**Biology Section 8-1 Notes: How Organisms Obtain Energy**

List some internal processes that require energy:

Energy is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|  | **First Law of Thermodynamics** | **Second Law of Thermodynamics** |
| **Defined** |  |  |
| **Example** |  |  |

Review:

* Nearly all energy for life comes from the \_\_\_\_\_\_\_\_\_\_.
* Organisms that make their own food are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* Organisms that need to ingest food to obtain energy are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

***Metabolism***

What is a metabolic pathway?

What is photosynthesis?

What is cellular respiration?

***ATP***

ATP, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, is a biological molecule that provides organisms with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

ATP is composed of:

ATP releases energy when \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**\*\*Complete p. 221 # 1-4**

**Section 8-2 Notes: Photosynthesis**

***Overview of Photosynthesis***

The overall equation for photosynthesis is:

Plants and other green organisms absorb \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The light-dependent reactions change \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ into the molecules \_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_. The light-independent reactions use \_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_ to make \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. This can then be made into complex carbohydrates such as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, which stores \_\_\_\_\_\_\_\_\_\_\_\_ in plants. It can also be used to make other organic molecules, such as \_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_, or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

***Phase One: Light Reactions***

What is the function of the chloroplasts?

Where are chloroplasts mainly found?

Describe a chloroplast’s structure and what takes place in each part of the chloroplast.

Describe chlorophylls (what they are, what they do, where they are located, etc.)

Most photosynthetic organisms also contain \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that allow them to trap additional light energy. Example:

What substances get used during the light-dependent reactions?

What substances are made during the light-dependent reactions?

***Phase Two: The Calvin Cycle***

What is another name for this set of reactions?

What substances get used during the Calvin Cycle?

What substances are made during the Calvin Cycle?

What are the sugars used for that are made?

|  |  |
| --- | --- |
| Alternative Pathway: | Alternative Pathway: |
| Description: | Description: |
| Plants that use this pathway: | Plants that use this pathway: |

**\*\*Complete p. 227 #1-3, 6**