

# CENTER FOR ARCHITECTURE

**NEIGHBORHOOD DESIGN** Student Day Resource Packet

Pre & Post Visit Activities ▪ Vocabulary & Resource Lists ▪ Curriculum Connections

**Before Your Visit :**

**Prepare your students for their visit with these introductory pre-visit activities.**

- 1** Introduce the *Neighborhood Design Vocabulary List* on Page 3 to your students so they can be active participants during our discussion at the Center for Architecture.
- 2** Ensure that your students understand the meaning of a cubic unit and how to calculate volume. Students can practice this skill with the *Calculating Cubic Volume* activity on Page 4. Answer Key on Page 5. During the workshop, students will be asked to calculate and record the cubic units of 3-D volumes in their neighborhood model.
- 3** Encourage your students to begin thinking about how we experience neighborhoods by asking them to make a drawing using the *Memory Map* template on Page 6. Students can use the *Neighborhood Design Vocabulary List* on Page 3 to label their drawings. Encourage your students to share their ideas with a partner. How are their experiences similar? How are they different?

**During Your Visit :**

Working in small design teams, students will collaborate to design a new section of an existing neighborhood based on planning and zoning guidelines as well as existing conditions. The design educator will facilitate a discussion to help students consider what they already know about their school's neighborhood including the different stakeholders/user groups involved and how different building types (residential, commercial, institutional, etc.) meet the varied needs of citizens. These observations will help frame the building phase of the workshop.

Each team will begin with a model of an imaginary urban neighborhood that has an open area ready for new development. The design educator will explain the scale of this site model (1 cubic inch = one apartment) and how to measure cubic units in order to understand the context of the project and to model their own designs accurately. Students will be challenged to include a certain number of units of each building type and to think from the perspective of a particular user group (Families, Teachers & Administrators, Business Owners, Elderly Residents, Artists & Designers, or Workers) as they create their design. At the end of the workshop, students will have an opportunity to share their ideas, present their model, and receive feedback.

**After Your Visit :**

**Continue the learning by facilitating these suggested extension activities.**

- 1** **Model Building:** Give your students time to add details to their model, such as sidewalks, bike lanes, bus stops, trees, land formations, and other important physical features. Remind your students that adding material, color, and texture helps a viewer to imagine the qualities of their neighborhood design. Encourage them to consider the class discussion at the end of the workshop. Are there any changes they would like to make to their initial design?
- 2** **Drawing Conclusions:** Using the existing site map on Page 7, ask your students to make a final, color-coded (see below) drawing of their neighborhood design. Students can draw directly in the blank space or use this diagram to make their own drawing at a larger scale. How does it compare to their initial sketch that they made at the Center for Architecture? Students should also write about their project, explaining how they were able to improve the existing neighborhood with their proposal.
 

<b>Residential (Blue)</b>	<b>Commercial (Red)</b>	<b>Industrial (Orange)</b>
<b>Institutional (Purple)</b>	<b>Open space (Green)</b>	<b>Transportation and Infrastructure (Black)</b>

After Your Visit (Continued)

**3** **Writing Activity:** Using the included *Additional Resources* list on Page 3, ask your students to investigate their own neighborhood and write a persuasive letter detailing any suggestions or design considerations they would recommend to an urban planner. Encourage your students to think about this from their own perspective as well as from the perspective of other user groups and citizens.



