Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# Gum Drop DNA

**Purpose**

The purpose of this exercise is to re-create the structure of a DNA molecule using candy. [[1]](#endnote-1)

**Procedure**

**Materials:**

1. Toothpicks
2. Pipe cleaners
3. Red & black licorice
4. Gumdrops
5. Ruler

**Sequence of Steps**

1. Cut the red licorice into ¾ inch pieces and the black licorice into ½ inch pieces.
2. Put together two chains using the licorice and pipe cleaners to create the “backbone” of the DNA structure. The chains should be 12 inches long, alternating red licorice (deoxyribose sugar) and black licorice (phosphate).
3. Assign a gumdrop color to each of the four nucleotide bases.
   1. Adenine = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. Thymine = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   3. Cytosine = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   4. Guanine = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Assemble the DNA molecule by creating the “rungs” of the DNA structure using the gumdrops and toothpicks. These should connect to the deoxyribose sugar molecule (red licorice).
5. One side of the DNA molecule model should follow the pattern below:

A T G C C A T G

1. Remember that the complimentary base must occupy the same position on the other side of the DNA chain. The base pairs should be joined by the toothpicks but not touch. The exposed toothpick represents the hydrogen bonds.
2. After the teacher has checked off your model, disassemble your DNA molecule and clean-up according to teacher’s instructions.

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1. Complete the review questions below.

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**Observations**

1. Explain in your own words, using complete sentences, how you assembled your DNA model.

2. Where is DNA located? Be specific.

3. Why does approximately half of an individual’s DNA sequence come from each parent?

3. What are the main components of a DNA molecule?

4. How have agriculturists used knowledge of DNA structure to improve plants and animals in a production setting? Give at least 2 examples.

1. Sperling, Jill (2008).Gum Drop DNA. *Kingsburg High School Agriculture Department*. [↑](#endnote-ref-1)