Levels of Organization

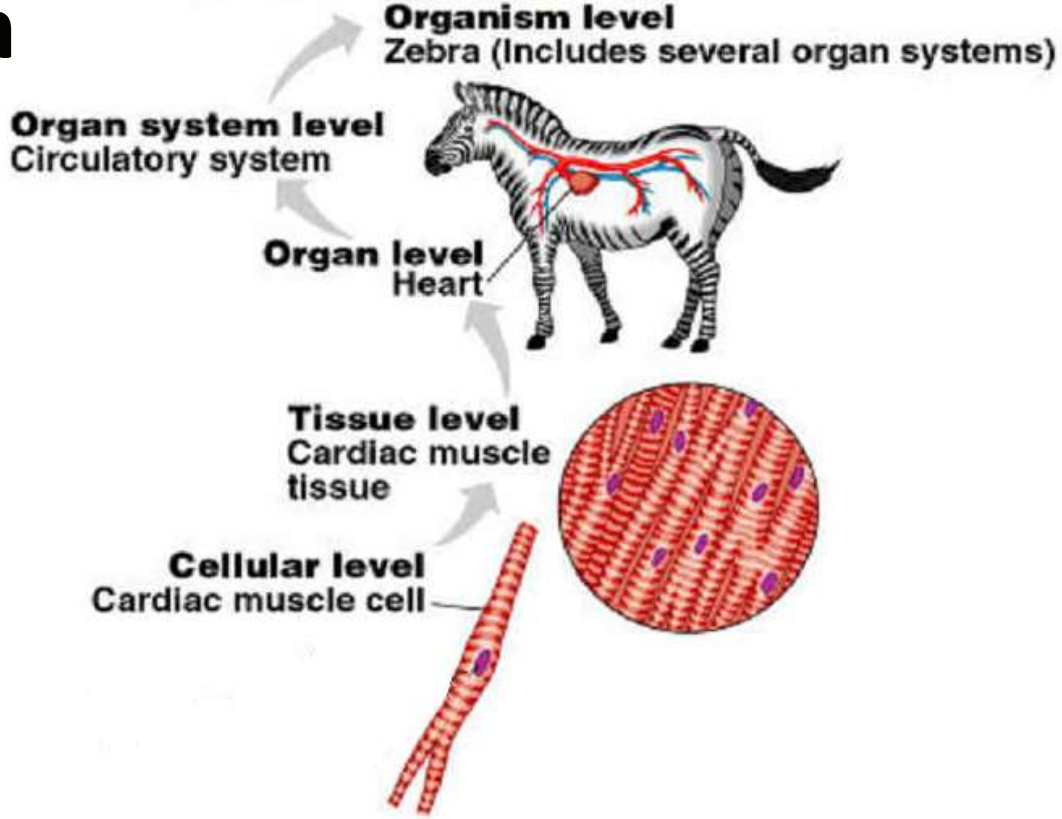
1. Organism

2. Organ System

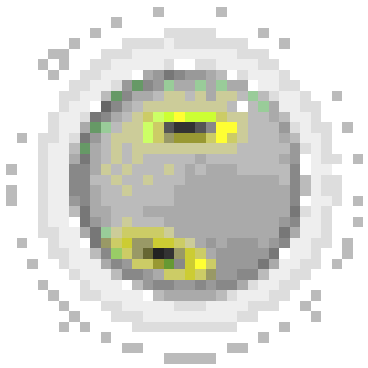
3. Organ

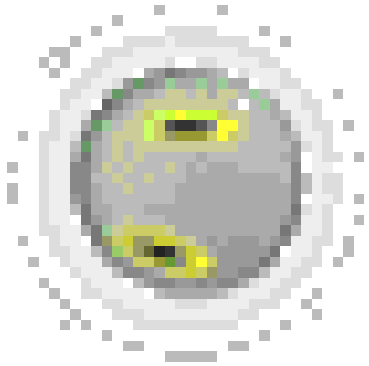
4. Tissue

5. Cell

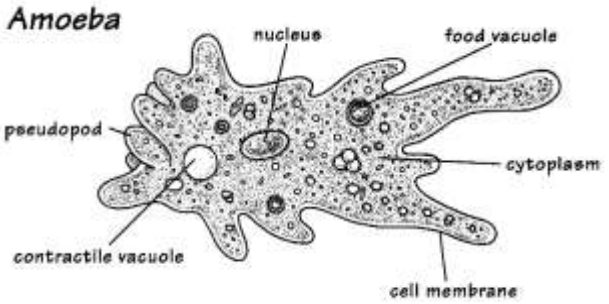


Life is organized into different levels based upon size (from small to large).





Organisms and Cells

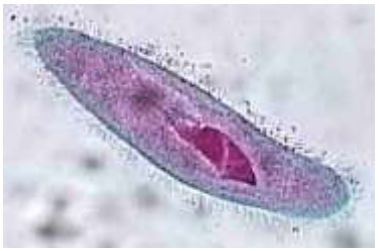


- Some organisms are unicellular.
  - This means they are made of only one cell.
  - Examples: bacteria, yeast

