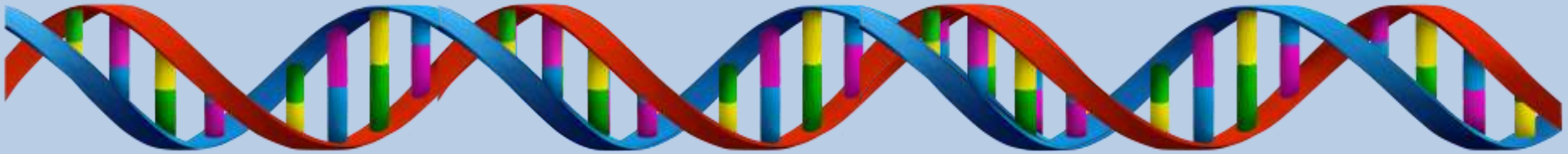
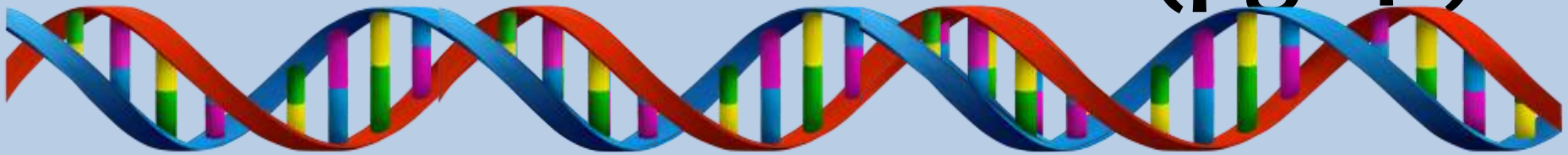


1. Why is having more surface area beneficial?
2. Why do living things have to do cellular respiration?
3. What is fermentation?
4. How is the reaction formula of respiration similar to the formula for ethanol combustion (pg. 41)?



Logistics

Cellular Respiration:

$$C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O$$

Ethanol Combustion:

$$C_2H_5OH + 3O_2 \rightarrow 2CO_2 + 3H_2O$$

Logistics

Cellular Respiration:

$C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O$

Ethanol Combustion:

