

## ***Science Inspired: A Collaborative Art / Science Workshop***

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

### **Introduction:**

Leonardo da Vinci, Ernst Haeckel, and Santiago Ramon y Cajal are scientists who had a passion for creating art. They not only used their artistic skills and abilities to observe and record scientific phenomena, but also were able to represent their scientific discoveries through beautiful, visual form.

Visualization is a bridge connecting art and science, a way to make the invisible visible. This workshop will provide participants with an opportunity to experience how three- dimensional form can be used to communicate and interpret complex scientific concepts.

After a short PPT presentation illustrating how various forms of visualization and scientific models make the invisible, visible, workshop participants will work in groups to create sculptures inspired by specific scientific concepts.

### **Workshop Project:**

Each material on the table is a by-product in some way of science. This workshop will explore how these everyday materials, can be repurposed to create a collaborative, three- dimensional object that expresses and is inspired by one of the following scientific concepts:

Physics: **Waves** <http://en.wikipedia.org/wiki/Wave>

In physics, a wave is a disturbance or oscillation that travels through space and matter, accompanied by a transfer of energy. Wave motion transfer energy from one point to another, often with no permanent displacement of the particles of the medium. They consist, instead, of oscillations or vibrations around almost fixed locations.

Physics: **Rotation** <http://en.wikipedia.org/wiki/Rotation>

A rotation is a circular movement of an object around a center (or point) of rotation. A three-dimensional object rotates always around an imaginary line called a rotation axis.

Biology: **Cell** [http://en.wikipedia.org/wiki/Cell\\_\(biology\)](http://en.wikipedia.org/wiki/Cell_(biology))

The cell (from Latin *cella*, meaning "small room") is the basic structural, functional and biological unit of all known living organisms. Cells are the smallest unit of life that can replicate independently, and are often called the "building blocks of life."

Chemistry: **Reaction** [http://en.wikipedia.org/wiki/Chemical\\_reaction](http://en.wikipedia.org/wiki/Chemical_reaction)

When a chemical substance is transformed as a result of its interaction with another substance or with energy, a chemical reaction is said to have occurred.

Structural Engineering: **Bridge:** <http://en.wikipedia.org/wiki/Bridge>

A bridge is a structure built to span physical obstacles such as a body of water, valley, or road, for the purpose of providing passage over the obstacle.

Neuroscience: **Neuron:** <https://en.wikipedia.org/wiki/Neuron>

The basic unit of nervous system neuron's are responsible for the transmission of nerve impulses. Courtesy: <https://www.dana.org/brainglossary/>

Neuroscience: **Synapse:** <https://en.wikipedia.org/wiki/Synapse>

A synapse is the junction where an axon approaches another neuron or its extension (a dendrite). Courtesy: <https://www.dana.org/brainglossary/>

Neuroscience: **Ion Channel:** [https://en.wikipedia.org/wiki/Ion\\_channel](https://en.wikipedia.org/wiki/Ion_channel)

A membrane-spanning protein that forms a pore or hole through the plasma membrane; when the ion channel is open, ions move between the inside and outside of the cell. Courtesy: <http://brainu.org/glossary-neuroscience-terms>

Neuroscience: **Connectome:** <https://en.wikipedia.org/wiki/Connectome>

A connectome is "wiring diagram" of the vast neural connections making up the brain and nervous system. Courtesy: <https://www.dana.org/brainglossary/>