Student Model from the Neighborhood Design Workshop


## Neighborhood Design Vocabulary List

<b>Building Scale</b>	Describes the relative size or extent of a building compared to its surroundings or to the size of a person.
<b>Built Environment</b>	An environment such as a neighborhood or city that is built or made by people rather than by natural processes.
<b>Commercial Building</b>	A building that is used for business activities; for example, an office or store.
<b>Context</b>	The area surrounding a building or site with characteristics that should be considered when creating a new building.
<b>Density</b>	A measure to describe the number of people or buildings that exist in a specific area.
<b>Green Infrastructure</b>	Parks, green spaces and other ecological areas that bring nature into the built environment.
<b>Industrial Building</b>	A building that is used for manufacturing and production; for example, a factory or utility plant.
<b>Infrastructure</b>	Designed facilities and services that provide communities with clean water, electricity, transportation, etc.
<b>Institutional Building</b>	A building that houses an organization that is open to and serving the public; for example, a school, museum, or library.
<b>Massing Model</b>	A tool used to test out the 3-dimensional shape of a building and its relationship to its surroundings.
<b>Mixed-Use Building</b>	A building that houses two or more different types of uses; for example, a building with a store on the ground floor (commercial) and apartments above (residential).
<b>Open Space</b>	A public space without buildings that is designated for nature, recreation or leisure; for example, a park or plaza.
<b>Quality of Life</b>	A standard of health, comfort, and happiness in a neighborhood or city.
<b>Residential Building</b>	A building where people live; for example, an apartment building or single-family home.
<b>Scale</b>	The ratio of the size of a model or drawing to the actual size of the object, building, or city it represents.
<b>Site</b>	The location of a physical building or of a proposed design.
<b>Urban Design</b>	The process of researching, designing, and creating the built environment of a neighborhood or city.
<b>User Group</b>	A set of people who are united by shared interests, goals, or concerns.
<b>Zoning</b>	Laws that affect the design and organization of the built environment.

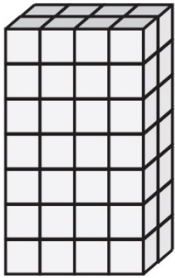
## Additional Resources

<b>American Planning Association: Kids and Community</b>	<a href="https://www.planning.org/kidsandcommunity/">https://www.planning.org/kidsandcommunity/</a>
<b>NYC OASIS Map</b>	<a href="http://www.oasisnyc.net/map.aspx">http://www.oasisnyc.net/map.aspx</a>
<b>Urban Archive</b>	<a href="http://urbanarchive.nyc/">http://urbanarchive.nyc/</a>
<b>Zola New York City's zoning &amp; land use map</b>	<a href="http://zola.planning.nyc.gov">zola.planning.nyc.gov</a>

## Calculating Cubic Volume

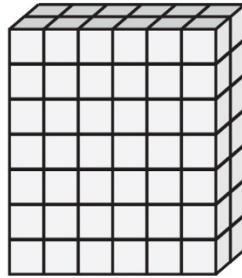
Find the volume of each form below if  = 1 ft<sup>3</sup>. Remember, the volume of a rectangular prism is:  $V = l \times w \times h$

1)



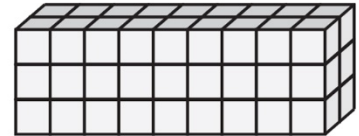
Volume:

2)



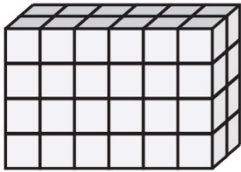
Volume:

3)



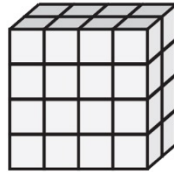
Volume:

4)



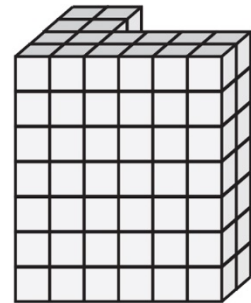
Volume:

5)



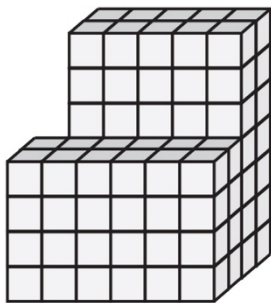
Volume:

6)



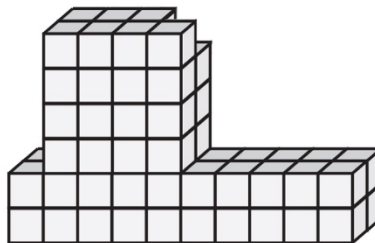
Volume:

