

## EXPLORATION IDEA PROFILE: Collapsible 1m<sup>3</sup> kilopixel Volumetric Data Display

### EXPLORATION IDEA

---

Construct, assemble, and program a full-color kilopixel (10x10x10) Volumetric Data Display for science data visualization. Modular in construction, the unit can be easily disassembled into sections and rolled up for transport in shipping tubes.

### TARGET AUDIENCE(S)

---

Construction of the unit is likely a college-level activity, due to the large number of soldered connections.

Data visualization on the unit can be tailored for any age category. It could be used for demonstrations for younger students, programming workshops for middle and high school students, and fully exploring data visualizations for undergraduate, graduate, and career scientists to use.

### POTENTIAL IMPACT

---

Large scale, fully volumetric data visualization has not previously been implemented as a scientific research tool. It can become a teaching tool for any age, bridging the gap between computer simulations and three dimensional real-space data presentations.



### RELATED IDEAS/INNOVATIONS

---

- Arduino as a teaching tool for coding and electrical engineering
- Optical design in 3D printed materials

### MATERIALS/EQUIPMENT

---

- Some machined parts. Aluminum channel and angle, wooden dowels, fasteners.
- Wire, DotStar pixels, db9 connectors, Arduino
- 3D printed diffusers

### EXPLORATION IDEA TEAM

---

- **Team Lead:** Paul Mirel (NSSEC)

# Collapsible 1m<sup>3</sup> kilopixel Volumetric Data Display

**Exploration Idea Profiles** are developed through a guided process involving a step-by-step guide/worksheet where participants are invited to consider additional topics that include:

---

- Connections to other technologies
- Connections to existing information/research
- Connections to educational standards
- Connections to existing activities/projects
- Universal design
- Next steps

## **HOW TO CONNECT**

---

Follow us on twitter [@NASASpaceSciEdu](https://twitter.com/NASASpaceSciEdu) or on our blog at <http://blogs.nasa.gov/stem-innovation-lab>

Visit our website at:  
<http://www.steminnovationlab.org/>

