

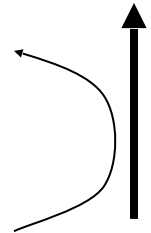
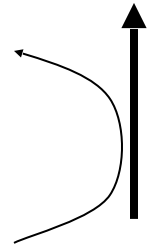
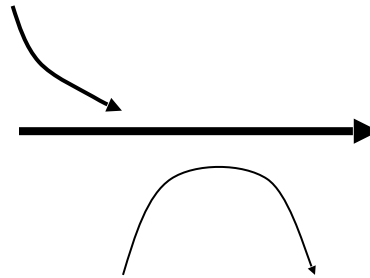
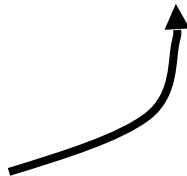
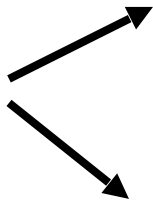
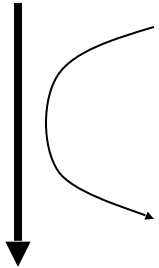
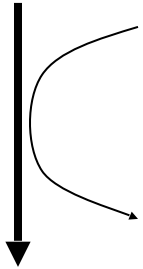


# Wednesday

it's almost, sorta, kinda, close to,  
just, about, nearly  
the weekend...



