

Design Challenge Resource Collection

Module 6: Graphic Development for Design Challenges

This module is part of a Design Challenge Resource Collection, developed by a cross-functional team at the Oregon Museum of Science and Industry (OMSI) with decades of experience conceptualizing, developing and building museum exhibits. The collection is intended to support exhibit developers and designers as they work to create interactive design challenges.

These modules are designed for someone to read individually or facilitate with a team. There are great benefits derived from collaborating on the exhibit development process. Throughout the modules, activities for groups of individuals are called out in blue boxes.

Team Activity

Discussion prompts and other activities for groups are in blue boxes like this one.

Each module stands alone; there is no specific order to explore the modules, nor is there a need to read them all. However, in some cases, references are made between modules for opportunities to learn more. Finally, these resources are not meant to be prescriptive, but rather examples, tools and approaches the OMSI team has found valuable in the development of non-facilitated engineering design challenge exhibits for the museum floor that are accessible, relevant and engaging for visitors.

The entire set of resources can be found on the [Design Challenge Resource page](#).

1. Introduction to Design Challenges
2. Exploring Design Challenges
3. Approaches to Exhibit Accessibility
4. Testing a Design: Measures of Success.
5. Exhibit Design Sprints
6. Graphic Development for Design Challenges
7. Prototyping Design Challenge Exhibits
8. Participatory Co-development of a Bilingual Exhibit
9. Documenting Exhibits: The Exhibit Record Tool



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Graphic Development for Design Challenges

This resource focuses specifically on how 2D graphics can support unfacilitated visitor engagement with design challenge exhibits. Exhibit graphics can serve multiple purposes from attracting attention to providing in-depth information. Examples in this module highlight how graphics can be used to support the exhibit experience and provide notes for getting the most out of the graphics you create.

Working with a team?

As a group, brainstorm different purposes graphics can serve. How do graphics support the visitor experience?

Warmup! What about this graphic could help someone interact with the exhibit? What can you learn about the exhibit just from looking at this label?

Diseña un casco que proteja de los impactos.

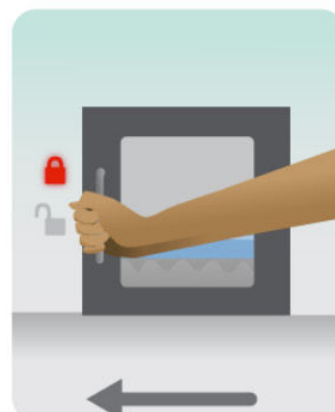
Design a helmet to protect from impact.



1

Apila las capas en la zona de prueba para crear un acolchado de casco que absorbe impacto.

Stack padding samples in the testing area to create an impact absorbing layer for a helmet.



2

Desliza la puerta para probar tu diseño.

Slide the door closed to test your design.

Graphic labels can serve a variety of purposes:

- Attract visitors to the exhibit
- Instruct visitors on how to interact with the exhibit
- Support group dynamics by encouraging visitors to talk about the challenge
- Tell stories that humanize the design challenge
- Relate to the lived experience of our target audiences

Which of these, if any, does the above graphic do?

Take a look at the image below. What purposes do the different graphic panels serve?



It is not just what is on a panel that matters. Where a panel is placed can have a huge impact on how effective it is. Where would you put the instructional label on the exhibit above?

Exhibit graphics: what can they do for a design challenge?

Attract visitors to the exhibit

Through colors, fonts, illustration style, etc., visitors can feel attracted (or not) to an exhibit. While something that is effective for one person may not work for another, there are some general guidelines, described below, that seem to work for many people.

Instruction: Show visitors what to do

- Illustrations are very useful! They boost accessibility, and are more likely to be apprehended immediately when a visitor walks up.
- Instruction graphics can scaffold the experience to lead visitors toward increasingly challenging activities (e.g. “start here” → “now try this” → “now try this”).
- Instruction graphics can communicate the goal, constraints, and trade-offs.

Put the instructions where visitors will need them. Split them up if visitors do different things in different places.

Communicate content

Informational panels can provide a deeper dive into the content of the exhibit. While some visitors will read panels upon approaching an exhibit, most will jump right into working on the challenge. Having informational panels available for when visitors are ready to find out more about the topic can enrich their experience and support them in optimizing their design.

Support group dynamics

Design Zone focused on helping caretakers serve as facilitators by providing panels specifically designed to help them understand the activity so that they could explain it to their children. This method is successful when these panels are used, but many visitors don't use them. This is a challenging nut for developers and designers to crack, and we should be aware of it as we create our own experiences. From the summative evaluation: “despite the important role that the parent panel could play in guiding visitors’ algebraic thinking, the placement of that panel sometimes made it harder for parents and children to notice them. It may have been more effective to embed some of the key algebraic ideas and phrases more explicitly in the challenge labels, directions, and on-screen hints. In a traveling exhibition where configurations may shift and panels may be placed in different locations from those originally intended, this may become even more important.”

Tell stories that humanize the design challenge

Research shows that many people, especially girls, find engineering more appealing when it is presented as altruistic, collaborative (Eccles, 2006; Fadigan & Hammrich, 2004; Jenkins & Pell, 2006; NAE, 2009; Weisgram & Bigler, 2006), and relevant to their lives (Fadigan & Hammrich, 2004; Liston et al., 2007). Labels can be used to put design challenges in context to highlight how visitors’ design solutions can help people like them.

