

2020 TEACHER RESOURCES: LESSON PLANS

GRADE LEVEL

Grades 9–12

LESSON TIME

4 class periods

INTRODUCTION

Inclusive design is essential for overcoming exclusion and inequality in the world. Designers today look at the breadth of human diversity and help people of different genders, languages, and cultures have a sense of belonging as they live, work, and play. Using empathy, designers think critically and intentionally about the obstacles that would make people feel excluded and design innovative solutions to empower them and create inclusion for all. The 2020 National High School Design Competition challenges high school students around the country to use design to help more of us feel included.

This series of lesson plans was developed to support teachers in facilitating the 2020 National High School Design Competition.

CHALLENGE

What would you design to help more of us feel included?

OBJECTIVES

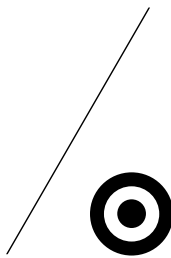
Students will be able to:

- Identify and analyze the aspects that provide and support a sense of community, belonging, and inclusion
 - Define an opportunity to create a greater sense of inclusion for all
 - Design and prototype a solution for this opportunity
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RESOURCES

Presentations, worksheets, and the handout for these lesson plans can be found at www.cooperhewitt.org/design-competition-teacher-and-student-resources and include:

- What is Design presentation
 - Inclusive Design presentation
 - Research and Brainstorming presentation
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- Design Tactics handout
- Design Obstacles Matrix worksheet
- Mapping Inclusion worksheet
- Design Process handout
- Design Case Study: Bathroom Symbols handout

Visit the Cooper Hewitt Education channel on Smithsonian Learning Lab for these resources and more: <https://learninglab.si.edu/profile/cooperhewitteducation>

ENTRIES

Design Competition Website: www.cooperhewitt.org/designcompetition

Deadline to Enter: February 10, 2020, 11:59 p.m. Eastern Time

Students can enter individually or in teams of up to three.

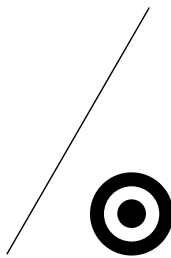
Entries will be accepted online beginning December 23, 2019. All entries must be submitted online, and must consist of a sketch and answers to the following three questions:

- 1. Tell us about the obstacle that would make some people feel excluded.**
What specifically about it would make the user(s) you identified feel excluded? Is this something you observed or experienced? Might this also be an obstacle for other users? (50 words or less)
- 2. Tell us about your design idea.**
Describe your design, its key concepts, and how it works. (50 words or less)
- 3. Tell us about the impact of your design for your user(s).**
Describe how and why your design helps create inclusion for the user(s) you identified, as well as a broader audience. (50 words or less)

Further details on entry requirements can be found in Lesson 4 and on the design competition website.

VOCABULARY

Inclusion	Empathy	Community
Exclusion	Iterate	Prototype
Process	Discovery	Analysis



LESSON 1: WHAT IS DESIGN?

RESOURCES

- What is Design? Presentation
- Design Process handout
- Design Case Study: Bathroom Symbols handout
- Mapping Inclusion worksheet

GOALS

In this lesson, students will explore the design process. They will also learn how design is linked to our sense of belonging and community, and how design can help more people feel included. Students will also:

- Understand that design is a process
- Identify and analyze potential design challenges
- Propose design solutions to identified challenges

PRESENTATION

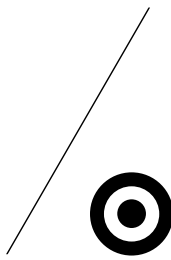
Using the What is Design? Presentation and Design Process handout, introduce students to the concept of design, and explore the design process. Facilitate conversation regarding the ways in which the steps of the design process support each other and how each step might happen multiple times within a project (we call this the iterative process).

Review the Design Case Study: Bathroom Symbols handout, using this example to reinforce the steps of the design process. Use the examples presented in this case study to analyze how the standard universal male and female bathroom symbols might be obstacles to inclusion.

The article, [All-Gender Restrooms, the Signs Reflect the Times](https://www.nytimes.com/2015/11/08/style/transgender-restroom-all-gender.html) (<https://www.nytimes.com/2015/11/08/style/transgender-restroom-all-gender.html>), describes a range of efforts to create an inclusive sign for all-gender restrooms. Ask students to identify how the desire to increase a sense of inclusion was addressed using design in this article. Students should be specific in identifying how this example demonstrates that design can promote inclusion and/or exclusion.

