

From Cells to Organisms

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From cells to organisms

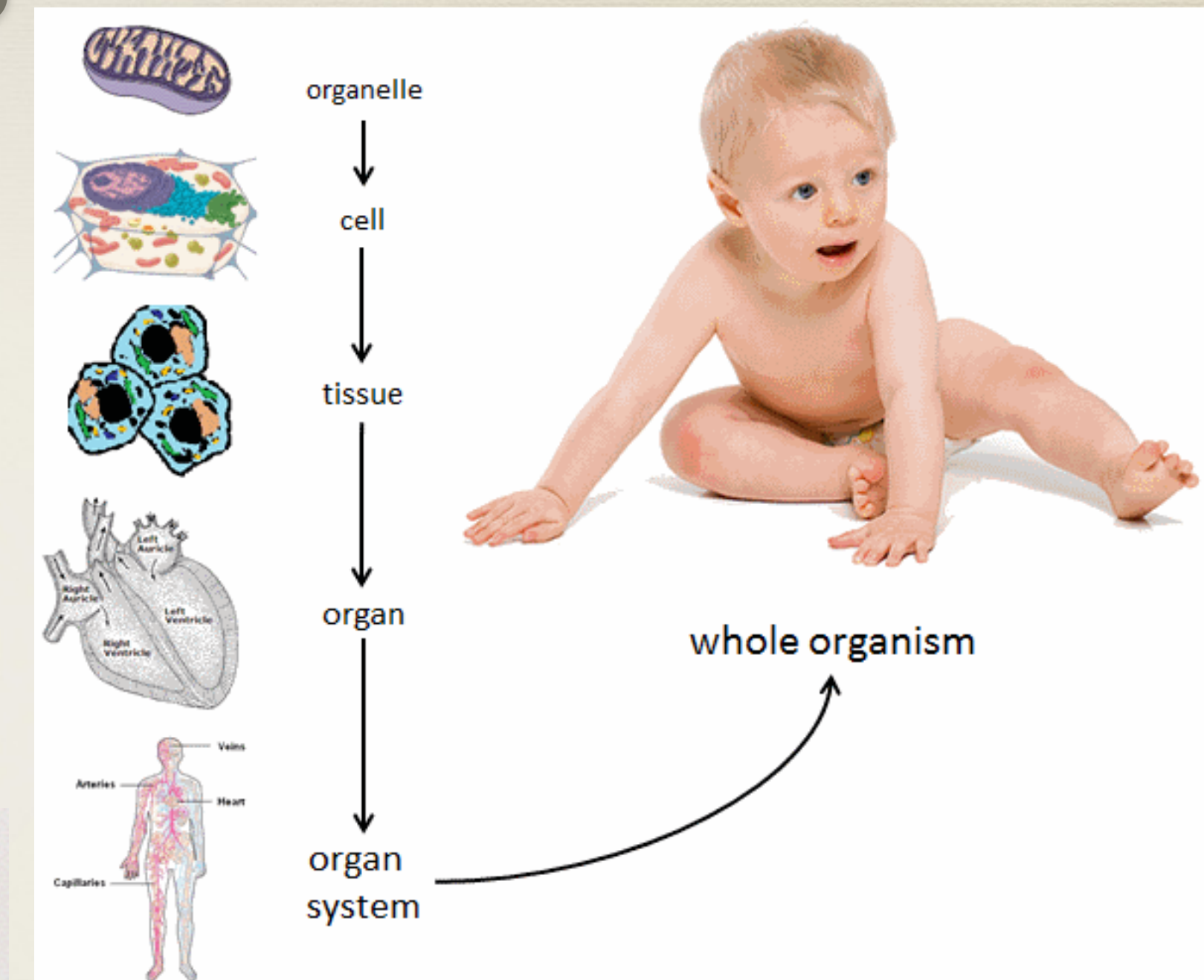
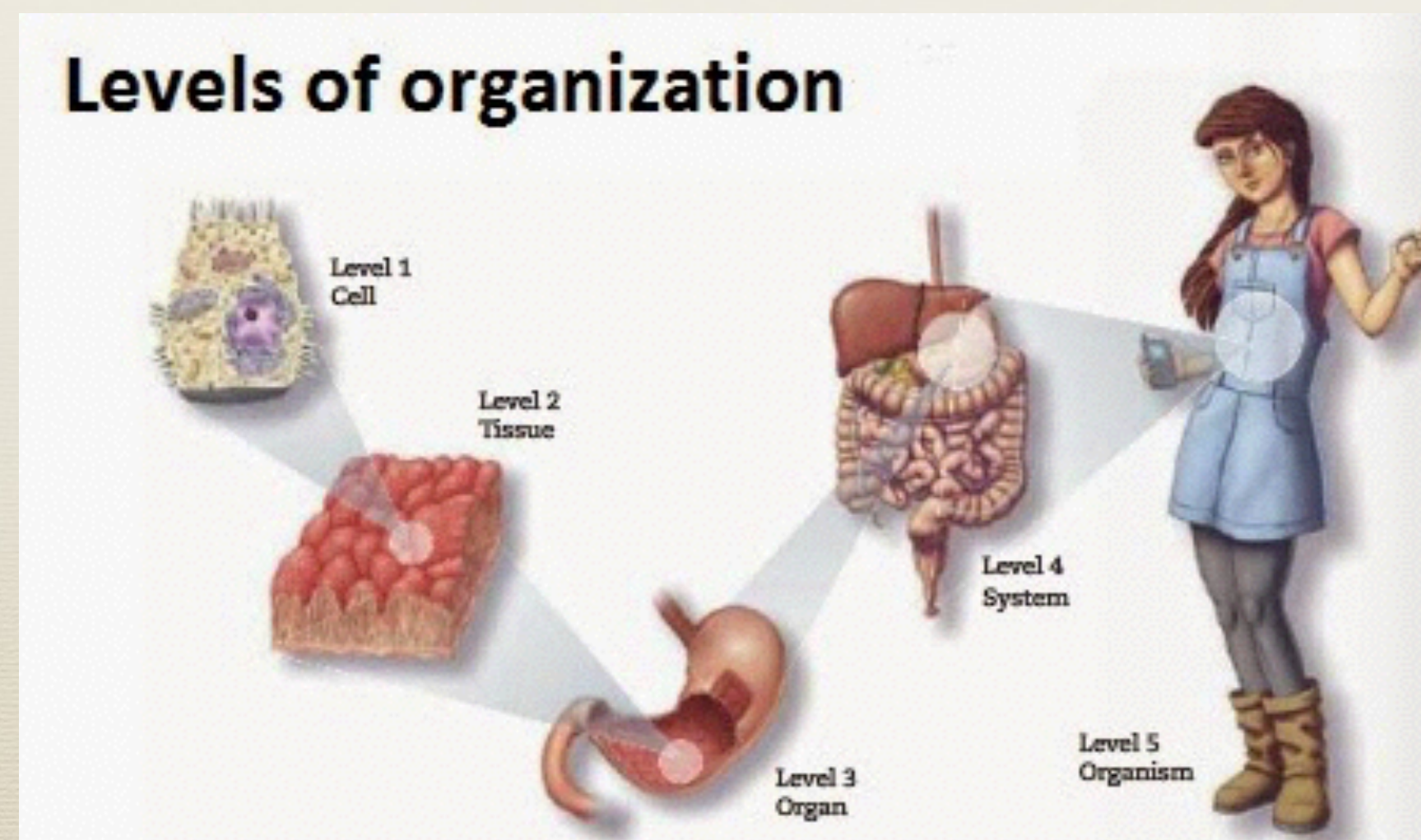
- * In a multicellular organisms, such as a human, different kinds of cells perform different functions.
- * These cells rely on each other and work together - they must be organized!
- * **A multicellular organism has 4 levels of organization:**

