPARE the 4 biomolecules in your body:

Biomolecule Name	"building block" subunits	List molecules examples that belong to this group	FUNCTION in the body for each type of biomolecule	FOODS to eat that are rich in each type of biomolecule
L				
P				
N				
C				

2. Which chemical reaction work like a "scissors" digesting large molecules into BB? Draw the reaction pattern below:

3. Which chemical reaction works like a "stapler" constructing large molecules from BB? Draw the reaction pattern below:

4. Which molecule acts like a "$1 bill of ENERGY" which fuels all cellular activities? Draw this molecule and show where the energy is stored

5. Explain the difference between a Polysaccharide and a Polypeptide? Draw a diagram for each type of molecule.

6. List 2 **complex sugars** found in plants cells and Contrast their **FUNCTIONS**

7. List 2 **complex sugars** found in animal cells and Contrast their **FUNCTIONS**

8. Explain 3 differences between **saturated** and **unsaturated** fats

9. After reading FOOD WATCH: Foods as Fuels (age 36), compare the energy value in kilocalories of energy per gram for each of the 3 biomolecules below:

   Carbohydrates: kcal/g = _____

   Proteins: kcal/g = _____

   Lipids: kcal/g = _____

FOOD WATCH

Foods as Fuel

Most foods contain a mixture of carbohydrates, proteins, and fats. The body can use these molecules to build new tissues, but it uses them mostly as an energy source. Your body's cells harvest the energy in food molecules for metabolism. The energy value of food molecules is measured in kilocalories (kcal).

The minimal rate of energy use per hour (h), called the basal metabolic rate, is about 70 kcal/h for men and 60 kcal/h for women. Typically, walking uses about 200 kcal/h and jogging uses about 600 kcal/h. If more kilocalories are consumed than are used, the body will store the excess kilocalories as fat, regardless of whether the consumed kilocalories are contained in carbohydrates, proteins, or fats.

Carbohydrates

Most carbohydrates in foods come from plant products, such as fruits, grains, and vegetables. Other sources are milk, which contains the sugar lactose, and various meats, which contain some glycogen. Candy and soft drinks also contain sugars. About 4 kcal of energy is supplied by 1 gram (g) of carbohydrates.

Proteins

Primary sources of dietary protein include legumes, eggs, milk, fish, poultry, and meat. As with carbohydrates, proteins supply about 4 kcal/g. Dietary protein is an important source of amino acids. Proteins also provide raw materials for other compounds, such as nucleic acids.

Fats

Fats are found mainly in vegetable oils, such as olive oil; dairy products, such as milk and butter; and meat, such as beef and pork. Fats contain more energy per gram than do carbohydrates and proteins; fats supply about 9.5 kcal/g of energy.

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