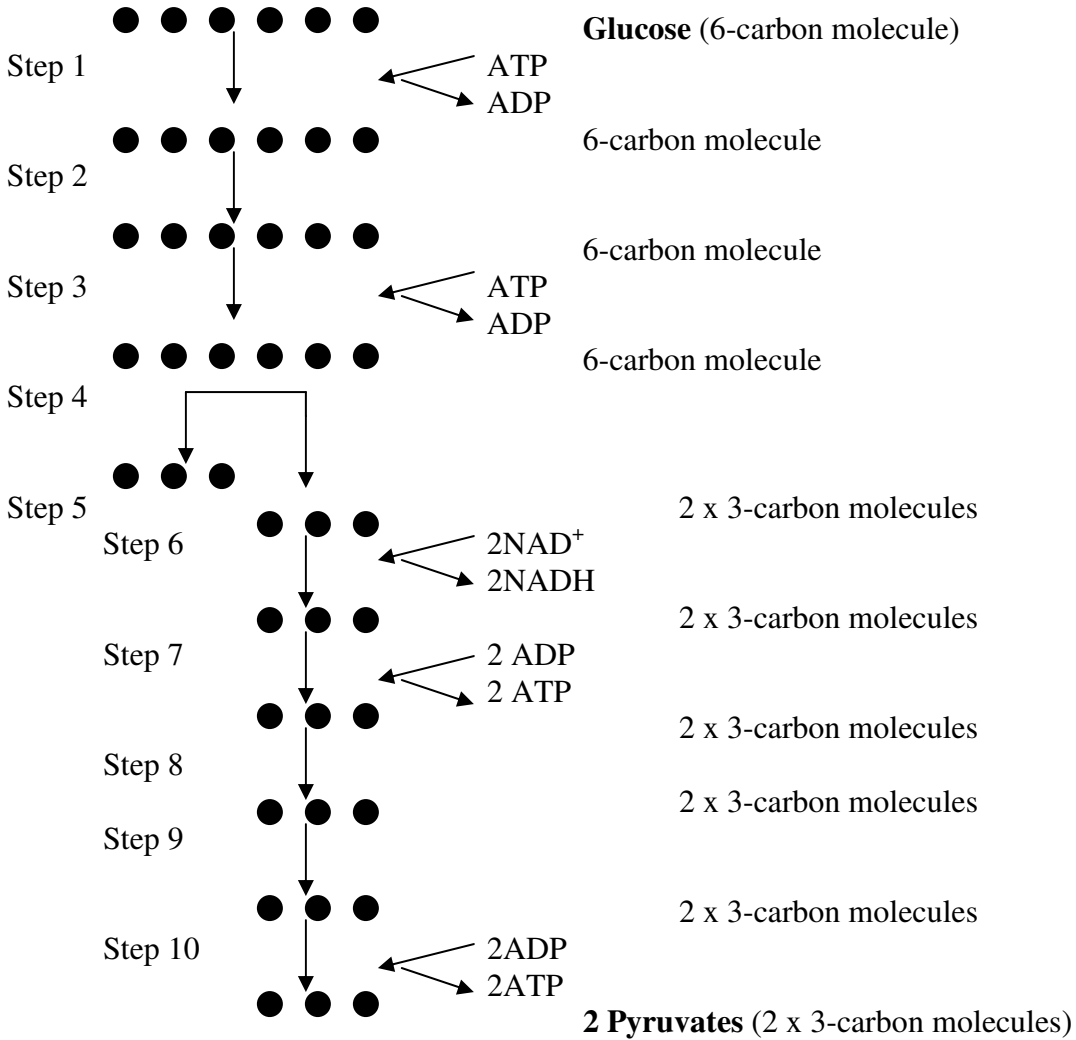


Respiration - Interpreting Diagrams

Looking at Figure 1, answer the following questions.

Figure 1



- 1) Which steps make ATP? _____
- 2) Which steps use ATP? _____
- 3) What is this set of reactions called? _____
- 4) Does this reaction occur in the plant cell, animal cell, or both? _____
- 5) In what part of the cell is this process taking place? _____

Get down with ATP ... giving me energy!