7)



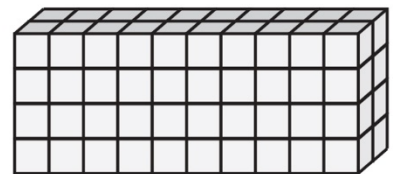
Volume:

8)



Volume:

9)

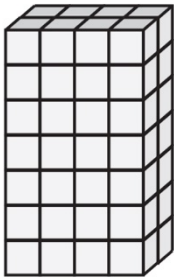


Volume:

## Calculating Cubic Volume (Answer Key)

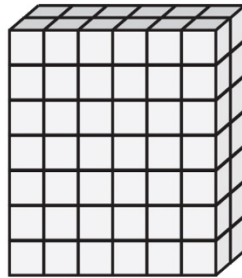
Find the volume of each form below if  = 1 ft<sup>3</sup>. Remember, the volume of a rectangular prism is:  $V = l \times w \times h$

1)



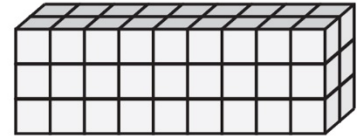
Volume: **56 ft<sup>3</sup>**

2)



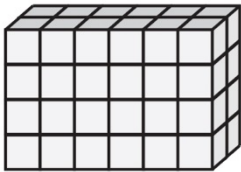
Volume: **84 ft<sup>3</sup>**

3)



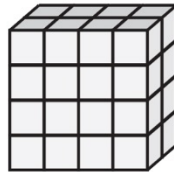
Volume: **54 ft<sup>3</sup>**

4)



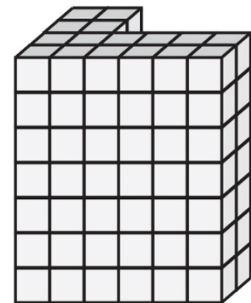
Volume: **48 ft<sup>3</sup>**

5)



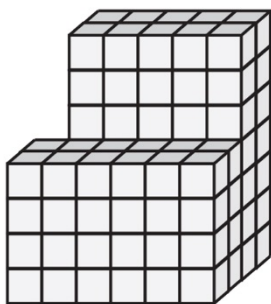
Volume: **32 ft<sup>3</sup>**

6)



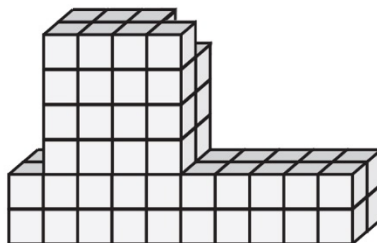
Volume: **112 ft<sup>3</sup>**

7)



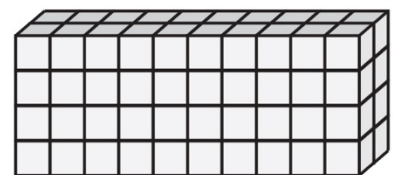
Volume: **118 ft<sup>3</sup>**

8)