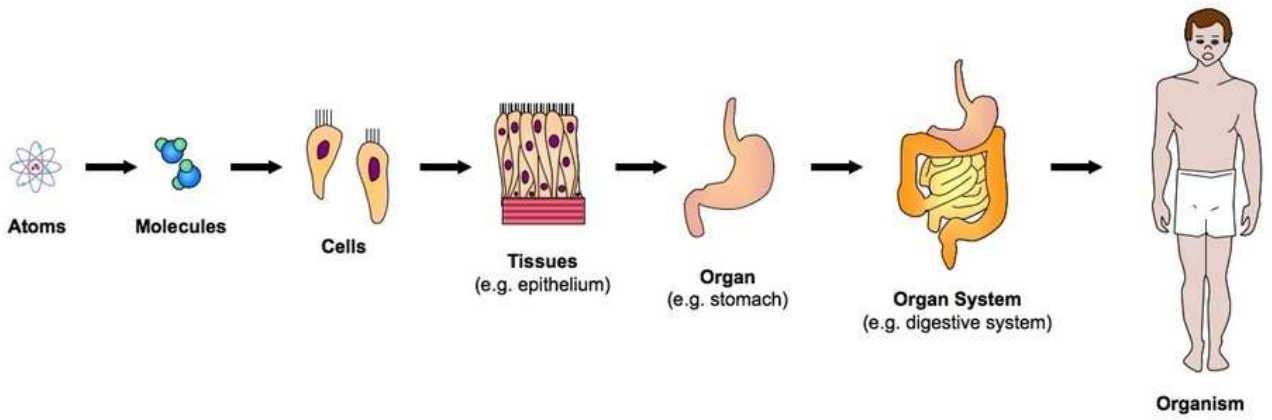
- Some organisms are multicellular.
  - This means they are made of many cells.
  - Examples: humans, trees

Organisms and Cells

- Unicellular organisms have nothing but a single cell.



- However, multicellular organisms have many more levels of organization to make sure the whole body can work correctly, even when it is doing many things at the same time.



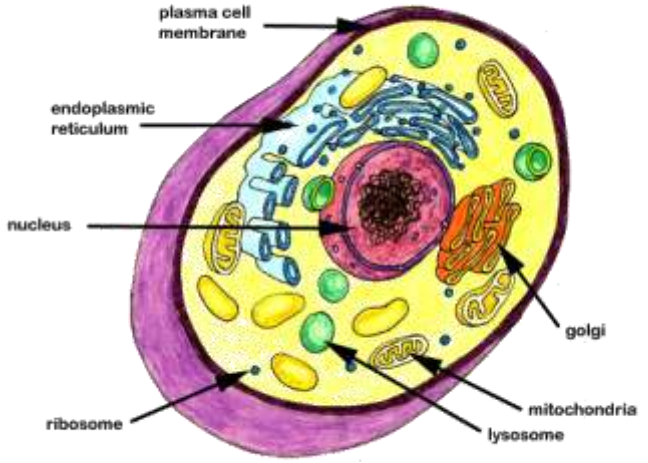
the CELL

The **cell** is the basic unit of life.

