Stimulus and Response Notes

Cause and Effect in the Natural World

**Stimulus** – any change in an organism’s environment that causes the organism to react. “cause”
- Stimulus = singular
- Stimuli = plural

Example: An animal is cold so it moves into the sun
Example: Getting a drink when you feel thirsty

**Response** – how the organism reacts to a stimulus and results in a change in behavior. “effect”

Example: An animal is cold so it moves into the sun
Example: Getting a drink when you feel thirsty

**Tropisms** – plant’s growth response toward or away from a stimulus; Plants respond to stimuli just like animals
- Positive tropism – growth is toward the stimulus
- Negative tropism – growth is away from the stimulus
  - Hydrotropism – roots grow toward water
  - Phototropism – leaves/stems grow toward light
  - Thigmotropism – plant grows toward OR away from pressure
  - Geotropism – stems grow away from gravity, roots grow with gravity

**Wilting and Turgor Pressure**

**Wilting** – plants don’t get enough water, the vacuoles shrink, less TURGOR PRESSURE on the cell wall, cells get soft and squishy and the plant sags

**Homeostasis** – maintenance of stable internal environment; balance within living things
- Homeo = same
- Stasis = state of balance

Example: body regulating temperature to maintain a stable internal temperature (sweating when hot, shivering when cold)
Example: body regulating amount of sugar in bloodstream (releasing insulin when high, and glucagon when low)
Example: body regulating hydration (kidneys remove water when high or adding water back into blood stream when low)