

Houston: Spaces and Contrasts

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INTRODUCTION

The presence of public and private spaces in American cities is overwhelming. We are surrounded by office buildings, banks, schools, churches, malls, parking places, theaters, apartments and houses. Despite this fact, the introduction of architectural concepts and understanding is excluded from most of the educational programs in early childhood and elementary education. In addition, many of our students enter school lacking a wide range of experiences upon which learning is built. These deficits are not only related to language development but also to all areas of development, including play. Many urban and suburban children are not allowed to play outdoors due to the violence in their neighborhoods. Instead, they spend most of their time at home in front of the television or playing videogames. This deprives them of contact with their immediate environment, that is to say, their neighborhood and city, with its buildings, parks, and other facilities. These young suburban students lack the opportunity for free exploration and, basically, have no aesthetic education at all. They do not have a wide repertoire of experiences gained through interactions with their environment.

Different approaches to early childhood education have been made during the twentieth century. Among them, the Developmental-Interaction approach promotes the value of learning through play. Children between the ages of five- and seven-years-old learn best by playing. Shapiro and Nager (1999) define this Developmental theory in the following way:

The developmental-interaction approach is an enduring pedagogy rooted in developmental psychology and progressive education that has informed educational theory and practice since the early twentieth century. It is identified with, but it is not unique to, Bank Street College of Education, and was named for its salient concepts: the changing patterns of growth, understanding, and response that characterize children and adults as they develop; and the dual meaning of interaction as, first, the interconnected spheres of thought and emotion, and, equally, the importance of engagement with the environment of children, adults, and the material world.

The beauty of architecture lies in its accessibility, and its experience is quite direct, even for young children. We spend most of our lives in and around houses and buildings. Unfortunately, we often ignore how they influence us or how little we know about them. In this unit, architecture (and more specifically, Houston's architecture) is seen as a living and symbolic language which offers a wide repertoire of learning processes for both adults and children.

Learning more about architecture and design in the buildings that surround us is a way of interaction with the environment. Children learn best when they are active learners and interact with their own spaces. These interactions also facilitate a more comprehensive use of problem-solving strategies and decision-making processes. Young children can tremendously benefit from exposure to some basic architectural knowledge. Through this unit I intend to provide my students with an understanding and appreciation of their city, Houston.

Houston's growth has been constant since the foundation of the city by the Allen brothers, almost 170 years ago. Its dynamism, due to economic factors, has attracted several waves of new residents, not only from other states in the country, but also from foreign countries.

Houston is a city that appears chaotic yet is easy to inhabit, that is expansive, welcoming, and unpredictably violent, that preserves the accessibility of a small town even though it has become the fourth largest city in the United States.
(Fox, xviii)

The historic center is Houston's downtown. "Like the city at large, though, it is an exploded landscape reorganized frequently with little attention to urbanistic continuity or consistency" (2). Houston's downtown landscape is a compound of reflective glass towers, public art installations, surface parking spots, theaters, fashionable pubs and office buildings. Children from the Houston suburbs don't know much about the center of their city or just see it as a very enigmatic place, very different to the neighborhoods they live in.

The goal of this unit is to analyze the similarities and differences between Houston's Downtown (which is very similar to other downtown areas within the United States) and a suburb of the same city, a working-class neighborhood, Sharpstown. This neighborhood "is a textbook example of community planning of the 1950s. The Southwest Freeway joins it to the center of Houston, nine miles distant...Wide arterial thoroughfares divide neighborhoods, which are focused on schools, parks, and churches. There is a commercial center around the shopping mall, ringed with secondary retail, offices and apartments, a university campus, a large hospital, a medical professional center, office parks, an industrial sector, and a large public golf course...It is here that Houston's increasing racial and ethnic diversity is becoming evident as middle-class Hispanic and Asian families settle in these neighborhoods" (276).

We will use the symbolic language of architecture to compare and contrast these two different spaces. Public spaces, parks, freeways and roads, and entertainment centers, in Houston's Downtown and in the neighborhood of Sharpstown will be analyzed and compared with one another. The ultimate objective is to create knowledgeable citizens who are prepared to make practical and aesthetic decisions, not only in their future, as adults, but also in their present daily lives.

