

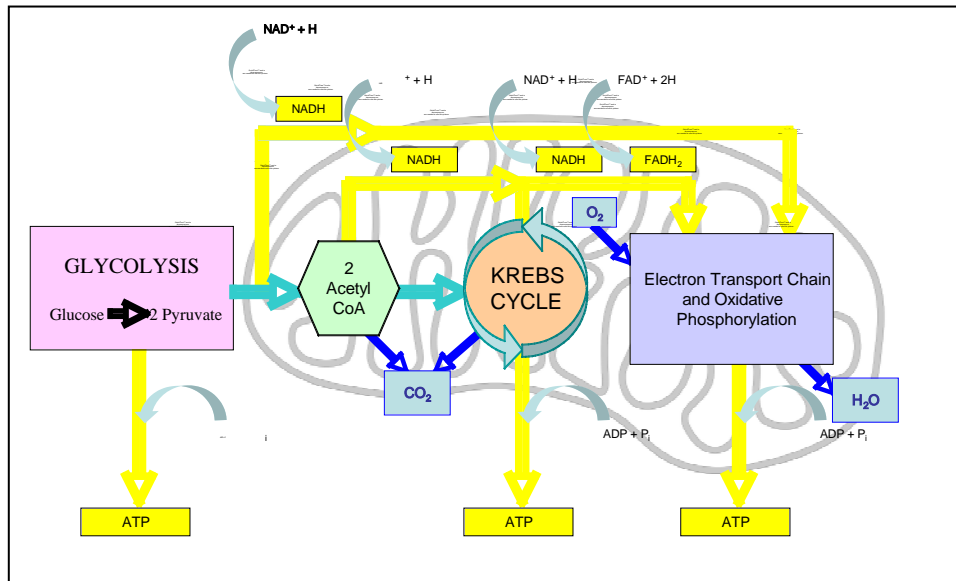
# TIME Instructional Resources

DQC Group  
Michigan State University

NSF - #0736947

# Cellular Respiration

## The Krebs cycle - matter



We'll assume that the Krebs cycle starts with the addition of acetyl CoA to oxaloacetate to form the 5-carbon citrate. This is the first "step" of the Krebs cycle. Indicate whether each of these statements related to the Krebs cycle is true or false.

True Atoms of carbon are transferred from acetyl CoA to NAD<sup>+</sup>.

True One of the outputs of the Krebs cycle is carbon dioxide, which diffuses out of the cell and eventually leaves the body.

False NADH is produced by adding a carbon to NAD<sup>+</sup>.

False The outputs of the Krebs cycle are made by rearranging the carbon skeleton that enters the cycle.

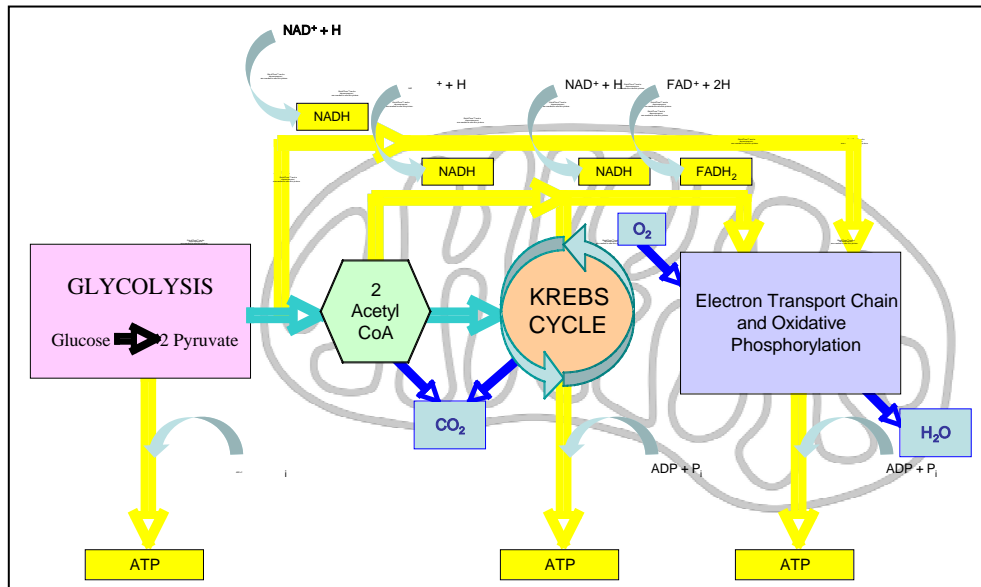
True Two outputs of the Krebs cycle are FADH<sub>2</sub> and NADH.

False Atoms of carbon are transferred from acetyl CoA to NAD<sup>+</sup> and FAD.

True Atoms of hydrogen are transferred from acetyl CoA to NAD<sup>+</sup> and FAD.

# Cellular Respiration

## Krebs cycle and energy



Two of the outputs of the Krebs cycle are the energy management molecules, NADH and FADH<sub>2</sub>. Indicate whether the statements below are true or false.

Hint: The two general rules about respiration and energy are:

- 1) molecules with C-C and C-H bonds have more chemical potential energy than those with C-O bonds;
- 2) reduced forms of a molecule have more chemical potential energy than oxidized forms.

False Acetyl CoA is oxidized while oxaloacetate is reduced.

False Carbon is reduced while NAD<sup>+</sup> and FAD are oxidized.

True Carbon dioxide does not contain any useful chemical potential energy.

True Some of the chemical potential energy of acetyl COA is transferred to NADH and FADH<sub>2</sub>.

False No high energy molecules (e.g. ATP, GTP are produced).

True Carbon is oxidized while NAD<sup>+</sup> and FAD are reduced.