

What patterns are found through  
the levels of organization?

**Mr. M. Gonzalez**

What patterns are found through  
the levels of organization?

# GOOGLE EARTH

..\..\..\..\..\Program  
Files\Google\Google  
Earth\googleeearth.exe

What patterns are found through  
the levels of organization?

# Do Now

- ★ Add a heading directly underneath yesterday's notes if you did not fill in the whole page.
- ★ Leave a space for the daily aim.
- ★ Review the SMS lab report.
- ★ Add and review the Portfolio Evaluation Form to your Portfolios.

What patterns are found through  
the levels of organization?

# Section objectives.

- ✱ I can make a list the levels of organization.
- ✱ I can explain 3 patterns that exist throughout the levels of organization.
- ✱ I can explain how energy is a vital component throughout the levels of organization.

What patterns are found through  
the levels of organization?

# Levels of organization.

- ★ Universe
- ★ Galaxy Cluster
- ★ Galaxy
- ★ Solar system
- ★ Planets – Earth – Gaia – Biosphere
- ★ Ecosystem
- ★ Community
- ★ Population
- ★ Individual
- ★ Organ-system
- ★ Organs
- ★ Tissue
- ★ Cells
- ★ Organelles
- ★ Molecules
- ★ Atoms
- ★ Electrons, protons, and neutrons
- ★ Quarks

Astronomy

Ecology

Biology

Chemistry

Physics

What patterns are found through  
the levels of organization?



# Where can we look for patterns?

- ☀ Let's begin our journey at the galaxy level.

What patterns are found through  
the levels of organization?

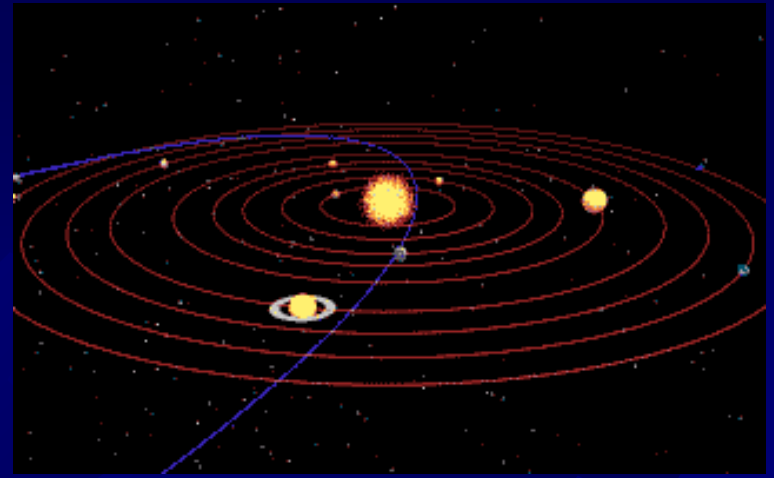
# Spiral Galaxies



[http://apod.nasa.gov/apod/image/9911/m31\\_ware.jpg](http://apod.nasa.gov/apod/image/9911/m31_ware.jpg)

What patterns are found through  
the levels of organization?

# Solar System



<http://www.zephyrus.co.uk/planetanimate1.gif>



What patterns are found through  
the levels of organization?



What patterns are found through  
the levels of organization?

# Ecosystem

- ★ Populations of plants and animals that interact with each other in a given area and with the abiotic components of that area.



# Communities

- ★ A **biological community** is made up of interacting populations in a certain area at a certain time.



the levels of organization:

# Populations

- ★ A **population** is a group of organisms, all of the same species, which interbreed and live in the same area at the same time.



What patterns are found through the levels of organization?

# Organism

- ★ An individual living thing that is made of cells, uses energy, reproduces, responds, grows, and develops.