- * **cells**

- * **tissues**

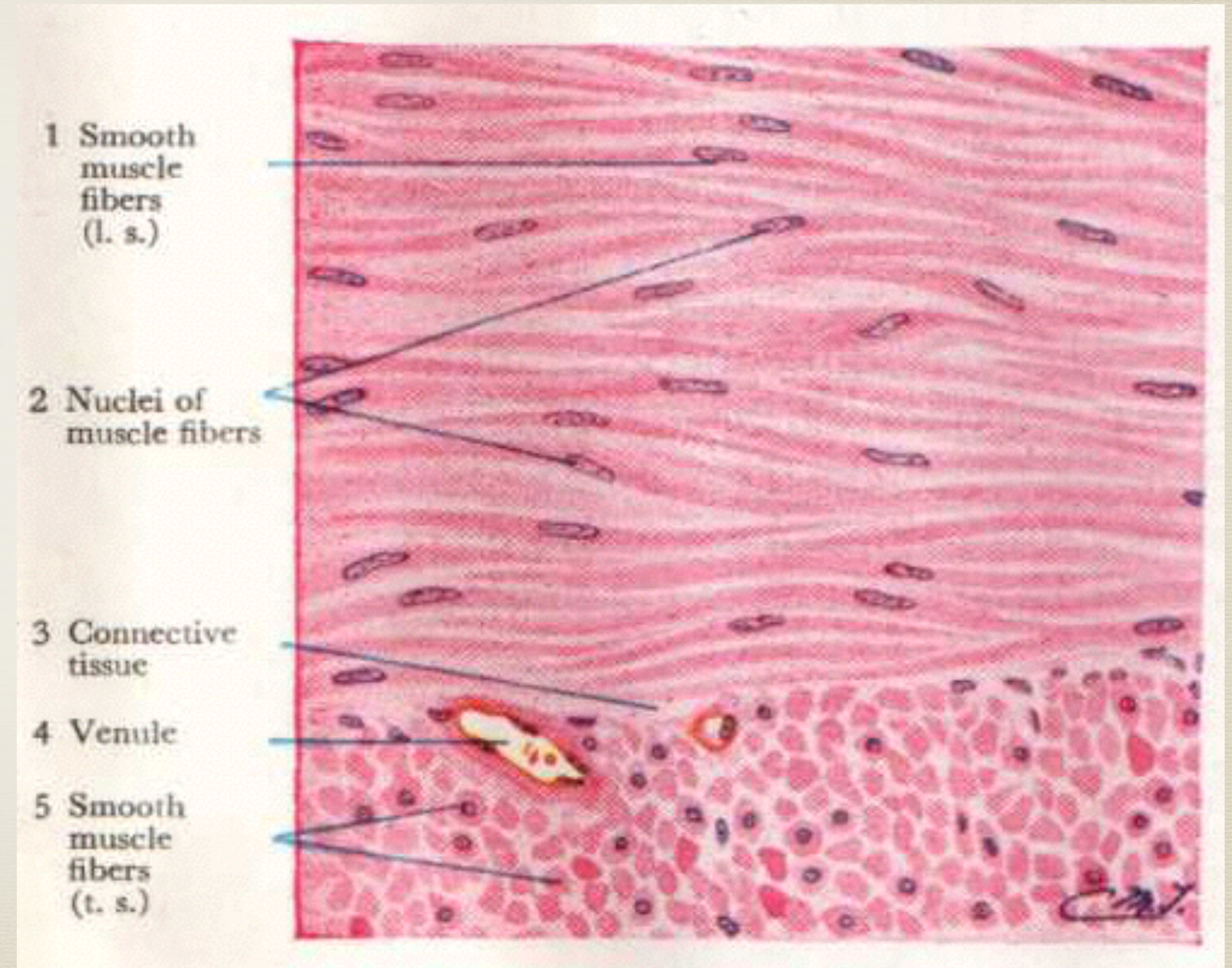
- * **organs**

- * **organ systems**