This unit is created for the grades of Kindergarten and other primary grade levels. One of its objectives is to present a meaningful aesthetic education, beginning with the early childhood curricula. Young children often amaze adults with their unique perceptions of the world that surrounds them. In my educational practice as a Kindergarten teacher, I am inspired by theories and practices developed in the schools of Reggio Emilia, Italy. In this Italian region's schools, art becomes a natural vehicle to help children explore and solve problems. Several aspects of young children's learning are important to consider when thinking about art and creative activities, such as the ones related to architectural understanding. First, young children are developmentally capable of classroom experiences, which call for higher level thinking skills, including analysis, synthesis and evaluation (Edwards and Hiler, 1993). Second, young children need to express ideas and messages through many different symbolic media. Third, they learn through meaningful activities in which different subject areas are integrated, that is to say, there is an inter-relation among curricular areas. And fourth, young children benefit from in-depth exploration and long-term, open-ended projects. The adult or teacher acts as a resource person, problem-poser, guide, and partner to the children in their process of discovery and investigation.

Our task in this process of learning is something similar to the imaginary action of planting seeds of curiosity in their active brains, providing them with the gift of sight, encouraging them to see their environment with "new eyes," and exploring the immense repertoire of learning architecture has to offer us.

ACADEMIC BACKGROUND

My class of Kindergartners is made up of a lively and talkative bunch of five- and six-year-olds. Their desire to learn more about the world that surrounds them always amazes and encourages me to keep introducing them to new educational experiences. They are in a bilingual transitional program, which means that instruction in the main subjects (Language Arts, Math, Science and Social Studies) is given in their native language, Spanish. Simultaneously, they receive daily ESL instruction. The majority are Mexican-Americans, or Mexicans, although some of them are from Guatemala, Honduras and El Salvador. The school where I teach, Piney Point Elementary, is located in a working-class neighborhood in Southwest Houston. It was, some time ago, a predominantly white school, but in the last few years it has become a school with a majority of Hispanic immigrant students, along with some African-American children and students from other nations. The neighborhood where all these children live is one made of small businesses (small furniture stores, Mexican bakeries and meat shops, Asian and Central American restaurants, dollar stores, Indian clothing stores), as well as apartments for low-income families, small health clinics and different denominational churches. All of these characteristics form a space very different from other areas of the city, such as Downtown, the Medical Center, the University of Houston or Rice University.

Since the students are going to become familiar with and learn more about their own city and buildings through a sample construction, I will develop this curricular unit as a building process itself, from the bottom up. It will consist of a foundation (why it is important to teach this unit), the framing (what I intend to teach), and the finishing phase and cladding (how I will teach or convey all the information to my students).

OVERVIEW OF THE UNIT

The Foundation (Purpose)

At first sight, a task like this may be seen as inappropriate for such a young audience. But, according to principles in the Brain/Mind theory, we are born with the innate ability to interpret the world around us by categorizing, by finding similarities and differences, by sorting, in a word. Gopnik and Meltzoff (1997) argue convincingly that infants are born with the capacity to develop theories and hypotheses about how the world works. Even these young children try to make sense of their own peculiar experiences, and of the place where they live. We, as their educators and teachers, can help them by encouraging and supporting the learning they are already disposed to. We can also provide them with opportunities to solve problems, to discuss those problems, and to make rational decisions and choices.

The objectives of teaching this unit are varied and intertwined:

- To help students develop a better knowledge of the place they live in (not only regarding their personal neighborhood, but also that of the entire city of Houston);
- To facilitate an awareness of the contrasts and differences between the Downtown and suburbs spaces;
- To enable the students to better understand the various mechanisms, organization, and framework of their city—how a community of people creates structures that can be used as shelters or dwelling places, for cultural and/or political purposes, for the care of the sick, for learning experiences, or for other goals. Thus, students will gain insight into the inner workings of a city—that is to say, what the main buildings are used for (City Hall, libraries, hospitals, schools, and colleges);
- To engage the children in a learning process that will be applicable to their daily lives. This will help them develop a true sense of identity poised between their Houstonian roots and environment with that of their familial culture;
- To enlighten students about the opportunities this city has to offer, in terms of entertainment, cultural events, and community services; and
- Last, but not least, to promote some of the TEKS objectives and HISD requirements for Social Studies and Science in Kindergarten and lower grades. This includes those related to basic geography skills (position, location, and direction) and land/water formations, Math and Language Arts concepts and vocabulary.

