**Use the following table to explain how some people have cystic fibrosis and some people don’t.**

DNA Template Strand Sequence for Person without Cystic Fibrosis: ACG CCT TAG GCA TAG
DNA Template Strand Sequence for Person with Cystic Fibrosis: ACG CCT TAG CCA TAG

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| --- |
| **Normal trait:** ACG CCT TAG GCA TAG |
| **Diagram of the DNA** | **Diagram of the RNA** | **Diagram of the Amino Acid Sequence** | **Diagram of the Whole Protein** | **Protein Shape/ Function** | **Phenotype/Trait** |
| *Show the order of bases in the sense strand. Circle the base that is different in the two cells* | *Show the order of bases in the mRNA transcript in the nucleus. Circle the base that is different in the two cells.* | *Show the mRNA at the ribosome with the last two tRNAs attached and all amino acids. Circle the amino acid that is different in the two cells.* | *Draw the two proteins using different shapes.* | *Indicate whether or not protein produced is working* | *Describe how this protein would influence or express a trait.* |
|  *Nucleus* |  |  |  |
| **CYSTIC FIBROSIS:** ACG CCT TAG CCA TAG |
| **Diagram of the DNA** | **Diagram of the RNA** | **Diagram of the Amino Acid Sequence** | **Diagram of the Whole Protein** | **Proteins Expressed** | **Phenotype/Trait** |
| *Show the order of bases in the sense strand. Circle the base that is different in the two cells* | *Show the order of bases in the mRNA transcript in the nucleus. Circle the base that is different in the two cells.* | *Show the mRNA at the ribosome with the last two tRNAs attached and all amino acids. Circle the amino acid that is different in the two cells.* | *Draw the two proteins using different shapes.* | *Indicate whether or not protein produced is working* | *Describe how this protein would influence or express a trait.* |
|  *Nucleus* |  |  |  |