Cells are specialized by size and shape for the job they do.

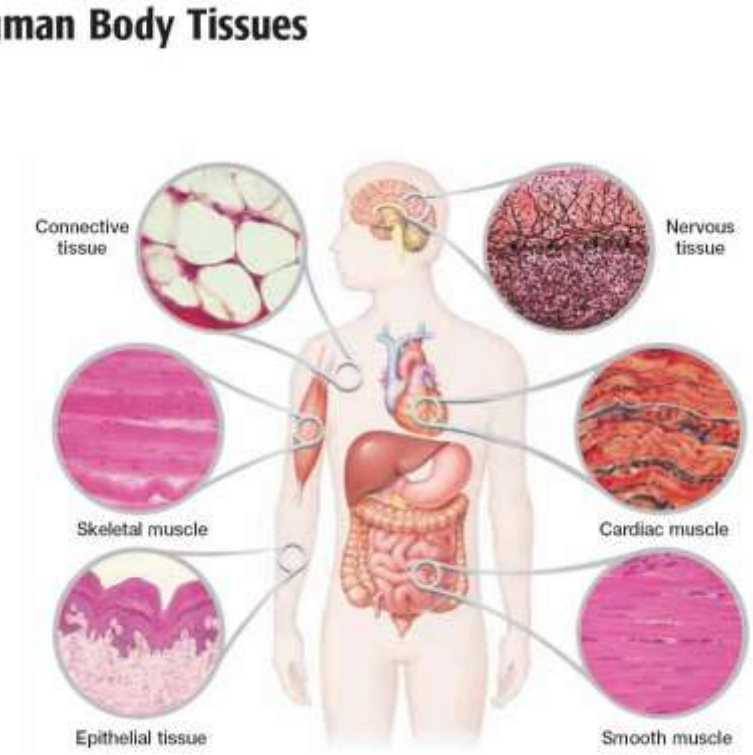
Example: skin cell

The paramecium above is made of only one cell and it must perform all the jobs of the organism.

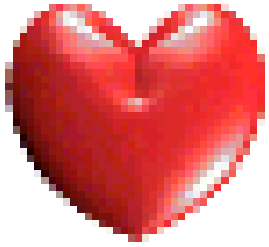


TISSUES

Tissues are made of the same type of cells grouped together to do a specific job.



Example: Humans have four kinds of tissue in their Bodies: Epithelia, Muscle, Connective, and Nerve.



Organs

Organs are made up of different tissues that work together to do a job.

Example: a heart
is an organ .