In exposing young students to this unit, I expect them to become more curious about the place they belong to. The earlier they start to become aware of the peculiarities of their own habitat, the faster they'll be able to conceptualize those experiences as adults. As cognitive psychology explains, an intelligent behavior, or how we respond flexibly and appropriately to changes in the environment, depends on acquiring and using knowledge about the world. I believe this unit will help all of them to learn more from their curiosity, from their sensations, their perceptions, and from any problem-solving strategies they may use.

The Framing (Structure of the Building and Content)

Architecture is the activity of designing buildings. From this very basic definition for five-, six-, or seven-year-olds, we will start exploring the needs of a community (food, clothing and shelter, which is one of the Social Studies objectives to be mastered in these grades). We will look at how a community shapes the place where it lives, how the community designs and creates different types of buildings to meet its needs. Learning must be rooted in children's own experience, and the closest environment these students have is their own classroom. We will start proceeding through different layers of complexity, that is to say in sequential degrees of approaching the space around us. What is our classroom? How is it designed? How different are the various centers or workstations? For instance, why is the Science Center next to the window? One of the main goals in this first stage is to explore relative location and describe the positions of people and objects. This will introduce the students to basic geography skills (north, south, east, and west, for example). Children need first to locate specific places and describe their relative location, using terms or concepts, such as *right*, *left*, *above*, *below*, *over*, *under*, *between*, *in front of*, *next to*, and *behind*. The ability to correctly use relative terms is essential to reading models and maps, which will be our next step.

Children begin to explore models at an early age, and should already be familiar with creating innovative structures in what we call the "construction center" or the building blocks center. The ability to interpret models comes more easily than maps, since models are three-dimensional and often resemble the original. It's what behavioral scientists call the "internal cinema of daily life," in which cognitive processes and the visual sense make it possible to construct, from a two-dimensional array of light and dark, a very complex three-dimensional mental model of the world around us. Among the activities that we can work on to become more proficient in the making of models are: milk jug houses, schoolroom models, land and water models, and eventually, our neighborhood model (inspired in the creative experience of the Box City: for more information, www.cubekc.org, standing CUBE for Center for Understanding the Built Environment).

In a city, we need many different kinds of buildings: buildings to live in, such as houses, apartment houses, and dormitories. We also need buildings to work in, such as factories, small or big businesses, and office buildings. And we need buildings to learn in, such as schools, libraries, and museums. We can add to the list other kind of buildings,

such as the ones used for the care of sick people, those used for community, religious, and political issues, such as: community centers, city halls, court houses, churches, and temples.

At this point, students will be introduced to some important buildings in Downtown Houston, such as the Central Library and the City Hall. The Central Library is “considered by many a handsome work of civic architecture” (Shields, 21). My students will be able to compare their school and neighborhood libraries to the central building of the Houston Public Library system. They can be encouraged to ask themselves why glass is the material used in these constructions, what is similar or different in them. They can also compare the disposition of books, number of floors, and workers within the library. Claes Oldenburg’s steel sculpture located in front of the Central Building, “Geometric Mouse, Scale X” (1968), can also be used as an introduction to public sculpture. If children are asked to share their opinions and feelings about these forms of art in the streets, they will probably amaze us with the ideas they come up with and with what the sculptures suggest to them.

In order to educate children about the social composition of their community, children at these ages are introduced to the Social Studies concepts of government. They learn that the city is led by a mayor, who works at City Hall, where many issues concerning the city are discussed and decided. The field trip or the presentation of slides or photographs of this building can help children acquire these concepts. Houston’s City Hall (1939) “is resolutely official looking. Its solidly massed blocks are faced with Texas Cordova shell limestone, a favorite “regional” material for Texan public buildings in the 1930s and ‘40s” (Fox, 6).

Comparing the students’ neighborhood or “barrio” (with its schools, clinics and offices) to the areas of Downtown Houston, the Medical Center, UH, and Rice universities will help us to inquire about what is similar and what is different between those spaces. Do people in these different parts of the city live in similar dwellings? Why is Downtown full of skyscrapers while Sharpstown is not? We’ll also explore the roads and freeways in those areas, if there is a bayou in the “barrio” as in Downtown, and how similar libraries, schools, hospitals and other facilities are constructed in those spaces.