Volume: **71 ft<sup>3</sup>**

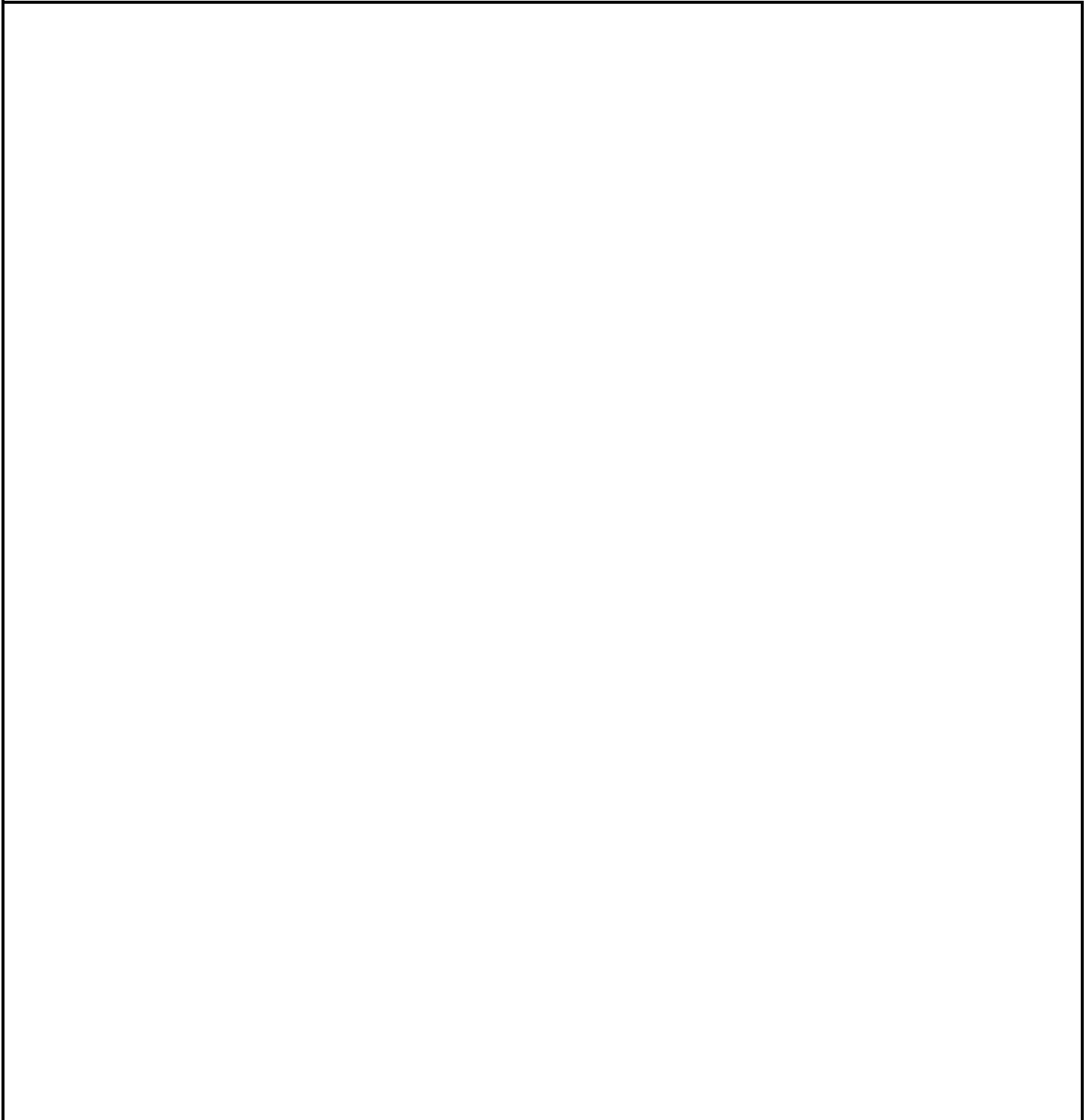
9)



Volume: **80 ft<sup>3</sup>**

## Memory Map

Picture your commute to school. Use the space below to draw a memory map of this trip, showing the important places, buildings, and sites that you pass. This map does not have to be accurate. A memory map represents *your* impressions of the neighborhood. How do you move around? Are there particular streets that you always use? Any landmarks? Favorite places? Unusual buildings? Use the *Neighborhood Design Vocabulary List* to label specific parts of your drawing.