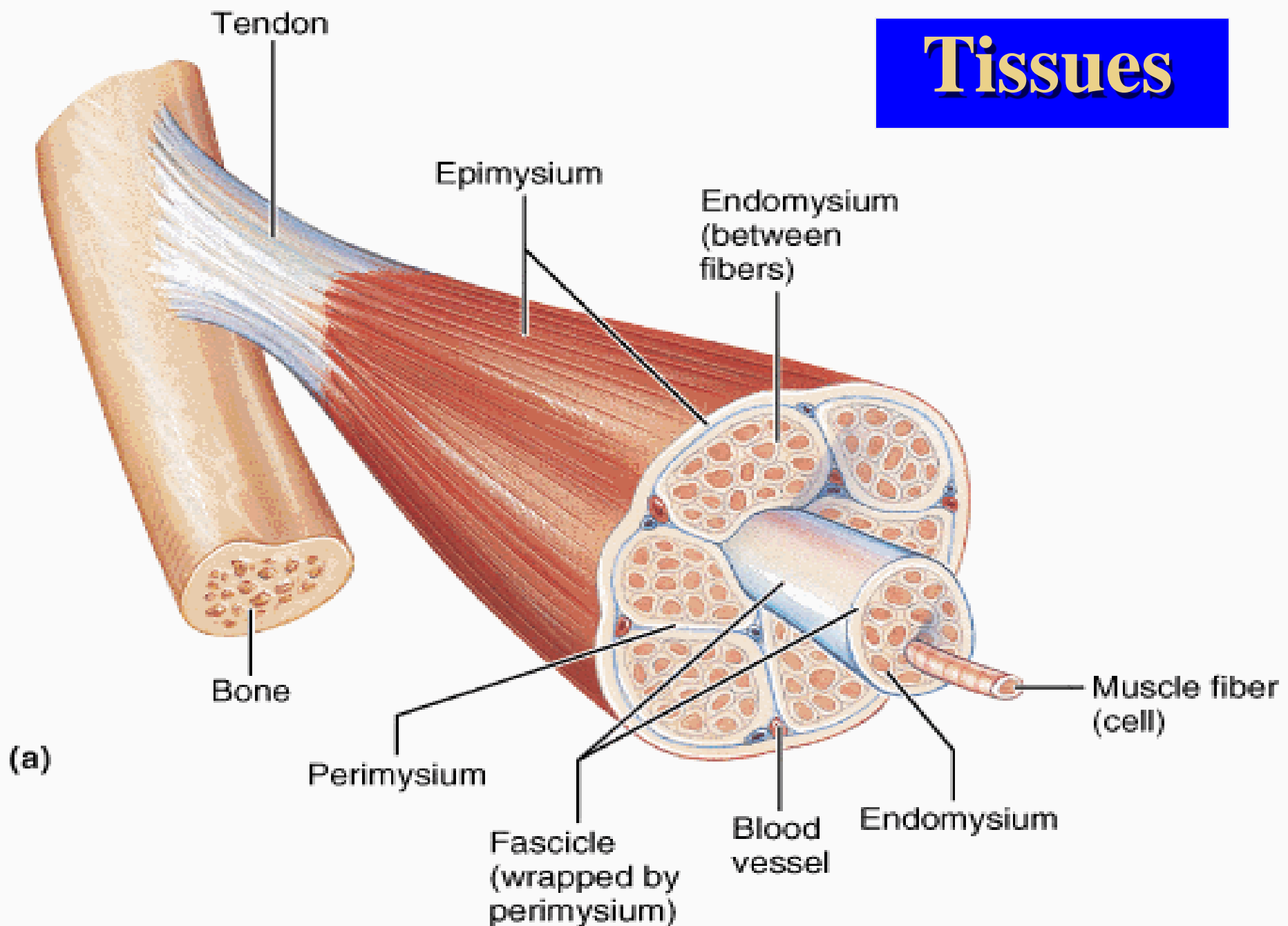
What pattern do you see in the levels of organization?

