

Biology EOC Review

Goal 2: Learner will develop an understanding of the physical, chemical and cellular basis of life.

2.01: Compare and contrast the structure and functions of the following organic molecules: carbohydrates, proteins, lipids, nucleic acids.

| <u>Macromolecules</u> | <u>Function</u> | <u>Subunits</u> |
|-----------------------|-----------------|-----------------|
| Carbohydrates | | |
| Proteins | | |
| Lipids | | |
| Nucleic Acids | | |

| <u>Specific Molecule</u> | <u>Function</u> | <u>Subunits</u> |
|--------------------------|---|--------------------------------------|
| Starch | Plant storage of energy | Simple sugar |
| Cellulose | Plant cell walls | Simple sugar |
| Insulin | Blood glucose levels | Amino acids |
| Glycogen | Animal starch | Simple sugars |
| Glucose | Energy broken down in mitochondria for ATP | |
| Enzymes | Speed up chemical reactions | Amino acids |
| Hemoglobin | Transport oxygen in the blood | Amino acids |
| Fats | Long-term energy storage | Fatty acids and glycerol |
| DNA | Genetic info | Nucleotides (sugar, phosphate, base) |
| RNA | mRNA: made in nucleus during transcription; in a pattern of the DNA molecule tRNA: brings amino acids to the ribosome during translation | Nucleotides (sugar, phosphate, base) |

| <u>Nutrient</u> | <u>Type of Test</u> | <u>Positive Test</u> | <u>Example of...?</u> |
|-----------------|---------------------|----------------------|-------------------------------|
| Starch | Iodine | Black | Potato, crackers, corn starch |
| Lipids | Paper bag | Greasy spot | Oil, butter |
| Monosaccharides | Benedicts | Yellow, red | Honey, juice |
| Protein | Biuret | Violet, lavender | Egg whites |

2.02: Investigate and describe the structure and function of cells.

1. Give the structure and function of each of the following: Nucleus, plasma membrane, cell wall, mitochondria, vacuoles, chloroplasts, and ribosomes draw and label a cell with these parts.
Nucleus: darkly shaded large spot; contains DNA; brain of the cell
Plasma (cell) membrane: phospholipids, proteins, carbs; regulates transport
Cell wall: plant cells; cellulose; structure
Mitochondria: plants and animals; lots of folds; breaks down glucose into ATP
Vacuoles: storage
Chloroplasts: bean-shaped with stacks of "coins"; photosynthesis