

Welcome to the Biological Sciences! As you may know biology is the science of life; however you may be starting to suspect the definition of “life” is far more broad and diverse than most people realize. The main rationale for this ambiguous field of study is that life relies heavily on non-living things and without non-living things there would be no life. This perpetual circle or system of order is what makes biology an ever evolving science.

Energy and Order in Biological Systems

The concept of **entropy** and the second law of thermodynamics suggests that systems naturally progress from order to disorder. If so, how do biological systems develop and maintain such a high degree of order? Is this a violation of the second law of thermodynamics?

Order can be produced with an expenditure of energy, and the order associated with life on the earth is produced with the aid of energy from the sun.

Emergent properties is the idea that there is an order to living things and that a system becomes more complex as it gets bigger.

Energy Flow the passing of energy THROUGH an ecosystem looks at how one living thing will pass its energy on to another living thing. A simple example of this is eating!

Chemical Flow the transferring of energy WITHIN or INSIDE an ecosystem. This can be seen most commonly with the decaying of dead bodies or poop being used as fertilizer.

***We will go into all these concepts in more depth, but today, I want you to start exploring the relationships between ALL things.

At this station you will extend you new knowledge about emergent properties, energy flow, chemical flow and system orders to follow a system of order from the largest entity you can think of to the smallest unit you can think of.

You may work in individually, in pairs or alone.

You will display your findings in either a Google Slide production or an Animoto Video.

Directions:

1. Think of relationships between all living creatures, every living unit relies on something else. All living creatures are a part of something bigger and are made up of something smaller.
2. Pick one central living object and follow its system of order from the largest entity to the smallest unit.
3. Take and find photos of each step in this relationship to make a photo collage on either Google Slides or Animoto.
4. At least THREE of the photos need to be your from your own camera.
5. In your presentation explain the relationship between each photo, how is one object related to another in a system of order.
6. All final presentations should be posted to the table below.
7. You have the freedom to show any system of order, so do not be limited to 21st century, Windsor, CA. THINK BEYOND...

Visit bit.ly/systemofordervideo to see Neto's very lame and simplistic example video. PLEASE be cooler than Neto and use this time and your creativity to think BIG.

Previous NEW School Student Examples: [System of Order](#) Example 1
[System of Order](#) Example 2
[System of Order](#) Example 3

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