

**Topic:** Mitochondria Research Report

**Summary:** Students research cellular respiration using enzymes, chemiosmotic gradients, and mitochondrial evolution.

**Goals & Objectives:** Students will be able to research and explain, in detail, how mitochondria evolve and how they are used to make ATP.

**Standards:** CA Biology 1g. *Students know* the role of the mitochondria in making stored chemical-bond energy available to cells by completing the breakdown of glucose to carbon dioxide. 1i. *Students know* how chemiosmotic gradients in the mitochondria and chloroplast store energy for ATP production.

**Time Length:** Students work on the assignment outside of class.

**Prerequisite Knowledge:** cell organelles, macromolecules, membrane proteins.

**Materials:**

- Library
- Biology textbooks
- Internet

**Procedures:**

1. Students are to research outside of class using the library, textbooks, and internet.
2. Students are to hand-write their report using complete sentences. This helps to prevent copying and pasting from the internet.

**Grading:**

Bibliography:	correct MLA format	5 points
Bibliography:	different sources and type of references	5 points
Report Length:	5 pages – hand written	20 points
	4 pages – hand written	16 points
	3 pages – hand written	12 points
	2 pages – hand written	8 points
Quality:	very descriptive and accurate	10 points
Clarity:	writing is very clear and understandable	10 points

**Accommodations:**

Students with an IEP can write half the amount of information and focus on cellular respiration and not the evolution of the mitochondria. Students can draw pictures and diagrams to help demonstrate their comprehension of cellular respiration.

## Advanced Research Report – Mitochondria

You are in charge of researching the mitochondria. You need to research:

1. the chemical processes of cellular respiration
2. explain the important enzymes and proteins involved
3. explain how the mitochondria use chemiosmotic gradients
4. explain why mitochondrion have DNA
5. explain endosymbiotic theory and how mitochondria was formed

### Grading:

This project is worth 50 points. You can earn less than 50 points if you do not meet the qualifications listed below or if you do not research the 5 items listed above.

Bibliography:	correct MLA format	5 points
Bibliography:	different sources and type of references	5 points
Report Length:	5 pages – hand written	20 points
	4 pages – hand written	16 points
	3 pages – hand written	12 points
	2 pages – hand written	8 points
Quality:	very descriptive and accurate	10 points
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### Disclaimer:

No points will be earned if any of the text is copied from any source or if you do not write in complete sentences. You can quote a source if sited correctly using MLA. Do not quote more than five sentences in all of the report. The report must be written in your own language and at your language level. You may not work with any students on this report. If the teacher cannot read the report, then no points will be rewarded. Pictures/charts do not count towards the page length.