

Project: Constructing a “table”

**Concept: Building a 4” recyclable table that can sustain the weight of a bowl of “cereal”**

**Age Group: Pre-k (4-5 year old)**

**Implementation with students: N/A**

Objectives:

- a. Problem solving by elevating the space**
- b. Practice and exercise number measurement**
- c. Learning the theory behind the stability of a structure**

**Engineer process:**

- a. Engage**
- b. Design and create**
- c. Build**
- d. Refine**

The art forms I am planning to extensively use in this engineer project are drawing and Role-play. There are two reasons why I choose these two art forms to intergrade into my Engineer Design Project. One reason is the familiarity that children have already had with these two forms of art expression. Another reason is drawing and role-play activities can effectively expanding children’s creativity.

In my previous engineer design project, I utilized story telling to engage students to the problem. This time I would like to challenge students to connect with the project by starting with a role-play activity. 'The participants experiment with roles, meet challenges and solve problems within the imagined world of the story' (O’Neil, 1995, p. 41). ‘By this, process drama lays the foundations for those very skills which are the basis of critical reading.’(Montgomerie&Ferguson, 1999, P3). Students at this age enjoy and engage the Role-play activity because it is highly interactive, expressive and full of imaginations. Instead of hearing a story or problem from the teacher, experiencing the problem themselves can give students better understanding about the context, thus to extend the critical thinking. Furthermore, Role-play will not only provide a good opportunity to build on the literacy skill for the young students, but also give them a different channel for the self-expression.

Another arts form I used in my previous engineer activity and would like to keep exercising with students is drawing. Students start practicing their fine motor skill since their infant toddler age. The familiarities that they have for drawing can help them to further conceptualize and visualize their ideas during the Design and Create process. Drawing can also be an important form of Arts to use when we are building the foundation of design for students at this age.

In my point of view, having art forms integrated in the engineer project well complements the process. With Engineer design process emphasizing on the problem solving and process of creation, arts forms will not only help children engaged in the learning process, but it can also inspire children to use their creativities and exercise their critical thinking in solution designing. The goal to implement STEM activity for young age children is to elicit their awareness and curiosity about surroundings and its environment, and utilize their curiosity to motivate their autonomous in knowledge inquiring. Creativity plays important role in the path of learning for children and an open-ended STEM activity can encourage creativity in convergent thinking of children. In conclusion, Arts can not only be used as a tool for children to express their creative thinking, but it also can be used to cultivate the ability for children to effectively employing divergent thinking which leads to children's ingenuity.