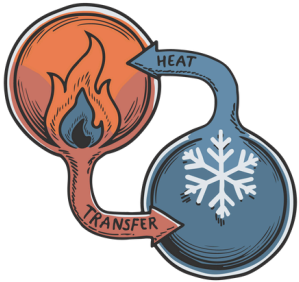
PRESSURE VOLUME CURVES



THERMODYNAMICS

1. What is a pressure/volume curve?
2. How are these curves represented for the 4 thermodynamic processes?

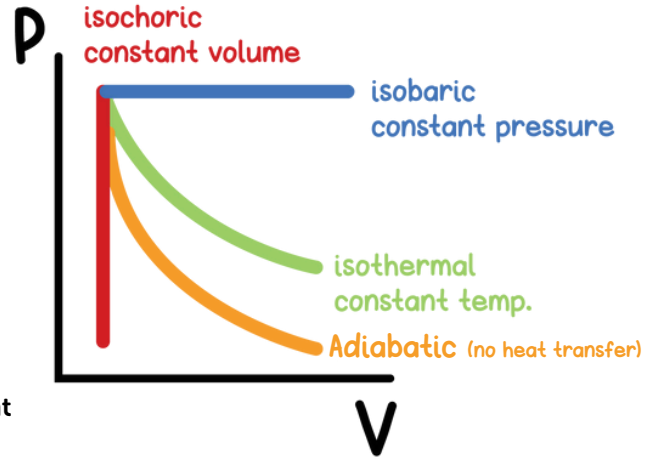
PRESSURE VOLUME CURVES ARE USED TO DESCRIBE THE PRESSURE AND VOLUME RELATIONSHIP IN A DYNAMIC ENVIRONMENT

ISOTHERMAL:
Temperature of system remains constant

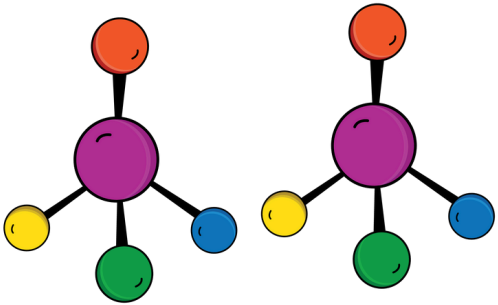
ISOCHORIC:
Volume of system remains constant

ADIABATIC:
No heat exchange occurs

ISOBARIC:
Pressure of system remains constant



EPIMERS



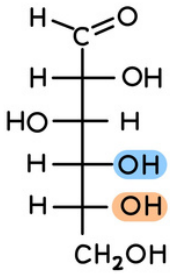
ISOMERS

What are epimers?

EPIMERS

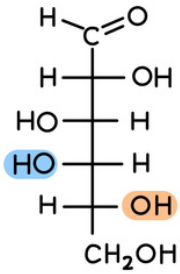
Stereoisomers that differ at only one chiral center

D-GLUCOSE AND D-GALACTOSE ARE EPIMERIC AT CARBON-4



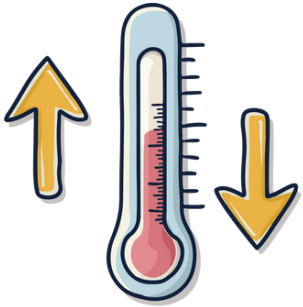
D-GLUCOSE

ONLY ONE CHIRAL CENTER WITH DIFFERENT CONFIGURATION



D-GALACTOSE

HEAT TRANSFER



THERMODYNAMICS

What are the 3 modes of heat transfer?

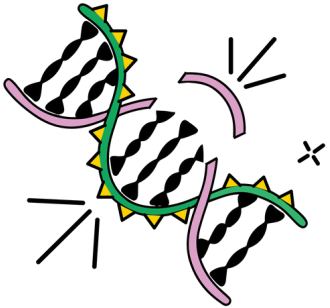
THREE MODES OF HEAT TRANSFER:

CONDUCTION:
The direct transfer of energy via molecular collisions

CONVECTION:
The transfer of heat by the physical motion of a fluid

RADIATION:
The transfer of energy by electromagnetic waves

TRANSLATION



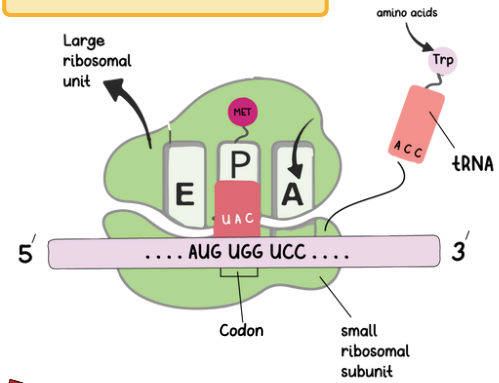
NUCLEIC ACIDS

1. What is translation?
2. What are the main steps in translation?

TRANSLATION:

RNA ⟶ PROTEINS

Amount of ATP needed for translation = #a.a. x 4



STEP 1: INITIATION

Prokaryotes: 30S ribosome attaches to Shine-Dalgarno sequence

Eukaryotes: 40S ribosome attaches to the 5'cap

STEP 2: ELONGATION

The addition of a new tRNA into the A site growing polypeptide transfers from A site to P site uncharged tRNA pauses in the E site before exiting the ribosome

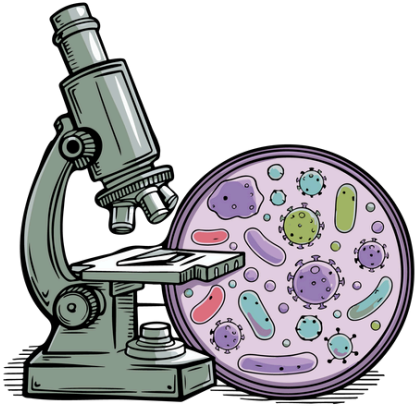
STEP 3: TERMINATION

Occurs when the codon in the A site is a stop codon. Release factor places a water molecule on the polypeptide chain and releases the protein

Eukaryotic translation occurs in the cytosol

Prokaryotic transcription and translation occur simultaneously in the cytoplasm.

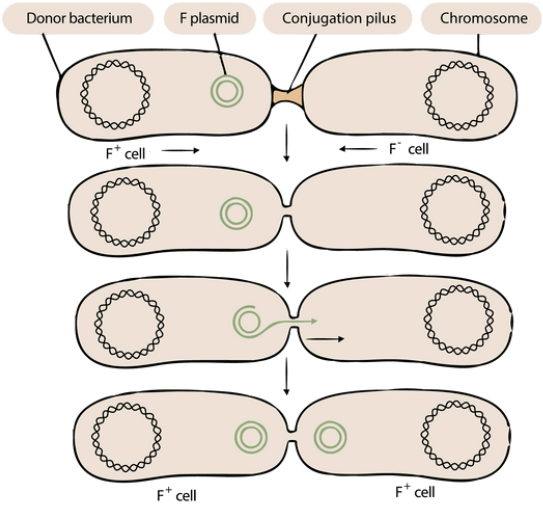
CONJUGATION



MICROBIOLOGY

What is conjugation?

CONJUGATION IS THE TRANSFER OF GENETIC MATERIAL FROM ONE BACTERIUM TO ANOTHER ACROSS A CONJUGATION BRIDGE

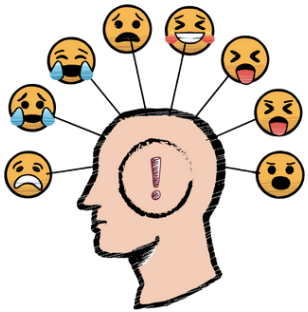


A plasmid can be transferred from F+ cells to F- cells

The cell with f factor is called an hFr cell

Increases diversity not population size

THEORIES OF EMOTION: SCHACHTER-SINGER



EMOTION

What is the Schachter-Singer theory of emotion?

SCHACHTER-SINGER THEORY

Emotion is determined by arousal and context (interpretation)

STIMULUS → **AROUSAL** (PHYSIOLOGICAL RESPONSE) → **INTERPRETATION** → **EMOTION**

SCHACHTER SINGER = SOLVE

THEREFORE, MUST SOLVE/INTERPRET BEFORE EMOTION IS DETERMINED

EXAMPLE:

SEE BEAR (STIMULUS)
START SWEATING (AROUSAL)
LABEL THE SITUATION AS DANGEROUS (INTERPRETATION)
FEELS SCARED (EMOTION)