**Organ**

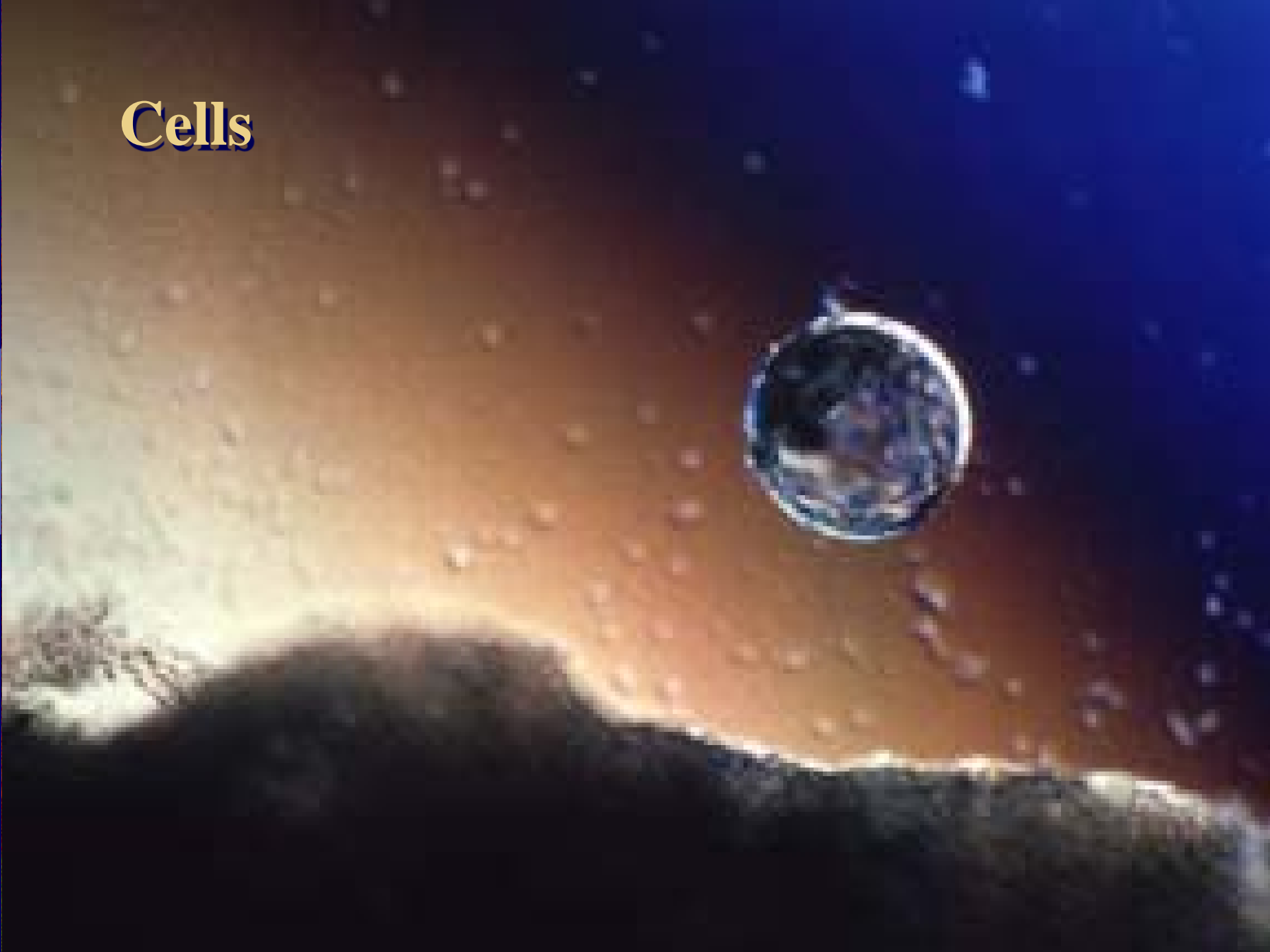
**Systems**



# Tissues



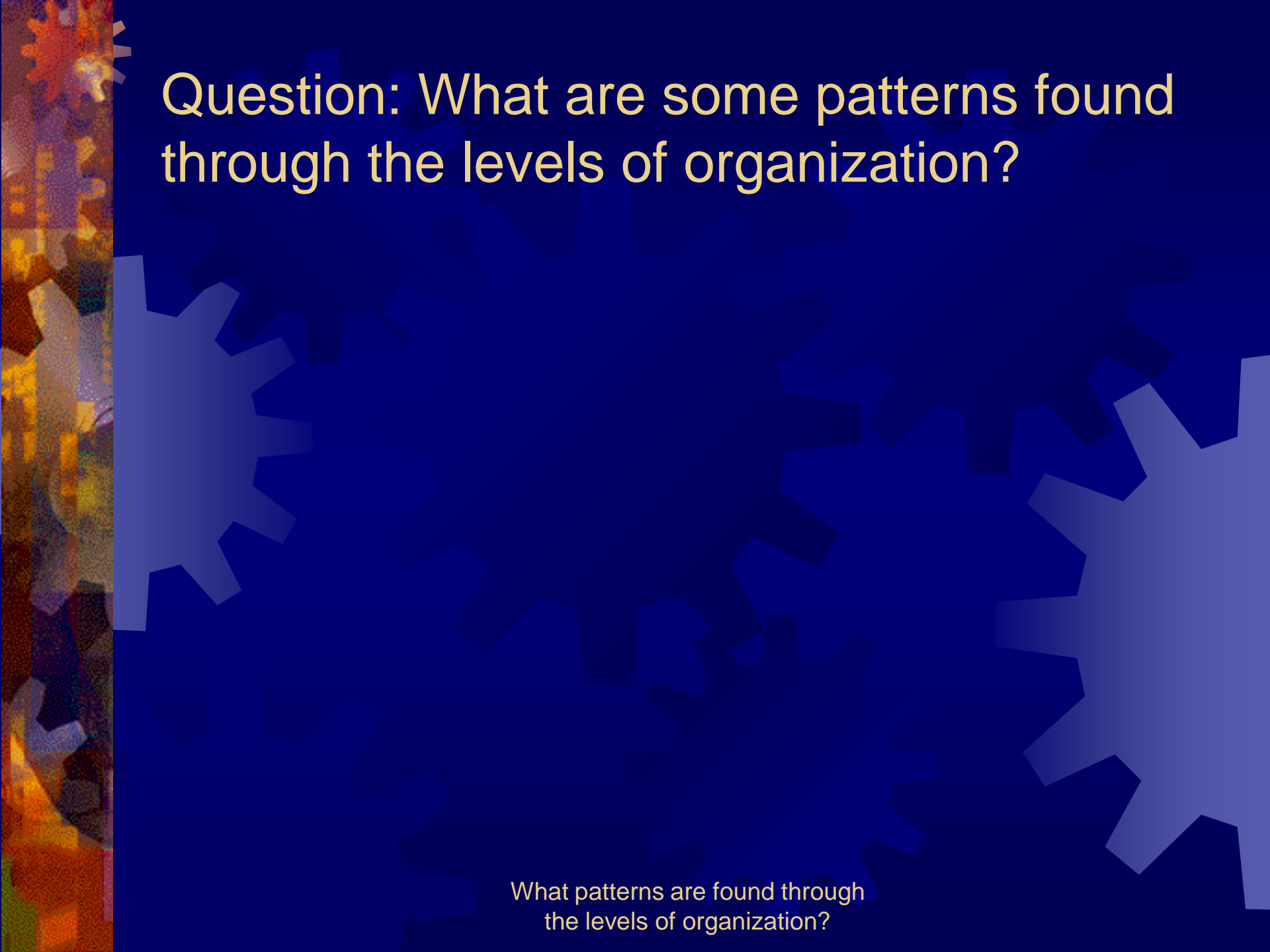
# Cells



# PATTERNS



gh  
the levels of organization?



Question: What are some patterns found through the levels of organization?

What patterns are found through the levels of organization?

# Some patterns found through the levels of organization:

- ☀ Every level is composed of another level.
- ☀ Components of levels tend to be made up of spheres.
- ☀ Planets orbit the sun just as electrons orbit the atom's nucleus.



[www.theurbn.com](http://www.theurbn.com)

