IB Biology Topic 08 – Metabolism, Respitaion & Photosynthesis HL Revision Sheet

- A metabolic pathway is _____
- An enzyme is _____
- Activation energy is _____
- An enzyme inhibitor is _____
- Competitive inhibitors bind to _____
- Non-competitive inhibitors bind to _____
- End product inhibitions is when the 'end product' of a metabolic pathway inhibits the _____

Threonine → X → Y → Z → Isoleucine

The diagram illustrates a metabolic pathway controlled by end product inhibition. Explain what the arrows represent.

_____

and how isoleucine controls the pathway.

_____

_____

Calculate the rate of reaction of the enzyme below. Show your working.

Time / seconds	Volume of oxygen / ml
0	0
60	240
120	480

_____

_____

Re-order the bullet points to explain cell respiration

- Pyruvate is decarboxylated, oxidised and attached to coenzyme A.
- Glucose is converted to pyruvate in glycolysis
- Glucose is phosphorulated to make it less stable
- The link reaction converts pyruvate to acetyl coenzyme A.
- In the Krebs cycle the acetyl group is oxidised and NAD is reduced, forming CO_2
- Electron carriers in the inner membrane transfer electrons and pump protons to the intermembrane space.
- Oxygen binds to free protons (H^+ ions) forming water
- Energy released from the oxidisation reactions is carried to mitochondria inner membranes by NADH (&FADH)
- Glycolysis provides a small gain of ATP & doesn't require oxygen.h

Draw a sketch graph which show how an enzyme controlled reaction rate increase as the substrate concentration increases..

Add lines showing rate of the same reaction after the addition of a competitive & a non-competitive inhiitor.

Chemiosmosis is the flow of protons from _____ to _____

Protone flow through the enzyme which makes ATP, called _____

A concentration gradient of H^+ ions is maintained by proton pumps which _____ and by the reaction of oxygen which _____

Photosynthesis is composed of 2 sets of reactions _____ and _____

Photolysis is the splitting of _____ and it occurs in the _____ found in the thylakoid membrane.

Light dependent reactions make _____ (reduced NADP) and _____ which are needed for light independent reactions.

The stroma of the chloroplast is the _____ and this is where the _____ reactions occur.

RuBP is the molecule which binds to _____ catalysed by the enzyme _____ .

What happens to each of these chemicals in light independent reactions?

Glycerate-3-phosphate

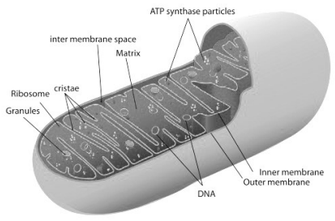
_____

Triose phosphate

_____

_____

Annotate the mitochondrion to show how it is adapted to its function



Describe the carboxylation of RuBP

_____

_____

_____

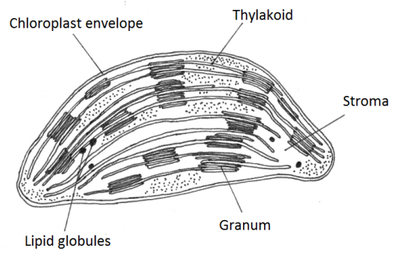
What is Calvin's lolipop apparatus?

_____

Compare & contrast light dependent & independent reactions

Light dependent	Light independent

Annotate the chloroplast to show how it is adapted for photosynthesis.



Describe the use of electron tomography

_____

_____

Why is it better than electron microscope imaging?

_____

_____