**Brownie Synthesis Worksheet** **Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Gene color\_\_\_\_\_\_\_\_\_**

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|  | Non-Template DNA | Template DNA | mRNA  |  | Amino acids |  | tRNA  |  | Corresponding brownie construction instructions from the amino acid key - You may paraphrase the instructions, but don’t lost the main point of what you must do. |
| **1** |   |   |   |   |   |   |   |  |   |   |   |
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**Brownie Synthesis Reflection Questions**

1. Go find the functions of all of the gene colors that were available during this activity. Write their functions below:

|  |  |
| --- | --- |
| **Gene Color** | **Gene Function** |
| Pink |  |
| Green |  |
| Orange |  |
| Blue |  |

1. Look at the functions that you wrote in the table for #1. Each gene has a different function, but all of these genes have something in common! Which body system do they seem to be making proteins for – nervous system, cardiovascular system, urinary system, respiratory system, digestive system, integumentary system, skeletal system, muscular system, or immune system? Be sure to justify your answer!
2. After your group showed the finished “protein” (brownie) to the teacher, did your group make the brownies EXACTLY as they were supposed to be made according to the gene color you were assigned? If so, how did you make sure that you were correct? If not, what was incorrect about your brownie and did it make it better, worse, or no noticeable difference?
3. What do you think would have happened if you (or any member of your “gene group”) transcribed the non-template side of DNA into mRNA - would you end up with the same brownie result? Why/why not? (Try transcribing the non-template side to see what instructions you would get if you used it instead).
4. Write a 5-sentence summary of how this activity represented the steps of protein synthesis that occur in each and every one of our cells.