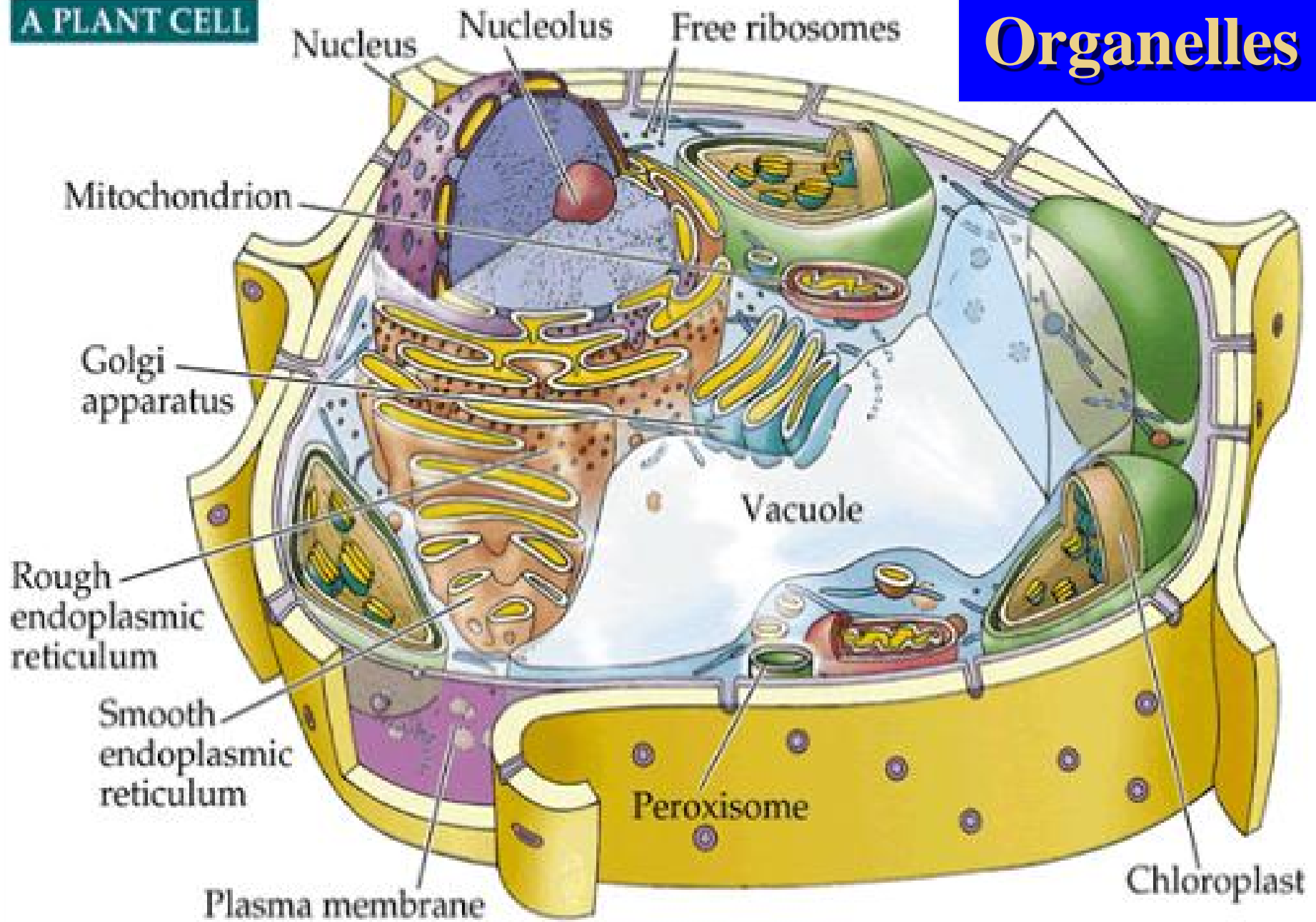


[www.fotolibra.com](http://www.fotolibra.com)