# GLYCOLYSIS

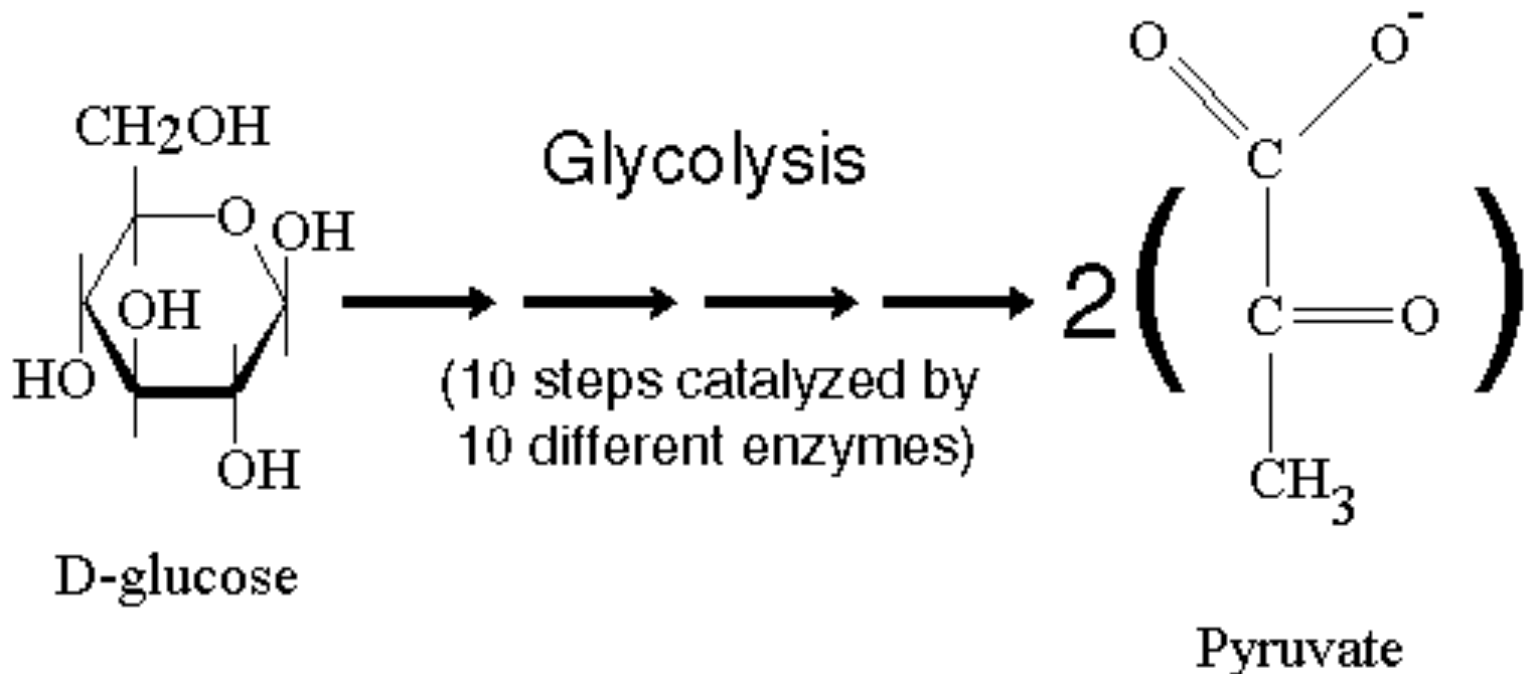


# Glycolysis

- found in almost all living organisms
- occurs in the cytoplasm
- does not require oxygen
- first stage of aerobic cellular respiration