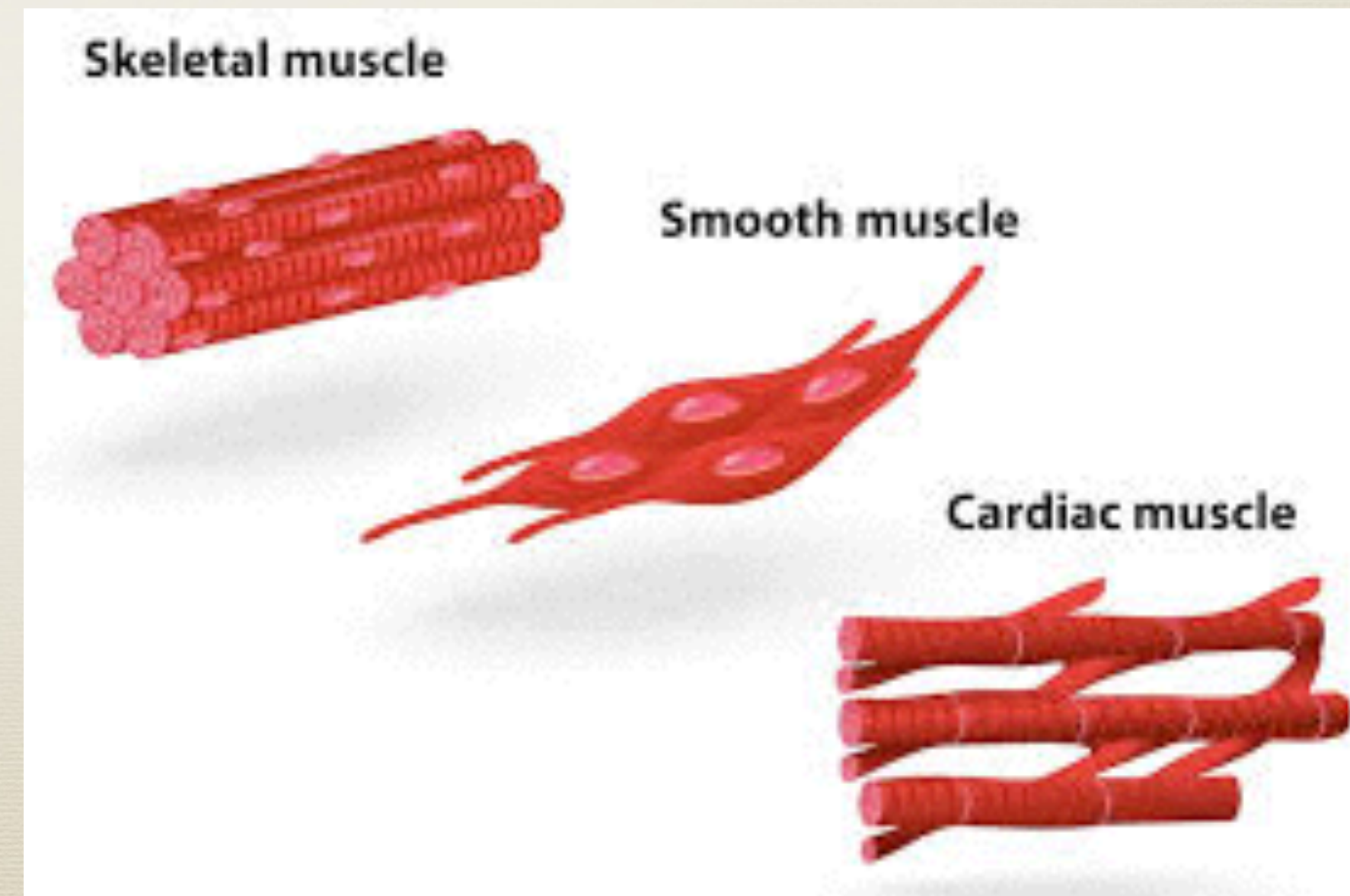
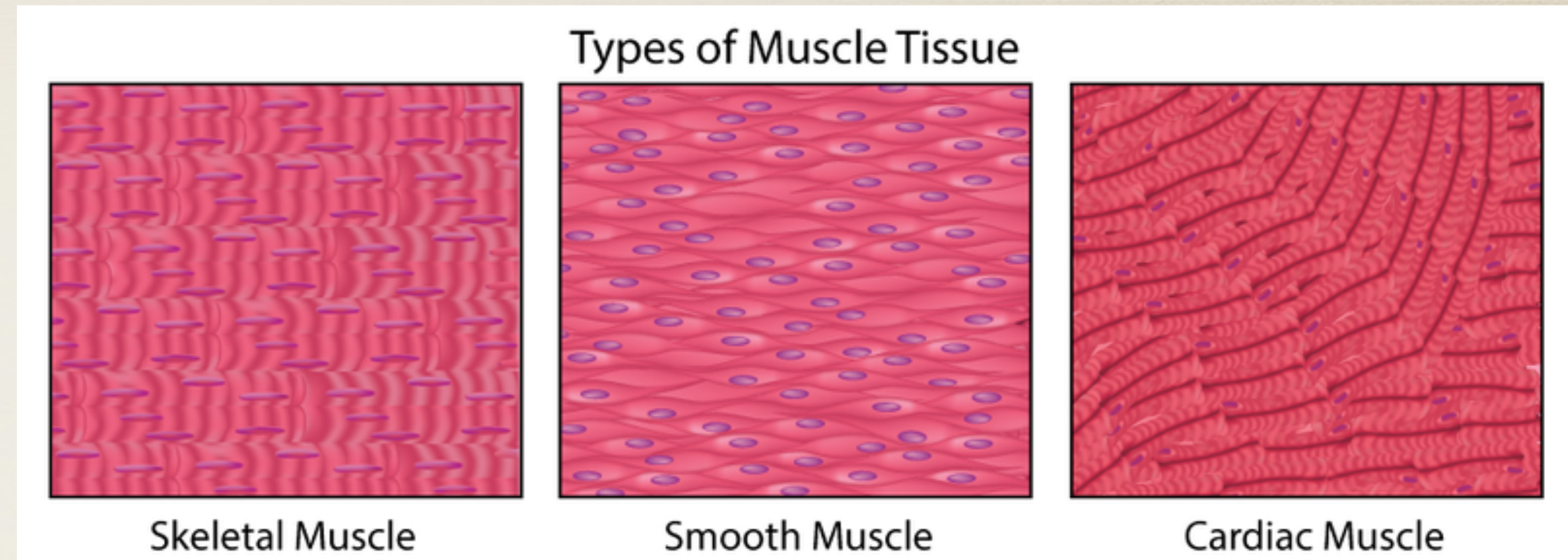
* CELLS: THE FIRST LEVEL OF ORGANIZATION