**BUILDING TYPES**



Residential



Commercial



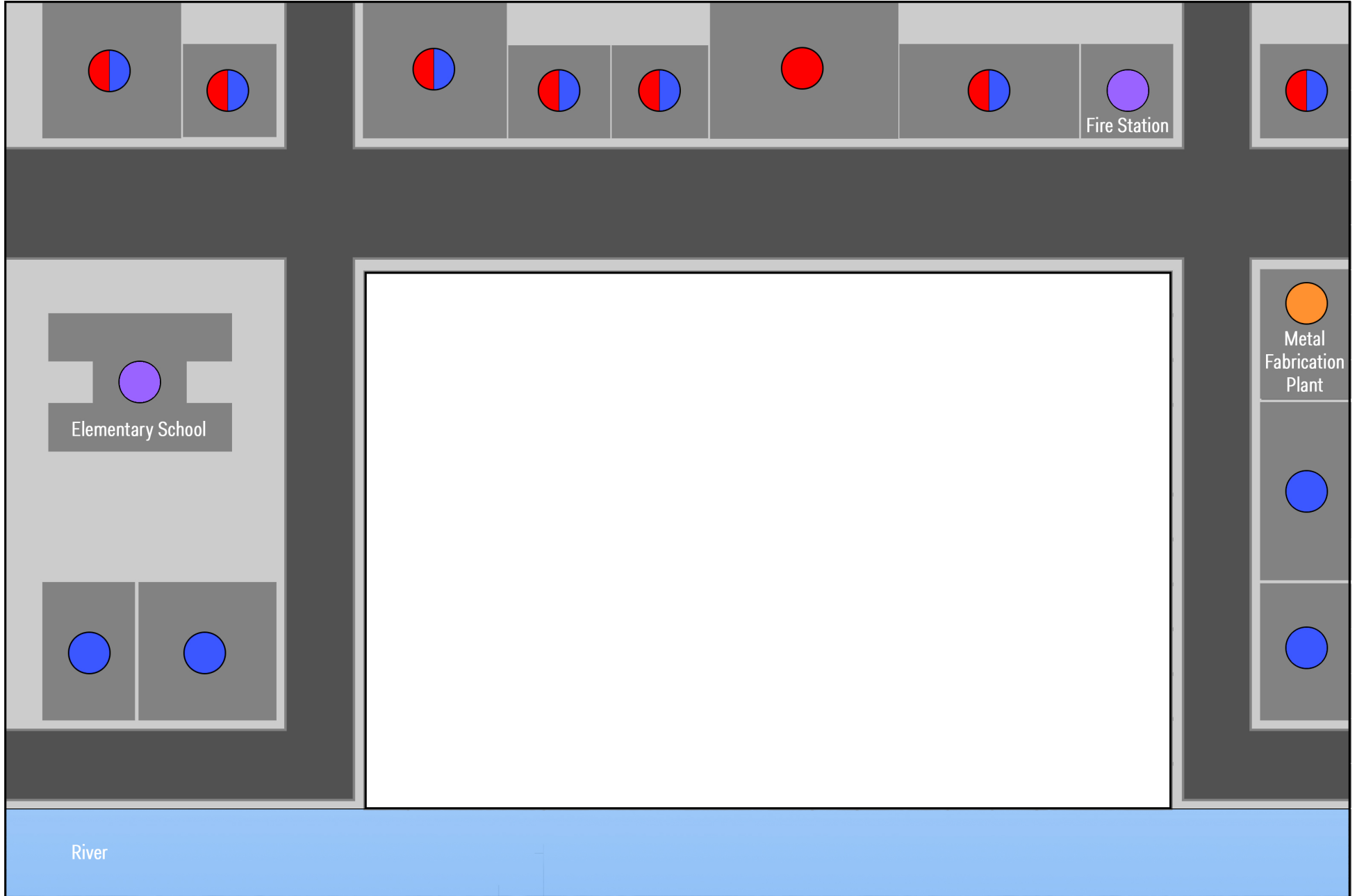
Mixed-Use



Industrial



Institutional





**Student Day Curriculum Connections**

<b>New York State Learning Standards for the Arts: Learning Standards for the Arts at Three Levels</b>		<b>Building Bridges</b>	<b>Geodesic Dome</b>	<b>Green Architecture</b>	<b>Language of Arch.</b>	<b>Neighborhood Design</b>	<b>Scale Model Building</b>	<b>Skyscrapers</b>
<b>1</b>	<b>Creating, Performing and Participating in the Arts</b>	■	■	■	■	■	■	■
<b>2</b>	<b>Knowing and using Arts Materials and Resources</b>	■	■	■	■	■	■	■
<b>3</b>	<b>Responding to and Analyzing Works of Art</b>	■	■	■	■			■
<b>4</b>	<b>Understanding the Cultural Dimensions and Contributions of the Arts</b>	■	■	■	■			■

