

Agency by Design: Imagine If...

This is the third in a series of lessons about systems thinking. It relies on students having a basic understanding that systems are complex things made up of connected, interacting parts. Students should also understand that much of their everyday lives—from the food they eat to the way they travel to and from school—is part of a system. You may wish to prepare by teaching the [Agency by Design: Parts, People, Interactions](#) and [Agency by Design: Think, Feel, Care](#) lessons first.

The process of identifying and exploring opportunities for change is fundamental to design. In this lesson, students apply their systems thinking to imagining a redesign of their own classroom workspaces. They first analyze the parts, purposes, and complexities of a classroom desk. They are then encouraged to think expansively about the opportunities for change in this familiar system before deciding how best to meet specific design constraints. By asking students both to imagine and to evaluate, the *Imagine If...* routine supports divergent and convergent, creative and critical thinking.

Grade Level

Grades 4–12

Common Core Academic State Standards

- [CCSS.ELA-LITERACY.CCRA.R.1](#)
- [CCSS.ELA-LITERACY.CCRA.R.5](#)
- [CCSS.ELA-LITERACY.CCRA.W.1](#)
- [CCSS.ELA-LITERACY.CCRA.SL.1](#)

National Visual Arts Standards

- Responding: understanding and evaluating how the arts convey meaning
- Connecting: relating artistic ideas and work with personal meaning and external context

Suggested Art Images

Click on the titles below to view high-resolution photographs on the museum's website:

- [Desk](#), 1870–71, designed by Frank Furness
- [Desk and Bookcase](#), 1748–54, made by an unknown American artist
- [Dormitory Furniture: Desk](#), 1938, designed by Marcel Breuer
- ["ESU D-10-C" Desk](#), 1950, designed by Charles Eames
- ["Klick" Desk and Chair](#), 2008, designed by Davide Cesca
- [Single Desk from the "Openest" Collection](#), 2015, designed by Patricia Urquiola



Single Desk from the "Openest" Collection, 2015

Designed by Patricia Urquiola (Spanish)

Fabric-covered polyester shell, painted metal, painted MDF, laminate or wood veneer surface

58 × 65 × 30 inches (147.3 × 165.1 × 76.2 cm)

Height of desk: 29 inches (73.7 cm)

Purchased with funds contributed by Collab: The Group for Modern and Contemporary Design at the PMA, 2018 2018-29-1

Lesson Objectives

Students will be able to:

- Analyze a familiar system by describing its parts, purposes, and complexities.
- Identify opportunities for change by exploring images and connecting to personal experience.
- Imagine and evaluate different ways to improve a familiar system within specific design constraints.

Materials Needed

- Whiteboard or chart paper
- Screen for projecting [Suggested Art Images](#)
- Copies of [Suggested Art Images](#)
- [Parts, Purposes, Complexities](#) worksheets
- Sticky notes or note cards

Lesson Process

1. Before beginning this lesson, prepare four sheets of chart paper for organizing students' redesign ideas during the *Imagine If...* brainstorming activity. Give each sheet a heading that begins, "Imagine if you could make your desk more..." Complete the prompt on the first three sheets using "effective," "efficient," and "beautiful." Leave the fourth prompt unfinished to accommodate ideas that fall outside those design lenses.
2. Begin the lesson by asking students what they think it means to "design" something. Start a list of words and short phrases on your chart paper or whiteboard. When students have volunteered their ideas, you might add a standard definition of design: to plan or devise something with a specific purpose in mind.
3. Now ask students to look at their workspaces—desks or tables—as designed objects. What is the purpose of a desk in a school classroom? How is your desk designed for that purpose? Do you think the design is successful? Why or why not?
4. Tell students that in this lesson, they will be thinking about their classroom workspaces like designers. They will consider the different parts and purposes of a desk or table and the complex ways that students interact with them. Then they will imagine ways to redesign and improve their own workspaces, inspired by a variety of desks from different time periods.
5. Pass out [Parts, Purposes, Complexities](#) worksheets to students. They will use these to record their thinking. You might also draw a large chart on your whiteboard or chart paper. Before beginning the activity, make sure the meanings of "Purposes" (what it's for, what it does) and "Complexities" (complications, problems, questions) are clear to everyone.
6. Have students begin by naming all the parts of a student workspace. They do not have to limit themselves strictly to their current desks but can draw on all their prior classroom experience.
7. During this discussion, encourage students to think creatively about the parts of a workspace. Include things like the negative space under a desk or table, and the ways that students and teachers modify and embellish their spaces. If these parts don't come up naturally in conversation, you can ask students to consider them and decide if they belong on the list.

