

Agency by Design: Parts, People, Interactions

Maker-centered learning empowers students to be active shapers and designers of their world. Students learn to question the designed elements of their everyday lives when they look closely at the components and relationships that form complex systems. Understanding how things work is a catalyst for imagining how they could work better.

The **Agency by Design** approach helps students develop a maker mindset through the practice of short, engaging thinking routines. These routines nurture students' inclination to closely observe their world, explore complex systems, and notice opportunities for change. In this lesson, artists' depictions of physical and social systems become powerful tools for visualizing and empathizing with the human experience of designed environments.

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.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

Next Generation Science Standards

- Scientific Practices: Developing and using models

Suggested Art Images

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

- [Gold Mining, Serra Pelada, Pará, Brazil](#), 1986, by Sebastião Salgado
- [Home Front \(Assembly Line\)](#), 1942 or 1943, by Jolán Gross Bettelheim
- [IRT 2, New York City](#), 1980, by Danny Lyon
- [Man with Drill](#), 1935–42, by Charles Turzak
- [Spring Sale at Bendel's](#), 1921, by Florine Stettheimer
- [Subway Playground](#), 1951, by Benton Murdoch Spruance
- [Sugar Cane](#), 1931, by Diego Rivera
- [The Passing Scene \(Elevated Streetcar Scene\)](#), 1945, by John Woodrow Wilson
- [The People Work – Morning](#), 1937, by Benton Murdoch Spruance



Subway Playground, 1951

Benton Murdoch Spruance (American)

Color lithograph

Image: 18 7/8 x 13 3/4 inches (47.9 x 34.9 cm)

Sheet: 22 7/8 x 15 3/4 inches (58.1 x 40 cm)

Purchased with the Lola Downin Peck Fund from the Carl and Laura Ziggrosser Collection, 1973

1973-12-204

Lesson Objectives

Students will be able to:

- Look closely to describe what they see in a work of art and make inferences about it.
- Identify and describe the parts, people, and interactions that make up complex systems.
- Use visual evidence to explain how artists show the effects of actions and interactions within a system.
- Apply their understanding to visualizing systems in their own lives.

Materials Needed

- Whiteboard or chart paper
- Screen for projecting [Suggested Art Images](#)
- Copies of [Subway Playground](#) and [IRT 2, New York City](#)

Lesson Process

1. Begin by projecting the image of [The People Work – Morning](#). Tell students that in this lesson, they will be looking closely at works of art to help define and describe what a *system* is.
2. Give students a minute to look at the image. Ask them to describe what they see. If students immediately identify the setting as a subway station, ask them to elaborate. What details do they see that make them say this is a subway station? What do they recognize from their own lives and experiences? How might this scene look different in their city or town today?
3. Begin a concept web on the whiteboard or chart paper. Decide together what to name this system (e.g. Subway System, Public Transit System, or Commuting). Naming the system will help you define the boundaries of your inquiry. Write the name in a circle in the center of your web. Write Parts in a circle on one side of the chart, connected to the center by a line, and do the same with People on the other side. Tell students that they are going to map out all the parts and people connected to this system.
4. Working in pairs or small groups, have students look at the image again. Ask them: What are the parts of this system? Name an example or two together, and add the parts to your concept web. Give the groups a few minutes to list as many parts as possible. Remind them to focus on describing what they can see in the image for now.
5. Ask small groups to share their observations. Add them to the web. When you have a thorough list of observable parts, invite students to think more expansively. What parts of the system, such as money or electricity, are implied in the image?
6. Repeat Steps 4 and 5 to populate your web with people. Students may already have listed “people” or “passengers” among the parts of the system. Guide them to think more deeply about the people who are connected to a subway system. What different kinds of people do they see in the image? What other kinds of people might work or travel within the system?
7. Once students have shared many observations and inferences about the people connected to a subway system, ask them to describe some interactions they notice. How do they see people interacting with other parts of the system? How do they see people interacting with each other? Draw connecting lines between people and parts as students describe the interactions.
8. Ask students to consider how it would feel to be part of this subway system. What are the people experiencing? What has the artist done to show the human experience? What kinds of change in the system might make the people happier or more comfortable? What kinds of change in the system might make it a worse experience? Give students a few minutes to discuss.

9. Pass out a copy either of *Subway Playground* or *IRT 2, New York City* to each small group. Tell students to look closely at the new image and talk about what they see. How is the scene similar to or different from *The People Work – Morning*? What parts, people, and interactions does this image show? What parts, people, and interactions can be inferred? How might the actions and interactions of some people in the system affect others?
10. Ask the small groups to share out. What new ideas do they now have about parts, people, and interactions in a subway system? How did artists' depictions of the system make them aware of opportunities for change?
11. Wrap up by asking students, individually or in small groups, to name some of the systems in their lives. Make a list of students' ideas. When students share, ask them to justify their thinking. What makes this a system? Is this system related to any other systems on the list? In what way? Which of these systems would students like to redesign, and why?

Assessment

- Create a model of a system. Have pairs or small groups of students choose a system to study. The system should be something of which students have intimate knowledge, like a school lunchroom, school uniforms, or arrival and dismissal procedures. They will create a model of the system showing all of the parts, people, and interactions connected to it. The model might be schematic, like a concept web, a visual representation of the system with labels, or a three-dimensional model.
- Introduce change. Ask students to imagine how a change in the system might affect other parts, people, or interactions. Provide the groups with pre-written scenarios for change, or allow them to write their own scenarios. How can one change affect the entire system?

Extension Activities

- Perceptions of social categories like race, class, and gender can impact the interactions among people within a system. Expand your conversation about the people and interactions in a subway system by showing students *The Passing Scene (Elevated Streetcar Scene)*. This powerful image provides an opportunity to talk about inclusion, exclusion, prejudice, and empathy.
- Use any of the other *Suggested Art Images* to give students additional practice describing and analyzing the relationships within a system. For instance, older students might compare and contrast the depictions of workers and working conditions in *Gold Mining, Serra Pelada, Pará, Brazil, Home Front (Assembly Line)*, and *Sugar Cane*. Younger students might compare the systems depicted in *Man with Drill* or *Spring Sale at Bendel's* to their experience of similar environments today.



Subway Playground, 1951, by Benton Murdoch Spruance (Philadelphia Museum of Art: Purchased with the Lola Downin Peck Fund from the Carl and Laura Zigrosser Collection, 1973-12-204)



IRT 2, New York City, 1980, by Danny Lyon (Philadelphia Museum of Art: Purchased with the Lola Downin Peck Fund and the Alice Newton Osborn Fund, 1982-47-37)