Another important learning objective for children of this age is to be able to describe different jobs and what community workers do. The career and work of an architect can be introduced at this point, allowing students to learn what it takes to design and build, and how important the architects’ role is in this process. Architects need to know what kinds of materials are best suited for each individual construction. They need to know the correct measurements and geometrical shapes they are to deal with. They must know how to draw so they can draft plans for a building. However, architects are not the only participants involved in the process of designing and building. We also need engineers, city planners, contractors, ironworkers, welders, crane operators, workers, safety inspectors, etc. This wide range of community workers provides a great selection of new

vocabulary that can be used in a Language Arts lesson or on an oral language development activity.

In developing a model city (even if this is one made of milk jugs and cartons), the students will have to face the different phases of the creation of a building. We will build just one of them: from the preliminary design sketches, to the foundation, which is responsible for transferring all the load of the building into the ground. Some of the first problems that students will probably face in several of our “hands-on” activities will be the ones related to the softness or the thickness of the soil below, and how they can solve the difficulties they may find. Children, with the close monitoring and support of the teacher, can learn to grapple with problems as they try to resolve those issues by themselves. As they do so, they will be empowered to trust their own intellectual abilities, to learn through their mistakes and to understand that persistence is necessary to solve problems.

Once the foundation is done, the students will start creating the frame of the building, and learn more about columns, beams, floors, and roofs. Using a multisensory approach, children can examine different materials; touch them, feel them. What is stronger: wood or a brick? Which can hold more weight: steel or glass? We will examine various questions such as the shape the building will have, if super columns will be required, and how many floors the building is going to have. These activities will reinforce concepts related to numeration, patterning and sequencing. The students will try to answer all these and other questions that may arise during this learning process. At the same time, the architecture of buildings and objects provides a great setting for students to look at and find shapes and geometric properties, linking all this learning to some of the T.E.K.S. objectives in Math. Children are able to find shapes in windows, such as squares, rectangles, semi-circles, and hexagons, and find out if they are symmetrical or are divided in equal or non-equal parts; in walls, made with bricks, which may come in lots of different shapes; and in roofs, made up of cones, triangles, and trapezoids.

Once the frame of a building is accomplished, construction continues to the next phase of finishing work or finishing touches. Building a structure that is going to serve as a living or working area takes a lot of work, and students may realize that they need to “dress up” that building: it’s going to need stairs or elevators, plumbing pipes, inside walls, carpeting, painting, lights, a curtain wall—or cladding—and so on. Social Studies and Math objectives related to sequencing and placing events in chronological order (as they use vocabulary related to time and sequence, such as *before*, *after*, *next*, *first*, and *last*) can be at this point reinforced and mastered.

In the construction of our Model City (or Box City), feelings and emotions are also important: using a flashlight, children can check the shadows the buildings make; and if it feels closed and dark or light and airy. They might be asked if they would feel safe in that model city or if they feel it as their own. We can also explore what architectural elements they consider as “kid-friendly,” such as parks, playgrounds, and sport areas. Emotion and

cognition interact and energize one another, as pointed out by more and more researchers in recent years. The safer and more comfortable the children feel, the deeper the learning will be.

Since learning is developmental, going through all these layers of more complex concepts will enable students to enhance their understanding of how buildings are constructed, no matter which neighborhood they are located at. It will also provide them with a background necessary to compare the different spaces the city of Houston has.

The Finishing Phase (Teaching Strategies)

The unit will be taught with a frequency of three times a week, in sessions of approximately 45 minutes each session, over three months.

Language Arts

It is stated by many educators all around the nation that children come to school with developmental delays in language and with a profound lack of vocabulary in both expressive and receptive areas. The Houston Independent School District, with the development of the Project Clear, tries to integrate the areas of writing, speaking, listening, and oral language development in the Language Arts curriculum.

This unit provides an excellent opportunity for children coming from cognitively deprived environments to develop language skills. These are some of the goals for the area of Language Arts:

- Listen and speak to gain and share knowledge of his/her own culture, the culture of others, and the common elements of culture.
- Participate actively in oral language development activities in the classroom.
- Develop and extend the foundations of reading and writing.
- Dictate messages for others to write and generate ideas for writing by using prewriting techniques.

Using literature, we'll discover different concepts related to architecture: the construction of a house, the workers, tools, materials and procedures involved; the varied places in which people and animals live; and the machines necessary in the construction of a building.

