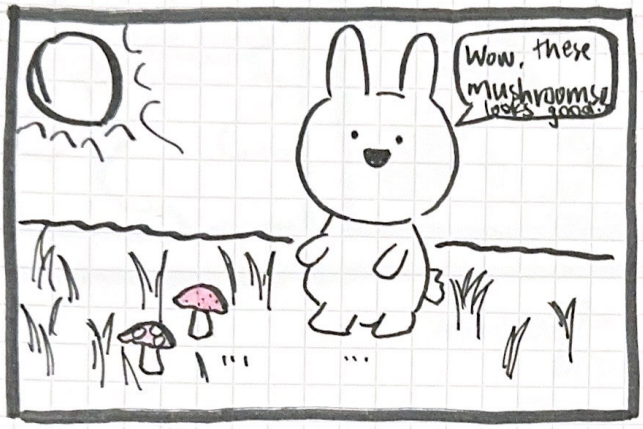
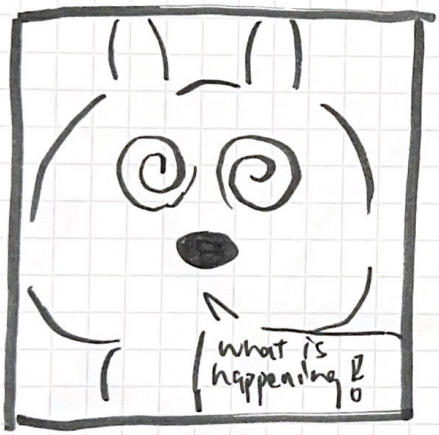
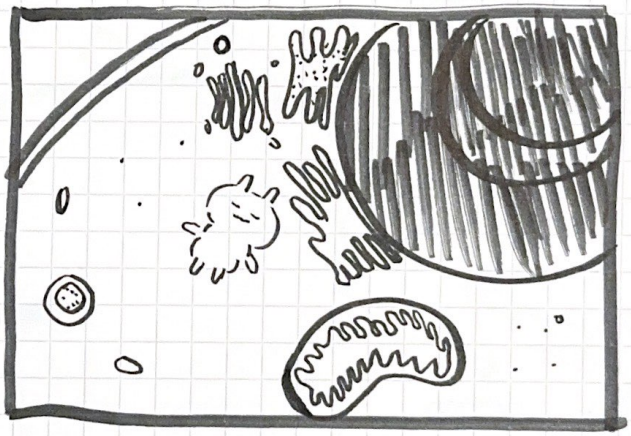
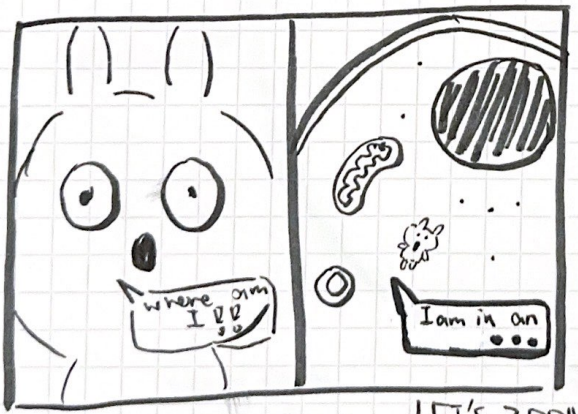
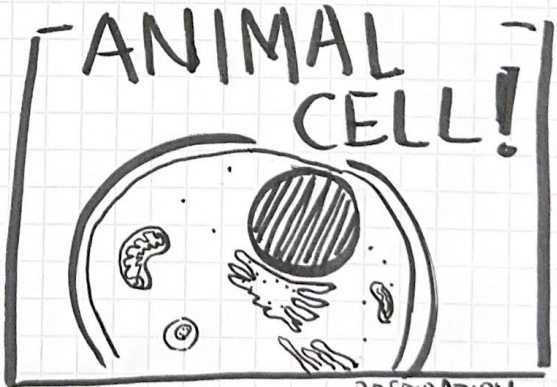
Cellular Respiratin