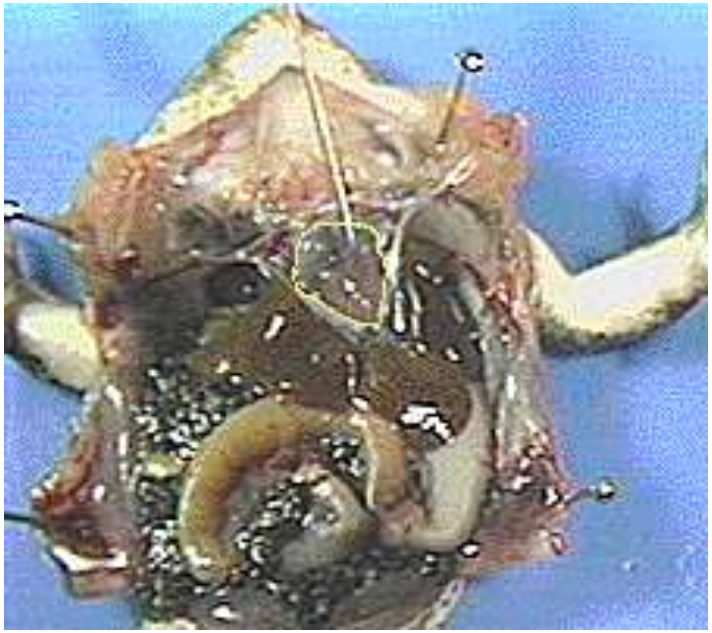
Organ Systems

An organ system is a group of organs working together.

Examples:

- Human organ systems include circulatory, reproductive, digestive, nervous, respiratory.

- Plant organ system-roots, stems, leaves= transport system.



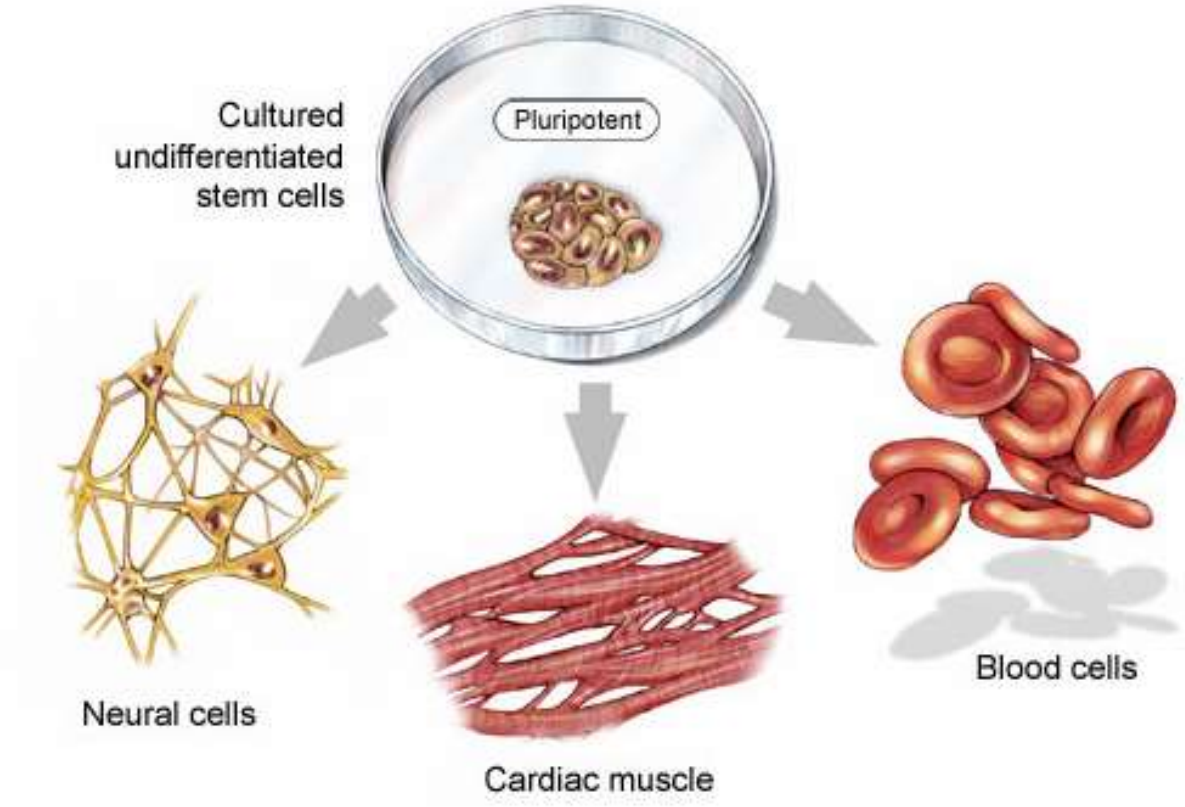
Organisms

All cells, tissues, organs and organ systems working together makes an organism.

