NAME\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_DATE\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

SB2 Students will analyze how biological traits are passed on to successive generations

1. Distinguish between DNA and RNA

Complete these notes using the honors biology text book.

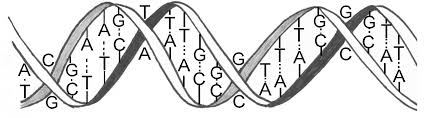
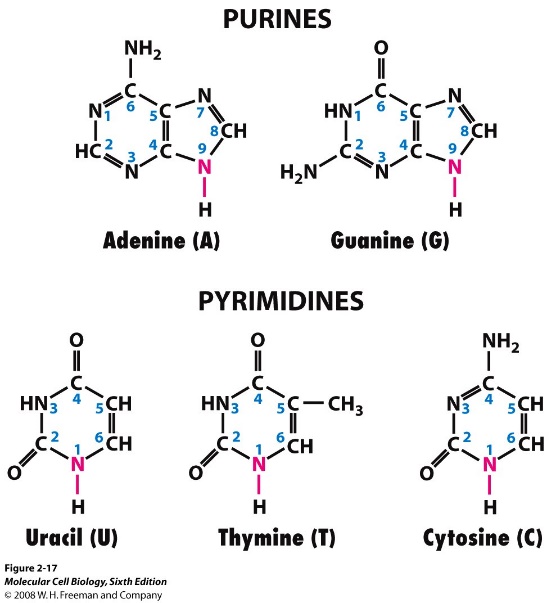
Review:

1. Fill in the table below

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Monomer** | **Functions** | **Organelle Association** |
| **Nucleic Acid** |  |  |  |
| **Protein (polypeptide)** |  |  |  |

1. DNA and RNA are the genetic \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for making proteins. Ribosomes link \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_ in the correct order to form \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, such as your hair and eye color.

DNA – Textbook concept 11.2

1. Draw and label the three parts of a nucleotide.
2. Complete the following information for DNA
   1. The scientists given credit for the model of DNA are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
   2. DNA stands for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
   3. The shape of DNA is known as a \_\_\_\_\_\_\_\_\_\_\_.
   4. The “backbone” or sides of the double helix are the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The center of the double helix, or the steps of the twisted ladder are the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
   5. The sugar located in the nucleotide of DNA is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
   6. The four possible nitrogen bases for a DNA nucleotide are: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
   7. Thymine and Cytosine are considered \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ while Adenine and Guanine are classified as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
   8. Evaluate the table below:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Percentages of DNA Nucleotides in Selected Organisms | | | | |
| Source of DNA | Adenine (A) | Cytosine (C) | Guanine (G) | Thymine (T) |
| Human | 30.2 | 18.8 | 18.8 | 32.2 |
| Rat | 28.6 | 21.6 | 21.4 | 28.4 |
| Sea Urchin | 31.2 | 19.1 | 19.2 | 30.5 |
| Salmon | 29.2 | 20.8 | 21.9 | 28.1 |

* 1. Based on the information above and what you have read, you can conclude that the complementary base pair rules indicated that adenine pairs with \_\_\_\_\_\_\_\_\_\_\_\_\_ and guanine pairs with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. This also means that a pyrimidine always pairs with a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
  2. If one side of the double helix is: 5’ATC GGC ATA GTA ATT CGG 3’

Then its complimentary DNA base pairs are:

1. Complete the DNA/RNA comparison table below ( you will need to look past concept 11.2):

|  |  |  |
| --- | --- | --- |
|  | **DNA** | **RNA** |
| **Full Name** |  |  |
| **Monomer** |  |  |
| **Location(s) within a eukaryote** |  |  |
| **Shape (double helix or single strand)** |  |  |
| **Sugar** |  |  |
| **Nitrogen bases** |  |  |

1. What are the three types of RNA found in cells? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ , \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. Making a Protein…
   1. DNA 🡪\_\_\_\_\_\_\_\_\_🡪 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. The steps required to make a protein are
      1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ - DNA is copied (this is not technically part of protein synthesis)
      2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ - RNA is made from DNA
      3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ - Protein is made from RNA