CONCEPT: ENTNER-DOUDOROFF-PATHWAY

• Recall: Glycolysis has ____ phases: 1) Energy *investment* phase & 2) Energy *harvest* phase. □ Some bacteria (NOT eukaryotes) use an alternative pathway for glycolysis energy _____ phase. • Entner-Doudoroff Pathway (EDP): alternative glycolysis pathway producing several molecules including NAD H. □ Only invests 1 ATP molecule to produce ____ G3P for the energy harvest phase. ☐ Since only 1 G3P is made, the energy harvest phase only produces _____ the amount of NADH & ATP □ Unlike normal glycolysis, EDP produces ______ by the reduction of NADP+. **Normal Glycolysis** 2x ATP 2x ADP 1x NADH 2x ATP 2x G3P 2x Pyruvate 1x (NADH) 2x ATP Energy Investment Phase Intermediate Energy Harvest Phase

(NADPH)

Entner-Doudoroff Pathway

NADPH

1x ATP 1x ADP

Produces:

Produces:

1x (NADPH)

PRACTICE: The Entner-Doudoroff Pathway:

Entner-Doudoroff Pathway

Glucose

- a) Converts glucose to pyruvate.
- b) Can operate aerobically or anaerobically.
- c) Is an alternative process to the glycolytic pathway.
- d) All the above are correct.

PRACTICE: The Entner-Doudoroff pathway leads to the formation of:

a) ATP.

c) NADH.

e) All of the above.

(NADH) and

NADH and

G₃P

Intermediate

1x NADH 2x ATP

Energy Harvest Phase

2x Pyruvate

- b) Pyruvate.
- d) NADPH.