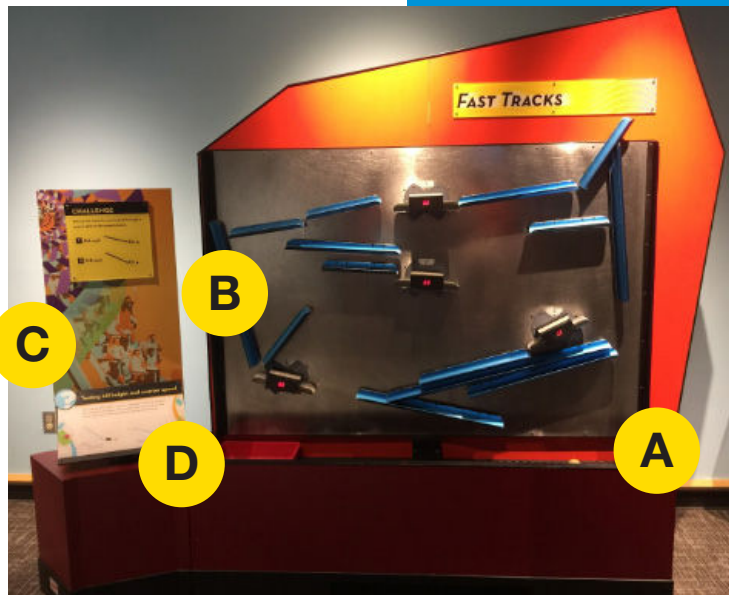
Take a look at some examples

Graphics help visitors understand what to do with a design challenge.

Take a look at the examples below. For each, think about the purpose the elements of the graphic design are serving. Are they doing a good job? How would you make it better?

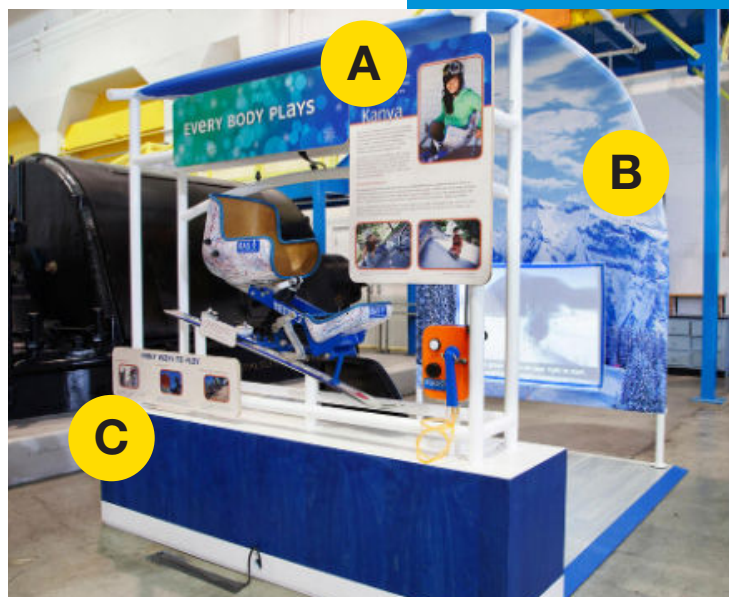
Design Zone “Fast Tracks”

- A: Bright colors attract attention.
- B: Challenge presented in a straightforward way with illustrations and very little text. Could it be placed better?
- C: Image shows people and a roller coaster to help visitors relate.
- D: Added informational copy.



Human Plus “Every Body Plays”

- A: Photo and personal story provides context, relates to the visitor and sets up altruistic motivation. There is a lot of text there, though—did anyone read it?
- B: Colorful tension fabric draws attention and creates an immersive experience.
- C: Instructions with images. Separate from the experience. Nice that people waiting could read in advance, but not much help once someone is inside.



Human Plus “Finding Your Way”

- A: Photo and personal story provides context, relates to the visitor and sets up altruistic motivation.
- B: Photograph provides a visual explanation of the challenge.
- C: Numbered steps articulate the Human Centered Design approach. Could this be improved? Step 1 is separate from the others. Why? Step 4 takes place in the Test Zone, but is not separated from the others.



Designing Our Tomorrow “Build a Flying machine”

- A: This activity has lots of appealing illustrations. What do they have to do with the activity? Illustrations show a bird, maple seed and leaf in the tube, but visitors are using paper. Is this confusing for people? Three labels across the bottom read: Fly high, Hover, and Put on a show. Are these stating goals of the challenge? It’s not exactly clear.
- B: A concise information panel provides strategies for success.
- C: Panel about biomimicry—getting design inspiration from nature. The connection to the activity is not explicit. Perhaps it should show how the paper provided could be used to mimic nature.
- D: Graphic panels are placed so that they are behind visitors when they are at the Wind Tube! What were we thinking?



- A: Colorful panels, photographs and an attractor video draw visitors' attention.
- B: Information panel with captioned illustrations explain the content.
- C: Copy supporting the big idea of the exhibit—looking to nature for design inspiration.
- D: Narrative and image of a person to add context for the challenge and make it relatable.
- E: Instructional panel that restates the challenge and illustrates the steps for testing.
- F: Results screen shows how well the design performed.

What kinds of best practices would you like to institute for design challenge graphic panels?

Things to consider:

Placement

- Instructions are best placed “where the action is”, even if this means creating more than one panel.
- Facilitator or informational panels are usually off to the side, separated from the actual activity. The idea is you catch the person who's standing to the side observing.

Content:

Exploratorium's [Exhibit Designs for Girls' Engagement](#) guide* suggests

- Including at least one image of a person
- Using illustrations to help the visitor to understand how to use the exhibit
- A look-and-feel that is playful, whimsical, or humorous
- Including at least one familiar object that most people have seen before

Every project is different. What learning from these 2D examples would you like to bring to your project? What kinds of best practices would you like to institute in your graphic panels?

*Exploratorium. (2021). A Guide for Practicing Gender Equity in Exhibit Design. San Francisco, CA: Exploratorium.