8. Once you have compiled a thorough list in the Parts column of your chart, move on to Purposes. Students can think about the purpose of the workspace as a whole and the purposes of individual parts.
9. During your discussion, there might be disagreement about what part of a desk or table is for, or a part may have one than one purpose. Students may also notice conflict between an intended purpose and the way that they experience and use part of their workspace. Remind students that different people can have different relationships to parts of a system. Including multiple viewpoints and opinions in your chart reflects the different experiences in your classroom.
10. Finally, ask students to reflect on the complexities of their workspaces. What questions do they have about the design of a student desk? What problems have they experienced or observed? In what ways is a student workspace complicated or complex?
11. For the next part of the lesson, organize students into small groups of three or four. Pass out a set of the Suggested Art Images to each group. Tell students that the images represent a variety of ways that people in different time periods have designed and crafted desks.
12. Give students some time to explore the images in their small groups. Use the following questions to guide and structure their looking. Limit student choice by giving them "yourself" and "the artist" as two points of view and allow them to choose the third. This variation emphasizes making inferences about the artist and drawing on personal connections:
 - o What elements are common to all the desk designs?
 - o What elements make some designs unique or different?
 - o What elements might be useful in a classroom setting, and why?
 - o What new ideas do these desk designs add to the conversation?
 - o What questions do they raise?
13. Now introduce the *Imagine If...* brainstorming activity. Give students the prompt, "Imagine if you could redesign your classroom desk." Tell them that this is a time for expansive thinking—all ideas are welcome. In what ways do they wish their desks were different? How could they be better? Hand out a stack of sticky notes or index cards to each group. Students should write down one redesign idea on each sticky note or card.
14. While students brainstorm in their groups, circulate and provide guidance as needed. Remind students that they have their Parts, Purposes, Complexities worksheets to help them think about opportunities for change or improvement. What are some of the problems or complications they have experienced with classroom desks? They can also refer to the images of different desk designs for inspiration. How might new design elements help them solve some of those problems?
15. Hang your prepared *Imagine If...* sheets of chart paper on the wall. When students are done brainstorming in their small groups, call everyone back together and direct their attention to the charts.
16. Explain that you will use the charts to organize students' "blue-sky" ideas. The prompts ask how we could make our student workspaces more effective, or successful at achieving their purpose; efficient, or well-organized and orderly; and beautiful, or pleasant to look at. The fourth sheet is open for design solutions that address different problems, like comfort, accessibility, or collaboration.

17. Ask for a volunteer to share one idea for redesigning their classroom workspace. Have the class help decide where the idea belongs. Does it address effectiveness, efficiency, beauty, or something else? Attach the sticky note or index card to the appropriate chart paper. Go through this process with a few more design solutions to make sure the meanings of the words are clear.
18. Have each small group sort the rest of their notes and then place them on the appropriate chart paper.
19. Take a moment for reflection. Ask students, individually or in small groups, to choose just one of the desk redesign ideas they generated. Have them respond to the following questions in writing or in discussion:
 - What inspired this redesign idea?
 - Would it make a classroom desk more effective, efficient, or beautiful? Does it serve a different purpose, or multiple purposes? How?
 - Is this a change you could imagine making in your classroom? Why or why not?
 - What have you learned from the brainstorming and imagining process?

Extension

- Once students have explored a wide-open possibility space for the redesign of their desks, introduce some creative constraints. The constraints can come directly from the practical considerations of your classroom. For instance, desk redesigns must allow for both privacy and collaboration, must incorporate storage space, or must have flexible seating options. Your design brief might also address an issue that's meaningful to your students, like accessibility, environmental sustainability, or a specific problem they have identified.
- Using a sketch, a written explanation, or a combination of the two, students should describe a redesign solution that changes their classroom desks in a meaningful way but also meets their creative constraints.
- During this redesign process, keep copies of the [Suggested Art Images](#) and your *Imagine If...* charts accessible. Ask students to bring in other inspiring images or allow them to explore websites like Pinterest for classroom organization ideas.
- Share and reflect on students' completed work. Which redesign ideas are practical and simple enough that they could be implemented? What was most exciting about this process? What was most challenging? To what other parts of the classroom or school system could students apply their design thinking?
- This lesson poses questions about a very concrete and familiar system. The same lesson process could be applied to bigger and more abstract systems your students may have explored in other lessons. Consider revisiting artworks from the [Parts, People, Interactions](#) or [Think, Feel, Care](#) lesson plans to imagine ways of redesigning the systems they depict. In addition to imagining ways to make a system more effective, efficient, or beautiful, ask your students how a system might be made more ethical, or fair and humane.

Parts, Purposes, Complexities

Take a few minutes to look closely at an object or work of art.

What are its <i>parts</i> ? Describe the pieces or components of the object or system.	What are its <i>purposes</i> ? Describe how the whole or the part works, what it does, or what it is for.	What are its <i>complexities</i> ? How is the system complicated? What problems do you notice? What questions do you have?