

COOPER HEWITT



Smithsonian Design Museum



NATIONAL HIGH SCHOOL DESIGN COMPETITION: GOOD FOR ALL

GRADE LEVEL:

9–12

LESSON TIME:

4 class periods

INTRODUCTION:

For Cooper Hewitt, Smithsonian Design Museum's National High School Design Competition, high school students have been challenged to create a design that improves a community's access to healthy, fresh foods, inspired by the *By the People: Designing a Better America* exhibition. This lesson sequence was developed to complement the Design Competition, but it also may be used to introduce students to community-led design and related principles of design thinking. Using Cooper Hewitt's design process over four class periods, teachers will be able to facilitate students in designing a solution for the Design Competition challenge. The lesson emphasizes iteration as students work through the design process of brainstorming multiple designs. Submissions close March 20, 2017 at 11:59pm ET.

PLEASE NOTE: Only individual entries will be accepted for the National High School Design Competition. Group projects are not eligible for consideration.

OBJECTIVES:

Students will be able to:

- Analyze and interpret objects from Cooper Hewitt's collection and *By the People: Designing a Better America* exhibition
- Design a community based project based on access to healthy, fresh foods following guidelines for the National High School Design Competition
- Understand their role as a community member and the needs of the user in a community project.

RESOURCES:

By the People: Designing a Better America exhibition at Cooper Hewitt

<https://www.cooperhewitt.org/channel/by-the-people/>

Ideas from the exhibition of how designers sketch concepts, which may be used as inspiration for students of how to present their designs for submission to the competition:

Draw your idea on top of a photograph of the location you imagine using.

<https://collection.cooperhewitt.org/objects/420777953/with-image-307889/>

Draw an overhead view of your design noting the various sections.

<https://collection.cooperhewitt.org/objects/420777969/with-image-307941/>

Create a storyboard showing how your design works or is used.

<https://collection.cooperhewitt.org/objects/420777903/with-image-307762/>

Draw a complex design using an exploded view to show hidden details.

<https://collection.cooperhewitt.org/objects/420777933/with-image-307835/>

Draw your idea on top of a map to show how it would function or integrate in the community.

<https://collection.cooperhewitt.org/objects/420777987/>

Use notes to highlight details in your design.

<https://collection.cooperhewitt.org/objects/420777995/with-image-307999/>

Optional templates for presenting designs:

Experience template

System template

Place template

Product template

Blank template

MATERIALS

Pencils and paper for writing and sketching designs

Slideshow

VOCABULARY

Brainstorm

Construction

Design

Designer

Sketch

Prototype



User
Evolution
Elevation View
Aerial View
Storyboard
Stakeholder
System
Product
Community
Healthy living
Healthy food
Transform
Wellbeing

PROCEDURES

CLASS PERIOD ONE:

INTRODUCTORY DISCUSSION AND SLIDESHOW FOR PHASE ONE OF DESIGN PROCESS: Defining Problems (45 minutes)

To start, become familiar with Cooper Hewitt's guide to the design process for educators.

Assemble an assortment of images of people (a family, a student group, an elderly group, a friendship group, a sporting group). Ask students to share their thoughts on what each of the groups represent and who they are.

- Who are these people?
- What do we know about them?
- What do you imagine they do?
- What do you imagine they like/don't like?
- What are their needs?
- Where do they live?
- How do we know, or can guess at, these things?

Discuss, as a class, what a community is and why people need communities. Discuss belonging and sense of wellbeing associated with communities. Generate a list of communities to use in lesson 2 (examples: neighborhood, family, ethnic or cultural community, church community, friend group, age group/peer community).

- What is a community?
- How does having a community help the people within them?
- Why do people need communities?

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Now show a variety of community spaces, exercise equipment and wellbeing images (community center, gymnasium, bike path, meditation). Some prompt questions:

- What do each of these images represent?
- What is healthy living?
- What is healthy food?
- What is physical activity?
- What is wellbeing?
- How is a community created in these images?
- What sort of community uses each of these things?

Discuss how different communities have different needs and how community programs are created with the local community in mind. Introduce Cooper Hewitt's *By the People: Designing a Better America* exhibition. Each of the projects in the exhibition highlights the needs of a community and how every day citizens and designers have tackled the challenge. Explore how the designers have identified a community need and how they have designed a solution for that specific need. As a class, come up with a design challenge that the designer might have been using as the foundation of their solutions. "How might we?" questions are one way to define design challenges or problems.

