



HIGH MUSEUM OF ART ATLANTA

STEAM: Science, Technology, Engineering, Art, and Math
Workshop Lesson Plan for Middle School Students
2018-2019 School Year

What's the Big Idea?

Empathy, Creative Problem Solving, and Design Thinking

STEAM Tour and Workshop Purpose

Students will use the High's collections as evidence of creative problem solving, learning directly from the objects how artists create innovative solutions to complex problems.

Essential Questions

Use the following guiding questions as you lead your students through the workshop:

- How do artists, designers, and scientists use empathy to think about and solve problems?
- How is an artist similar to a designer, explorer, or scientist?
- How do artists use science, technology, engineering, and math?
- How are art and design important to our communities?
- What is a prototype?

Objectives

Students will ...





- discover how artists tap into our empathy and global awareness to raise questions and offer solutions about issues that affect our world
- use creative problem-solving techniques to create a design
- consider how art and design affect people in their community
- create a prototype to test solutions to a problem



Procedures

1. Introduction (10 minutes): Divide students into groups of 4-5. Introduce project: Each group will roll 2 dice. The first die rolls to decide a category for the design challenge and the second to decide the artistic inspiration for their solution.

Use the key below. (e.g. if first die = 2, second die = 4; Design Challenge = Transportation inspired by Iris van Herpen's *Hybrid Holism*)

If time allows, roll an example and do a demonstration brainstorm as a whole group before breaking students into smaller groups.

<u>Number</u>	<u>Category</u>	<u>Artwork</u>
1	Environment	 <p data-bbox="1133 562 1421 598"><i>Cabbage Chair, nendo</i></p>
2	Transportation	 <p data-bbox="1156 871 1367 903"><i>Taago, El Anatsui</i></p>
3	Agriculture	 <p data-bbox="1140 1264 1388 1297"><i>Soundsuit, Nick Cave</i></p>
4	Schools/Education	 <p data-bbox="1079 1669 1448 1705"><i>Hybrid Holism, Iris van Herpen</i></p>

5	Society/Culture	 <p><i>Blown Away, Front Design</i></p>
6	Technology	 <p><i>Untitled, Bessie Harvey</i></p>

2. Think, Pair, Share (5 minutes): Once the design challenge has been determined, (i.e. “Design a prototype for something that will improve or solve an issue related to **transportation**, drawing inspiration from **Hybrid Holism by Iris van Herpen**.”) students will turn and talk with a partner to develop ideas for a problem and solution. Encourage each pair to write down one rough idea.

Prompts if students are stuck:

- What are some problems/challenges/opportunities related to **(category)** that you encounter in your daily life, or that you’ve heard about in the news recently?
 - Consider the lines/shape/color/textures/materials used in the artwork that you’ve been assigned. Do any of its components make you think about **(category)**?
 - Was this artwork designed with a particular use in mind? What could it be used for? Could that be part of the inspiration for your solution? How might you use this artwork or something like it to help improve **(category)**?
3. Sketch (5-15 minutes): Each pair will use their rough idea to create a sketch of their prototype. If one student is more comfortable writing and one sketching, encourage one to draw and one to write a short description, or label the sketch. If time is short, spend a longer time sketching and sharing design ideas – skip the actual building of the prototype.
 4. Design a Prototype (20 minutes): Students come back together as a group and each pair shares their idea for the prototype. Each group will choose one idea for a prototype to build together – or combine their ideas, if desired.

5. Share (10 minutes): Allow volunteers to share their prototype and solicit feedback from other groups. Lead a class discussion and reflection using the following questions:
 - How did you come up with the problem/challenge/opportunity to solve related to your category?
 - What aspects of the artwork influenced or inspired your design?
 - In what ways are artists like scientists or designers?
 - What surprised you during the activity today?
 - What was the most challenging aspect of the activity today?
 - What do you like most about your design? What would you change if you could do it again?
6. Cleanup (5 minutes): Allow 5 minutes for students to clean up materials and collect their final works of art.

Vocabulary

Prototype
Design
Sketch
Community

Materials

pencils and sketching paper
cardboard
construction paper
scissors
glue
straws
pipe cleaners
fabric
string
foil
scrap materials

Materials for the Instructor

Timer
2 dice for each group
6 Laminated keys of categories and artworks
Laminated large images of each artwork with tombstone information