

RESPIRATION SUMMARY NOTES**1. GLYCOLOSIS**

- Glucose is phosphorylated by adding 2 phosphates (from 2 molecules of ATP)
- This phosphorylated glucose is split into 2 TP's
- TP is oxidised (removed hydrogen – the hydrogen goes to NAD to produce REDUCED NAD) and uses an enzyme to be converted into pyruvate. ATP is produced here too.

2. LINK REACTION

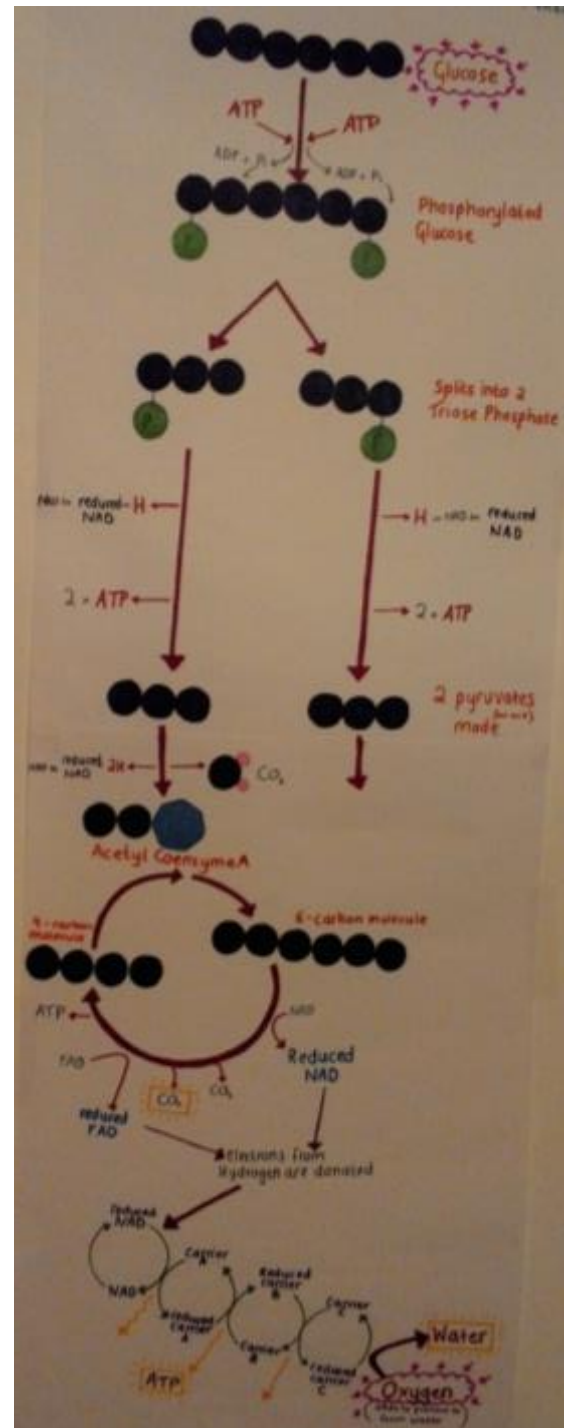
- Pyruvate is actively transported into the matrix.
- Pyruvate is decarbonised (loses a carbon that goes on to form CO_2)
- It is oxidised (by removing hydrogen – the hydrogen is again used to form REDUCED NAD) to form acetylcoenzyme A.

3. KREBS CYCLE

- Acetylcoenzyme A combined with a 4 carbon molecule to form a 6 carbon molecule.
- The 6 carbon molecule loses carbon dioxide and hydrogen (which is used to make REDUCED NAD) to give a single ATP, REDUCED FAD and a 4 carbon molecule (which can then again go on to combine with acetylcoenzyme A).

4. ELECTRON TRANSPORT CHAIN

- In the mitochondrial membrane, REDUCED NAD and REDUCED FAD are oxidised and so release their hydrogen atoms.
- The electron from the hydrogen is taken up by an electron carrier to reduce it.
- This electron from the reduced carrier is oxidised again by passing to a new carrier (which in turn becomes reduced)
- It passes through the chain in a series of oxidation/reduction reactions (this loses energy in the process and this is used to form ATP)
- At the end, electrons combine with protons and oxygen to form water.



ANAEROBIC RESPIRATION

In plants:

Pyruvate (3C) + reduced NAD → ethanol (2C) + carbon dioxide (1C) + NAD

In animals:

Pyruvate (3C) + reduced NAD → lactate (3C) + NAD