EXAMPLES:

How might we design a solution to improve a community's access to healthy, fresh foods?

- Food trucks, buses to markets, community gardens, a campaign, etc.
- From *By the People: Fresh Moves Mobile Markets*

Ask the class what their needs as high school students are. These could be study habits, sleep, physical activity, food, hobbies, friendships, and so on. Ask them to define their challenge into something that seems solvable, and come up with a design solution for their own individual problems, or a better design for a product they use that already exist.

TAKE HOME TASK

Between now and the next lesson, go out into the community, talk to your family, friends, and neighbors, and discover ways to get to know your community and its needs. You might focus on spaces which currently exist that could be better utilized or transformed; you might focus on access to healthy, fresh foods; or you might focus on strengthening community



wellbeing. This will all depend on which part of your local community you focus on (school groups, family groups/ multigenerational living, etc.).

Bring back a list of challenges and design ideas which you can build on in the following lessons.

Here are some sample questions to get you started as you explore your community:

- What do I eat that is healthy?
- Where is my food from? (grocery store/fresh market/ bought online/takeout)
- How easy is it to get food home?
- Who cooks food in my house?
- Do I cook for my family?
- How could I create a healthy meal plan for my family?

CLASS PERIOD TWO

PHASE TWO OF THE DESIGN PROCESS: BRAINSTORMING COMMUNITY PROJECT IDEAS (45 minutes)

Review the Cooper Hewitt, Smithsonian Design Museum National High School Design Competition's requirements with your students. In particular, take note of the intended users, design requirements, and selection criteria.

Design Challenge: What would you design to improve a community's access to healthy, fresh foods?

Problems with the availability of food are not specific to one group; they occur in both rural and urban communities and pose challenges to people of all ages, races, and household structures. Unavailability can be physical or economic and is unique to each community, while potential solutions can benefit farmers, families, and local economies alike. This creates a space where your ideas have the potential to make a huge impact, one community at a time.

INTENDED USERS

Your project idea needs to focus on a specific community, and how you could increase access to healthy, fresh foods. Think about places where people in this community already go. Think about the ages and demographics of people in your chosen community. Think about their mobility and ways of traveling.

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DESIGN REQUIREMENTS:

Designs should consider the following questions:

- Tell us about the community you had in mind when you were designing your concept.
- Tell us about the obstacles to having access to healthy, fresh foods that your design addresses.
- Tell us about the stakeholders—the people, groups, and/or organizations—in the community who your design will help.
- Tell us about the environment, setting, or context in which the community will benefit from your design.
- Tell us about your design idea and how it works.

Sketches of design concepts will act as a visual for explaining and demonstrating students' ideas. Sketches can be hand-drawn or made using a computer. The quality of sketches will not be judged, and are meant to illustrate students' ideas.

Design solutions may come in a range of forms, including designing a product, a place, a system, an experience, or something entirely different. See the website for templates (not required for entries) that may aid your students in planning their designs.

Entries must meet all of the outlined requirements on the Cooper Hewitt, Smithsonian Design Museum's website cooperhewitt.org/designcompetition. All designs must fit on one page to be eligible for judging.

EVALUATION CRITERIA:

- **Innovation:** How creative and original is your design?
- **Impact:** Large or small, what is the impact of your design?
- **Relevance:** Does your design address the obstacles faced in the identified community?

Break students into small groups of 3 to 5. Using the list of communities created during lesson one, randomly assign a community to each group. Students will create a list of potential problems or barriers they think this group may face in accessing healthy, fresh foods. Students then will brainstorm solutions to these challenges (if needed, students can narrow their focus to one or two of the potential barriers).



TIPS FOR BRAINSTORMING

- Encourage wild ideas
- Defer judgment
- Write everything down
- Go for quantity

CLASS PERIOD THREE AND FOUR:

FINALIZING THE DESIGN

PHASES IN DESIGN PROCESS:

Prototyping + Making & Testing + Evaluating (90-180 minutes)

Now, students should reflect on their initial design ideas to see which design they would like to pursue as a potential entry for the competition. For submissions to the Design Competition, each student's work must be submitted individually, and group submissions will not be permitted. If teachers are interested in their students potentially submitting designs, this portion of the project can be completed individually. Otherwise, students may continue to work in their teams from lesson two.

