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

DNA Structure (Assgn # 2)

K’Nex Station (move here when your group is called here)

1. Draw a picture of the K’Nex versions of Adenine, Guanine, Cytosine, and Thymine. Since they only differ by color, you can simply make a note at the piece that differentiates them and list the colors and nitrogenous bases they code for, rather than draw four pieces. Label the parts of the nucleotide (deoxyribose sugar, phosphate group, nitrogenous base).
2. Look at the key on the bottom right of page 5. Predict which nucleotides will pair together and how many hydrogen bonds will be between each. Why do you think your prediction is accurate?
3. Build the DNA molecule as shown on pages 4 and 5. How correct was your prediction?
4. Draw a picture of the molecule you created. You do not have to draw the picture with K’Nex, but make sure to differentiate between the nucleotides and show how many bonds attach the nucleotides to each other.

See my website for the links below.

What is DNA? Animation

1. Where is DNA located?
2. DNA is like a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
3. The shape of DNA is known as a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
4. The “rungs” in DNA’s ladder shape are labeled as \_\_\_, \_\_\_, \_\_\_, and \_\_\_.
5. \_\_\_\_ pairs with \_\_\_\_ and used \_\_\_\_ hydrogen bonds to do so. \_\_\_\_ pairs with \_\_\_\_ and used \_\_\_\_ hydrogen bonds to do so.
6. The DNA code letters stand for:

Build a DNA Molecule

1. Pair the nucleotides in the DNA molecule shown for about 30 seconds and a window will pop up. At the rate you’re going, how long would it take to replicate a whole strand of DNA?
2. DNA gets around this problem by replicating \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ locations along each molecule. DNA strands are copied at a rate of about \_\_\_\_\_\_\_\_\_\_\_\_\_ per second.
3. Draw a picture of adenine, guanine, cytosine, and thymine. Label the following: sugar, phosphate, base and nucleotide.
4. Nitrogenous bases are held together by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ bonds. Nitrogenous bases that attach to each other must have \_\_\_\_\_\_\_\_\_\_\_\_\_\_ partial charges.

TED Talk Video

1. Every cell of every living thing on earth contains all the information it needs to create and duplicate and make variations of:
2. Explain the parts of DNA and how they fit together:
3. DNA is made of chains of four smaller molecules called:
4. You can think of DNA as a great library of information that exists to do one thing only. What is that thing?
5. It's infrequent, but our own nucleotide sequences can change as the result of spontaneous or environmental damage (which might remove or shift a nucleotide position). What does this change?