Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Pd: \_\_\_\_\_\_

Energy Practice: 10 pts

1. What is free energy, and how is it different than chemical energy or heat energy? (2 pts)
2. Producers and decomposers are both vital roles in an ecosystem. Describe one similarity and one difference between producers and decomposers (2 pts).
3. Complete the following chart (3 pts; 0.5 pt for each box):

|  |  |  |
| --- | --- | --- |
| **Process** | **Does entropy increase or decrease?** | **Does this process require energy or does it release energy?** |
| Forming peptide bonds between amino acids |  |  |
| Breaking down starch into individual glucose molecules |  |  |
| Assembling nucleotides to synthesize an RNA strand |  |  |

1. If the universe tends to become less ordered and less organized, then how do organisms manage to maintain highly ordered internal environments and synthesize complex, ordered macromolecules? (3 pts)