**Extension: Further Understanding Cellular Respiration**

**Name: Biology 11**

1. Explain why cellular respiration is more efficient than glycolysis alone.
2. Explain how certain food and beverages (bread, cheese, and alcohol) are produced through fermentation. What causes this to occur?
3. Muscles have two backup systems when oxygen is in short supply. One is lactic acid fermentation, but before that begins, a muscle uses up its supply of a compound called creatine phosphate. That molecule can transfer its phosphate to ADP in the reaction: creating phosphate + ADP 🡪 ATP + creatine. A good diet usually supplies an adequate amount of creatine in meat and fish. In muscle cells, creatine is changed into creatine phosphate. Creating supplements add to the amount already supplied in a good idea. Some research has shown that taking a recommended dose of creating supplement can increase the level of creatine phosphate in muscles 10-20 percent, which can increase energy levels in muscles 2.5-10%; however, research is incomplete regarding the health risks in using these supplements.

Read page 233 of your textbook looking at the information on creatine supplements and the viewpoints for their use as well use any other research you might need to better understand these viewpoints. Now, do you believe that athletes should be allowed to take creatine to enhance their performance? Look at this along different levels of play….. professional, youth (Canada Games level, high school level, recreation) and decide if this plays into your decision.