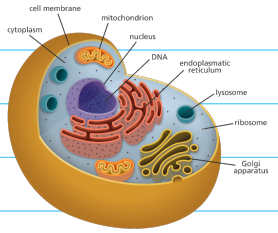
CELLS & SYSTEMS: WHAT DOES IT MEAN TO BE ALIVE?

All living things have a few common characteristics:

LIVING
- Made of cells
- Need energy
- Respond & adapt to environment
- Reproduce
- Grow
- Produce waste



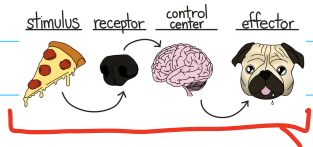
CELLS
- Basic unit of life
  - → All living things have AT LEAST 1 cell.
  - → EVERY cell comes from ANOTHER cell.

ENERGY
- All living things need energy
  - → How they GET energy is different

PRODUCER vs. CONSUMER → need NUTRIENTS (ENERGY)

Organisms need a BALANCE between energy usage & creation

the sum of the differences = METABOLISM



ENVIRONMENT & ADAPTATION
- All living things respond to events called a STIMULUS
  - (EX: - Temp change
    - Injury)
- Adaptations → physical/behavioural difference that increases survivability

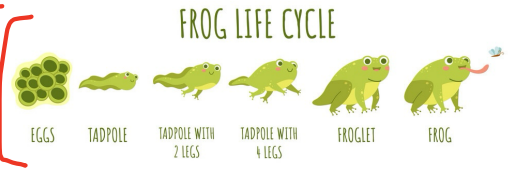
REPRODUCTION
- → All living things must reproduce in some way

WATERMELON vs. WOLF

GROWTH → not just a matter of size → over time structures & parts breakdown & need to be replaced

- changes can be dramatic → ex: frog
  egg → tadpole → frog

skin → always replacing itself
hair



WASTE - all living things require waste removal system

- plants: their "waste" = O_2
- humans: CO_2 and poo

All living things must do the following to be living

1 W: produce waste
2 E: consume energy
3 E: respond to environment
4 R: reproduce
5 G: grow and develop

WEERG