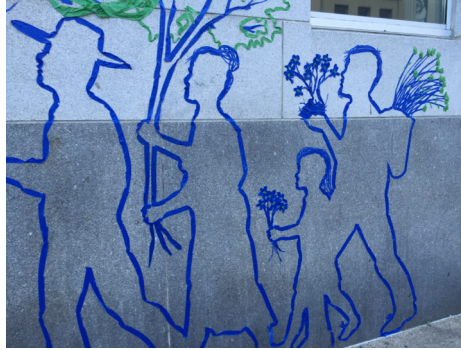


MATERIALS EXPLORATION

A PRACTICE FOR FOSTERING THE MAKER CAPACITIES:
LOOKING CLOSELY, EXPLORING COMPLEXITY & FINDING OPPORTUNITY



Take some time to play, tinker with, and explore various materials and see what they might want to become. Make something or don't. Try out some of the materials on the list below and add other materials. Notice some of the qualities mentioned below and add other things you notice.

Tinker with...

- Cardboard or Paper
- Wire
- Fabric or String or Yarn
- Tape: different types
- Foil or Metal
- Circuits or Motors
- Wood
- Light
- Other materials

Notice...

- What the materials can do, how they move and take shape
- The differences between materials and how some work together
- Different ways to attach materials and what types of fasteners work well
- How rigid or flexible the materials are
- How to work 2 dimensionally or 3 dimensionally with materials
- Other observations

Reflect...

What are some new ideas you have about using these materials to make something?

What are some questions you have, now that you have had some time to see what these materials might become?

Materials Exploration

This practice promotes noticing, play, and exploration. When learners have time to tinker with materials they can gain an understanding of the affordances, possibilities, and constraints inherent in a variety of making materials.

When and How Can This Practice Be Used?

This practice can be used to explore any material that might be used in design. The practice can be used as a launch for learners to spend time with and gain familiarity with specific materials at the start of an inquiry. It can be used at any point in an inquiry when it seems useful to draw or deepen learners' attention to material properties.

The practice can be used on its own or along with other Agency by Design thinking routines or practices. Here are some considerations for implementing this practice:

- Maker activities vary widely. The continuum ranges from totally unstructured exploration, through light touch tinkering activities where the constraints of materials may subtly direct the activities, to moderately organized design challenges, to strictly defined parameters for competitive design contests. This practice begins at the least constrained end of that continuum. When learners have the opportunity to dwell in this mode they are likely to gain considerable knowledge about materials before they move along to designing and making with them.
- After generous exploration time, learners can use the thinking routine, *Imagine if...* to reflect on what they learned and consider how the material they just used might be incorporated into an upcoming making endeavor.
- A materials exploration area can be a permanent part of the learning space design, where learners can drop in and tinker. Materials can be changed to highlight areas of focus during different lesson or units of inquiry. Tools or fasteners that support the exploration of specific materials can be included in the exploration space. For example, foil tape, LEDs and batteries can be introduced into the exploration space for several days prior to an upcoming inquiry on circuitry.

"I believe that ideas emerge out of the making. Yes, you can start with an idea, but it is in the messing around, the kind of deep immersion into the making and touch of the materials that ideas really develop." - Kelly Dobson from *The Art of Critical Making*

There are several texts that we have relied on for inspiration in materials exploration and we are grateful to those authors and tinkering contributors who sparked our imagination:

- *Invent to Learn*, by Sylvia Libow Martinez & Gary Stager, Ph.D.
- *The Art of Critical Making*, Rhode Island School of Design on Creative Practice, Eds: Rosanne Somerson & Mara L. Hermans
- *The Art of Tinkering*, by: Karen Wilkinson & Mike Petrich