Some of the vocabulary to be mastered will include such terms as house, appearance, materials, design, construction, architecture, shelter, residence, drawing, church, bridge, arch, engineer, architect, shape, style, foundation, contractor, column, and others less or more sophisticated.

As tools to introduce this new vocabulary in a context that may be significant for the child, we'll work on listening activities during the read-aloud; reading comprehension questions, such as asking the children what they think the writers mean, or discussing the sequence of events; writing riddles (i.e. I put up the walls, make the floors, and build the roof. Who am I? A carpenter); and journal writing activities (examples that also document the children's creations over time: writings about favorite places or writings about the building phase that is more interesting). Conversations generated among children or with the teacher about the activities also encourage expression based on their experiences.

As an important part of this Language Arts component, students will also develop their computer writing skills, with the creation of a digital book, which will be written by them—first on paper and then proofread later on. Eventually, the students will write their comments on the computers within the classroom. It will be a book about Houston, and different buildings of the city, which would have been previously shown to them through slides and picture books. Students will make their own drawings of their favorite Houstonian buildings, and we will scan them to make the illustrations for the book.

Math

As explained before, this unit will enhance some of the learning requirements for the Early Childhood grade levels in our school district. Students will be able to reinforce some numeration concepts as they use numbers to represent sets one through one hundred, when, for instance, they count the floors of a building; they may also use ordinal numbers in doing so. Patterning is one of the basic skills in the processing of information, and the creation of a model city will give them many opportunities to find patterns, and predict which one will come next (cause-effect relationships). Working with an inter-curricular approach will allow us to use all the pre-writing and reading activities from the Language Arts block in Math, since language is based on patterns.

The use of manipulatives is extended in early childhood. According to the National Council of Teachers of Mathematics Standards, mathematic concepts are introduced and taught best with manipulatives, primarily blocks, unifix cubes, attrilinks, and so on. This is not an entirely new concept. In fact, Friedrich Froebel first presented this information in the nineteenth century. He believed in “self-activity” and play as essential factors in child education. In addition, Dewey and Pestalozzi supported the use of concrete representations (manipulatives) in the classroom. According also to developmental theory, concepts are best understood by students at the early childhood level when given those concrete objects they can touch, feel and play with. Manipulatives allow these young children to learn the following mathematical concepts:

More or less (addition and subtraction)
Size and color (categorizing and sorting)
Counting sets (numeration)
Graphing
Seriations (patterning)

Vertical or horizontal
Left or right
Taller/longer or shorter (measuring)
Shapes

Architecture, with its appreciation of buildings and other constructions, is a perfect subject to introduce these concepts to the students.

By comparing different neighborhoods in Houston, students will measure which buildings are the longest, which ones the shortest, and arranging them in a scale of lengths, for example. They can work with length, height, weight and capacity. These are important exercises of visual discrimination and measurement.

Shapes are everywhere, and children at this age are eager to look for them and celebrate with excitement the ones they find in the places they are at. Buildings, and all the elements that they are made of, offer lots of opportunities to identify geometrical components and allow the students to recognize, describe, and compare them. We use geometrical concepts in every day life, so one of our Math objectives in this unit will be to bring more real life activities into the teaching of architecture.

Science

Children are exposed to the scientific method (problem, hypothesis, materials, procedure, data gathering and conclusion) for the first time in Kindergarten. Experimenting with some of the materials or phases necessary in the construction of a building may be an excellent occasion to become more familiar with the scientific process. We can experiment with different kinds of soil, rocks, clay, and materials used in the foundation of a building. We can also create frames for our buildings and examine which structures hold more weight. These are some of the activities that can be practiced during Science. At the same time, students will participate in classroom and field investigations, always following school safety procedures.

Art

Basic principles and elements of building in architecture can be introduced at an early age. Children can develop an appreciation for building and for the aesthetic elements of the environment. When we are at an early childhood classroom, art is everywhere: in their drawings, paintings, and other creations. Children of these ages engage themselves easily in activities that allow them to develop their creativity and other forms of expression.

Art works are here as a symbolic media, an integration of formats, such as sculpture, drawings, paintings, construction (architecture), dramatic play, movement, music, and dance. All of these artistic ways can be a way the child uses to communicate with his/her world and to represent what he/she sees.