<b>NYC Blueprint For Teaching and Learning in Visual Arts: Five Strands of Art Learning</b>		<b>Building Bridges</b>	<b>Geodesic Dome</b>	<b>Green Architecture</b>	<b>Language of Arch.</b>	<b>Neighborhood Design</b>	<b>Scale Model Building</b>	<b>Skyscrapers</b>
<b>I.</b>	<b>Art Making</b>	■	■	■	■	■	■	■
<b>II.</b>	<b>Literacy in Visual Arts</b>	■	■	■	■	■	■	■
<b>III.</b>	<b>Making Connections</b>	■	■	■	■	■	■	■
<b>IV.</b>	<b>Community and Cultural Resources</b>	■	■	■	■	■	■	■
<b>V.</b>	<b>Careers and Lifelong Learning</b>	■	■	■	■	■	■	■

<b>Common Core State Standards for Mathematics: Standards for Mathematical Practice</b>		<b>Building Bridges</b>	<b>Geodesic Dome</b>	<b>Green Architecture</b>	<b>Language of Arch.</b>	<b>Neighborhood Design</b>	<b>Scale Model Building</b>	<b>Skyscrapers</b>
1	Make sense of problems and persevere in solving them.	■	■	■		■	■	■
2	Reason abstractly and quantitatively.					■	■	
3	Construct viable arguments and critique the reasoning of others.			■	■	■		
4	Model with mathematics.	■	■		■	■	■	■
5	Use appropriate tools strategically.	■				■	■	
6	Attend to precision.	■				■	■	

<b>NYC K-5 Science Scope &amp; Sequence + NYC 6-12 Science Scope &amp; Sequence</b>		<b>Building Bridges</b>	<b>Geodesic Dome</b>	<b>Green Architecture</b>	<b>Language of Arch.</b>	<b>Neighborhood Design</b>	<b>Scale Model Building</b>	<b>Skyscrapers</b>
K Unit 2	<b>Exploring Properties</b> How do we observe and describe objects and the physical properties of objects?				■			
Grade 1 Unit 2	<b>Properties of Matter</b> How do we describe the properties of matter?				■			
Grade 2 Unit 2	<b>Forces &amp; Motion</b> What causes objects to move?	■						■
Grade 3 Unit 2	<b>Energy</b> How does the use of various forms of energy affect our world?			■				
Grade 3 Unit 3	<b>Simple Machines</b> How do simple machines help us in our daily lives?	■						■
Grade 6 Unit 4	<b>Interdependence</b> What factors affect the interdependence of living and nonliving things?			■				
Grade 7 Unit 2	<b>Energy &amp; Matter</b> What materials are best to conserve and efficiently use energy?			■				
Grade 8 Unit 4	<b>Humans and the Environment: Needs and Tradeoffs</b> How can energy resources affect the future planning for the continuity of life on Earth?			■				

