Creativity at the Core

Module 18

Reuse STEAM

Developed by Humboldt County Office of Education and SCRAP Humboldt

Section: 3-5 unit: Part 3

Section Title: **Design Challenge**

A Professional Learning Module Designed for: 3-5 Teachers

CONTENT OUTLINE

Purpose:

In Part 2 students learn about Creative Reuse and view slide show of amazingly transformed plastic items to gain insight into techniques and be inspired by what is possible for the Design Challenge of Part 3.

Time: 90 - 120 minutes

Grouping: Whole class and small groups

Standards:

Please see associated standards files

Slides: 24-33

Handouts:

"Module 18 3-5 Design Process.pdf"
"Elements and Principles of Art Handout.pdf"
"Module 18 3-5 Google Slides.pdf"

Materials:

Plastics that students collected, scissors, rubber bands, hole punches, string, tape, brads, and other items students can use as connectors for creating their designs

Media Resources:

Included in description below

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PROCESS/ACTIVITY

Exploring and testing the materials first, and discovering how many ways they use disposable plastics each day, acts as an attention-grabbing story for students. The project is framed in a real-world context: the disposable plastics they are utilizing still have value before they are degraded through recycling (or no longer used through landfilling). Through testing the materials students discover that it is strong, or flexible, or beautiful, or durable, or… it only needs to be reimagined instead of landfilled or recycled. Providing this context for the design challenge creates relevance, purpose, and meaning – a reason for being inventive, there is a problem at hand worth solving. Students are encouraged to enjoy the creative process, which involves both *Thinking* and *Doing*.

Using the collected plastic packaging as materials, the **Properties of Plastics** graphic organizer, and **Elements and Principles of Art** handout as guides, students work in small teams to brainstorm ideas for transforming the trash before them into a useful item (reflective dog collar or vest, a jump-rope, a lunchbox, etc.). **The Design Process Handout** will guide students through the creative process of designing a product as it leads them through the same steps an engineer or inventor would use. Students create a prototype of their item, share it with the class for feedback, and make changes as needed:

1. Identify Problem
2. Brainstorm
3. Design
4. Build
5. Test and Evaluate
6. Redesign
7. Share Solution

Note: It can be helpful to set design challenge parameters for your class to provide some direction for what students create, such as: types of transportation, puppets, something to solve a problem in the classroom, something that would be useful in the garden, something to carry your lunch in, etc.

PROCESS/ACTIVITY

Design Resources for Educators
http://www.designthinkingforeducators.com/

Engineering Resources for elementary and middle school students:
http://engineeryourlife.org/
http://www.discovere.org/
http://pbskids.org/designsquad/
http://www.howtoons.com/ Use everyday objects to invent toys you can build
http://lemelson.mit.edu/
http://www-tc.pbskids.org/designsquad/pdf/parentseducators/DS_Invent_Guide_Full.pdf
"Green" design activities and challenges
http://pbskids.org/designsquad/parentseducators/resources/index.html?category=green
PBS Design Squad
http://pbskids.org/designsquad/parentseducators/index.html

Once the item is finalized, each team creates plans/directions for creating the item so that others can easily replicate it. These directions are presented through a **Prezi**. Go to https://prezi.com/ to get started creating a presentation. View this Prezi on how to make a Prezi: http://prezi.com/pdoaavoysiij/?utm_campaign=share&utm_medium=copy&rc=ex0share

View these sample Prezi's about plastic: https://prezi.com/explore/search/?search=plastic#search=plastic&reusable=true&page=1&users=less

A Google Slide presentation in another option for sharing the Design Challenge solutions. See Google Slide handout for instructions.