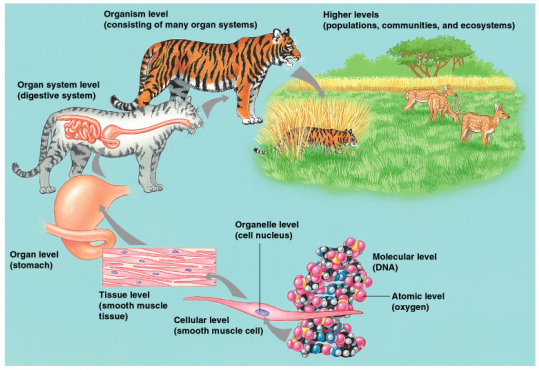
Biology – Chapter 1
The Science of Biology

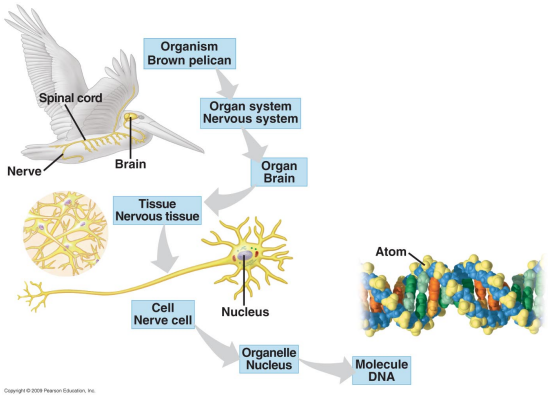
Honors Biology – Chapter 1
Exploring Life

Ridgefield Memorial High School

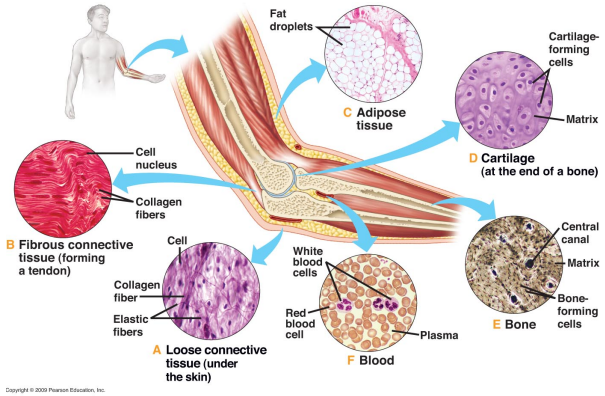


There are 13 levels of organization in biology.

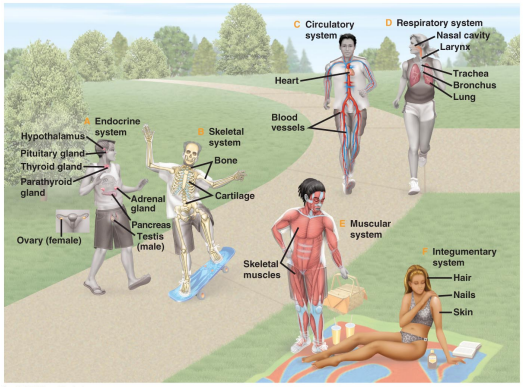
The 13 levels go from biosphere...



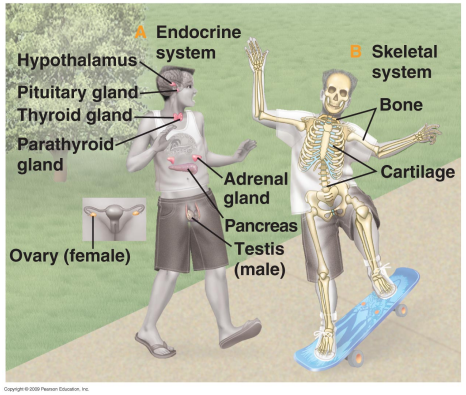
...all the way down to subatomic particle.



Human organs are made out of a variety of different tissues.



The human body is comprised of many different organ systems.



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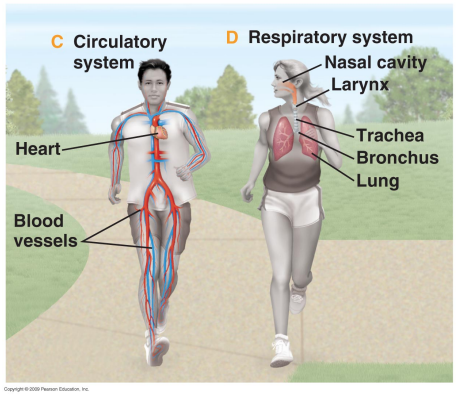