Example: a human

Specialized Cells:

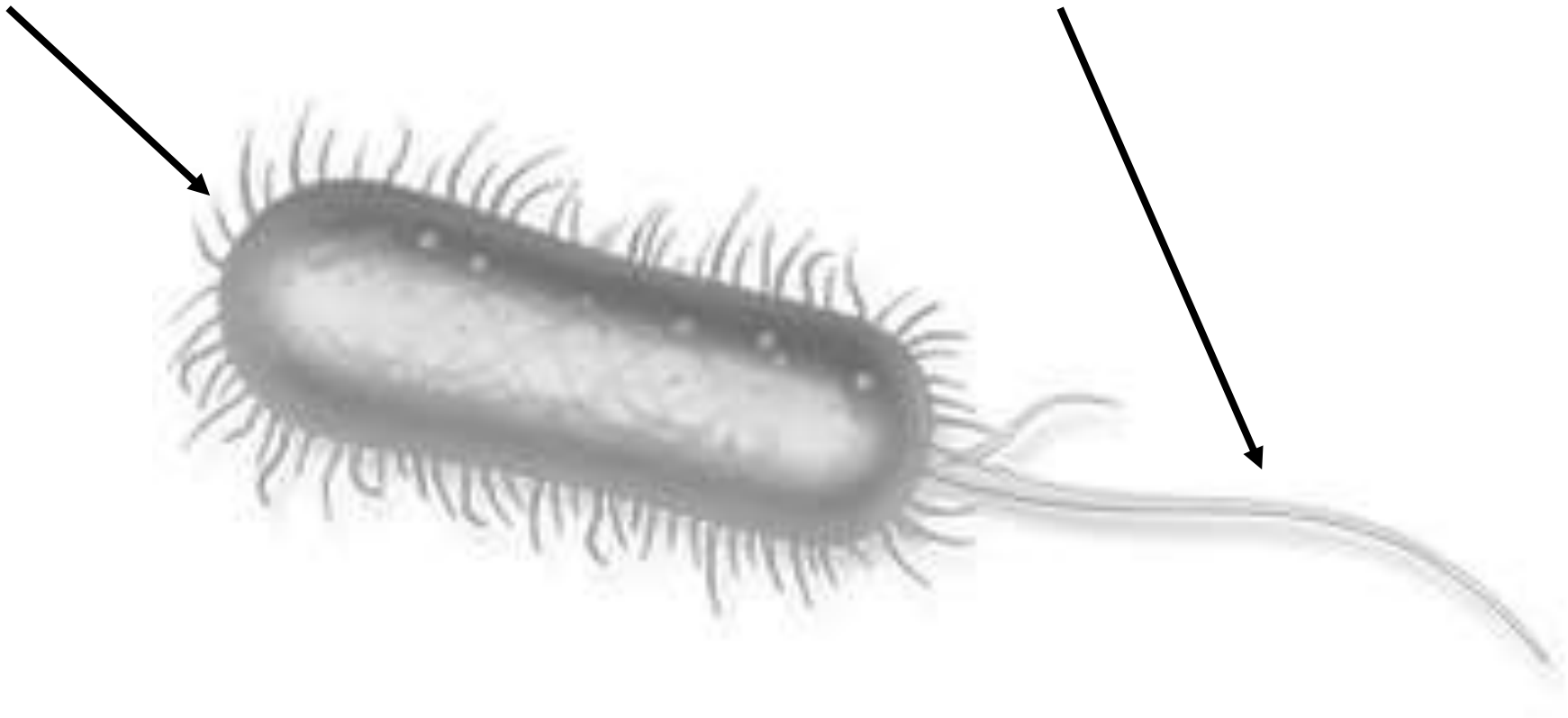
Different cells in your body do different jobs. The **structure** (how it's built) of cells matches the **function** (what it does).