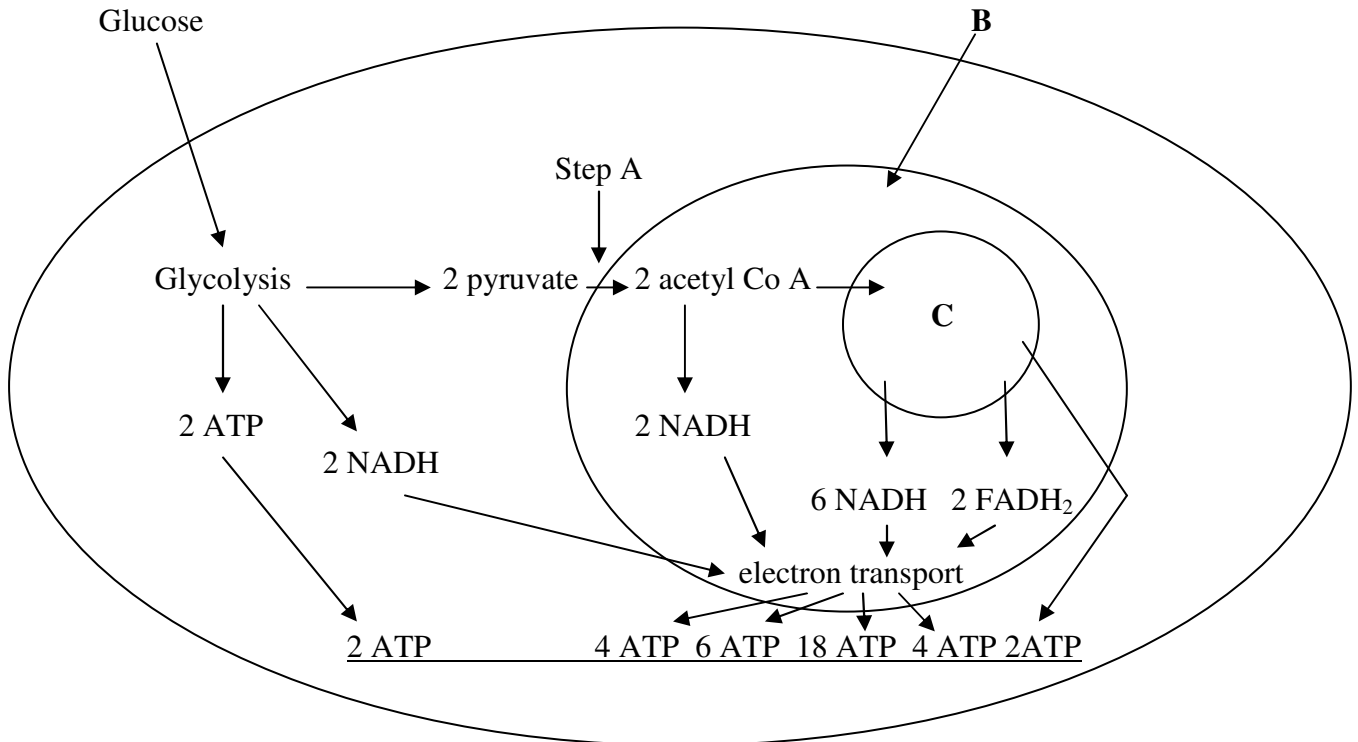
6) A yeast cell is treated with a chemical that inhibits, or prevents, step 4. During glycolysis in the presence of the inhibitor:

- a) How many molecules of ATP will the yeast cell make per molecule of glucose? _____
- b) How many molecules of ATP will the yeast cell use per molecule of glucose? _____
- c) Will the yeast cells be able to continue growing in the presence of the inhibitor considering that oxygen is present? Explain.

7) A yeast cell is treated with a chemical that inhibits Step 10. During glycolysis in the presence of the inhibitor:

- a) How many molecules of ATP will the yeast cell make per molecule of glucose? _____
- b) How many molecules of ATP will the yeast cell use per molecule of glucose? _____
- c) Will the yeast cells be able to continue growing in the presence of the inhibitor considering that oxygen is present? Explain.

Figure 2



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Looking at Figure 2 answer the following questions:

- 1) The metabolic cycle labeled “C” is the _____.
- 2) The organelle labeled with the letter “B” is a _____.
- 3) A yeast mutant was isolated that was defective in step A (Step A could not happen).
 - a) How much ATP would this mutant produce per molecule of glucose if glucose was the source of energy and O₂ was available? _____
Explain briefly.

 - b) How much ATP per molecule of pyruvate would this mutant produce if pyruvate was the sole source of energy and O₂ was available? _____
Explain briefly.

 - c) How much ATP per molecule of pyruvate would a normal (wild-type) yeast produce if pyruvate (not glucose) was the sole source of energy and O₂ was available? _____
Explain briefly.

 - d) How much ATP per molecule of glucose would the mutant produce if glucose was the source of energy and the cells were grown in the absence of O₂?

Explain briefly.

Watch the video: <http://www.youtube.com/watch?v=3aZrkdzrd04> and fill in the inputs and outputs for each stage of cellular respiration. Don't forget to list the quantity of each item!

GLYCOLYSIS	
Inputs	Outputs

KREB'S CYCLE	
Inputs	Outputs

ELECTRON TRANSPORT CHAIN	
Inputs	Outputs

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