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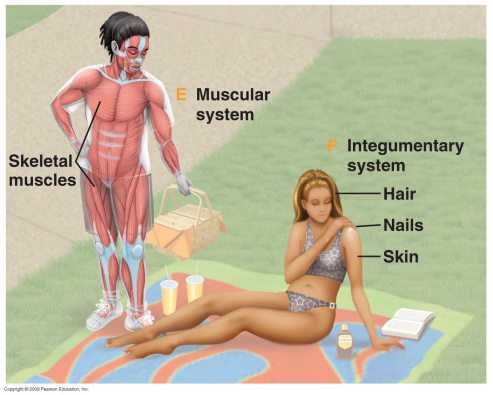

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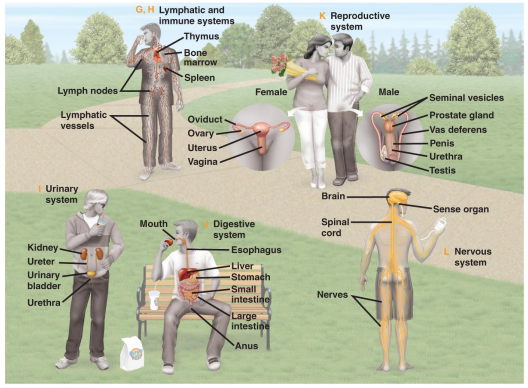

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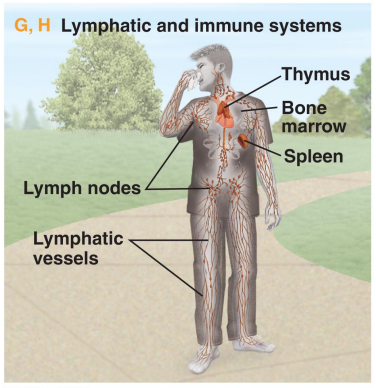

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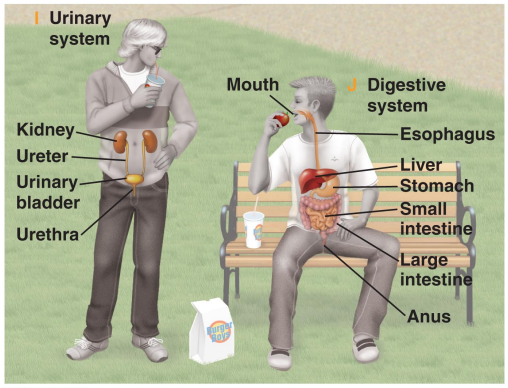

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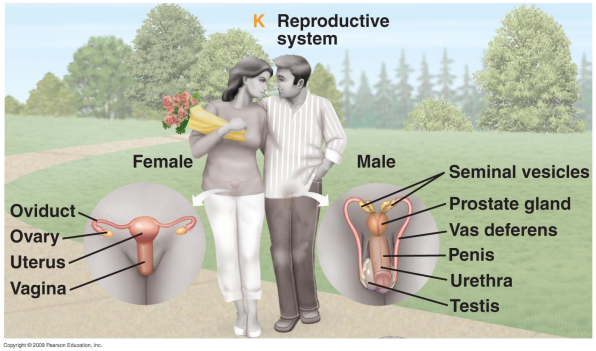

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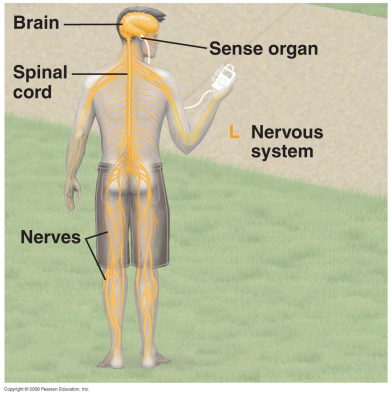

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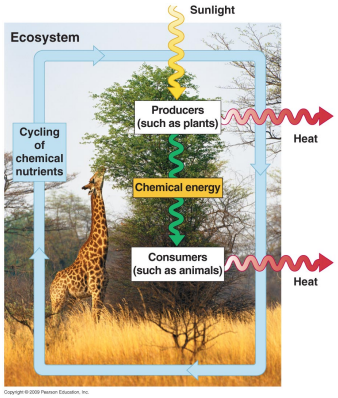
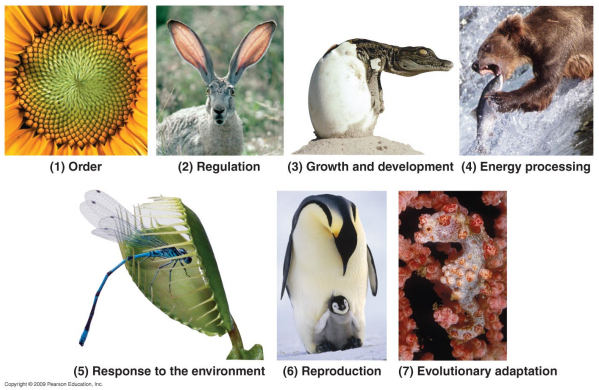
DNA is like the alphabet used by all living things.