Once students have selected an idea to pursue, ask students to share their ideas with a partner. Partners should discuss how ideas meet the design requirements, and ask for clarifying information if they are unsure of how an idea works. Students should be open to using their partner's suggestions to improve on their ideas, as part of the prototyping process.

The teacher should continue to facilitate students during their design process. Continue to ask clarifying questions about their designs.

Students' final designs do not have to include every little detail. There may be some elements that are difficult to draw on paper, but would benefit from a written description. Especially as students' designs may describe a system or experience, their descriptions of their ideas are important for others' understanding of their concepts. Cooper Hewitt's collection includes examples of professional designers who have added written text to their sketches in order to better articulate a choice.

Typically, designers test their prototypes with users and interview them about what works and what doesn't. As these

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designs may not be in a testable phase, students will want to focus on interviewing for feedback. After gathering feedback, they work on improving their prototype. Students could form teams to provide this feedback to each other.

TIPS FOR PROTOTYPING

- Build to think
- Fail early to succeed sooner
- Don't fall in love with your idea
- If a prototype/early design fails, are there elements that you could still use?

Is your class ready to submit their designs for the competition? Note that each student's work has to be submitted individually. Group submissions will not be permitted. Review the full Design Competition instructions here.

ASSESSMENT

Students will be using peer-to-peer feedback during their brainstorming and prototyping. Teachers can use the evaluation criteria for the National High School Design Competition to assess student work.

ENRICHMENT

- Go further than your local community, what about the city, the county/state/province, the country? Point out things that have been designed with a user in mind, and come up with ways in which they could be improved.
- Take your design into the community for feedback. What do stakeholders think about your idea? Is there anything they can implement from your idea?

STANDARDS:

COMMON CORE

CCSS.ELA-LITERACY.CCRA.R.1-3, 7, 9; W.1,2,8,9; SL.1, 2, 6; L.1, 2, 4, 6

NEW YORK LEARNING STANDARDS

Mathematics, Science and Technology Standards 1, 6 and 7
English Language Arts Standards 1 and 3
The Arts Standards 3 and 4
Social Studies Standard 4



Mathematics, Science and Technology
Standard 1: Analysis Inquiry and Design
Standard 6: Interconnectedness
Standard 7: Interdisciplinary Problem-solving

English Language Arts
Standard 1: Language for Information and Understanding
Standard 3: Language for Critical Analysis and Evaluation

The Arts
Standard 3: Responding to and Analyzing Works of Art
Standard 4: Understanding the Cultural Contributions of the Arts

Social Studies
Standard 4: Economics

CCSS.ELA-LITERACY.CCRA.R.1
Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.

CCSS.ELA-LITERACY.CCRA.R.2
Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.

CCSS.ELA-LITERACY.CCRA.R.3
Analyze how and why individuals, events, or ideas develop and interact over the course of a text.

Integration of Knowledge and Ideas:

CCSS.ELA-LITERACY.CCRA.R.7
Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.

CCSS.ELA-LITERACY.CCRA.R.9
Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

CCSS.ELA-LITERACY.CCRA.W.1
Write arguments to support claims in an analysis of substantive topics or texts using valid reasoning and relevant and sufficient evidence.

CCSS.ELA-LITERACY.CCRA.W.2
Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.

CCSS.ELA-LITERACY.CCRA.W.8
Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.

CCSS.ELA-LITERACY.CCRA.W.9
Draw evidence from literary or informational texts to support analysis, reflection, and research.

Range of Writing:

CCSS.ELA-LITERACY.CCRA.SL.1
Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.

CCSS.ELA-LITERACY.CCRA.SL.2
Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.
CCSS.ELA-LITERACY.CCRA.SL.6
Adapt speech to a variety of contexts and communicative tasks, demonstrating command of formal English when indicated or appropriate.

CCSS.ELA-LITERACY.CCRA.L.1
Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

CCSS.ELA-LITERACY.CCRA.L.2
Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

Vocabulary Acquisition and Use:

CCSS.ELA-LITERACY.CCRA.L.4
Determine or clarify the meaning of unknown and multiple-meaning words and phrases by using context clues, analyzing meaningful word parts, and consulting general and specialized reference materials, as appropriate.

CCSS.ELA-LITERACY.CCRA.L.6
Acquire and use accurately a range of general academic and domain-specific words and phrases sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when encountering an unknown term important to comprehension or expression.