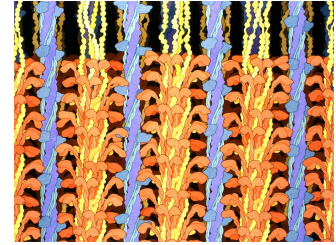
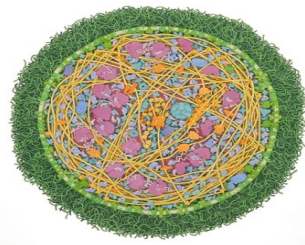
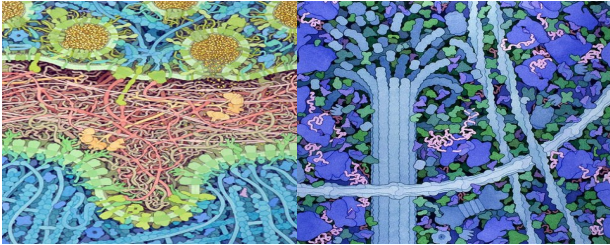


Molecular Machines- 2011-2012



Molecular Machines: A visual investigation of intracellular protein macromolecules

In Biology class, you will be studying the functions and structures of proteins. Proteins perform many of the vital functions in your body. You will be looking at a 3D visualization program called Chimera to choose your protein. In Art, we will be looking at an artist named David Goodsell, also the author of *The Machinery of Life*. As we look at his work, we will analyze the use of composition, color, symmetry & asymmetry, line, texture, balance and pattern. Then we will create our own molecular machine paintings.

Guiding questions:

- How are we assembled?
- How can we analyze elements of art to determine an individual's visual attraction?
- What elements of design are you particularly drawn to and why?
- What principles of design are you drawn to and why?
- What makes an interesting composition in a work of art?

Brainstorm questions for students:

- Size and scale of work?
- canvas or wood?
- display of work?

Getting Started

1. Do Observational Drawing of a protein
2. Do a sample painting using complementary colors, monochromatic colors, split complements, complementary color in distress, primary or secondary colors and analogous colors.
3. Find a protein of interest from the PDB (protein data base)
see: www.pdb.org/pdb/101/motm_archive.do
4. Alter colors and design in photoshop
5. create drawing of your protein using gridding technique on canvas
6. paint canvas using color scheme

Where can I find these proteins?

- Go to the protein data base PDB @ pdb.org and look at the Molecules of the Month (MOM)

How do I look at these proteins?

1. Download and install the program Chimera @ <http://plato.cgl.ucsf.edu/chimera/>
2. Click icon and open the program
3. Go to File>Fetch by ID
4. Type in the PDB number for your protein of interest
5. Wa-La (not a word)

How are proteins made?

- See animated walk through @ <http://www.johnkyrk.com/DNAtranslation.html>
- See animated walk through @ <http://www.dnalc.org/resources/3d/15-translation-basic.html>

