

# DNA Model Project

## Objective

To show knowledge of:

- DNA anatomical structure
- Correct base-pairing

## Guidelines

Here's what I'm looking for:

- Your model must use a **different** item for each part of the DNA model.
- Models must have the following components:
  - 4 different colored bases (same item)
  - deoxyribose sugars (same item)
  - phosphate groups (same item)
  - Hydrogen bonds (to connect the bases together)
- Model must be no larger than 2 ft. tall (24 “)
- Model must be a 3-Dimensional, Double Helix shape.
- Model must be securely attached to a base to allow it to freely stand.
- You must have a key to decipher the model.



## What Not To do:

Do not buy a Styrofoam DNA prepared kit. This model should be made from scratch with a variety of materials. Also, please remember, NO FOOD! Food gets gross and I can't keep your model. Closely follow the rubric on the back to accurately make your model. I can't wait to see your work....Good Luck!

# DNA MODEL RUBRIC

TURN THIS IN WITH MODEL

Name \_\_\_\_\_

<b>NITROGEN BASES (RUNGS)</b>	NITROGEN BASES are CORRECTLY REPRESENTED WITH OPPOSITE BASE PAIR COLORS CONSISTENT.  <b>10</b>	NITROGEN BASES are SHOWN IN PAIRS, BUT COLORS are NOT CONSISTENT  <b>7</b>	NITROGEN BASES are NOT SHOWN WITH SEPARATE COLORS  <b>5</b>
<b>SUGARS AND PHOSPHATES (RAILINGS)</b>	SUGARS AND PHOSPHATES are BOTH REPRESENTED ALTERNATELY BY DIFFERENT MATERIALS WITH NITROGEN BASES ONLY COMING FROM SUGARS.  <b>10</b>	SUGARS AND PHOSPHATES are REPRESENTED BUT are NOT MADE FROM UNIQUE MATERIAL; AND/OR NITROGEN BASES are ATTACHED AT RANDOM.  <b>7</b>	RAILINGS are PART OF MODEL, BUT NOT MADE OF UNIQUE MATERIALS AND BASES are ATTACHED AT RANDOM.  <b>5</b>
<b>MODEL LIKENESS TO DNA</b>	MODEL IS a 3D, FULLY TWISTED LADDER, WITH NITROGEN BASE PAIRS (STEPS) ALL OF THE SAME SIZE.  <b>20</b>	MODEL IS 3D, BUT FLAT, OR HAS a PARTIAL TWISTED LADDER. NITROGEN BASE PAIRS HAVE DIFFERENT LENGTHS AND RAILINGS TOUCH AS THEY CROSS OVER.  <b>15</b>	MODEL IS NOT 3D AND/OR NOT TWISTED AS IN a DOUBLE HELIX.  <b>5</b>
<b>MODEL COMPOSITION</b>	ALL PARTS OF THE DNA are PRESENT AND each MADE WITH a DIFFERENT MATERIAL: PHOSPHATE IS NOT BACKBONE MATERIAL  <b>15</b>	MOST OF THE PARTS OF THE DNA are PRESENT AND each MADE WITH a DIFFERENT MATERIAL/PHOSPHATE IS BACKBONE.  <b>10</b>	MOST OF THE PARTS OF THE DNA are PRESENT BUT NOT all are MADE WITH a DIFFERENT MATERIAL.  <b>5</b>
<b>LABELING/KEY</b>	PRESENT, THOROUGH AND NEATLY DONE. INTEGRAL PART OF PROJECT.  <b>5</b>	PRESENT AND COMPLETE, BUT appears HASTILY DONE as an AFTERTHOUGHT  <b>3</b>	PRESENT, BUT NOT COMPLETE.  <b>1</b>
<b>COMPLETENESS</b>	adequate NUMBER (at least 12) OF NITROGEN BASE PAIRS TO SHOW UNDERSTANDING AND CONCEPT.  <b>10</b>	LESS THAN 12 (8-11) Base PAIRS.  <b>8</b>	MINIMAL NUMBER (LESS THAN 8) OF Base PAIRS. NEEDS MORE.  <b>5</b>
<b>STAND</b>	MODEL IS securely ATTACHED TO a SUPPORTIVE STAND.  <b>10</b>	MODEL IS ATTACHED TO a STAND BUT IS NOT secure.  <b>8</b>	MODEL Lacks a STAND BUT IS able TO STAND UPRIGHT.  <b>5</b>
<b>NEATNESS/EFFORT</b>	EXTREMELY NEAT.  <b>20</b>	NEAT.  <b>12</b>	NOT TOO NEAT.  <b>5</b>