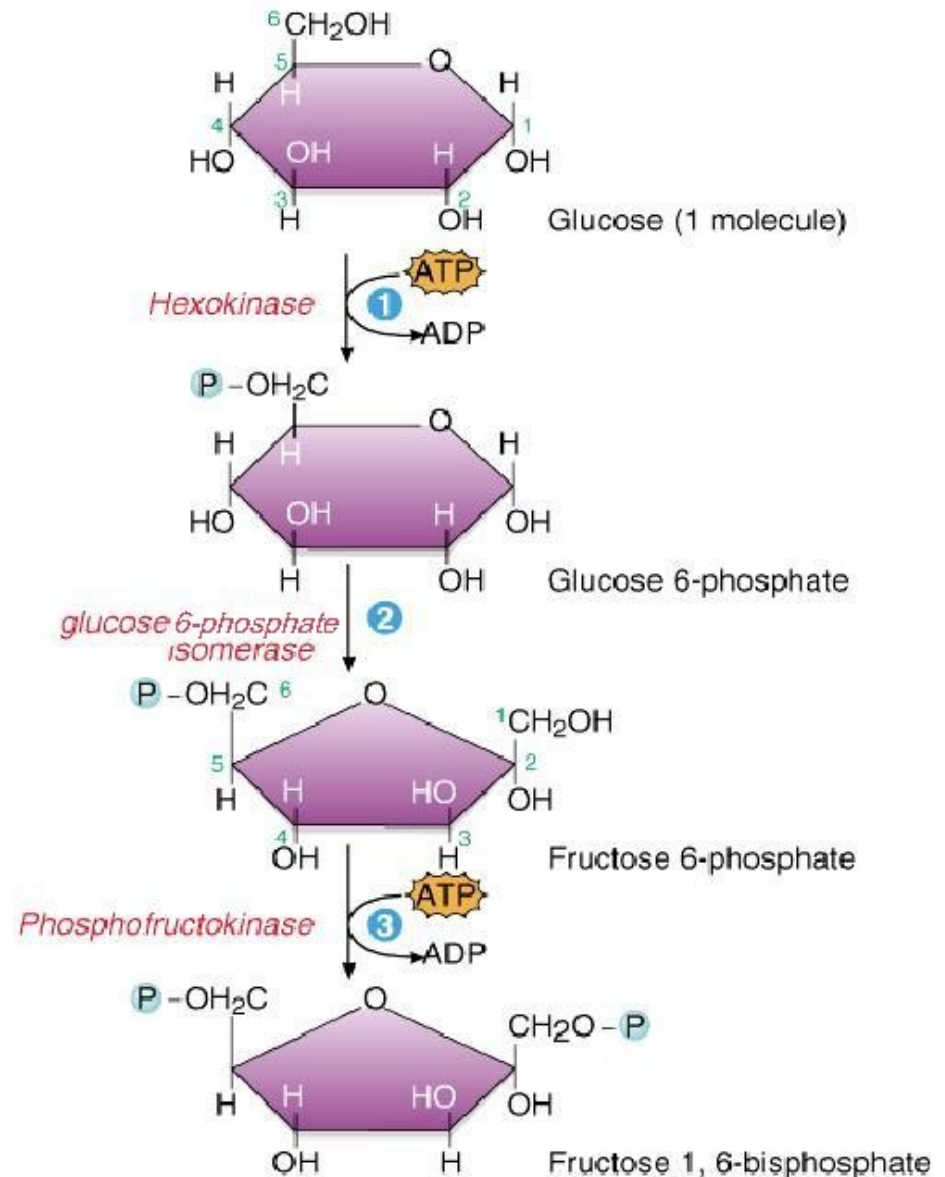
# Reactions of Glycolysis

- 10 enzyme-catalyzed reactions
- 6-carbon glucose is split into two 3-carbon pyruvate molecules
- net energy gain of 2 ATP
- 2 NAD<sup>+</sup> are reduced to NADH
- occurs in three stages



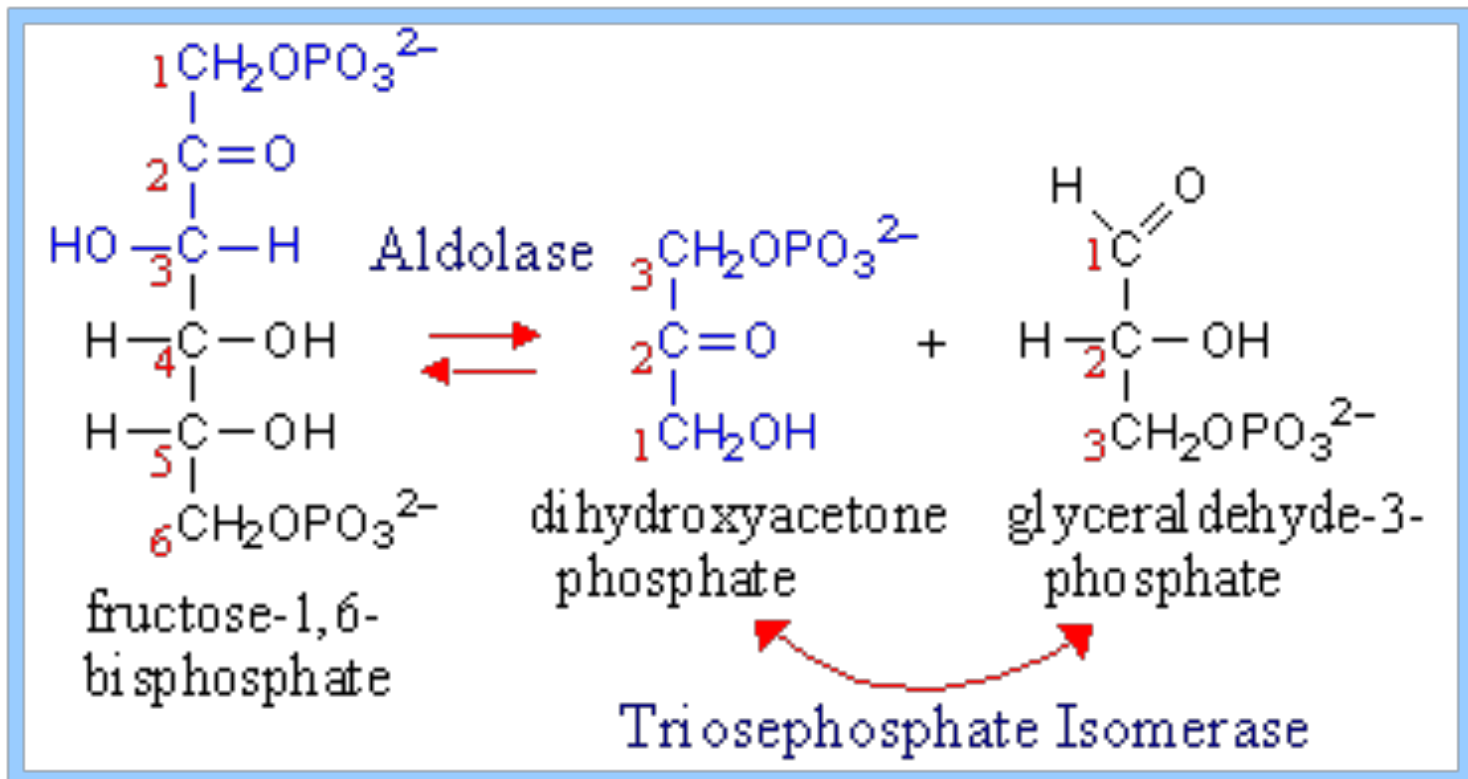
# Investment (#1-3)