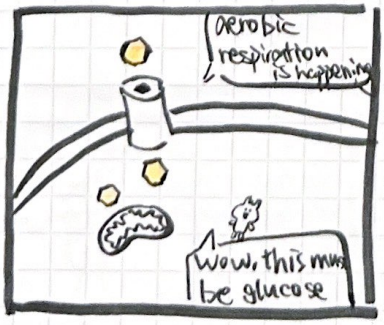


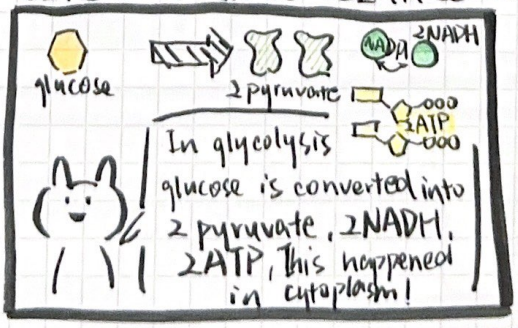


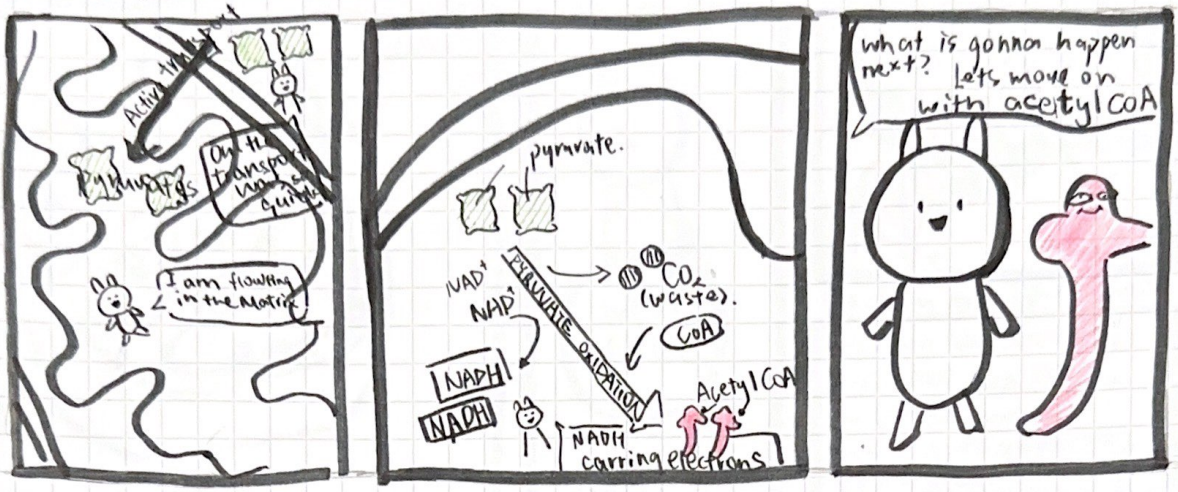


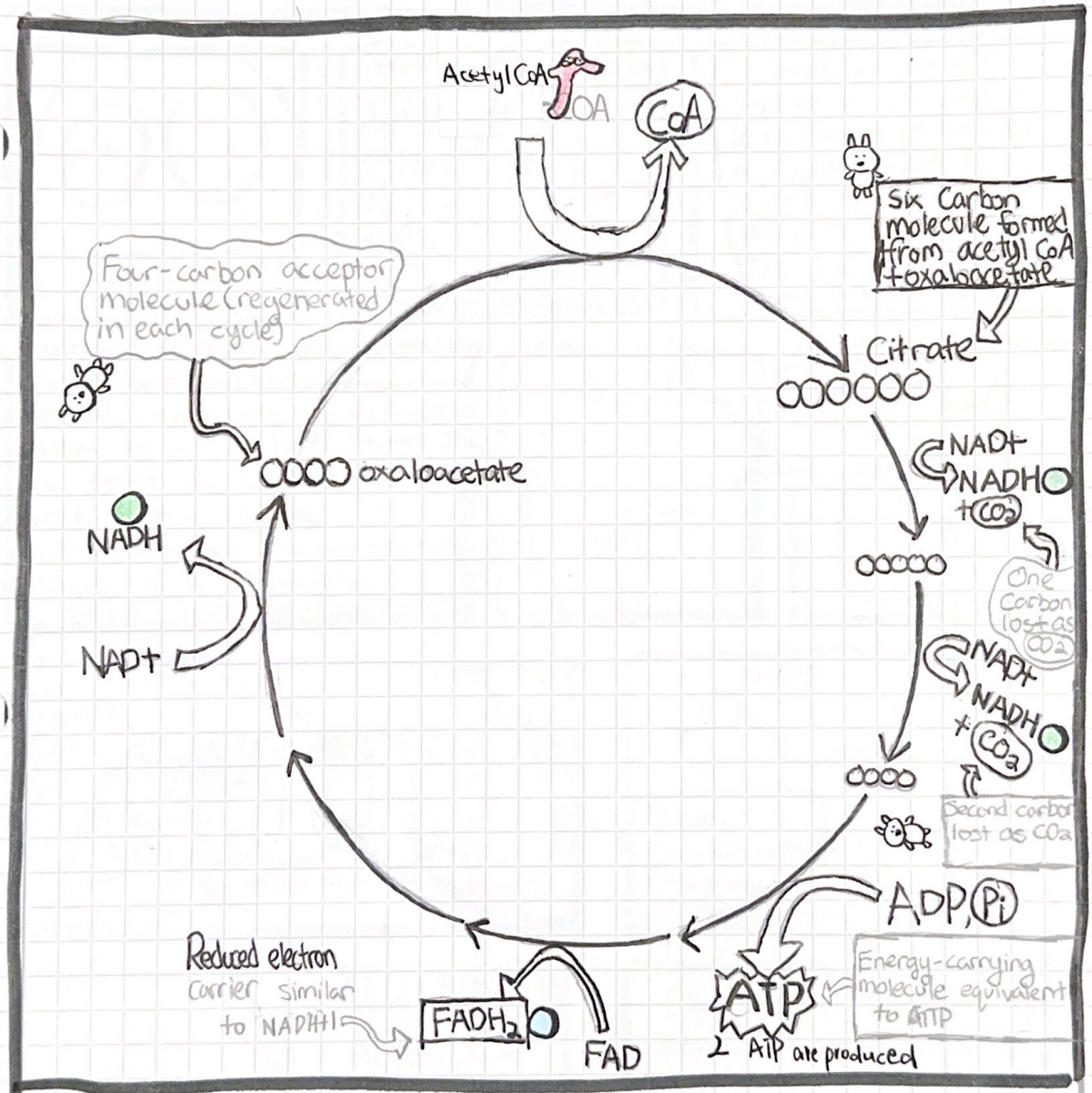


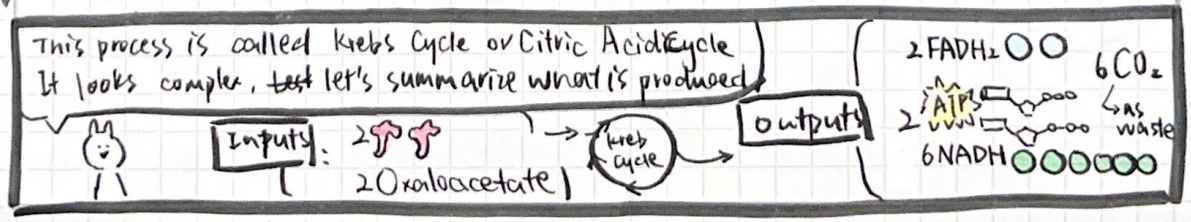






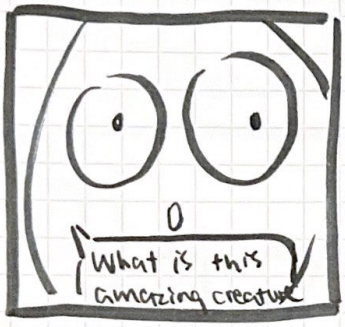

Active transport
Pyruvate
ATP
Out the transport
I am flowing in the Matrix
pyruvate.
NAD+
NAD+
NADH
NADH
PYRUVATE OXIDATION
CO2 (waste).
CoA
Acetyl CoA
NADH carring electrons
what is gonnna happen next? Lets move on with acetyl CoA

