

Levels of Organization

NOTES FOR STUDENTS

- This activity will be completed in groups of three.
- Do not use the Internet or your textbooks unless instructed to do so.

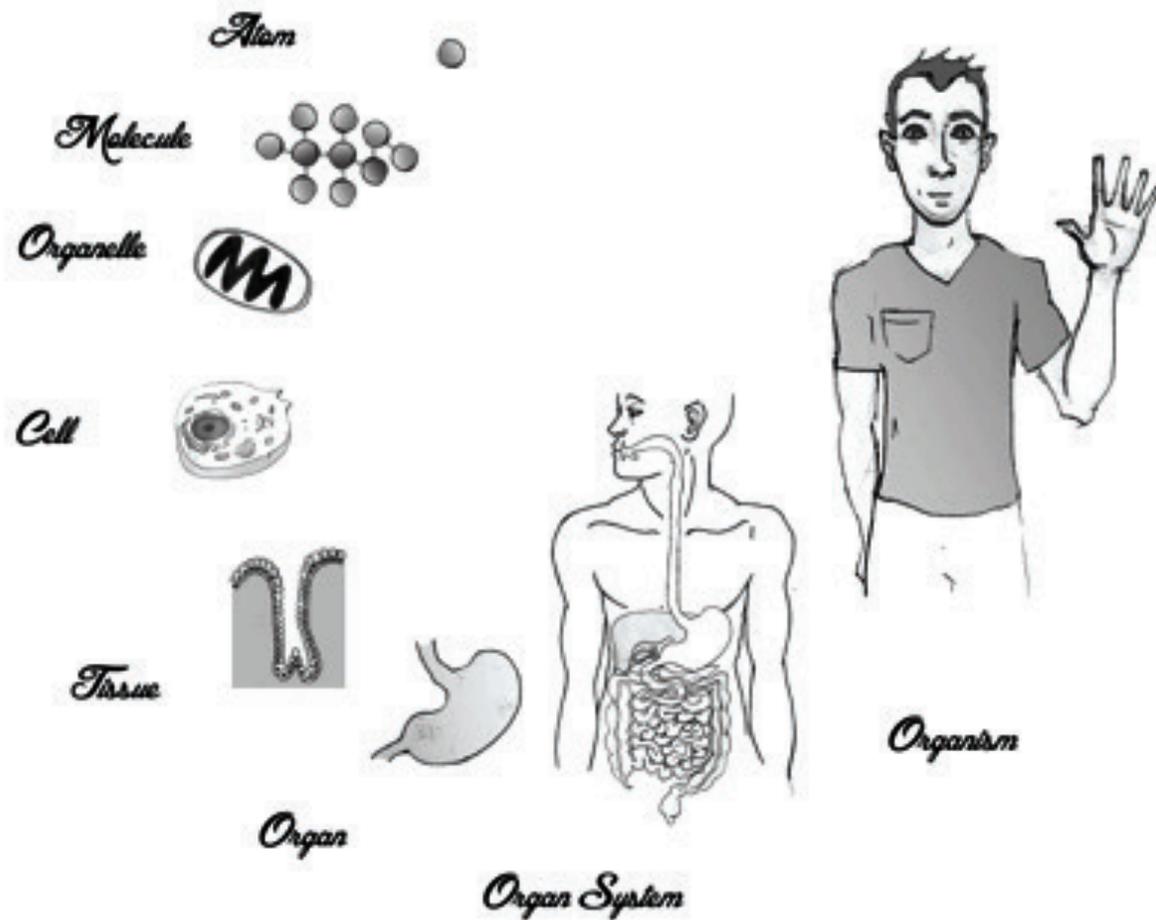
PROCEDURE

- 1) Before beginning the activity, find three people you do not know and form a group of three.
- 2) Arrange yourselves in a circle and share the following introductory information:
 - a) Name
 - b) Favorite food
 - c) Favorite subject or class
 - d) Least favorite subject or class
- 3) Assign group roles:
 - **READER**- this person will read out loud the text below.
 - **RECORDER**- this person decides what to record as your group's answers. All students in the group should write down answers, but it is the recorder's job to decide what to record. This is frequently done after a group discussion. The recorder should also say things like, "Are we sure of this?" or "Does that sound accurate?" The recorder is also the group's spokesperson during class discussions.
 - **FACILITATOR**-This person keeps track of time, decides when the group should move on to the next question, and promotes/encourages all group members to contribute to the group's discussion. They will also be responsible for looking things up in the textbook or on the Internet when necessary.

