



Architectural Walking Tour



An **architectural walking tour** can be as rich an experience as a field trip to a museum. It can be short or long, focusing on architecture as Art; as History; as Mathematics, Science and Technology. In **three 1.5-hour sessions, K-12 students** can explore one aspect of the built or natural environment (e.g. entryways or parks); one building or streetscape; or a larger area of a city or town.

Knowledgeable community people (architects, structural engineers, planners, historians) can be invited to speak with the class before or after the tour; or to go on the tour, sharing their knowledge as they go. When the tour site is close to home, students learn about the architecture of their everyday lives. When the site is farther away [e.g. a field trip site], students learn how other people design the places and spaces in their lives.

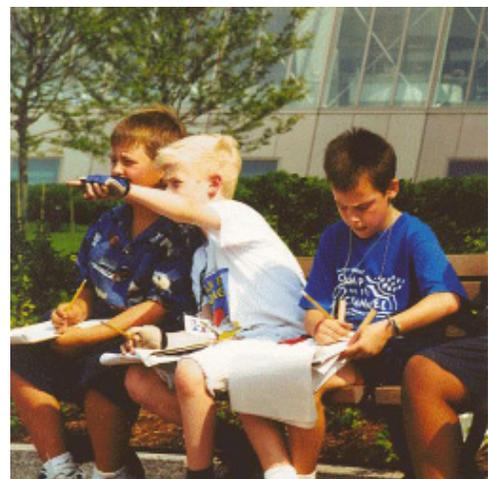


In this program students work alongside professional architects and explore design as a career path. They also use many skills and concepts from the **MA Curriculum Frameworks**, including:
Mathematics: geometry, estimation and measurement, scale and proportion,
Science & Technology/Engineering: the engineering design process, structure and materials, ecosystems, energy systems and sustainable design,
Social Sciences: community as a reflection of its people, local history and culture, reading, interpreting and creating maps, science and technology in the context of society, history and human affairs,
Visual Arts: the elements and principles, the role of architects in society, photography and graphic design
English Language Arts: discussion and vocabulary, composition and media presentations.

Architectural Awareness Activities – before the walking tour:

Identifying Architecture: Students view slides and/or photographs of designed places, spaces and architectural details. They consider how people meet their needs for shelter, community and identity by designing and building; and are introduced to the concept of Universal Design: design for people of all ages and abilities.

Using their *Identifying Architecture* handouts, they identify and discuss: architectural elements — natural forms in architecture — elements and principles of design — geometric and structural elements.



Program Details + Learning Standards Alignments:

Architectural Walking Tour

Changing American Cityscape: The group views a set of posters that detail many changes in a fictional city, years 1875 to 1990. They discuss what they see, considering what design decisions, for better or for worse, created each year's cityscape.

Drawing a Façade: The architect projects a slide or transparency of an interesting building façade onto a chalkboard or easel sheet; and each student receives a handout of the façade and a sheet of trace paper. Together the architect and students:

- trace, label and discuss architectural, structural and geometric features of the façade
- measure features of the building; and discussing symmetry, patterns and proportion
- practice working scale by enlarging or reducing elements of the building
- use their new vocabulary of architecture and design to discuss what they are drawing

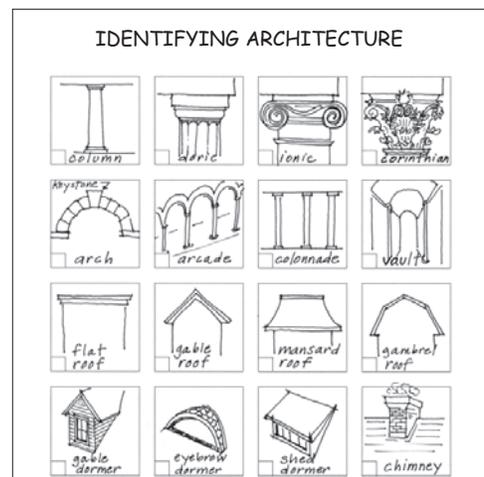
“Being a Structure” Activity: Students act out structural terms and forces shown on the *Being a Structure* sheet: column; column and beam; cantilever; tension; compression; dome; arch; buttress; barrel vault; truss; then use common materials to demonstrate these structural forces and terms.

