

# Central Dogma Summative Project

To show what you have learned in this unit, you will model the science behind the central dogma as it pertains to the effects of changes in a single gene on the characteristics of a person. You can choose a format to present this project from the ones below, it just needs to fully address everything in the rubric (next page). You can also use any of the genes/conditions listed.

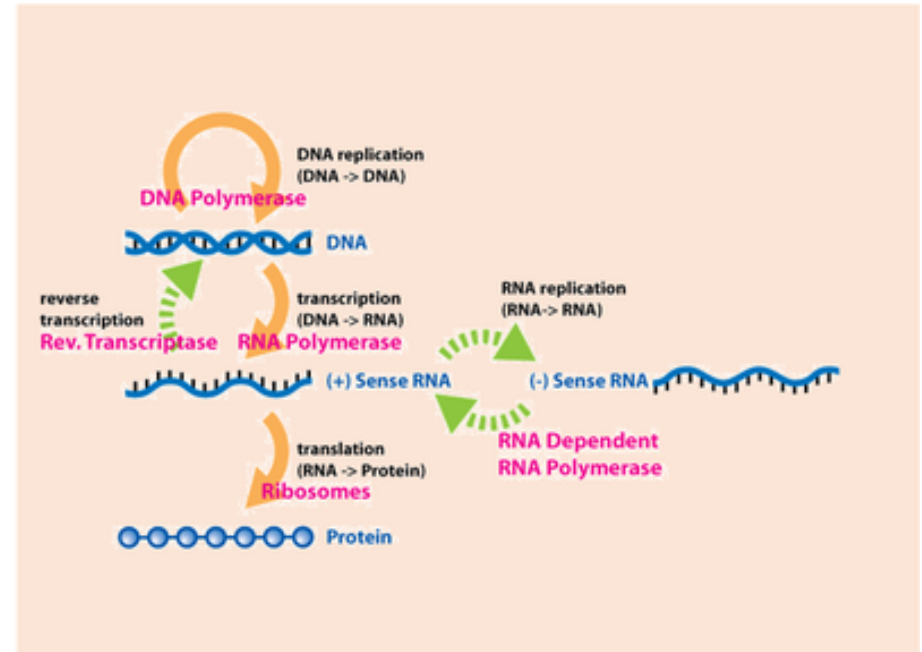
Be specific! Ask questions if you have them! This is an **individual** project, but you can talk to your classmates, too.

Formats:

- A brochure
- A story or essay
- A comic strip
- A song or rap
- A poster
- A video
- Your choice! (Must be teacher approved)

Gene/condition:

- [PTC tasting](#)
- [Sickle Cell Disease](#)
- [BRCA1 breast cancer](#)
- [Cystic Fibrosis](#)
- [Huntington disease](#)
- [Maple Syrup Urine Disease](#)
- Your choice! (Must be teacher approved. Make sure it's a single gene condition-a lot of characteristics are *polygenic*, meaning that they are caused by multiple genes)
- [Another useful source](#)



	Excellent (6)	Above average (5)	Sufficient (4)	Minimal (3)	Absent (0)
<b>Description of condition:</b> <ul style="list-style-type: none"> <li>What is the condition?</li> <li>What are some symptoms?</li> <li>What are the long-term consequences of the condition?</li> </ul>	Condition is clearly and thoroughly explained, with all points addressed	Condition is explained with all bullet points addressed, but not thoroughly	Condition is partially explained, but superficially	Condition is minimally described	Condition is not described
<b>Role of DNA in the condition:</b> <ul style="list-style-type: none"> <li>What it does</li> <li>What the sequence is in the "average" person and how it is changed in people with the condition (highlight one change)</li> <li>How it is replicated (including enzymes) and the role of mutations</li> <li>Connection to characteristic</li> </ul>	The role of DNA is fully explained, with all 4 bullet points addressed clearly and thoroughly	The role of DNA is mostly explained, all bullet points are covered, but not thoroughly.	The role of DNA is partially explained, 1-2 points may be missing or all points are covered, but very superficially.	Role of DNA is unclearly or minimally addressed,	Role of DNA is not addressed
<b>The role of RNA in the condition</b> <ul style="list-style-type: none"> <li>How is it made?</li> <li>Which RNAs are involved in the transfer of information from DNA to protein and what are their roles?</li> </ul>	The role of RNA is fully explained, with both bullet points addressed clearly and thoroughly	The role of RNA is mostly explained, both bullet points are covered, but not thoroughly.	The role of RNA is partially and superficially explained	Role of RNA is unclearly or minimally addressed	Role of RNA is not addressed
<b>The role of protein in the condition</b> <ul style="list-style-type: none"> <li>How is it made?</li> <li>What does it do? <ul style="list-style-type: none"> <li>Function in "Average" person and function in person with the condition</li> </ul> </li> <li>Connection to characteristic</li> </ul>	The role of protein is fully explained, with all bullet points addressed clearly and thoroughly	The role of protein is mostly explained, all bullet points are covered, but not thoroughly.	The role of protein is partially explained, 1-2 points may be missing or all points are covered, but superficially.	Role of protein is unclearly or minimally addressed,	Role of protein is not addressed
<b>Relationship of Structure and Function</b> <ul style="list-style-type: none"> <li>Description of how the structure/ function relationship plays a role <ul style="list-style-type: none"> <li>DNA</li> <li>RNA</li> <li>Protein</li> </ul> </li> </ul>	The relationship of structure and function are clearly described for all 3 biomolecules	The relationship of structure and function are mostly described for all 3 biomolecules	The relationship of structure and function are described for 2 biomolecules	The relationship of structure and function is superficially mentioned	The relationship is not addressed
<b>Appearance</b>	The project was neat, clear, and shows a lot of creativity and effort went into it.	The project is not as neat as it could be, but the information is organized and easy to understand.	The project lacks neatness and looks like little effort was put into it; the information isn't organized.	The project is sloppy and disorganized, but all of the information on the checklist is there, if hard to find.	The project is sloppy and missing several key points of information
<b>Sources</b>	4 sources are used and clearly cited	3 sources are clearly cited or all 4 are used, but not clearly cited	2 sources are clearly cited or 3 are used, but not clearly cited	One source is clearly cited, or 2, but not clearly cited	No sources cited

Make sure your name is on it for 3 more points :- ) \_\_\_\_\_/45 total