$C_2H_5OH + 3O_2 \rightarrow 2CO_2 + 3H_2O$

Carbon-based fuel + oxygen → carbon dioxide + water

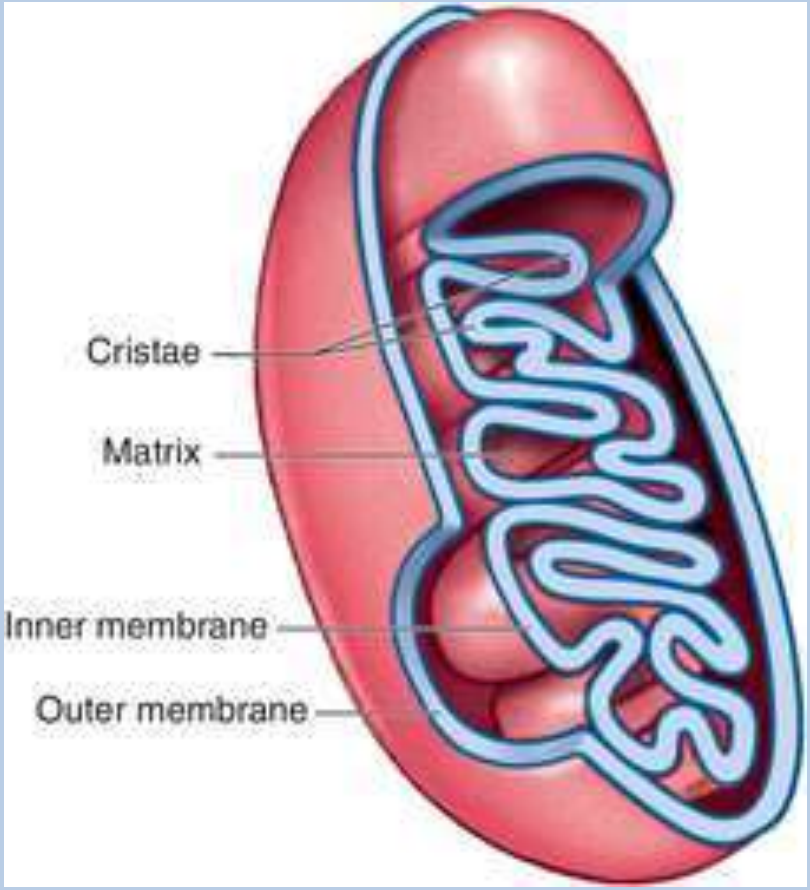
Cellular Respiration

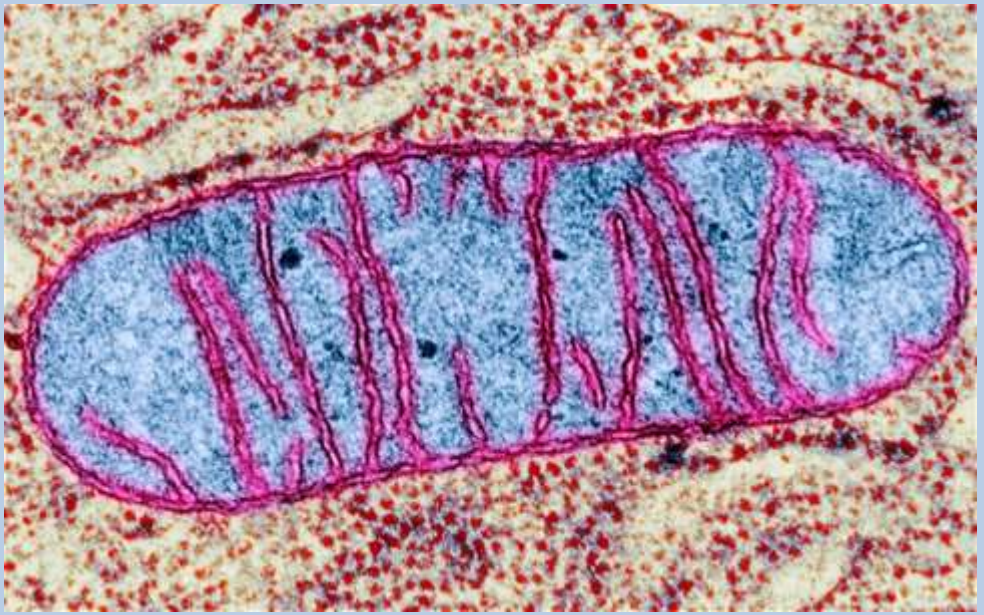
- Open to page 46

Cellular Respiration

- **Where does cellular respiration happen?**

Cellular Respiration





Cellular Respiration

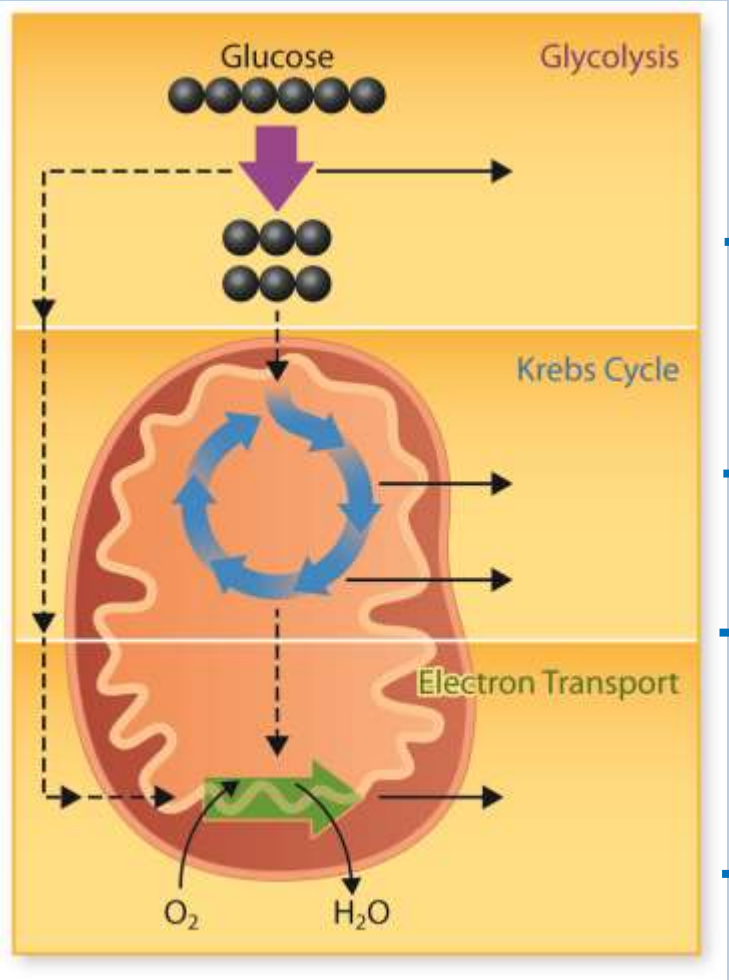
- **What is the goal of cellular respiration?**

Cellular Respiration

- **How much total ATP is produced during respiration?**

Total ATP from Cellular Respiration

- **Glycolysis, the Krebs cycle, and the electron transport chain release up to 32 molecules of ATP per molecule of glucose**



2

ATP

2

ATP

CO_2

28

ATP

ATP

Total ATP?