- glucose undergoes two phosphorylations & an isomerization
- 2 ATP are invested



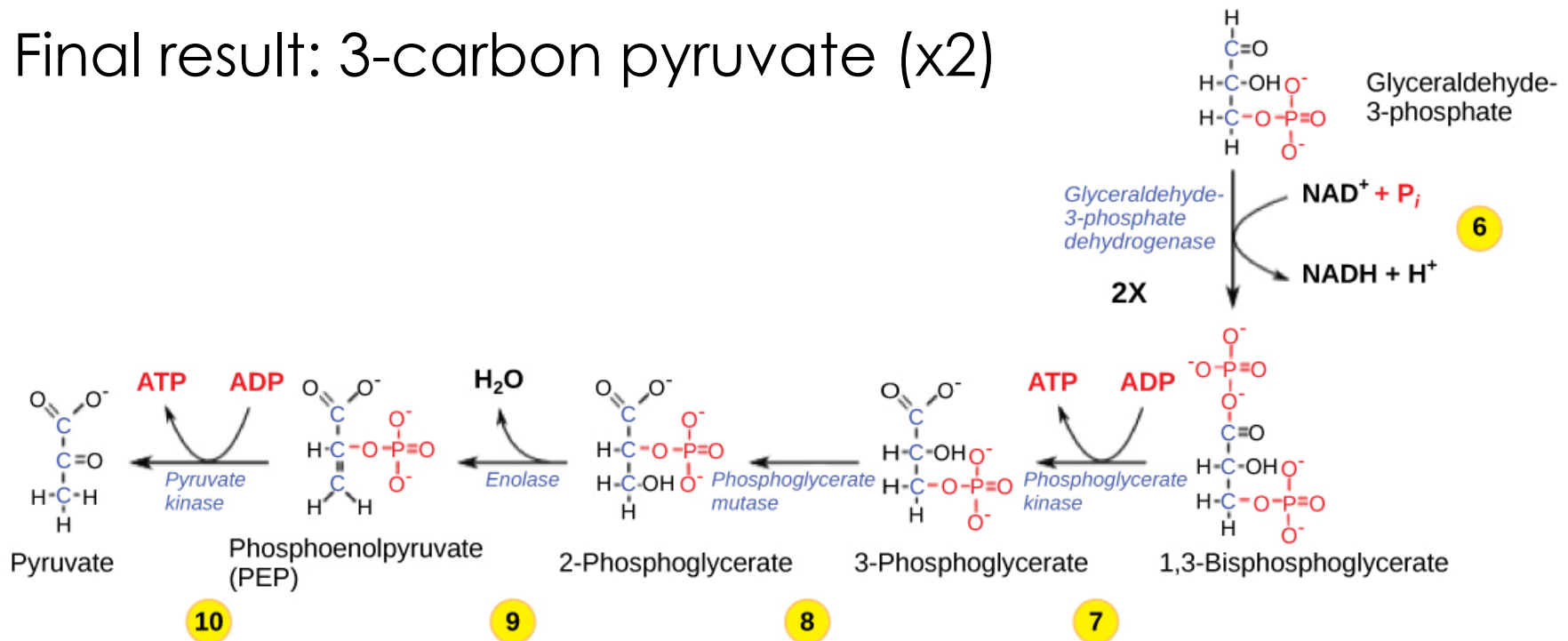
# Cleavage (#4-5)