Reading the Map: Students familiarize themselves with the study area by reading and interpreting street maps, zoning maps, historic maps, and/or topographic maps. They begin to understand that a building or site lives within the context of the larger area that surrounds it.

The Walking Tour:

On the tour, students follow a route map, stopping at specific stations to engage in activities such as:

- observing and identifying:
 - architectural and natural design elements
 - the elements and principles of design
 - structural elements and forces
 - geometric shapes and patterns
- drawing in sketchbooks
- taking photographs [to use in future projects]
- doing texture rubbings and identifying materials
- estimating and measuring dimensions and angles in buildings
- calculating the area of landscapes
- observing how people are using spaces and places
- describing how different spaces feel
- considering which spaces have a unique identity or “sense of place”
- discussing the history of buildings and landscapes; and how communities change over time
- wayfinding: reading and using data from maps, including symbols and scale
- observing and discussing *universal design features* and *sustainable design features* of the built and natural environment.



Program Details + Learning Standards Alignments:

Architectural Walking Tour

Culminating Activities—after the walking tour:

Class Discussion: Students review the photographs taken on the tour; and share their sketchbook drawings. Who do they think designed a certain place, and why? What places and architectural details did they like, and why? What images or details should they keep in mind for future reference?

Sharing the Information: Students plan, design and distribute a brochure or media presentation that informs community members and visitors about the architecture of the area. They may also choose to serve as tour guides, taking groups of students or community members on walking tours.

Comparing Cultures: Students view pictures of architecture from an era and culture they are studying in Social Studies. They discuss how these people met their need for shelter, community and identity through design. They write about two buildings – one from their walking tour, one from their Social Studies era, comparing and contrasting specific elements, e.g. materials, structures, and so on.

Interpreting Architecture through Art: Students select one drawing from their walking tour. Working on photocopies of that drawing, they complete two drawings using two different art media of their choice, e.g. colored pencils, cut paper, watercolor, chalks, or low-relief.

Or, students work in teams to create collages from walking tour photographs and their *Identifying Architecture* handouts. They use their new design vocabulary as they select the visuals for their collage.

An **Architectural Walking Tour** is a valuable part of the design process – the *investigation phase* for projects in which students design houses, schools or community sites. It helps students to build a common vocabulary of architecture, planning and design that will find its way into their design work.

A walking tour is also a content-rich way to get outside and notice things you have never noticed before.

As one student, with no prompting, declared: *“Look at how they put all these details together! Someone should care about these old buildings ... they don’t make buildings like this anymore!”*



Program Details + Learning Standards Alignments:

Architectural Walking Tour

Mathematics Standards

Geometry

- 4.G.1 Compare and analyze attributes and other features (e.g. number of sides, faces, corners, right angles, diagonals, and symmetry) of two- and three-dimensional geometric shapes.
- 4.G.2 Describe, model, draw, compare, and classify two- and three-dimensional shapes, e.g., circles, polygons—especially triangles and quadrilaterals—cubes, spheres, and pyramids.
- 4.G.3 Recognize similar figures.
- 4.G.4 Identify angles as acute, right, or obtuse.
- 4.G.5 Describe and draw intersecting, parallel, and perpendicular lines.
- 4.G.8 Identify and describe line symmetry in two-dimensional shapes.

- 6.G.1 Identify *polygons* based on their properties, including types of interior angles, perpendicular or parallel sides, and congruence of sides, e.g., squares, rectangles, rhombuses, parallelograms, trapezoids, and isosceles, equilateral, and right triangles.
- 6.G.2 Identify *three-dimensional shapes* (e.g., cubes, prisms, spheres, cones, and pyramids) based on their properties, such as edges and faces.
- 6.G.3 Identify relationships among *points, lines, and planes*, e.g., intersecting, parallel, perpendicular.
- 6.G.7 Identify types of *symmetry*, including line and rotational.