New York State P-12 Science Learning Standards		Building Bridges	Geodesic Dome	Green Architecture	Language of Arch.	Neighborhood Design	Scale Model Building	Skyscrapers
<b>DIMENSION 1: SCIENTIFIC AND ENGINEERING PRACTICES</b>								
1	Asking questions (for science) and defining problems (for engineering)	■	■	■	■	■	■	■
2	Developing and using models	■	■	■	■	■	■	■
3	Planning and carrying out investigations	■	■	■	■	■	■	■
4	Analyzing and interpreting data	PV		PV		PV		
5	Using mathematics and computational thinking	PV		PV		■	■	
6	Constructing explanations (for science) and designing solutions (for engineering)	■	■	■		■	■	■
7	Engaging in argument from evidence	■		■				■
8	Obtaining, evaluating, and communicating information	■		■		■		
<b>DIMENSION 2: CROSSCUTTING CONCEPTS</b>								
1	Patterns	■	■	■	■			■
2	Cause and effect: Mechanism and explanation	■		■				■
3	Scale, proportion, and quantity	■	■	■	■	■	■	■
4	Systems and system models	■	■	■		■		■
5	Energy and matter: Flows, cycles, and conservation			■				
6	Structure and function	■	■	■	■	■	■	■
7	Stability and change	■	■	■				■

<p><b>New York State P-12 Science Learning Standards</b> (continued)</p>	<p><b>Building Bridges</b></p>	<p><b>Geodesic Dome</b></p>	<p><b>Green Architecture</b></p>	<p><b>Language of Arch.</b></p>	<p><b>Neighborhood Design</b></p>	<p><b>Scale Model Building</b></p>	<p><b>Skyscrapers</b></p>
<p><b>DIMENSION 3: DISCIPLINARY CORE IDEAS</b></p>							
<p><b>Physical Sciences</b></p>							
<p>PS1.A Structure and Properties of Matter</p>				<p>■</p>			
<p>PS2.A Forces and Motion</p>	<p>■</p>						<p>■</p>
<p>PS2.C Stability and Instability in Physical Systems</p>	<p>■</p>	<p>■</p>					<p>■</p>
<p>PS3.A Definitions of Energy</p>			<p>■</p>				
<p>PS3.B Conservation of Energy and Energy Transfer</p>			<p>■</p>				
<p>PS3.D Energy in Chemical Processes and Everyday Life</p>			<p>■</p>				
<p><b>Life Sciences</b></p>							
<p>LS2.A Interdependent Relationships in Ecosystems</p>			<p>■</p>				
<p>LS2.C Ecosystem Dynamics, Functioning, and Resilience</p>			<p>■</p>				
<p>LS2.D Social Interactions and Group Behavior</p>					<p>■</p>		
<p><b>Earth &amp; Space Sciences</b></p>							
<p>ESS1.B Earth and the Solar System</p>			<p>■</p>				
<p>ESS2.A Earth Materials and Systems</p>			<p>■</p>				
<p>ESS2.D Weather and Climate</p>			<p>■</p>				
<p>ESS3.A Natural Resources</p>			<p>■</p>				
<p>ESS3.B Natural Hazards</p>							<p>■</p>
<p>ESS3.C Human Impacts on Earth Systems</p>			<p>■</p>				
<p>ESS3.D Global Climate Change</p>			<p>■</p>				

<b>New York State P-12 Science Learning Standards (continued)</b>	<b>Building Bridges</b>	<b>Geodesic Dome</b>	<b>Green Architecture</b>	<b>Language of Arch.</b>	<b>Neighborhood Design</b>	<b>Scale Model Building</b>	<b>Skyscrapers</b>
<b>DIMENSION 3: DISCIPLINARY CORE IDEAS (continued)</b>							
<b>Engineering, Technology, and Applications of Science</b>							
ETS1.A Defining and Delimiting and Engineering Problem	■	■	■				■
ETS1.B Developing Possible Solutions	■	■	■	■	■	■	■
ETS1.C Optimizing the Design Solution		■	■	■	■	■	■
ETS2.A Interdependence of Science, Engineering, and Technology	■	■	■	■	■	■	■
ETS2.B Influence of Engineering, Technology, and Science on Society and the Natural World	■	■	■	■	■	■	■