The construction of a “model city” can be an art activity. Using paper goods of all kinds (shoeboxes, paper rolls, cardboard, construction paper), children can construct “buildings.” They can also come up with some artistic ideas of incorporating other materials, such as stones, beads, aluminum foil, buttons, and shells. Sculpture can also be explored with play dough, clay, and shaving cream.

With the conclusion of this project, my students and I shall have undergone an experience that can best be summarized by Sir Norman Foster, architect (Hong Kong Bank).

Whenever you finish a project you always want a second bite at it. You know yourself whether you took advantage of the opportunity to be creative or just let it slip through your fingers.

LESSON PLANS

Lesson Plan One

This first lesson plan is designed to be the fundamental lesson for the next ones. With the following suggested activities, children will examine different materials of construction and learn about their composition.

Objectives:

The students will be able to:

- Examine and observe the following materials: brick, sand, soil, clay, glass, wooden branches, iron, water, bamboo, rocks, foil, cellophane and steel;
- Learn which one is the best suited for the different phases in the construction of a building;
- Demonstrate the importance of materials to create a building; and
- Improve their verbal expression and vocabulary.

Materials Needed:

Drawing paper
Journals
Raw materials
Peeled crayons
Markers

Glue and tape

Prior Knowledge Needed:

Students should have had several opportunities of free exploration of those materials, inside the classroom and also outdoors.

Lesson:

1. Set materials in a safe area inside the classroom or on the floor outside. Display them in a row with their names labeled.
2. Encourage the children to use their senses to explore them, touching, feeling and smelling them.
3. Provide them with peeled crayons and paper, and rub with the materials' textures with the crayons.
4. Once this is done, compare the different rubbings of textures.

Evaluation:

Students can describe in their journals the differences among textures and materials. The presence of descriptors (relating to softness or roughness of materials, for example) will be a tool of assessment.

Lesson Plan Two

This is an introductory lesson that aims to enable the students to become aware of different elements of design in various buildings and homes displayed in several photographs; at the same time, it engages children in activities related to language and vocabulary development, and helps them to better understand some architectural concepts.

Objectives:

The students will be able to:

- Identify and discern shapes and patterns in the environment;
- Identify some specific building materials, such as brick, glass, and iron, steel;
- Categorize, compare and classify different kinds of buildings, according to their use, materials, environment, designs, etc;
- Learn and develop descriptive vocabulary as they manipulate labels with architectural and geometric concepts; and
- Engage in counting activities.

Materials Needed:

- A “gallery of pictures” (previously taken) of several architectural styles in buildings and houses, not only from Houston, Texas, but also from other cities and towns in USA
- “Touching materials,” such as a brick, a piece of wood, sand, clay, glass, steel, foil, cellophane, etc.
- Construction paper of different colors and thickness
- Colors, markers, colored pencils, pencils, scissors, tape and glue
- Writing journals

Prior Knowledge Needed:

Students should have been previously exposed to some geometric concepts, such as shapes—not only the basic ones like the triangle, square, circle or rectangle, but also some more elaborate, such as trapezoids, spheres, cones, pentagons—and concepts of patterns and symmetry.

Lesson:

1. Display some pictures of houses and commercial buildings on a bulletin board, and arrange them in a line in a so-called “Gallery of Buildings.”
2. Every building is different, and this is the moment to observe and discuss why. Ask the children questions related to the use of those spaces (Are they used for playing sports? Can people live in them? Is it a place of worship?) and observe the materials they are made of. At this point, students will be able to analyze the texture of some objects.
3. Extend this activity to a creative writing experience: using their imagination, students can write about what will happen if the floor was made of glass, the walls of sand, the roofs of foil, and so on. Since learning always involves what the students feel and how they interact with their environment, students can write on the journals about how different they might feel inside of the different houses, homes or buildings, how they think the light may be inside or outside those constructions, and what makes every building distinctive.
4. Students will also label, in little pieces of paper, the words that they’re learning and tape them to the pictures in which they find those elements. The Architecture vocabulary will be a list of the following terms:

Foundation	Design	Materials	Shapes
Contract	Shelter	Drawing	Appearance
Plane	Floor	Roof	Space
Arch	Building	Function	Column
Beams	Framing	Walls	Residence
Doors	Windows	Openings	

5. After looking at the different buildings and homes, the students can discuss about where they see some geometric shapes: rectangles, squares and parallelograms in windows and doors; cones, triangles and trapezoids in roofs; arches in bridges. This activity can be used as a differentiated or tiered activity for Gifted and Talented students, who can apply what they have learned into their personal product; they may want to build houses or homes with shoeboxes or cans, using decorative wrapping paper and/or construction paper.