- * Cells in a multicellular organism can be specialized.
- * Example: heart muscle cells are specialized.
- * Their structures contract and make the heart pump blood



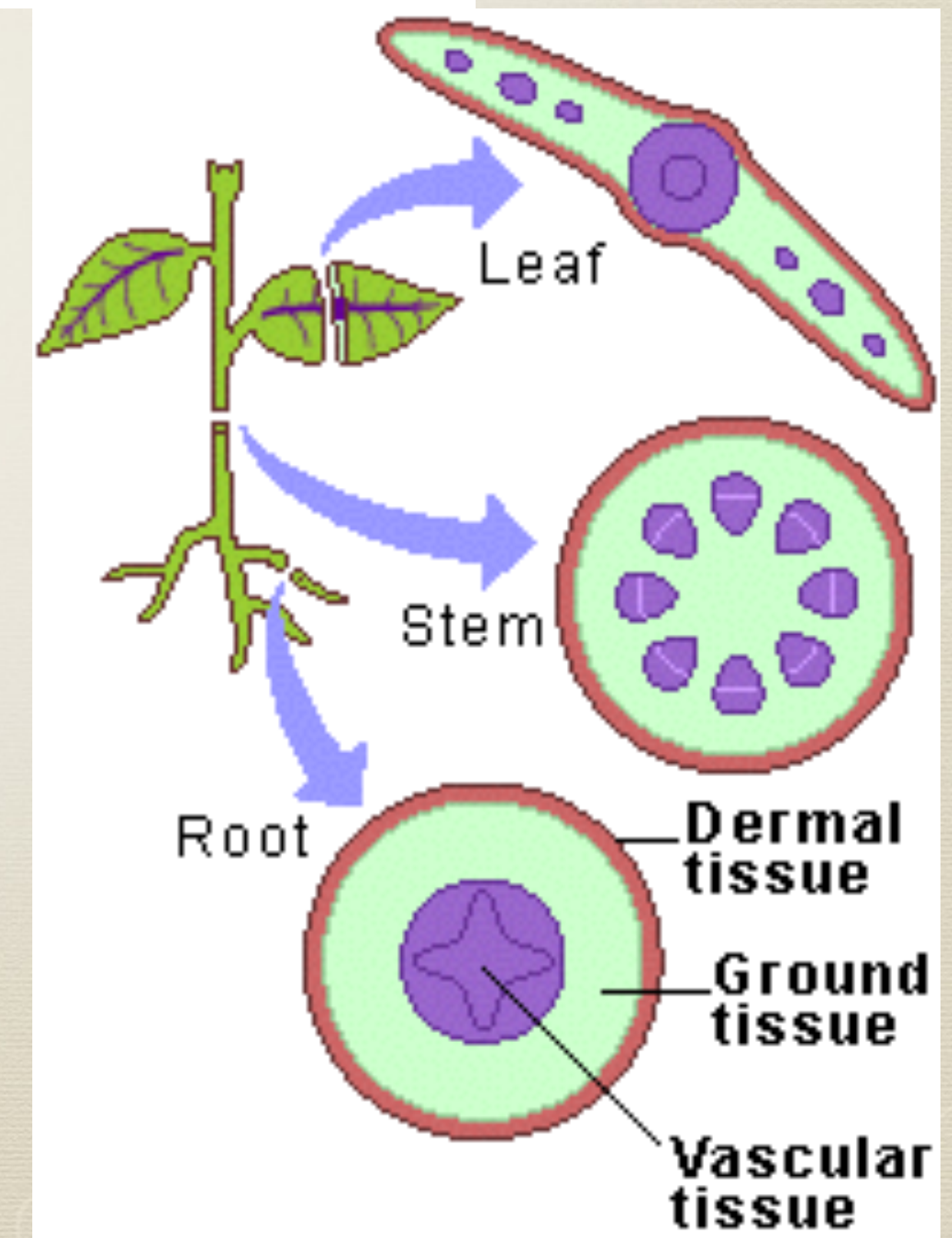