Model 1: Anatomy and Levels of Organization

An anatomist is a person who studies the structure of a living thing – how all the little things are organized into bigger things. The smallest living structures are cells, but there are things even smaller than a cell (such as atoms and molecules). Figure 1 shows the levels of organization used by anatomists. Table 1 names examples of each of the levels of organization shown in Figure 1

Figure 1: Levels of Organization in the Human Body



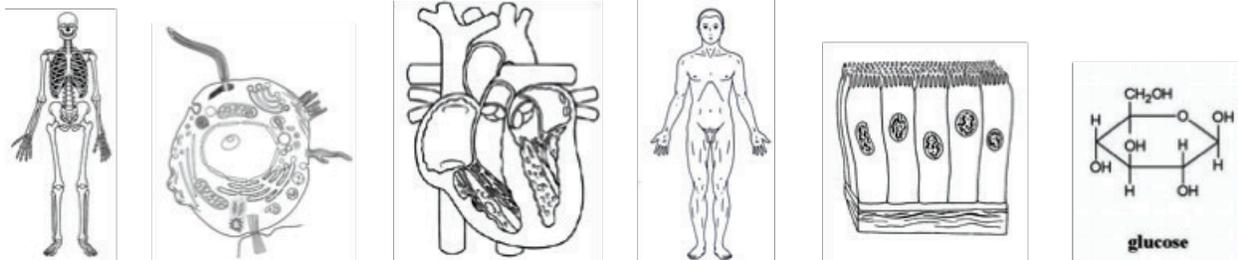
Level of Organization	Example
Atom	Carbon
Molecule	Carbon Dioxide
Cell	Stomach Cell
Tissue	Epithelial Tissue
Organ	Stomach
Organ System	Digestive System
Organism	YOU

QUESTIONS:

- Using the list above, identify two terms that describe components that are smaller than cells and *four* that are larger than cells.

Smaller than a cell	Larger than a cell
1.	1.
2.	2.
	3.
	4.

- What are two examples from the list above that can be found **inside** a cell?
- Classify the follow images and label with the appropriate level of organization.



--	--	--	--	--	--

- Circle "TRUE" or "FALSE" for the following statements:
 - Organs are composed of multiple tissues types. TRUE or FALSE
 - Tissues are composed of multiple cell types. TRUE or FALSE
 - Tissues are composed of multiple organ types. TRUE or FALSE
- Spend 60 seconds working individually to write definitions for the two terms below. After 60 seconds, discuss your definitions with the group and decide who has the best definition.

a) Tissue:

b) Organ:

4 Model 1 Levels of Organization

6. Without using books or the Internet, complete the chart by identifying the organ systems associated with the example organs listed: (*the first row is completed as an example. If you cannot identify the organ system, leave the box blank*)

Organ	Organ System
Femur	Skeletal System
Heart	
Brain	
Skin	
Pituitary Gland	
Lungs	
Stomach	
Spleen and Appendix	
Uterus	
Kidney	
Biceps Brachii	

CHALLENGE QUESTIONS:

7. Organs are sometimes shared by two or more systems - for example, your mouth can be considered a part of both the digestive and the respiratory systems. *Without* using your book or the Internet, try to name 3 organs that are shared by two or more body systems, and identify those body systems.

Example: Organ: *Mouth* What two systems? *Digestive & Respiratory Systems*

1: Organ: What two systems?

2: Organ: What two systems?

3: Organ: What two systems?

8. With your group, consider the following statements and determine if they are true or not. If they are NOT true, describe why (list exceptions that exist).

a) Within the body, all atoms combine to form molecules.

b) Within the body, all molecules in the body can be found inside cells.