Measurement

- 2.M.3 Compare the length, weight, area, and volume of two or more objects by using direct comparison.
- 2.M.4 Measure, compare common objects using metric, English units, e.g., centimeter, inch.
- 4.M.1 Demonstrate an understanding of such attributes as length, area, weight, and volume, and select the appropriate type of unit for measuring each attribute.
- 4.M.5 Identify, use appropriate metric and English units and tools (ruler, angle ruler...) to estimate, measure, solve problems involving length, area... angle size...
- 6.M.1 Apply the concepts of perimeter and area to the solution of problems; and apply formulas.
- 6.M.2 Identify, measure, describe, classify, and construct various angles, triangles, quadrilaterals.
- 6.M.3 Solve problems involving proportional relationships and units of measurement, e.g., same system unit conversions, scale models, maps, and speed.

Visual Arts Standards

Grades K-12

- Standard 2:** Students demonstrate knowledge of the *elements and principles of design*.
- Standard 3:** Students *create 2d artwork* from direct observation.
- Standard 6:** Students describe the *purposes* for which works of ...architecture were and are created, and, when appropriate, interpret their *meanings*.
- Standard 7:** Students describe the *roles of artists* [architects] in societies of the past and present.
- Standard 8:** Students demonstrate their understanding of *styles, stylistic influence, and stylistic change* by identifying when and where works of art [architecture] were created, and by analyzing characteristic features of art [architecture] from various historical periods, cultures, and genres.
- Standard 9:** Students describe and analyze how ... visual artists [architects] use and have used *materials, inventions, and technologies* in their work.
- Standard 10:** Students apply knowledge of the arts [architecture] to the study of English language arts, ... history and social science, mathematics, science & technology/engineering.

See also **Arts in World History** appendix in the *MA Curriculum Frameworks for the Arts*.



Program Details + Learning Standards Alignments:

Architectural Walking Tour

Social Studies Standards

Geography and History

- K.3** Identify student's address, school address; city or town; state and country. (G)
- K.4** Describe location, features of places in the immediate neighborhood of home or school. (G)

- 1.4** Describe a map as a representation of a space, such as the classroom, the school, the neighborhood, town, city, state, country, or world. (G)

- 3.3** Observe and describe local or regional historic artifacts and sites and generate questions about their function, construction, and significance. (H)
- 3.4** Use cardinal directions, map scales, legends, and titles to locate places on contemporary maps of New England, Massachusetts, and the local community. (G)
- 3.9** Identify historic buildings, monuments, or sites in the area; explain their purpose and significance. (H, C)

English / Language Arts Standards

- Standard 1:** Discussion
- Standard 2:** Questioning, Listening, and Contributing
- Standard 3:** Oral Presentation
- Standard 4:** Vocabulary and Concept Development
- Standard 19:** Writing
- Standard 20:** Considering Audience and Purpose
- Standard 21:** Revising
- Standard 22:** Standard English Conventions
- Standard 23:** Organizing Ideas in Writing
- Standard 24:** Research
- Standard 25:** Evaluating Writing and Presentations
- Standard 27:** Media Presentations

Science and Technology Engineering Standards

Construction Grades 6-8

- 5.1** Describe and explain parts of a structure: foundation, flooring, decking, wall, roofing systems.
- 5.2** Explain how forces of tension, compression, torsion, bending, and shear affect performance of bridges.
- 5.4** Describe and explain the effects of loads and structural shapes on bridges.

Engineering Design Grades 3-5

Engineering Design requires creative thinking & strategies to solve practical problems generated by needs & wants.

- 2.1** Identify a problem that reflects the need for shelter, storage or convenience.
- 2.4** Compare natural systems with mechanical systems that are designed to serve similar purposes.

Energy and Power Grades 9-12

- 4.4** Explain how environmental conditions influence heating and cooling of buildings.

Construction Grades 9-12

- 2.5** Differentiate the factors that affect the design and building of structures, such as zoning laws, building codes, and professional standards.