DNA is a molecule that is shaped like a double helix.



In the environment, matter (nutrients) cycles and energy flows.



There are seven important properties of life.

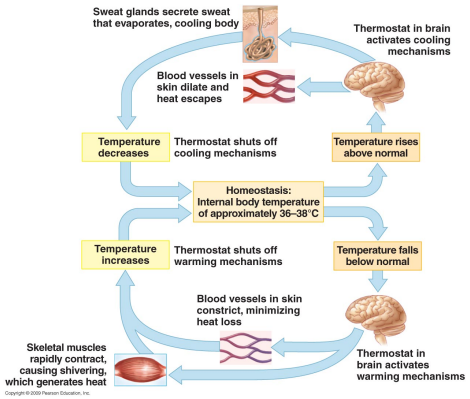
(1) Order

All living things have a complex organization.

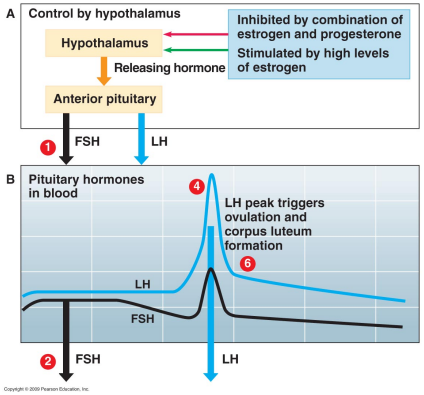
The butterfly, nautilus, flower, and plant root cells all show biological order/organization.

(2) Regulation

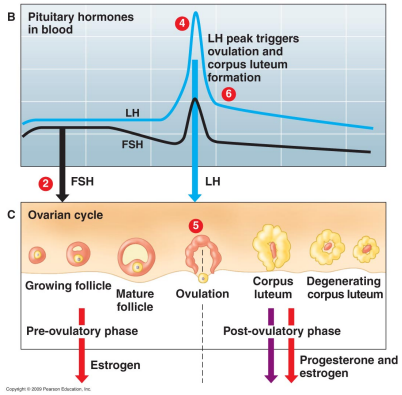
All living things maintain a stable internal environment (homeostasis).



Maintaining a stable body temperature is one example of regulation in humans.



An example of regulation is the human female reproductive system (menstrual cycle).



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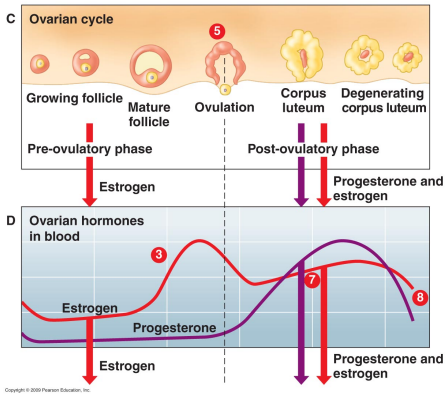

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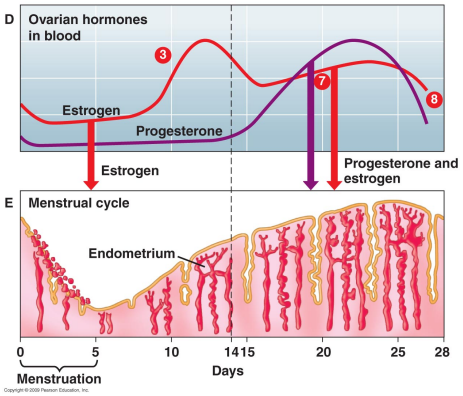

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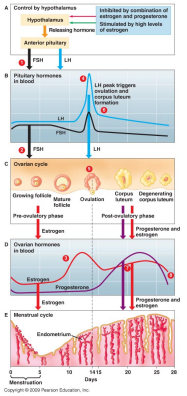

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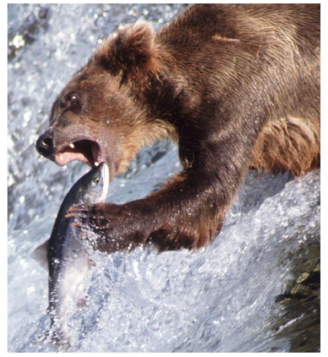
(3) Growth and development

All living things grow and develop.

The snake hatching, frog eggs dividing, seed germinating, and deer growing are all examples of development.



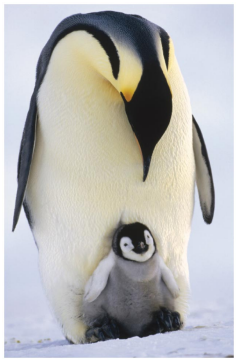
(4) Energy processing

All living things require energy.