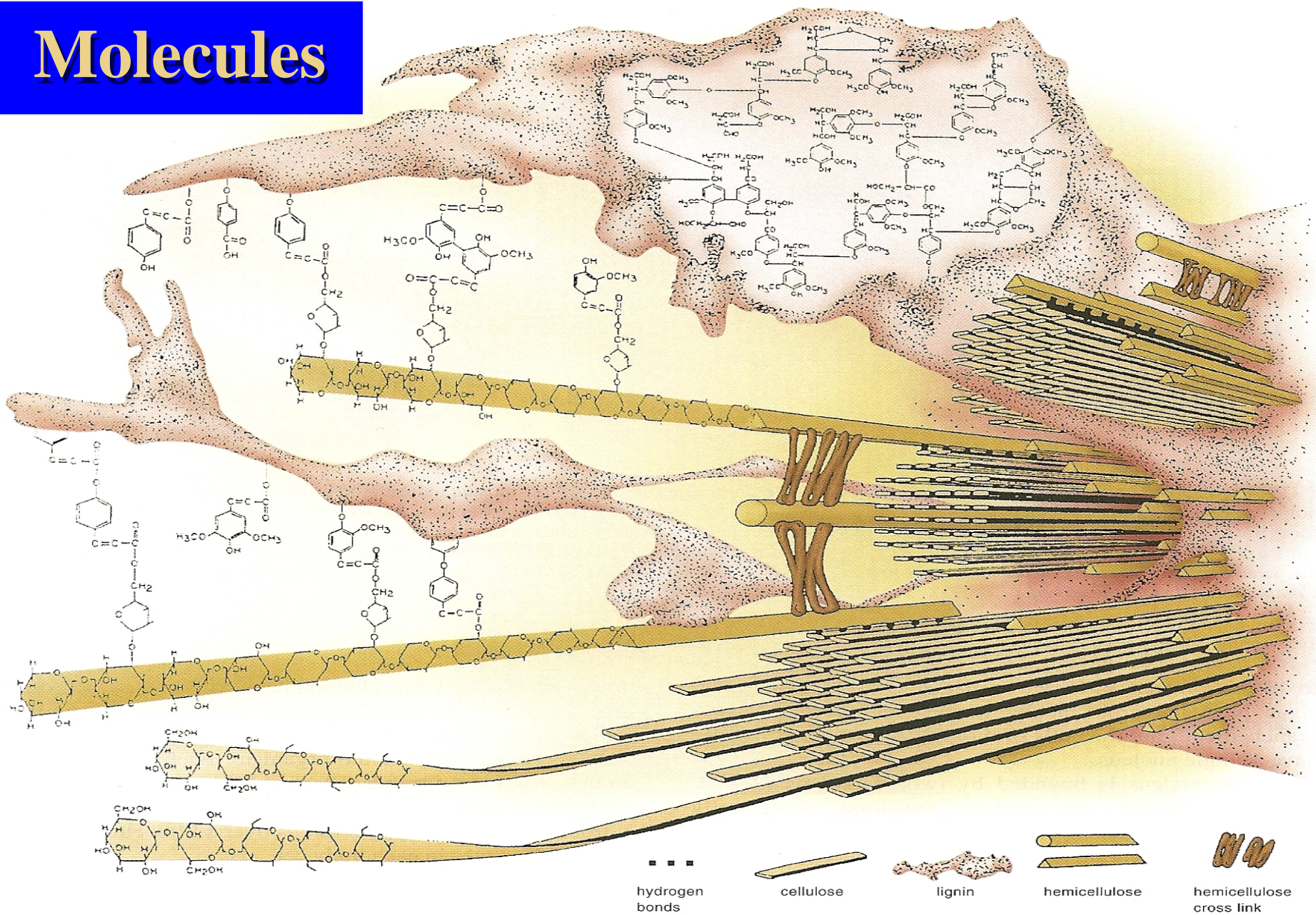
What patterns are found through the levels of organization?