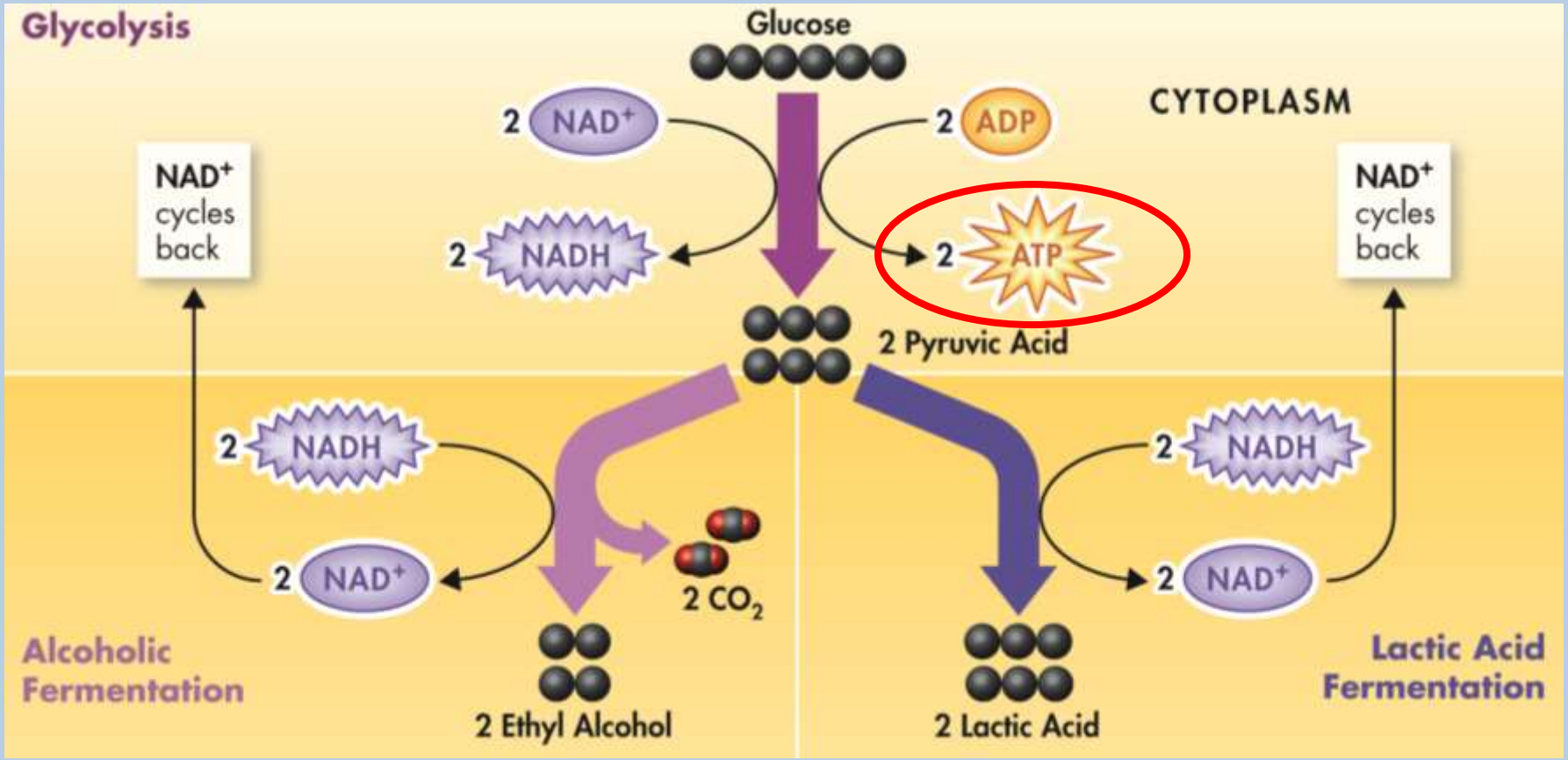
Up to 32

Anaerobic Respiration

- Sometimes oxygen is not available for cellular respiration to occur

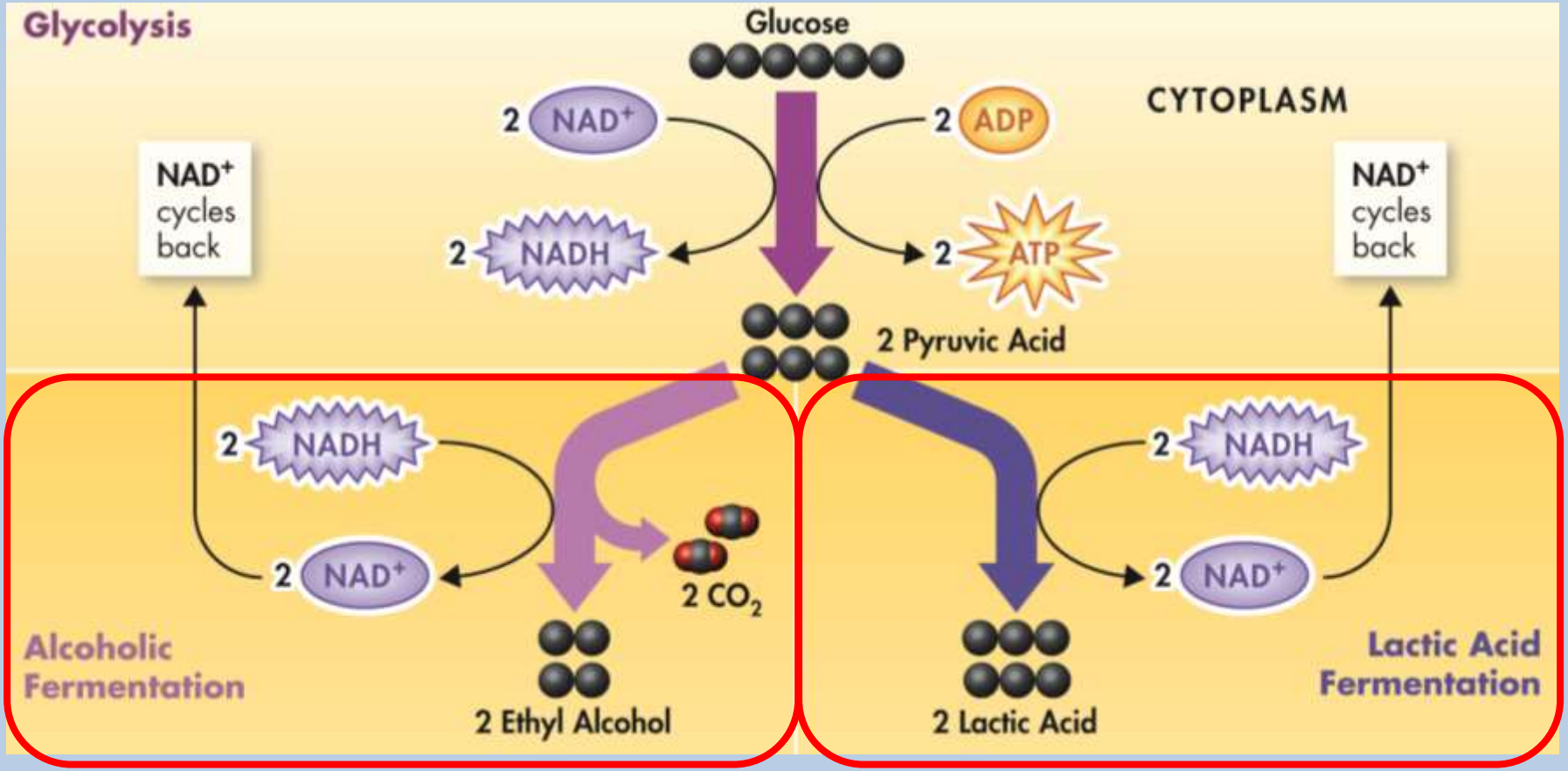
Fermentation

- In the **ABSENCE OF OXYGEN** **FERMENTATION** produces ATP



Fermentation

- Two Kinds:
  1. Alcoholic fermentation
  2. Lactic acid fermentation

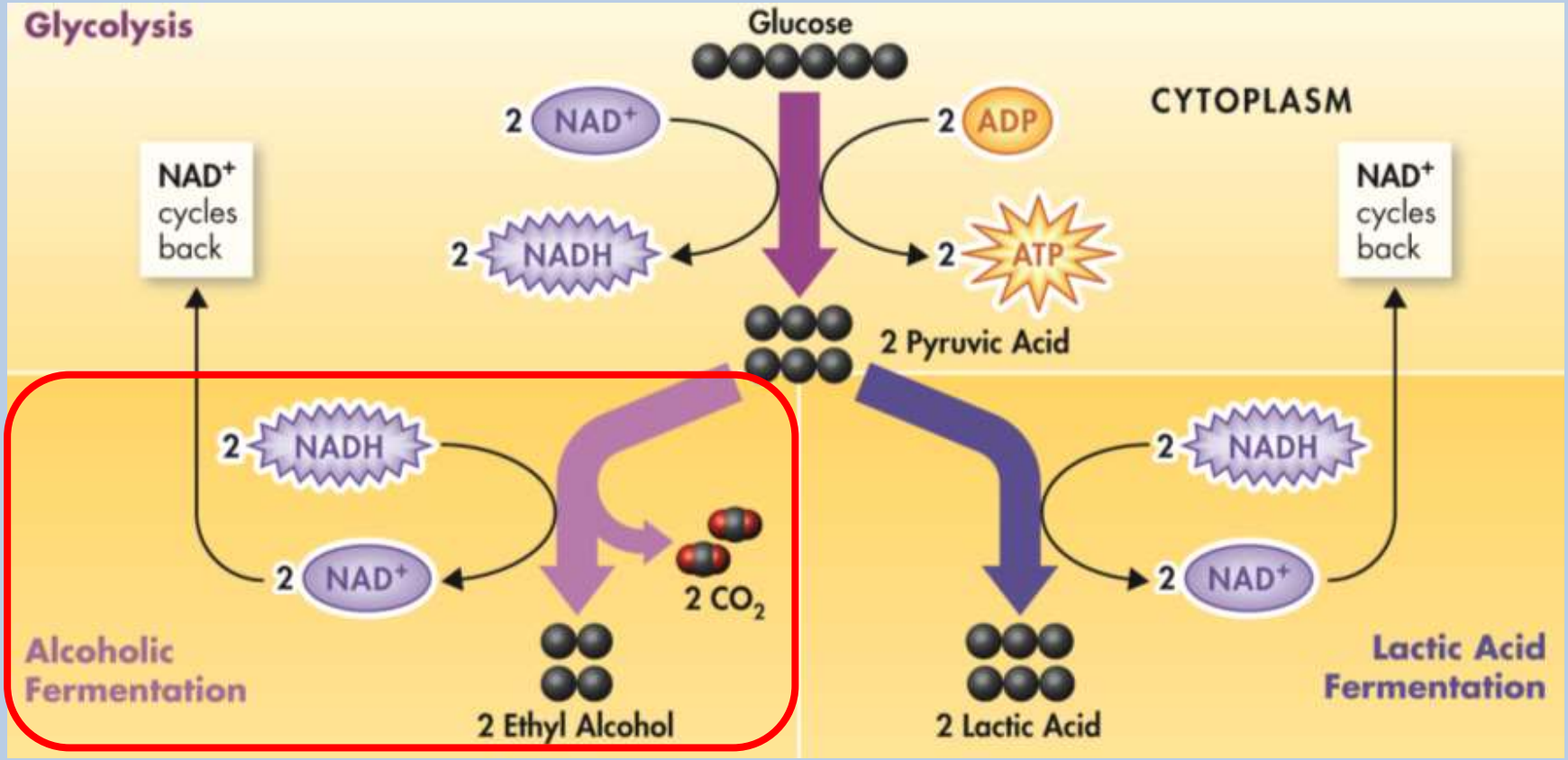


Alcoholic Fermentation

