# Assignment Summary

In this assignment, you will conduct research to construct an explanation of how macromolecules are used in the body. You will then revise your explanation based on new information from additional research.

Background Information

Food that humans consume contain carbon-based molecules such as carbohydrates, proteins, fats, and nucleic acids, which may not be in the form that the human body can use or store. So, the body breaks down these macromolecules into their respective building blocks. The atoms that make up these building blocks recombine, rearrange, and/or react with one another to build up macromolecules that the body uses and stores for life maintaining processes.

Materials

* Computer with Internet access
* Notebook
* 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: Conduct research to learn more about macromolecules in the body.**

1. Use reliable sources to answer the following questions. You may write your answers in a notebook or on scrap paper. The answers will help you construct your explanation later.
   1. What happens to macromolecules from food during digestion?
   2. What atoms make up sugar molecules, amino acids, and fatty acids?
   3. What do you notice about the atoms that make up these molecules?
   4. How are these atoms used to make new molecules? What types of molecules are made?
   5. Where does the energy come from to produce these new molecules?
2. Keep track of any website URLs you used. If you use books, note the author, title, and publisher, as well as where and when each book was published. You will need to cite this information later.

**Step 3: Construct an explanation.**

1. In a new document, type a paragraph explaining how the atoms in sugar molecules can be used to form amino acids and other large carbon-based molecules.
2. On a separate page of the document, create a Works Cited page. Note the resources you used to conduct your research.
   1. For websites or online encyclopedias, copy and paste the URL into your document.
   2. For books, include the author, title, and publisher, as well as where and when the book was published.
3. Make sure your name is on this document.

**Step 4: Revise your explanation based on new information.**

1. Conduct additional research to answer the questions below.
   1. If there is not enough carbohydrate intake, how does the body form glucose?
   2. If there is a glucose shortage, how does the body produce energy?
2. The resources below can start you off on your research. Use additional resources if you need to.

<http://www.diabetesforecast.org/2011/mar/how-the-body-uses-carbohydrates-proteins-and-fats.html?referrer=https://www.google.com/>

<http://www.ncbi.nlm.nih.gov/books/NBK9956/>

<http://www.nhs.uk/Livewell/loseweight/Pages/the-truth-about-carbs.aspx>

<http://2012books.lardbucket.org/books/an-introduction-to-nutrition/s08-03-the-functions-of-carbohydrates.html>

<https://www.med.upenn.edu/biocbiop/faculty/vanderkooi/chap7-9.pdf>

<http://droualb.faculty.mjc.edu/Course%20Materials/Physiology%20101/Chapter%20Notes/Fall%202011/figure_03_27_labeled.jpg>

<http://www.vivo.colostate.edu/hbooks/pathphys/digestion/liver/metabolic.html>

1. Revise your explanation.
2. Do not delete, revise, or modify your original explanation from step 3.
3. Under your original explanation, add 1–2 paragraphs containing a summary of the new information as well as your revised explanation.
4. Update your Works Cited page by adding the resources you used to revise your explanation.

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

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

* Did you gather sufficient information to construct your original explanation?
* Does your original explanation explain how the atoms in sugar molecules can be used to form amino acids and other large carbon-based molecules?
* Did you conduct additional research to revise your explanation?
* Did you add a paragraph summarizing the new information you learned?
* Did you add a paragraph containing your revised explanation?
* Are your paragraphs free of spelling, grammatical, and punctuation errors?
* Does your typewritten document have your name on it?
* Do you have a Works Cited page that includes the resources you used for both your original and revised explanations?

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

1. If you were unable to check off all of the requirements on the checklist, make any necessary revisions.
2. When you have completed your project, submit the typewritten document through the virtual classroom.
3. Clean up your work space.
4. Congratulations! You have completed this project.