<b>Common Core State Standards for English Language Arts &amp; Literacy in History/Social Studies, Science, and Technical Subjects</b>	<b>Building Bridges</b>	<b>Geodesic Dome</b>	<b>Green Architecture</b>	<b>Language of Arch.</b>	<b>Neighborhood Design</b>	<b>Scale Model Building</b>	<b>Skyscrapers</b>
<b>COLLEGE AND CAREER READINESS ANCHOR STANDARDS FOR READING*</b>							
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.	■		■	■		■	■
2 Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.			■	■			
7 Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.	■	■	■	■	■	■	■
<b>COLLEGE AND CAREER READINESS ANCHOR STANDARDS FOR WRITING</b>							
1 Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.				PV	PV		

\*At the Center for Architecture, we consider visual representations (i.e., photos, drawings, models, etc.) to be texts with their own set of vocabulary. Through this lens, we practice “reading a building” to consider its design and purpose.

PV These standards are met by completing the suggested extension activities found in the Student Day Resource Packet.

<b>Common Core State Standards for English Language Arts &amp; Literacy in History/Social Studies, Science, and Technical Subjects (continued)</b>	<b>Building Bridges</b>	<b>Geodesic Dome</b>	<b>Green Architecture</b>	<b>Language of Arch.</b>	<b>Neighborhood Design</b>	<b>Scale Model Building</b>	<b>Skyscrapers</b>
<b>COLLEGE AND CAREER READINESS ANCHOR STANDARDS FOR WRITING (continued)</b>							
<b>2</b> Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.			PV	PV	PV		
<b>7</b> Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.	PV	PV	PV	PV	PV		PV
<b>COLLEGE AND CAREER READINESS ANCHOR STANDARDS FOR SPEAKING AND LISTENING</b>							
<b>1</b> 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.	■	■	■	■	■	■	■
<b>2</b> Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.	■	■	■	■	■	■	■
<b>4</b> Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.					■		
<b>5</b> Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.					■		
<b>COLLEGE AND CAREER READINESS ANCHOR STANDARDS FOR LANGUAGE</b>							
<b>4</b> 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.	■	■	■	■	■		■
<b>6</b> 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 considering a word or phrase important to comprehension or expression.	■	■	■	■	■	■	■

<b>New York State K-8 Social Studies Framework: Social Studies Practices</b>		<b>Building Bridges</b>	<b>Geodesic Dome</b>	<b>Green Architecture</b>	<b>Language of Arch.</b>	<b>Neighborhood Design</b>	<b>Scale Model Building</b>	<b>Skyscrapers</b>
<b>A</b>	<b>Gathering, Using, and Interpreting Evidence</b>	■		■	■			■
<b>B</b>	<b>Chronological Reasoning and Causation</b>	■						■
<b>C</b>	<b>Comparison and Contextualization</b>				■			
<b>D</b>	<b>Geographic Reasoning</b>	■		■	■	■		■
<b>F</b>	<b>Civic Participation</b>					■		

<b>NYC K-8 Social Studies Scope &amp; Sequence + NYC 9-12 Social Studies Scope &amp; Sequence</b>		<b>Building Bridges</b>	<b>Geodesic Dome</b>	<b>Green Architecture</b>	<b>Language of Arch.</b>	<b>Neighborhood Design</b>	<b>Scale Model Building</b>	<b>Skyscrapers</b>
<b>K</b> <b>Unit 3</b>	<b>Geography, People and the Environment</b> What makes a community?				■			
<b>Grade 1</b> <b>Unit 3</b>	<b>The Community</b> What is a community?				■			
<b>Grade 2</b> <b>Unit 2</b>	<b>New York City Over Time</b> How and why do communities change over time?	■						■
<b>Grade 2</b> <b>Unit 3</b>	<b>Urban, Suburban and Rural Communities</b> How are communities the same and different?	■			■			■
<b>Grade 8</b> <b>Unit 2</b>	<b>A Changing Society and the Progressive Era</b> How do people, policies and technological advances shape a nation?							■
<b>Grade 10</b> <b>Unit 6</b>	<b>Globalization and the Changing Environment</b> Is globalization a force for progress and prosperity?			■				

# CENTER FOR ARCHITECTURE

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Deutsche Bank

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