DATA 4 / 8 /21

S T Q Q S S D

CELLULAR RESPIRATION

- cellular respiration is the process where chemical reactions that break down nutrients molecules in living cells to release energy

aerobic: takes place in the mitochondria

anaerobic: takes place in the cytoplasm

- the cellular respiration must happen all of the time so the organism can survive
- the energy is used for:
  - muscle contraction
  - protein synthesis
  - cell division
  - active transport
  - growth
  - passage of nerve impulses
  - maintenance of body temperature

  → thermal, sound, kinetic, electrical

AEROBIC respiration

glucose + oxygen → (energy) carbon dioxide + water

large amount of energy released following the breakdown of food substance in the presence of oxygen

$C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O$

ANAEROBIC respiration

animal muscles

glucose → (energy) lactic acid

$C_6H_{12}O_6 \rightarrow 2C_3H_6O_3$

bacteria or yeasts

glucose → (energy) ethanol + carbon dioxide

$C_6H_{12}O_6 \rightarrow 2C_2H_5OH + 2CO_2$

partial breakdown of glucose, small amounts of energy

ATP

Adenosine triphosphate

aerobic respiration - releases net of 36 ATP

anaerobic respiration - releases net of 2 ATP