ACTIVITY

Invite students to share a time when they felt a real sense of being included in something that was important to them. Facilitate discussion about what it means to feel included. Discuss how shared commonalities might contribute to a sense of



inclusion: culture, gender, nationality, language, religion, as well as physical location (schools, neighborhoods), pop culture interests, political beliefs, sports, hobbies, etc. Choose one of these elements and bring design into the discussion.

Empathize: Tell a story that places the students into an unfamiliar situation and ask them to look at it through someone else's eyes. Maybe they are a new student in a classroom where everyone speaks a language other than their own. Ask students to describe how this might feel for the student and what obstacles they might face to feeling that they are included in the classroom. Discuss how sometimes designed objects, spaces, services, and systems can cause alienation and exclusion. Be optimistic about how design might solve these problems. Ask students to identify in what ways it might be possible to overcome these obstacles and build a sense of community and inclusion for all.

Using the Mapping Inclusion worksheet, ask students to reflect on what makes them feel a sense of inclusion at school, at home, or in some other context. How might this feeling of inclusion affect other parts of their lives?

SUMMARY

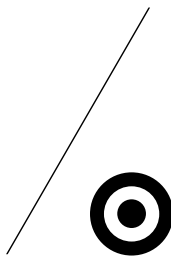
Encourage students to think about how design can create inclusion or exclusion in many aspects of daily life.

TAKE HOME ACTIVITY

At home activity: View [Stalled.Online](http://www.stalled.online) video (www.stalled.online)

Ask students to consider the following questions:

- Who is impacted by this proposal for an all-gender restroom?
- How did the Stalled designers analyze and propose a design solution?
- Do you think the designs presented in the Stalled.Online video contribute to a sense of belonging and inclusion? Explain how or how not.



LESSON 2: UNDERSTANDING THE USER

RESOURCES

- Inclusive Design presentation
- Design Tactics handout
- Design Obstacles Matrix worksheet

GOALS

In this lesson, students will start to observe and interpret designed systems and things in their school community as a framework for identifying areas for the potential of design to create a greater sense of inclusion.

- Broaden appreciation and understanding of inclusive design
- Learn tactics from successful design projects
- Generate multiple design ideas by employing multiple approaches to user-centered design

PRESENTATION

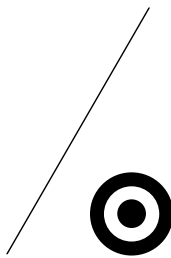
Discuss the range of design solutions presented in the Inclusive Design presentation to stress that there is no single approach or method that will work for every design challenge. Inclusive design is dependent on a strong understanding of the user.

View the [video](https://www.espn.com/video/clip/_id/18328073) featuring Olympic athlete Ibtihaj Muhammad, who competes wearing the Nike Pro Hijab (https://www.espn.com/video/clip/_id/18328073). Ask students to reflect on Muhammad's discovery of fencing, as she describes in the video, identifying what elements of design might have helped her feel such a strong sense of belonging in the fencing community. What made her feel like fencing was her sport? How might design have inspired her and contributed to her development as an Olympic athlete?

ACTIVITY

ACTIVITY: Review the Design Tactics handout and the Design Obstacles Matrix worksheet. Ask students to analyze the designed objects and systems that contribute to a sense of inclusion in their classroom environment. Using the worksheet, have students then list any obstacles to inclusion they observe in the classroom. They may identify themselves as users, but remind them of the importance of empathy in creating strong inclusive design proposals.

1. **DISCUSS:** Discuss the findings. Which activities or classroom systems appear to cause positive or negative experiences for some students?



Discuss how the insights gained in this exercise are opportunities for design. Discuss how insights may lead to questions that need to be discussed with users in a user interview.

2. **WRITE:** Based on the opportunities for improvement identified in this activity, have students draft their own questions that frame the identified obstacles as design opportunities. Students should use open-ended questions to frame their opportunities, for example, “**How might we** help students feel included in our classroom?”
3. **REVIEW:** Review the design process (define, empathize, brainstorm, prototype, test, launch) identified in the Design Case Study: Bathroom Symbols and answer the following questions:
 - What was the core problem that led to these design solutions?
 - How did the designers gain a deeper understanding of their user needs?
 - How might these processes direct product development?
 - How might designers test their ideas?

