

Category: **Science**

Project: **Bonds...glass bonds, exhibition graphics**

What was the challenge?

The goal of our university art museum exhibition is to engage public audiences and students from middle school through university as they explore the science, technology, art, and other humanistic aspects of glass. We selected 80 objects ranging over 3000 years and from around the globe, and arranged them in trios highlighting 23 themes, such as natural glass, color, community, and colonization.

We needed an organizational scheme to help visitors navigate their way into glass and around the space. Although glass, quartz, and other crystals consist of the same atoms, glass arranges those atoms differently; could we use that as the basis of our graphic approach?

What was the solution?

Glass consists of an irregular network, typically of similar but varying pyramids. At the center of those pyramids is a silicon atom, bonded to the single oxygens at each of 4 corners. We used that pyramidal framework also for illustrating a central humanistic theme connecting glass objects. By similarly representing atomic bonds and human bonds, the icon's dual role highlights the notion of connectedness and embodies the exhibition's interdisciplinarity.

Because the icon needed to engage visitors of varying ages, interests, and education

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levels, it had to be easily recognizable. To reward the discerning viewer, reinforce scientific content, and prompt humanistic discussion, we created subtle yet noticeable variations in bond lengths and angles to depict the diversity of atomic and human bonds.

We used the icon throughout the exhibition. At the entrance (top photo), 3 graphics introduce the exhibition and provide a roadmap: a single pyramid, and chain of pyramids, and a conglomeration of pyramids move from object level to atomic level (or conversely). A lenticular graphic (top, left) transitions between atomic and human bonds. At the end, an interactive whiteboard (bottom, right) gives visitors an opportunity to select magnetic images of objects, place them on the iconic structure, write down their own theme, and post their curation to the exhibition's social media sites. In between, the icon is the basis of graphic and text panels linking objects and themes (bottom, left), and as background "wallpaper" to the videos, the space itself, and the interactive sandbox (middle photos).

What was the effect?

It succeeded beyond our optimistic hopes. Even with little guidance, individual visitors soon notice and recognize the icon, read the thematic label, and find connections to the objects. Success motivates and guides navigation for finding themes and objects of interest. Because group visitors are directed to the icon as a navigating principle, these visitors tend to connect to their interests even more quickly. Animated conversations indicate engagement.

The heritage segment (middle, left and bottom, left) proves particularly popular. It features 2 fighting kites, glass ingredients, a glass object, and videos on kitefighting

and glassmaking in Afghanistan. Cultural exchange students have gravitated to it; groups tend to begin discussions about their own cultural heritage and family traditions. Similar experiences happen throughout the space, sometimes fueled by the surprise or shock at the objects, their stories, and the identified theme, or by the ubiquity of glass in their daily life and in the lives of people generations ago.

The icon's central placement of the theme makes it stand out visually, promotes access to it, and prompts engagement with it. The icon encourages people to make their own connections between objects and establish other relationships between them. This takes place most explicitly at the interactive whiteboard (bottom, right). The interactive "natural glass" sandbox is a huge draw for students and adults – its base features icons arranged as in glass, reinforcing the science of glass while connecting to the rest of the exhibition. The main attractor, an award-winning 10-minute glassmaking video (middle, left) entrances students; the screen's base also displays the graphical structure of glass.

A few specific examples of impact merit notice. Several university consultants claimed it was the best exhibition they had attended; they returned with their spouses. One university student asked to invite their parents. A high school student intending to drop out of school now plans to pursue art at the university. Word of mouth has led to 31 separate tours scheduled for over 500 visitors, the most ever for this museum. The exhibition is having a significant community impact on young people and on the future of the museum itself.

How much is due to the icon? It's the keystone to the exhibition, its identity, its accessibility, its effectiveness, and its success.

