

## DNA Structure and Replication Extra Credit

You may work alone or with 1 other person. All projects are due at the beginning of your hour on Monday, April 8, 2013. If you have any questions at all, please email me at [mr.jenks.chemistry@gmail.com](mailto:mr.jenks.chemistry@gmail.com). The project will be worth a total of 20 points that will be scored as an extra credit test grade.

### Option 1 – Model of DNA

Make a full model of DNA. Your model may be out of any materials that you choose as long as they are not perishable and are sturdy. Please make sure that your model includes **at least 20** nucleotides (10 base pairs). Each structure should look different from the others, and should clearly show which 2 other structures they are connected to. Please attach a key to your model, which labels each structure and shows what it is. Your model should be in a double helix form, as DNA is.

Please use this checklist to make sure you have completed your project, and check the parts as you do them.

The following need to be included for full credit:

<u>Structures</u>	<u>Check</u>	<u>Connections</u>	<u>Check</u>	<u>Labels or Attached Key</u>	<u>Check</u>
Deoxyribose Sugar	<input type="checkbox"/>	Deoxyribose Sugar	<input type="checkbox"/>	Deoxyribose Sugar	<input type="checkbox"/>
Phosphate	<input type="checkbox"/>	Phosphate	<input type="checkbox"/>	Phosphate	<input type="checkbox"/>
Adenine	<input type="checkbox"/>	Adenine	<input type="checkbox"/>	Adenine	<input type="checkbox"/>
Thymine	<input type="checkbox"/>	Thymine	<input type="checkbox"/>	Thymine	<input type="checkbox"/>
Cytosine	<input type="checkbox"/>	Cytosine	<input type="checkbox"/>	Cytosine	<input type="checkbox"/>
Guanine	<input type="checkbox"/>	Guanine	<input type="checkbox"/>	Guanine	<input type="checkbox"/>
Hydrogen bonds	<input type="checkbox"/>	Covalent bonds	<input type="checkbox"/>	Nucleotide	<input type="checkbox"/>
Double Helix shape	<input type="checkbox"/>	Overall neatness	<input type="checkbox"/>	Hydrogen bonds	<input type="checkbox"/>
20 nucleotides	<input type="checkbox"/>	Sturdy model	<input type="checkbox"/>	Covalent bonds	<input type="checkbox"/>

### Possible Materials:

Wire

Pasta

Styrofoam

Candy

Pop Cans

Wood

Beads

Pipe Cleaners

Toothpicks

Popsicle sticks

*Just use your imagination!*

### Option 2

Make a song, dance, video, newscast, radio program, rap, etc. about the DNA Replication process. You can be as creative as you want, but make sure you describe the replication process and what goes in to replicating DNA. We covered only the VERY BASICS in class, so you might need to do some further research about DNA replication to complete the assignment. In your project, make sure to talk about Helicase, free nucleotides, DNA polymerase, parent strands daughter strands, where DNA replication occurs, when it occurs, etc. Again, further information may need to be researched in order to complete the project.