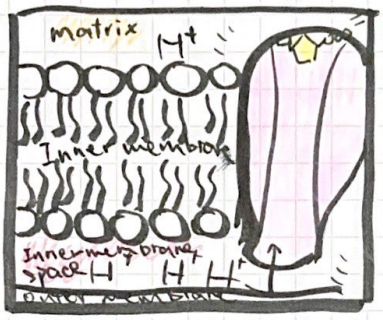

Acetyl CoA
CoA
CoA
Six Carbon molecule formed from acetyl CoA + oxaloacetate
Four-carbon acceptor molecule (regenerated in each cycle)
Citrate
oxaloacetate
NADH
NAD+
NAD+
NADH
+ CO2
One Carbon lost as CO2
NAD+
NADH
+ CO2
Second carbon lost as CO2
ADP, Pi
Reduced electron carrier similar to NADH!
FADH2
FAD
ATP
2 AtP are produced
Energy-carrying molecule equivalent to ATP


This process is called krebs Cycle or Citric Acid Cycle
It looks complex, let's summarize what is produced
Inputs:
2
2 Oxaloacetate
krebs cycle
outputs
2 FADH2
6 CO2
as waste
2 ATP
6 NADH

Electron transport chain

-electon are transfered from NADH and $FADH_2$ to protein pumps.
→use to generate H^+ gradient





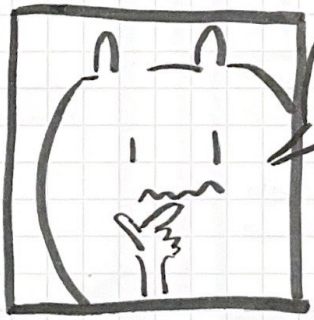
It must be the ATP synthase, because it is making ATP by adding a phosphate to ADP, 26-28ATP are made

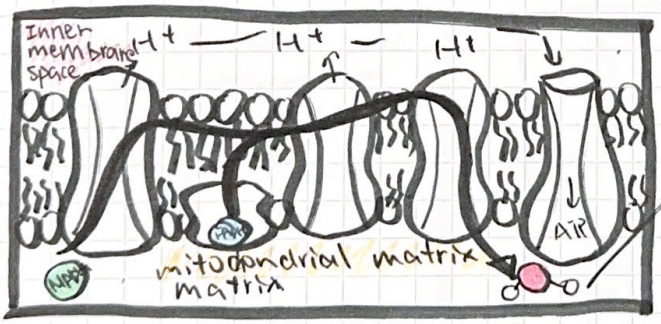
This process is also called chemiosmosis

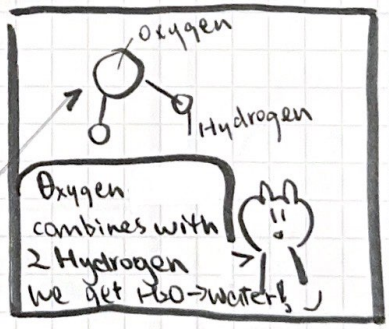
But How does it work?

The ETC had created high concentration of H^+ in the intermembrane space are used to perform work (like a turbine)

Adding together Electon transport chain and chemiosmosis is called Oxidative Phosphorylation







these steps require oxygen so its called aerobic respiration


Observe fermentation
2 ADP 2 ATP
2 NAD+ 2 NADH
the whole process occur in cytosol
frist step of fermentation is glycolysis. (glucose breaks down into form of pyruvate, ATP, NADH also produced)
SO... Because there is no O2
2 NADH
2 NAD+
through : NAD+ Regeneration
so NAD+ can be used in glycolysis.
I I
I am so tired right now ... Iwant to sleep...
ahhhhh-
-hhaaa
!
where am I?!!
You are awake!
You ate the toxic fungi I found you lying on the glass so I called an ambulance for you.
You know what, I dreamed that I am in an animal cell and I observed the whole process of cellular respiration!
Also the fermentation, but I didn't saw Alcohol fermentation
Because alcohol fermentation happens in bacteria, yeast
I would like to get into the bacteria cell next time
Nah ....
Don't do that again
The ambulance is so Expensive