# Assignment Summary

In this assignment, you will think of scientific questions that will help you better understand the role of DNA and chromosomes in the expression of heritable traits in an organism. You will then conduct research to answer these questions. Finally, you will compose a typewritten document that states your questions and provides your answers.

Background Information

DNA in the nucleus of a cell contains the genetic code that dictates the structure and function of organisms. DNA is compressed into structures called chromosomes. Chromosomes are made of segments of DNA called genes. Genes are the basic units of heredity in organisms and are transferred from parent to offspring.

DNA contains the genetic code, or the set of instructions, in the form of triplet codons, for assembling amino acids into proteins. All organisms share a similar genetic code based on the same DNA codons. The order of the codons differs, allowing for diversity among organisms.

Not all DNA codes for proteins. Some segments of DNA are involved in regulatory or structural functions. The function of other segments remains unknown.

Materials

* Computer with Internet access
* Notebook
* Pen/pencil

# Assignment Instructions

**Step 1: Prepare for the project.**

1. Read the entire Student Guide before you begin this project.
2. If anything is not clear to you, ask your teacher for assistance before you begin.
3. Gather the materials you will need to complete this project.

**Step 2: Create your questions.**

1. Review the lesson and reread the background information.
2. Create three relevant questions that you would like answered or clarified about the role of DNA and chromosomes. Focus on the following areas as you generate questions:
   1. The cause and effect relationship between the genetic code and gene expression
   2. Mechanisms of gene regulation
   3. The role of DNA segments that do not code for proteins
3. Make sure your questions are scientific questions, meaning they could be tested by scientists.
4. Submit your questions to your teacher for approval before starting your research.

**Step 3: Conduct research.**

1. Once your teacher has approved your questions, conduct research to answer your questions.
   1. Make sure that you use reliable websites. Keep a list of the websites (URLs) that you access.
   2. Take relevant notes, remembering to focus on research that answers your questions.

**Step 4: Create a typewritten document providing answers to your questions.**

1. In a document, number and type your questions.
2. Under each question, provide the answer you found through conducting research.
   1. Make sure your answer is written in your own words.
   2. Below each answer, paste the website URLs you used to compose your answer.
   3. Check the document for proper grammar, spelling, and punctuation.
   4. Make sure your name is on the document.

**Step 5: Evaluate your project using this checklist.**

If you can check each criterion below, you are ready to submit your document.

* Does your document contain each of your questions?
* Does your document provide clear answers to each question?
* Did you include the website URLs you used to answer each question?
* Is your document free of errors in grammar, spelling, and punctuation?

**Step 6: Revise and submit your project.**

1. If you were unable to check off all of the requirements on the checklist, make the necessary revisions for completion.
2. When you have completed your project, submit your document through the Virtual Classroom.
3. Congratulations! You have completed your assignment!