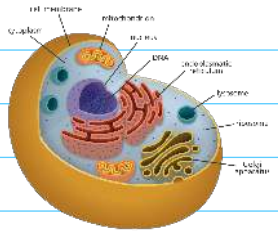
CELLS & SYSTEMS: WHAT DOES IT MEAN TO BE ALIVE?

All living things have a few common characteristics:

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

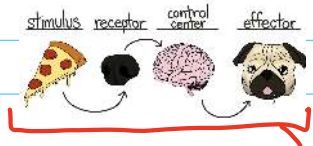


CELLS - basic unit of life
- → All living things have AT LEAST 1 cell.
- → EVERY cell comes from ANOTHER cell.

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

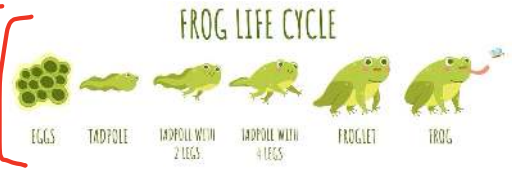
WATERMELON vs. WOLF

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

WEERG

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