THE ORGANIZATION OF LIVING THINGS

Cells – Tissue – Organs – Organism -

REFERENCES

INFORMATION & MOST IMAGES

Holt Science & Technology, North Carolina, Grade 7. Holt, Rinehart and Winston: A Hartcourt Education Company, 2005. *Chapter 3: The Organization of Living Things* (pp. 368 – 371).

REVIEW

Eukaryotic Cells!

Turn & Talk Time

- Find a partner to talk with!
- You and your partner write down a definition of Eukaryotic cell
- Now you and your partner write down the parts of a eukaryotic cell! See how many you can remember!

Turn & Talk Time

Eukaryotic Cell

Eukaryotic cells are the largest cells – they have a nucleus and other membrane-bound organelles

Organelles

Nucleus

Mitochondria

Lysosome

Endoplasmic Reticulum

Ribosomes

Cell Membrane

Golgi Apparatus

Cytoplasm

(Some have Cell Walls and Chloroplasts)

MULTICELLULAR ORGANISMS

What does that mean?

Benefits of being Multicellular

You are multicellular organisms!

Multicellular means that you are made of many cells. Multicellular organisms grow by making more small cells, not by making cells larger.

- Larger cells many multicellular organisms are small, but are larger than single-celled organisms.
- Longer life the life span of a multicellular organism is not limited to the life span of any single cell
- **Specialization** each type of cell has a particular job, which makes the organism more efficient



Cells Work Together - Tissue

Tissue is a group of cells that work together to perform a **specific job**. The material **around** and **between** the cells is also part of the tissue.

Four Basic Tissues of Animal Cells

- Nerve tissue
- Muscle tissue
- Connective tissue
- Protective tissue

Three Basic Tissues in Plant Cells

- **Transport** tissue moves water and nutrients through the plant
- Protective tissue covers the plant; helps the plant retain water and protects the plant against damage
- **Ground** tissue place where photosynthesis takes place



Tissues Work Together - Organs

Organ is a structure that is made up of two or more tissues working together to perform a specific function.

Your heart is an organ – it is made up of:

- Cardiac muscle tissue
- Nerve tissue
- And tissues of the blood vessels

They all work together to ensure your heart is a power pump.

You have many other organ in your body. Can you name a few?



Tissues Work Together - Organs

Plants have different types of tissue that work together to create organs as well.

- Leaves contains tissue that traps light energy to make food
- Stems
- Roots

Plant Organs



Organs Work Together – Organ Systems

An **Organ System** is a group of organs that work together to perform body functions

Your digestive system is an organ system – it is made up of:

- Mouth
- Tongue
- Salivary glands
- Esophagus
- Stomach
- Liver
- Pancreas
- Large Intestine
- Small Intestine ... and more!

They all work together to ensure you can digest your food.

You have many other organ systems in your body. Can you name a few?



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Organs Work Together – Organ Systems

Plants have organ systems as well. They include:

- Root Systems
- Shoot Systems



Organisms

An **organism** is anything that can perform life processes by itself.

An organism can be **unicellular** (made of a **single** cell)

- Bacteria
- Most **protists**
- Some kinds of **fungi**

Some of these organisms live in **colonies** – but they are still unicellular. Each **cell** must carry out all life processes in order for that cell to survive.

Multicellular organisms have specialized cells that depend on each other for the organism to **survive**.



STRUCTURE & FUNCTION

How are they related?

Structure & Function of an Organism

- Structure is the arrangement of parts in an organism
 - Includes the shape of the part; and
 - The material of which the part is made
- Function is the job the part does



Example: Lungs

- The structure of the lungs is a large, spongy sac. There are millions of tiny air sacs called alveoli. Blood vessels wrap around the alveoli so the air in the alveoli enters the blood. The blood brings oxygen to body tissues. And, in the alveoli, carbon dioxide leaves the blood and is exhaled.
- The structures of the alveoli and the blood vessels enable them to perform a function.

Lab & Review

- Complete your Review Worksheet with your lab partner (using your notes)
- Glue into your interactive notebook
- Hand in your interactive notebook to Mrs. Quick

Lab Foldable

On the piece of paper given to you label the flaps:

- Cells
- Tissues
- Organs
- Organ Systems
- Organisms
- Color and decorate the front
- Open your foldable:
 - On the left side create a drawing to represent the level of organization
 - On the right side define/describe each level and include at least one example
- Color and decorate the inside