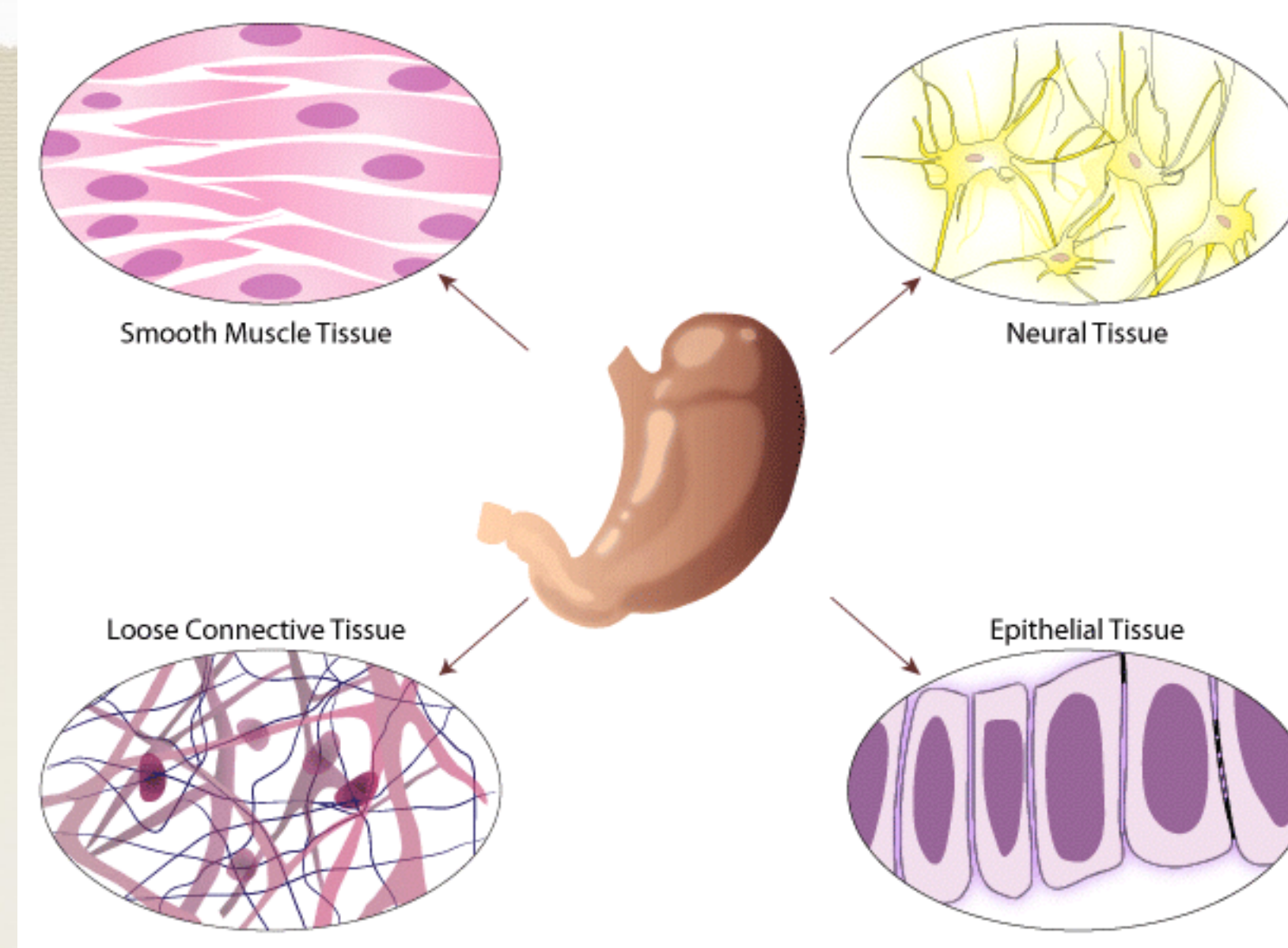
Tissue: 2nd level of Organization

- * Tissue is a group of cells that work together to perform a specific job.
- * example: cardiac muscle tissue is just one type of tissue in heart.