Specialized Parts for movement:

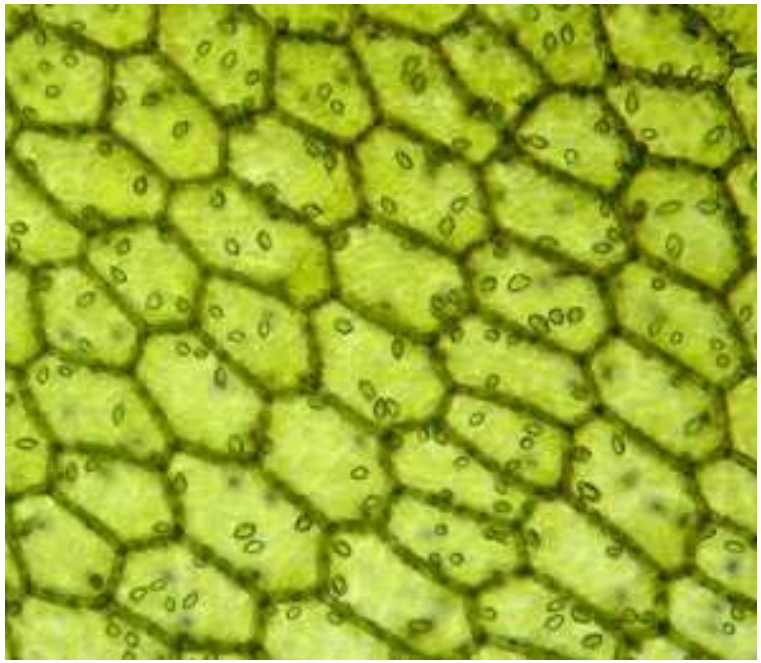
1. **Cilia** (like little hairs)

2. **Flagella** (like a tail)

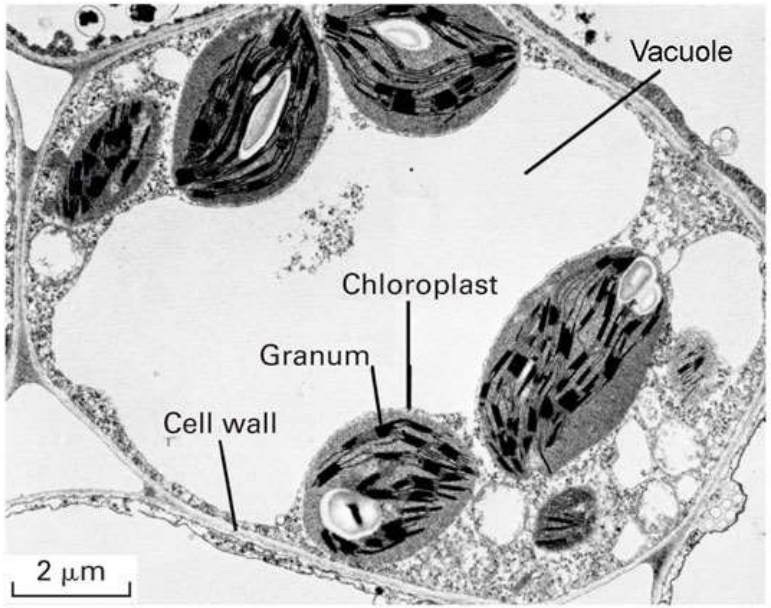


- Plant Examples:

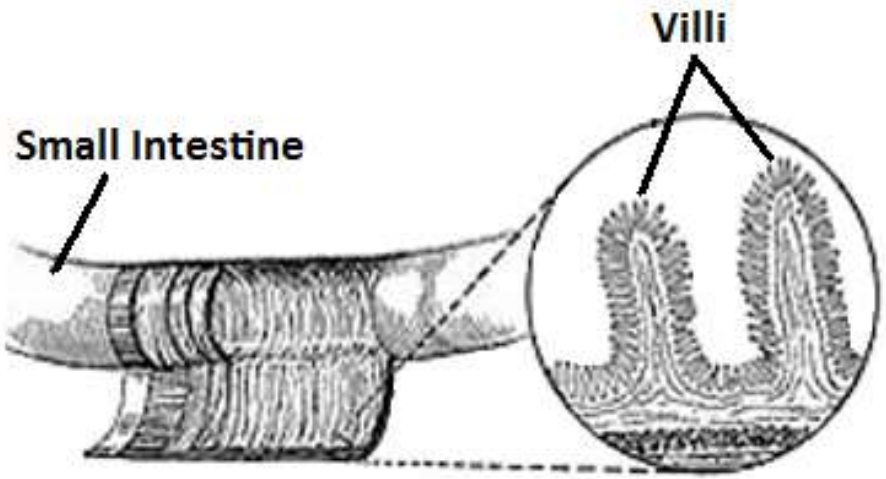
1. Leaf cell—contains **many chloroplasts** to maximize **photosynthesis**



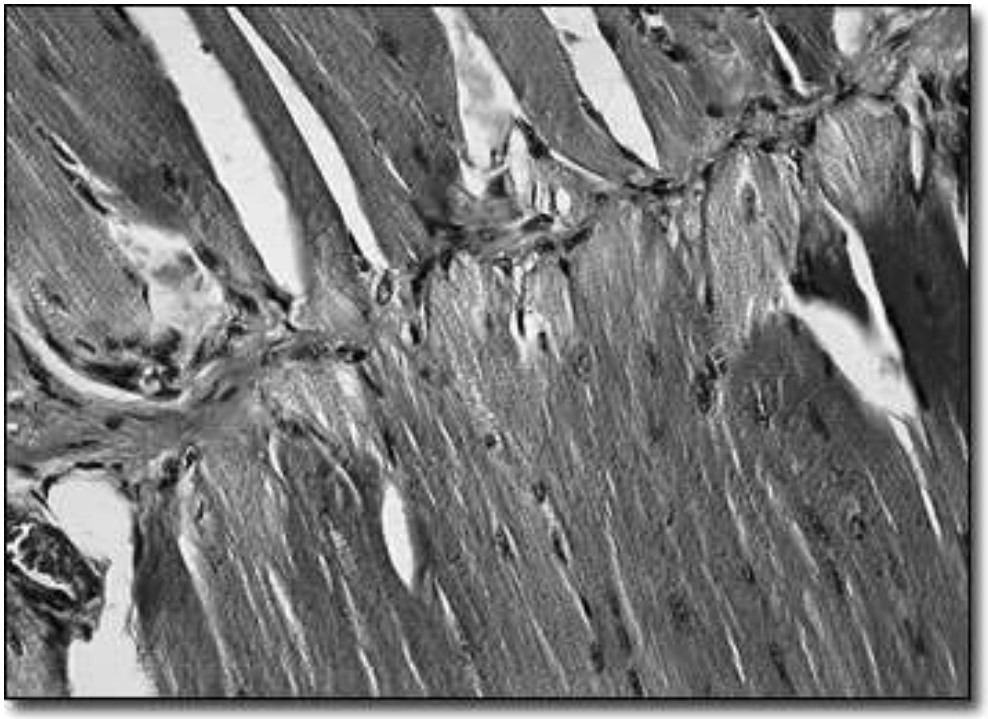
2. Root cell (potato)—contains **many vacuoles** to maximize water and starch storage



- Animal Examples:
    1. Epithelial cells—have **villi** to increase **nutrient absorption**; found in the intestines



2. Muscle cells—contain **<u>many mitochondria</u>** to produce more energy for movement



3. Nerve cells—have fibers called **dendrites** that allow nerve cells to **communicate** with each other