## A PLANT CELL

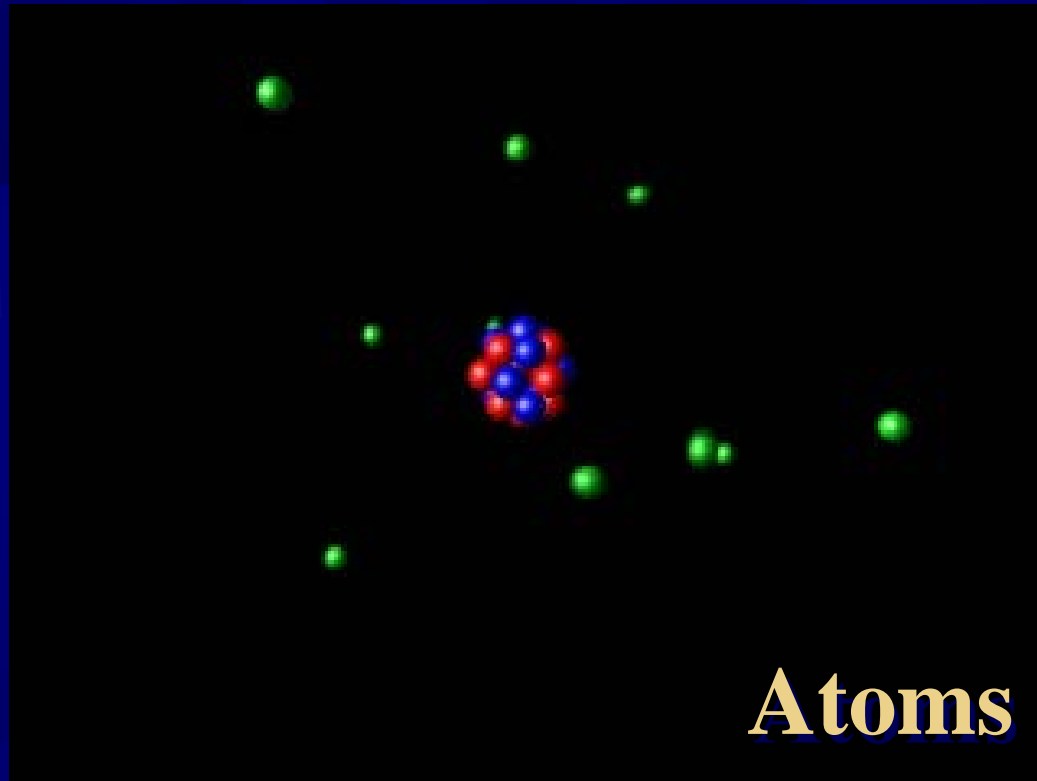
# Organelles



# Molecules



**Figure 3.6B** Secondary cell wall structure. Components are arranged so that the cellulose microfibrils and hemicellulose chains are embedded in lignin. (Reproduced by permission of the Oklahoma Academy of Science; Figure provided by Dr. James E. Bidlack.)

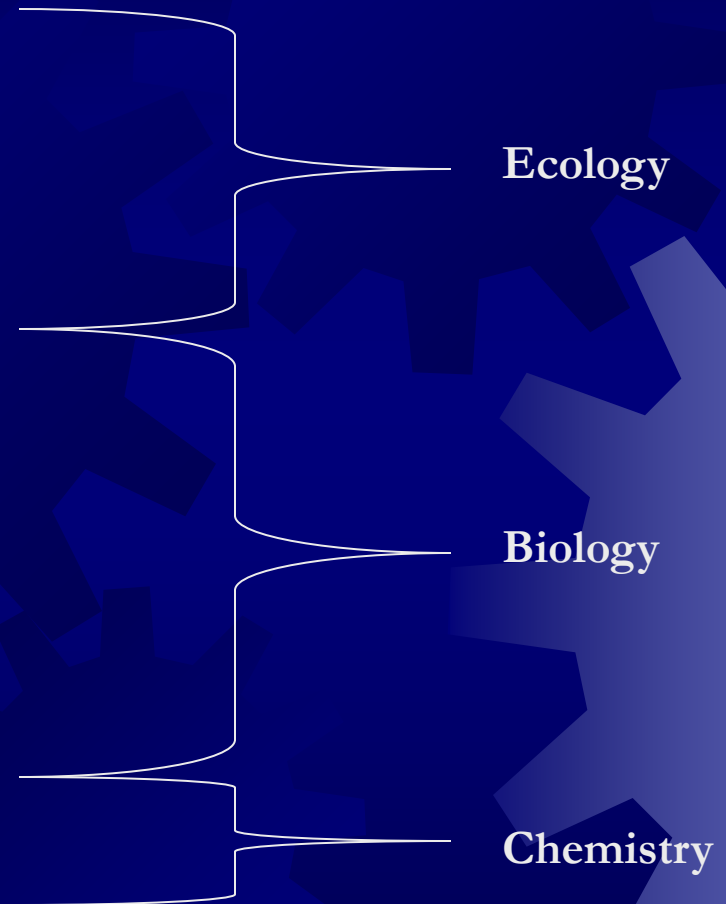


# Atoms

What patterns are found through  
the levels of organization?