Plants convert energy into food using sunlight.
Mosquitos, leopards, and koalas eat to obtain energy.

(5) Response to the environment

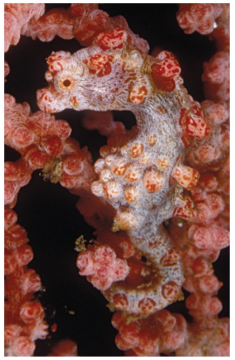
All living things respond to stimuli.



(6) Reproduction

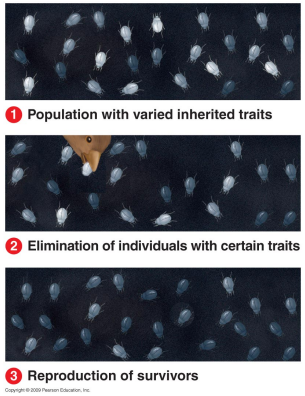
All living things reproduce. It's the most important thing in life.

Beatles mating, father and child, bacterial conjugation, and flowers are all types of sexual reproduction.

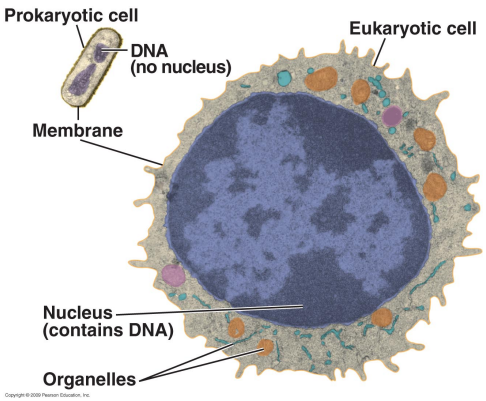


(7) Evolutionary adaptation

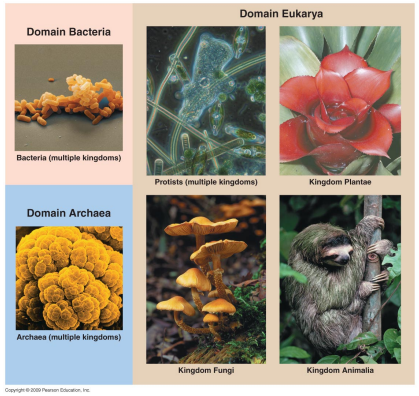
All living things adapt and evolve to the environment.



Evolution is usually caused by natural selection.

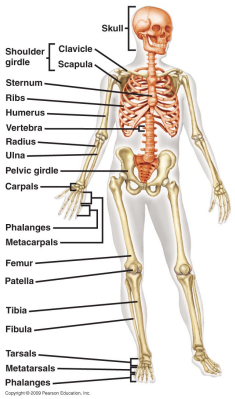


Eukaryotic cells are much more complex than prokaryotic cells.



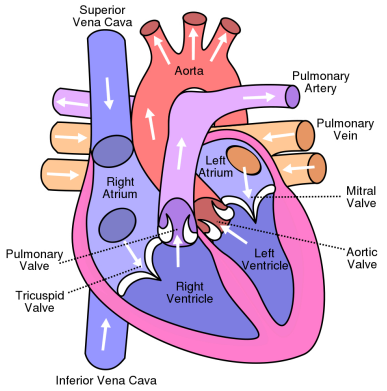
The 3 domains of living things are Bacteria, Archaea, and Eukarya.

These gears demonstrate the relationship between
STRUCTURE (what an object looks like) and FUNCTION (how an object works).

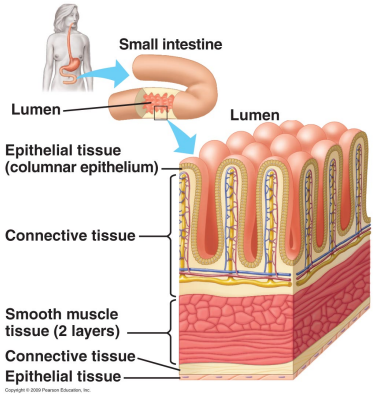


The structure of the human skeleton (position of the bones)
determines its function (movement and structural support).

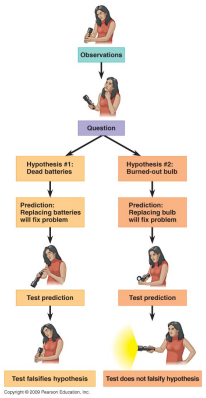
The structure of bird's bones (hollow in the center)
determines its function (ability to fly).



The structure of the heart (empty muscular cavities)
determines its function (pumps blood throughout the body).



The structure of the small intestine (2 muscular layers and finger-like
connective tissue) determines its function (digestion and movement of food).



The scientific method is used to solve problems in biology.