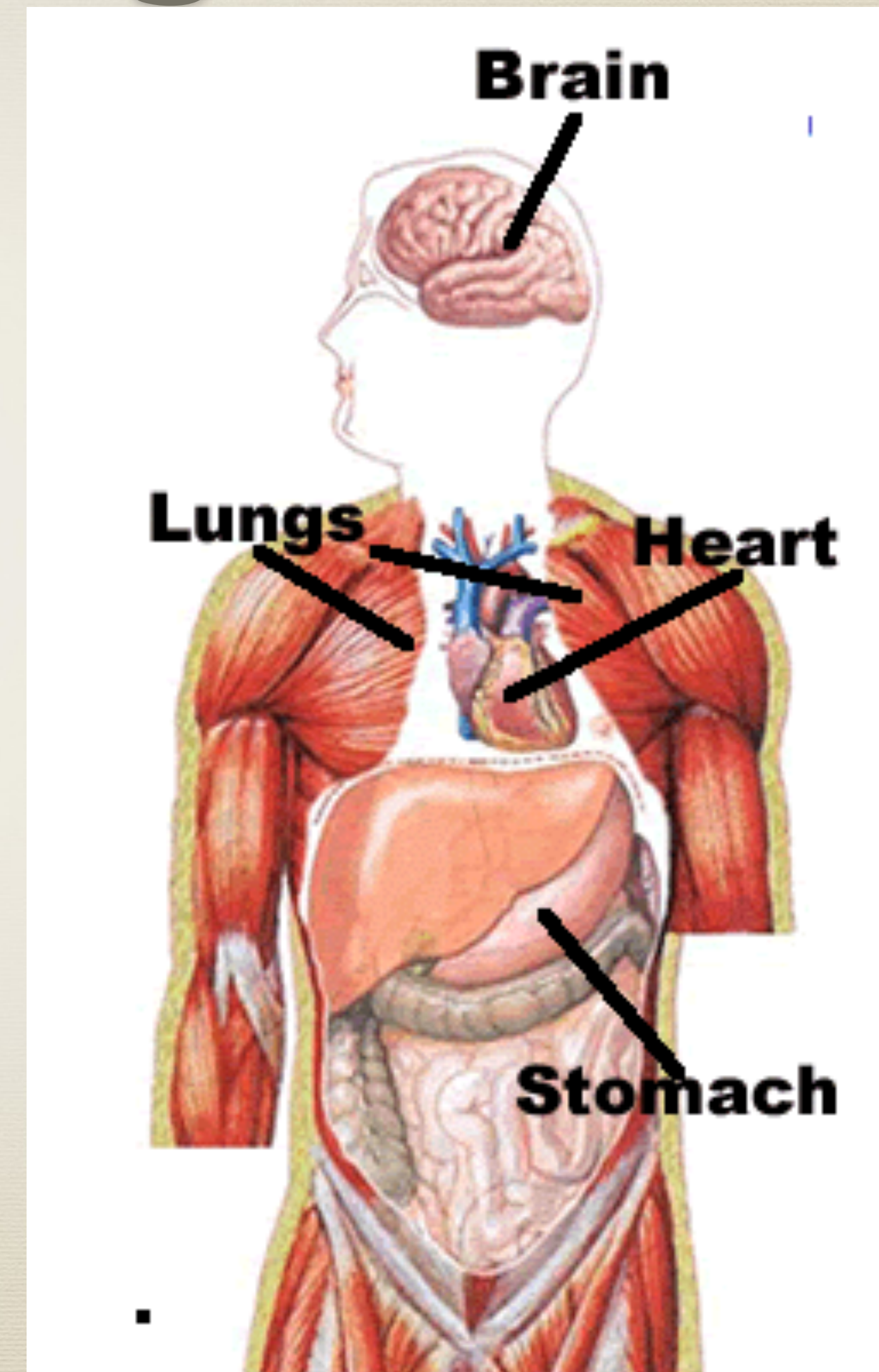
Tissues:

- * Animals have 4 types of tissues: nerve (nervous) tissue, muscle (muscular) tissue, connective tissue, and protective (epithelial) tissue.
- * plants have 3 types of tissue: transport (vascular) tissue, protective (dermal) tissue, and ground tissue



Organs: 3rd level of organization

- * Organ: a structure that is made up of 2+ tissues working together to perform a function.
- * Example: your heart - mostly made of cardiac muscle, but also nerve/blood vessels.
- * Example: your stomach - digestive tissue, connective, nervous..
- * other organs: intestines, lungs, brain



Organs (cont.) - Plants have organs

* The leaf of a plant is an organ that contains tissue that traps sunlight energy to make food

* other examples of plant organs are: stems and roots

Plants have four types of organs . . .