# Levels of *Biological* Organization.

- ✱ Biosphere
- ✱ Ecosystem
- ✱ Community
- ✱ Population
- ✱ Individual
- ✱ Organ-system
- ✱ Organs
- ✱ Tissue
- ✱ Cells
- ✱ Organelles
- ✱ Molecules
- ✱ Atoms

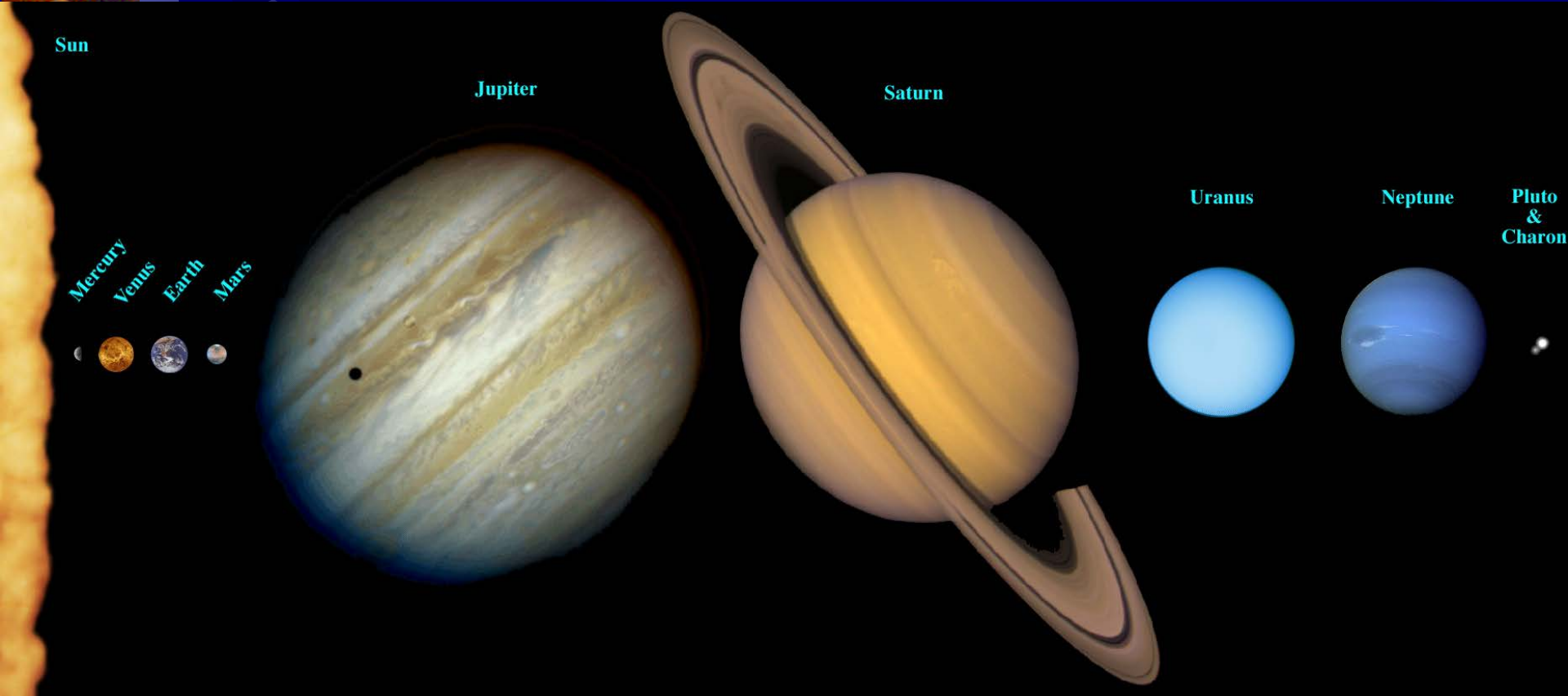


What patterns are found through  
the levels of organization?




Stars, galaxies and other heavenly bodies.

# FIGURE. SOLAR SYSTEM



What patterns are found through  
the levels of organization?



# What role do you think energy has in the levels of organization?

What patterns are found through  
the levels of organization?

# What role do you think energy has in the levels of organization?

- ✱ Keeps matter together
- ✱ Helps to create life
- ✱ Helps to organize matter and make patterns.
- ✱ ???????

What patterns are found through  
the levels of organization?

# HW

- ☀ In your Research Journals answer the following in an essay:
  - ☀ Argue for or against the possibility of life existing on other planets.
  - ☀ Pick 3 levels of organization and describe how energy/force relates them together.

What patterns are found through  
the levels of organization?

# Bibliography.

1. [www.solarviews.com](http://www.solarviews.com)
2. Stern, K. 2006. Introductory Plant Biology. McGraw Hill. New York. 624p.



What patterns are found through  
the levels of organization?