SUMMARY

Students should begin to develop a toolkit for analyzing inclusivity, and should begin to gain an understanding of how to identify opportunities to design for and with inclusion. This will serve as a key resource as they identify and develop their final proposal.

WRITING PROMPT

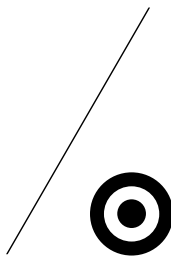
Reflect and prepare for next steps by asking each student to select one of the obstacles to inclusion they identified on the Design Obstacles Matrix worksheet to explain who it affects and/or where it may occur. (Recommended word limit 50 words.)

TAKE HOME ACTIVITY

Encourage further exploration of inclusive design. Ask students to view videos on inclusive design from Kat Holmes, Director of UX at Google:

- Rethink What Inclusive Design Means: <https://www.youtube.com/watch?v=-iccWRhKZa8>
- 5 Ways Inclusion Fuels Innovation: <https://mismatch.design/stories/2018/09/16/5-ways-inclusion-fuels-innovation/>





LESSON 3: BRAINSTORMING

RESOURCES

- Research and Brainstorming presentation
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GOALS

In Lessons 1 and 2, students identified what makes people feel included and obstacles to inclusion. Students looked at the example of Ibtihaj Muhammad and the Nike Pro Hijab as well as the search for an inclusive bathroom symbol as case studies of design thinking for inclusion, along with other resources. With the design process and these case studies in mind, students will now brainstorm design solutions to inclusivity obstacles.

DISCUSS: Reflect on what students have learned about designing for inclusion:

- Ask students to discuss how they would define inclusive design. What are some challenges to designing for inclusion?
 - How might students incorporate inclusive design into the design process? What techniques might they try out to help to design for inclusion and help encourage a feeling of belonging?
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PRESENTATION

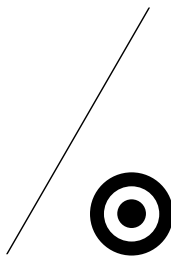
In this lesson, students will work in small teams to brainstorm what they might design to help more of us feel included.

Use the Research and Brainstorming presentation to review the design process. Next, review the Design Competition challenge. Remind students of the focus and goals of a brainstorm. Ideas may come directly from content already covered in class, previous knowledge, or be based on research conducted specifically for this challenge.

ACTIVITY

In the last lesson, students identified and defined a problem around belonging and inclusion in their immediate classroom or community. In this lesson, students will use the design obstacle they identified in Lesson 2 as a prompt for their brainstorm:

1. Students work in small groups to identify their favorite re-design opportunities. They will then brainstorm as many ideas as possible to solve their chosen opportunity or problem.
2. Once this is completed, students will edit and categorize their ideas, combining and eliminating where necessary.



3. Groups will represent their best idea, creating a single page drawing/image and presenting to the class.
4. While one group is presenting, the rest of the class will provide constructive feedback on post-it notes or scrap paper. This feedback should aim to encourage further consideration and development of inclusivity across all proposed ideas.
5. Each group will then brainstorm ways to revise their question and refine their proposal in order to best create a greater sense of inclusion.

SUMMARY

Each student should generate multiple ways of addressing their challenge during the brainstorm. Mapping is only one technique for generating connections between disparate ideas. Designers might use other tools (such as the matrix method from the Design Obstacles Matrix worksheet) to push past obvious ideas toward unique and interesting solutions. Encourage students to use whatever brainstorm approach best suits their creative process. By the end of the class, each group should have identified one main idea and one backup idea to pursue further.

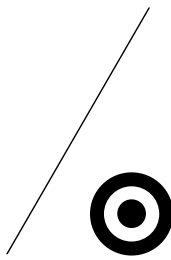
WRITING PROMPT

Ask students to select their top idea from the brainstorming activity and to articulate what their design is and how it works. (Recommended word limit 50 words.)

TAKE HOME ACTIVITY

With input from teachers, students choose between two take home activities to support the development of their design, either conducting additional research to support their current design or re-defining their problem to allow for a more specific design solution.