Roots

- anchor plant
- absorb minerals and water
- stores nutrients

Stems

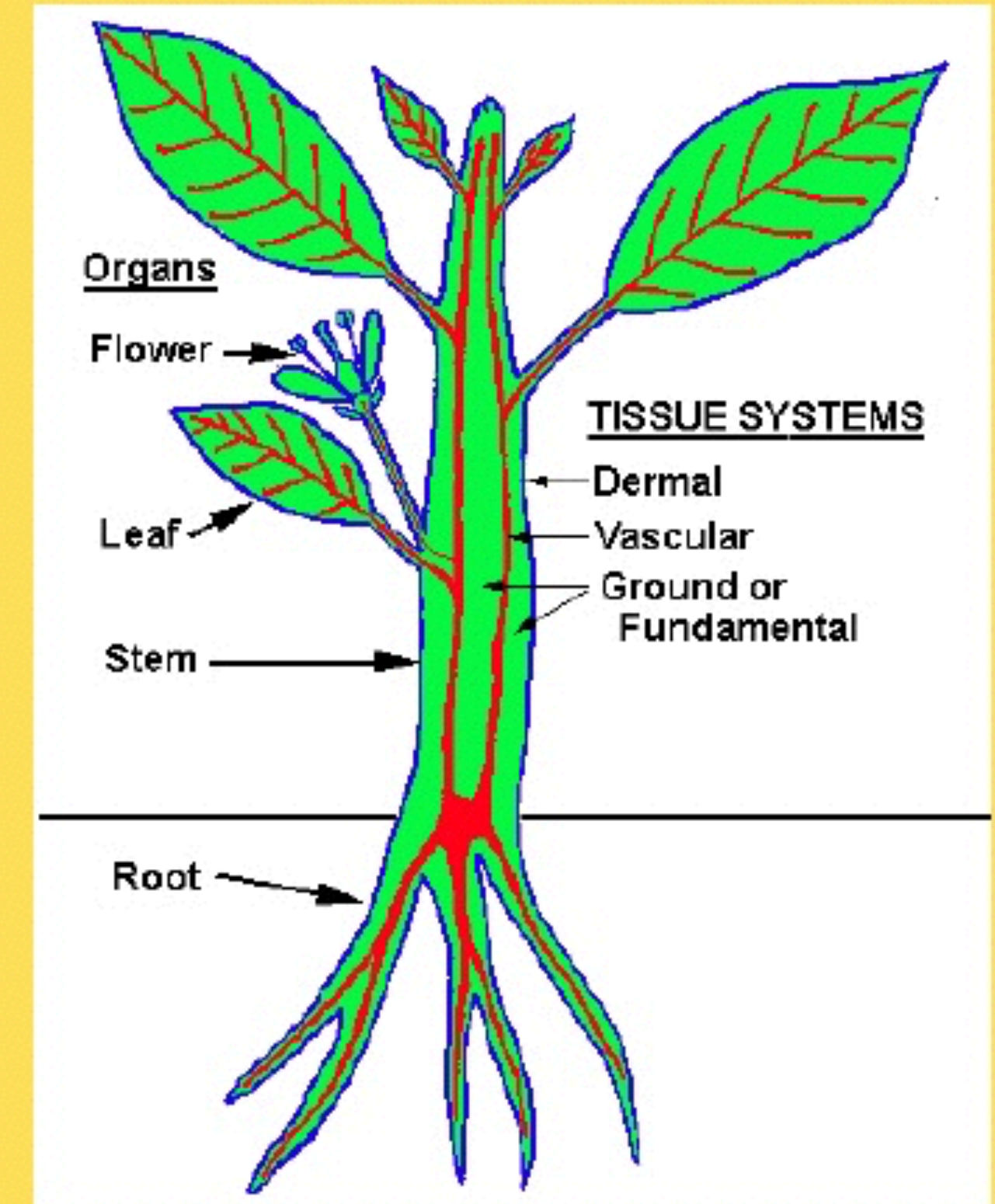
- support and elevate leaves
- transport between roots and shoots