Alcoholic Fermentation

- Performed by yeasts and a few other microorganisms

$$\text{Pyruvic acid} \rightarrow \text{Alcohol} + CO_2$$

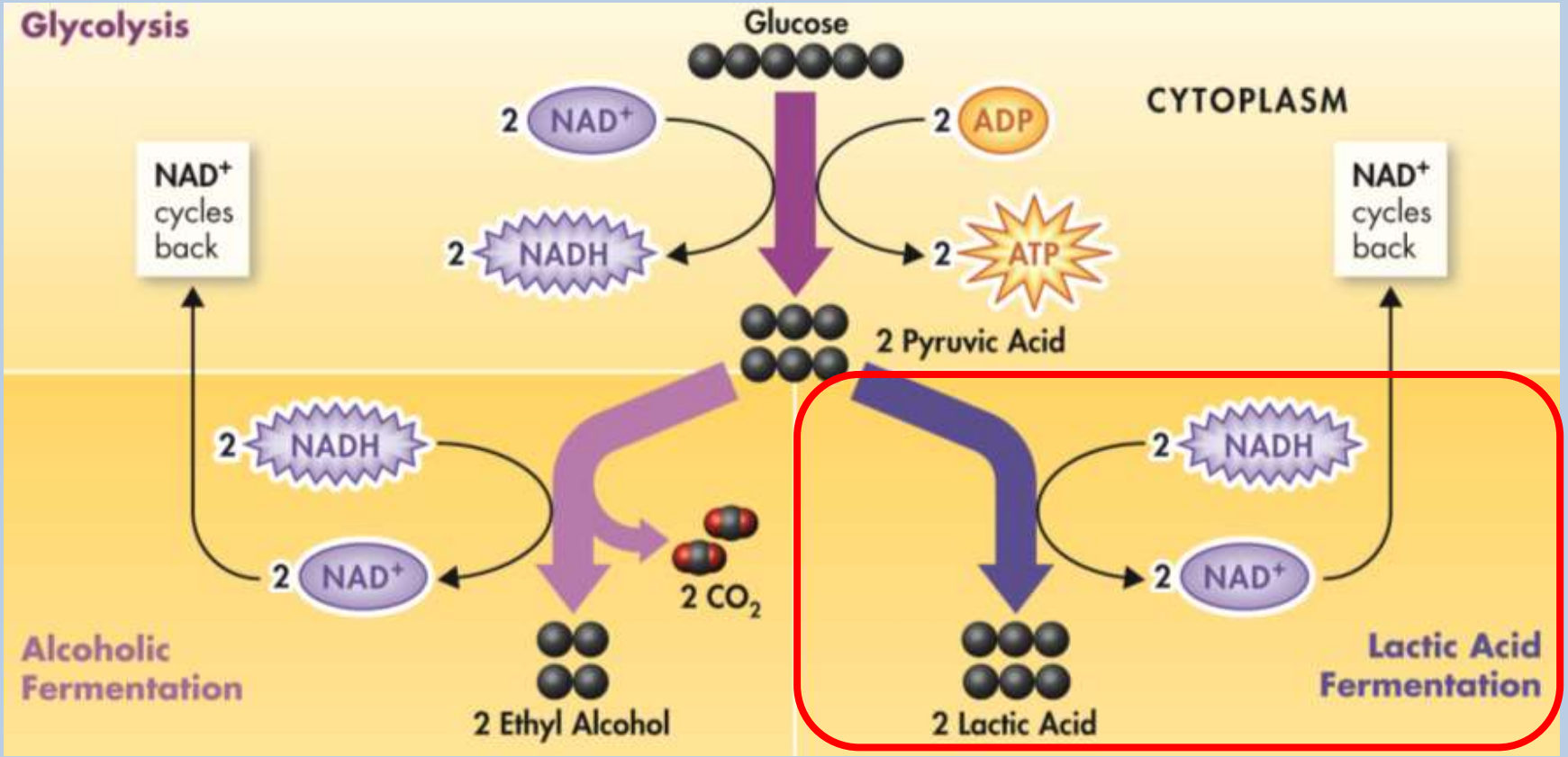


Lactic Acid Fermentation

Lactic Acid Fermentation

- **Most organisms carry out lactic acid fermentation**

Pyruvic acid → Lactic Acid



Common Assessment

- The last thing we have to do for semester 1 is the District Common Assessment

- **DO YOUR BEST!**

Common Assessment

- When you are done:
  - Make two piles on the front desk
  - NO CELL PHONES


INTERMISSION


BEFORE THE FINALS
AFTER THE FINALS

Logistics

- Welcome to Unit 5 and Semester 2!

Characteristics of Life

- ✓ Cells (unit 4)
- CHANGE OVER TIME
- Evolution (unit 8)
- Genetic material (unit 7)
- Homeostasis (all units)
- ✓ Metabolism (unit 4)
- REPRODUCTION
- Response to stimuli (all units)

Cell Growth and Division

- During this unit we will look at how cells are created from preexisting cells, how that helps organisms change over time, and possibly reproduce

Cell Growth and Division

- To start this unit we are going to use Planaria (flat worms) as an example organism

Cell Growth and Division

- https://www.youtube.com/watch?v=m12xsf5g3Bo

Cell Growth and Division

- Let's meet our new class pets!