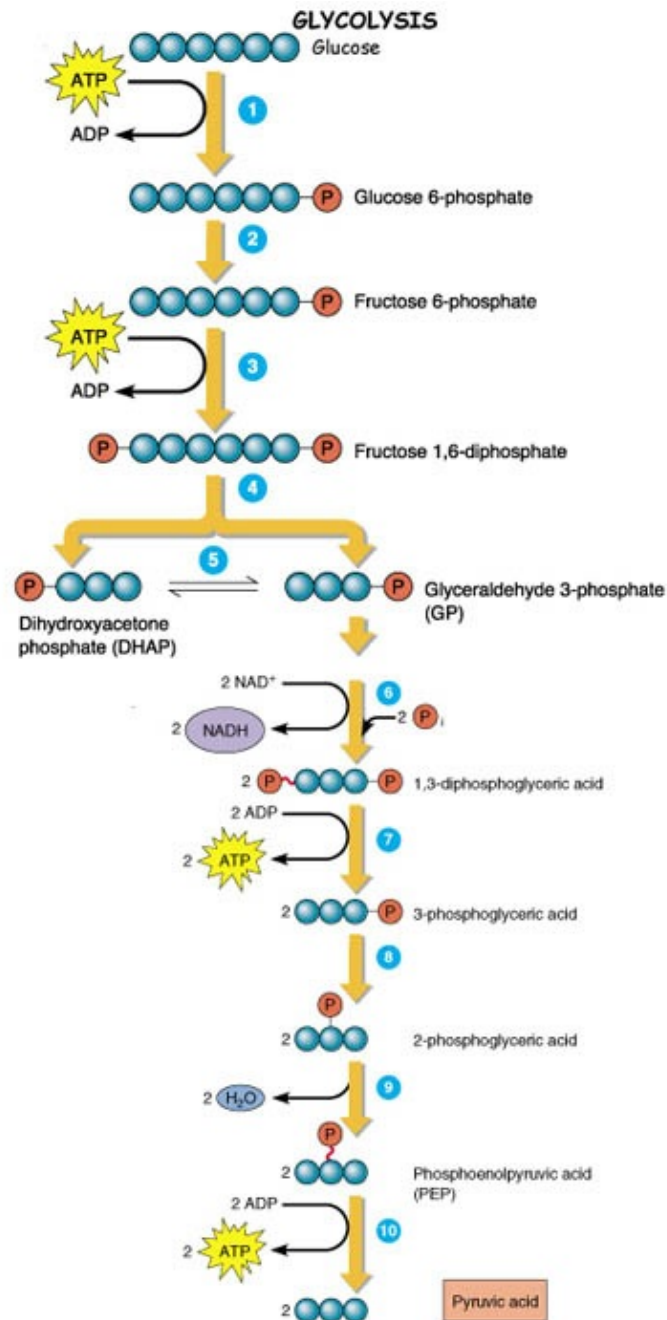
- splits into two 3-carbon molecules: G3P & DHAP
- DHAP isomerizes into G3P



# Energy pay-off (#6-10)

- 4 ATP are made (**net 2 ATP**)
- some electrons & protons are released & stored for ETC (2 NADH)
- Final result: 3-carbon pyruvate (x2)







# Energy Yield

- **2 NADH** per glucose molecule
- 2 molecules of ATP are used
- 4 molecules of ATP are produced
- overall net yield of **2 ATP** per glucose molecule

## Net Equation



# Test yourself...

- Try this quiz: <http://www.zerobio.com/biofax12.htm>

# **Glycolysis**

**a rap lecture**

**by**

**Glenn Wolkenfeld**

Which compound is the final electron acceptor of aerobic cellular respiration?

- A. Water
- B. CO<sub>2</sub>
- C. O<sub>2</sub>
- D. Glucose

Which of the following are anaerobic processes?

- A. Glycolysis
- B. Krebs
- C. Pyruvate oxidation
- D. ETC
- E. Fermentation
- F. All are Anaerobic
- G. Two are correct
- H. Three are correct

Glycolysis contains how many enzymatic reactions?

- A. 1
- B. 8
- C. 10
- D. 12

The end product of glycolysis is...

- A. FAD
- B. ADP
- C. Pyruvate
- D. NAD<sup>+</sup>
- E. All are end products.
- F. Three are end products

The end products of investment and cleavage parts of glycolysis is/are...

- A. Phosphate
- B. ADP
- C. Pyruvate
- D. NADH
- E. G3P
- F. Three are correct
- G. Two are correct



Enzyme responsible for substrate level phosphorylation is..

- A. enolase
- B. kinase
- C. dehydrogenase
- D. isomerase
- E. hexokinase

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