Leaves

- site of photosynthesis

Reproductive Organs

- variable
- include flowers, seeds, fruit

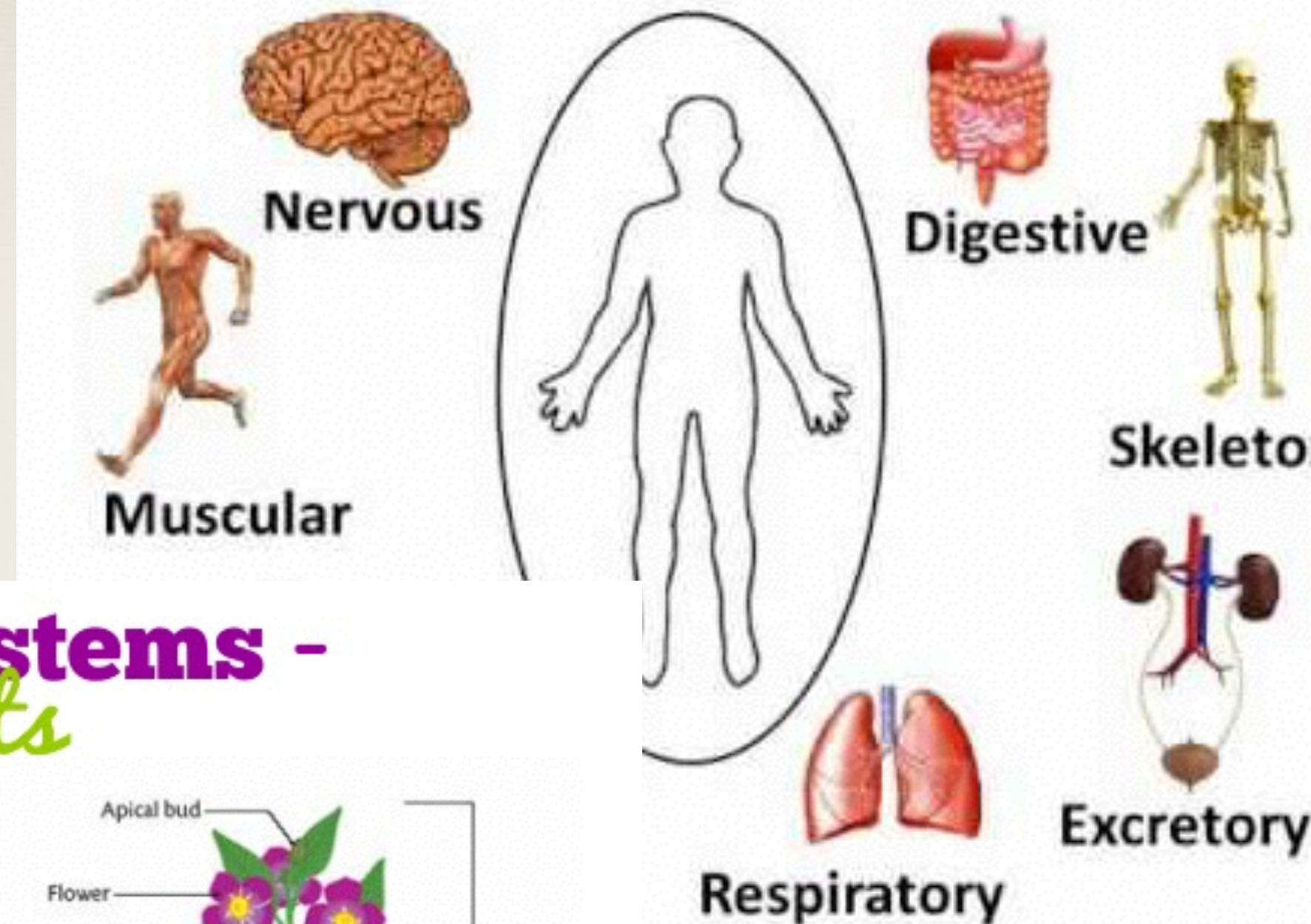


Organ System: 4th level

* Organ System: a group of organs working together to perform a particular function is call and organ system .

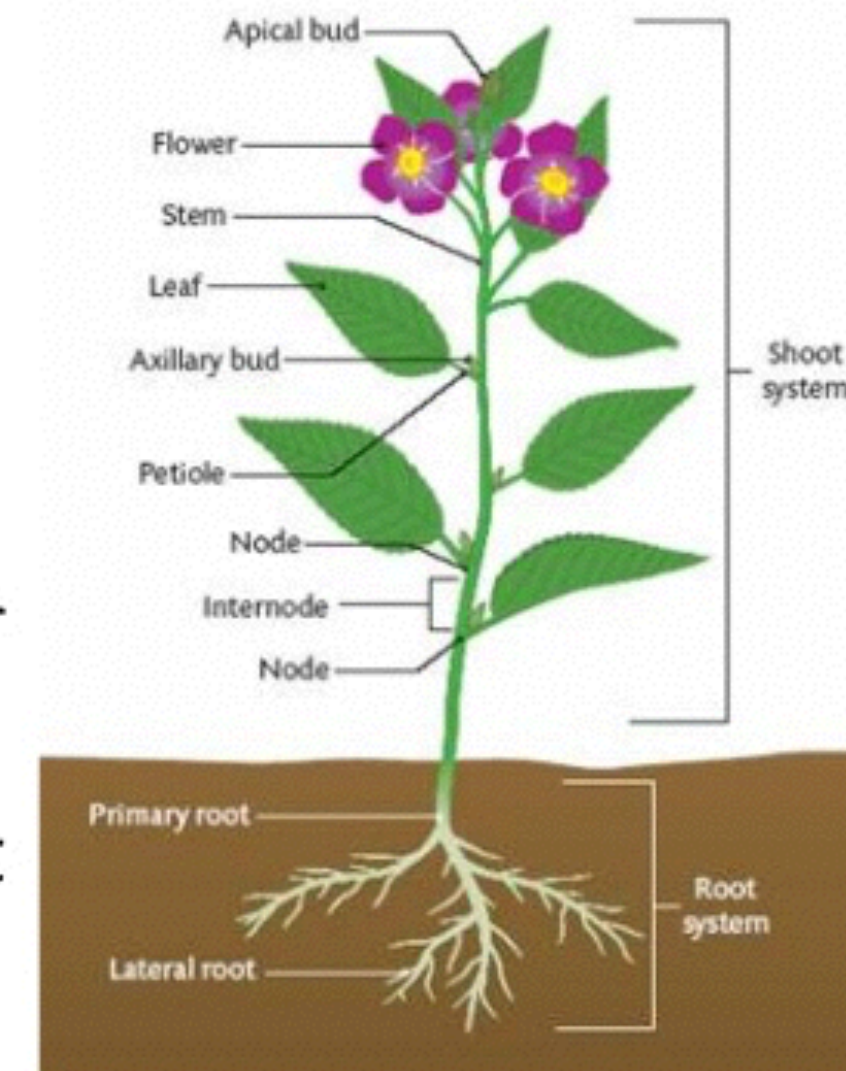
* Ex: cardiovascular system, digestive system

* Plants - leaf systems, root systems and stem systems,



Organ Systems - *Plants*

- Plants have two main organ systems—the shoot system and the root system.
- The shoot system includes leaves, stems, and flowers. The shoot system transports food and water throughout the plant.
- The root system anchors the plant and takes in water and nutrients.



Textbook reinforcement p 138-139

- * On Binder Paper: Title “from cells to organisms”
- * You must **write the question** and follow it with your answer.
- * Answer **question #11 on page 138.**
- * Answer question **#16 on page 139: concept map**