1. **RESEARCH:** For those who have identified a clear challenge and a strong potential solution, additional research should be conducted in order to support and back up various components of their idea.
2. **REFRAME:** For a small group of students whose work is in need of additional refinement, they may return to the Design Obstacles Matrix worksheet and adjust or edit their chosen challenge to better suit the parameters of the competition, and/or the design solutions they have developed. This activity is not starting over, but simply refining their approach to be more targeted and successful.



LESSON 4: PROTOTYPING A SUBMISSION

RESOURCES

- Cooper Hewitt National High School Design Competition Website: www.cooperhewitt.org/designcompetition
- 8 1/2 x 11" sheets of paper
- Prototyping materials (as needed)

GOALS

Students will refine their design ideas, incorporate feedback from their peers, and create a final drawing of their design solution. Over this process, students will:

- Practice giving and receiving constructive criticism
- Create a visual representation of their design solution that clearly conveys the key ideas
- Prepare entries for the National High School Design Competition

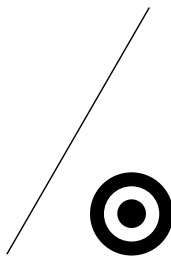
PRESENTATION

In Lesson 3, students identified an opportunity to use design to create a more inclusive world for all. They will now prototype a solution. A prototype is an initial representation of a design idea that allows designers to gather feedback, test, and plan for further refinements. To enter the Design Competition, this idea must be expressed visually, either as a sketch or in the form of an image of a prototype.

ACTIVITY

Students will work in 2D and 3D media to explore their design idea and determine how they wish to represent their design solution. Before beginning work on prototypes, students will present their ideas to the class and receive peer feedback. Students will modify their designs based on feedback and begin prototyping.

1. Ask students to visually represent their idea in the form of a physical model, a drawing, a storyboard, a map, or other visual representation. Allow 5–10 minutes to gather or produce these initial representations.
2. Ask each student or group to share their design idea to get feedback. Input should focus on the execution of the idea and how successfully it is represented (not on drawing skills). Students should take notes and ask questions when receiving feedback so they can incorporate useful comments



in their next steps. (If time will not allow the whole class to participate, feedback can be offered in smaller groups.)

3. Once they have received feedback, students should determine if they want to create another drawing or if they would like to create a physical model of their idea using representational materials.
4. Help students strategize about how to condense their idea onto an 8 1/2 x 11" sheet of paper. Students should consider the most important aspect(s) of their idea to communicate and whether multiple perspectives or images are needed to help express their idea.

SUMMARY

Students should focus strongly on the development of their design idea and use the drawing/prototype to help them communicate both how their idea works and how it helps create inclusion. Submissions can be completed in any medium. The quality of the sketch will not be judged, but it should help to illustrate the design concept.

WRITING PROMPT

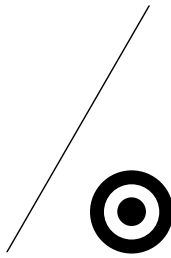
Based on the presentations and feedback from their classmates, ask each student to write a brief statement that clearly describes what their design is and how it works. (Recommended word limit 50 words.)

TAKE HOME ACTIVITY

Create your entry for the National High School Design Competition. Students can enter individually or in teams of up to three. Further details and resources can be found at www.cooperhewitt.org/designcompetition.

Entries will consist of the following:

- **One sketch of your design idea on an 8 1/2 x 11" sheet of paper.** Your sketch can be drawn in any medium by hand or on a computer. The quality of the sketch will not be judged, but it should help illustrate the design concept. Remember, you will have to create a .jpg file of your drawing when it's time to enter.
If you are a student with a disability, you may submit a written description of your idea as a .pdf or an audio description of your idea as an .mp3 as needed.
- **Written responses to the challenge questions listed below.** The online entry form will include a box where you can copy and paste your statements.
If you are a student with a disability, you may submit audio files of your responses as .mp3 files as needed.



2020 CHALLENGE **What would you design to help more of us feel included?**

- 1. Tell us about the obstacle that would make some people feel excluded.**
What specifically about it would make the user(s) you identified feel excluded? Is this something you observed or experienced? Might this also be an obstacle for other users? (50 words or less)
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