**Overall Goal:** Produce a well-organized and thorough flowchart of all the cellular events involved in cellular respiration in a **EUKARYOTIC** cell. Subsequently, use your well-organized and thorough flowchart to describe the events and their significance by developing a well-organized and thorough write-up of the cellular process.

**Task:** Flowchart and discuss all the cellular events in a eukaryotic cell, along with their cellular locations, that take place when the cell breaks down glucose to produce the important energy molecule Adenosine Triphosphate (ATP). Flowchart and discuss the events based on 1 glucose molecule.

**Include in your flowchart and discussion the following (DO NOT SIMPLY ANSWER THE FOLLOWING BULLET POINTS, YOU NEED TO ACTUALLY FLOWCHART AND ALSO PRODUCE A WRITTEN DISCUSSION THAT INCLUDES THE NEEDED INFORMATION):**

* The difference in outcome based on the availability of oxygen; when oxygen is present and when oxygen is absent.
* Differences observed in different organisms, more specifically animal and yeast, when oxygen is not present.
* Be specific with regard to what is used during each cellular process.
* Be specific with regard to what is produced during each cellular process.
* Be specific with the name of each event (with and without oxygen).
* Be specific with regard to the cellular location of each event.
* Be specific with regard to how many electron carriers are produced during each event.
* Be specific with regard to which of the events produce carbon dioxide and how many.
* Use proper terms describing each event.
* Account for all the ATPs produced and make sure you include the process that is used to make each ATP.
* Discuss why cellular respiration is important and what benefit is achieved by fermentation.
* Compare and contrast substrate level phosphorylation and oxidative phosphorylation.
* Include the organelle/organelle structures/locations involved in oxidative phosphorylation.