Evaluation:

Once the students are familiar with the different types of construction, and after having discussed the characteristics of each one, they can decide which one is their favorite. These opinions will make possible the creation of a Bar Graph of Favorite Homes, offering them the possibility of applying their Math skills, and allowing the teacher to assess this application.

One book that I recommend for this Lesson Plan is the one titled *La casa donde vivo*, by Isadore Seltzer, where the students can learn more about types of construction in different areas of the United States.

Lesson Plan Three

This lesson is a whole-class activity. Students should have been already exposed to some background on designing, construction and architecture. The purpose of this assignment is to have the students use higher thinking skills, in terms of applying what they have learned and analyzing differences between two different areas in their city: Downtown Houston and their neighborhood.

Objectives:

The students will be able to:

- Compare two areas of the same city and their buildings;
- Improve their computer skills and their writing;
- Work cooperatively with classmates and teacher; and
- Practice observational skills by viewing slides and photographs of some Houstonian buildings.

Materials Needed:

- Paper and pencil to write down opinions and facts about the differences between buildings in the Sharpstown area and Downtown Houston
- Slides of apartment houses, neighborhood stores, roads, skyscrapers, schools/universities, medical clinics/hospitals, parks and open spaces

- Art supplies, such as colors and markers

Lesson:

1. The class will work cooperatively in a general discussion about similarities and differences that can be found in the city of Houston. The teacher and the students can take several digital photographs in some tours around the city, and then see them in the computer or TV in the classroom.
2. Read and talk about our city, its population, its location, and its services and buildings.
3. Make a Venn diagram to represent similarities and differences among buildings, homes, and facilities.

Evaluation:

This lesson is structured around the creation of a digital book, which will be the final and major product of the whole unit (*Houston: Spaces and Contrasts*). In this book, students will be able to make their own comparisons of the buildings they have seen, and ask themselves, as the beginning of further research, about the differences they find and see. Questions about the height of the constructions, the differences in size, materials (some skyscrapers in Downtown are made of steel and glass, but apartment houses are made of wood and brick, for instance) are just some of the ones the students may come up with. Once the first phase of discussion and writing on paper is done, then they will start to write the text to those slides on the computer, and eventually create a book with texts and photographs.

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Classroom projects that provide learning experiences to young children are described in this article.

Fishman, Robert. *Bourgeois Utopias, The Rise and Fall of Suburbia*. New York: Basic Books, Inc., Publishers, 1987.

A book that can help to understand how some suburban areas went under a process of rise and decline, losing value and cohesion.

Fox, Stephen. *Houston Architectural Guide*. Houston: American Institute of Architects. Houston Chapter and Herring Press, 1999.

A comprehensive and detailed guide to hundreds of buildings and houses in Houston, Texas. Organized in various tours around the city, with pictures and brief comments on each building.

French, Hilary. *Architecture*. New York: Watson-Guption Publications, 1998.

A guided tour around the world's architectural heritage. It also explains architectural styles and movements, and includes a glossary of terms.

- Froebel, Friedrich. *Education of Man*. Translated by W.N. Hailman. New York: D. Appleton & Co., 1987.
Friedrich Froebel (1782-1852) is considered the founder of the Kindergarten movement. This book was written in 1826, and with it, he laid the foundation of early childhood education. Current educational reforms recognize his theories.
- Houghton, Dorothy K. H., Barrie M. Scardino, Sadie G. Blackburn, and Katherine S. Howe. *Houston's Forgotten Heritage: Landscape, Houses, Interiors, 1824-1914*. College Station: Texas A & M University Press, 1991.
This book is an ambitious project of the Junior League of Houston, Inc. It describes the development of domestic architecture and interiors in Houston from 1820 to World War I.
- Nesmith, Eleanor L. *Instant Architecture*. New York: Byron Preiss Visual Publications, Inc., 1995.
An entertaining and informative chronicle through different times and cultures of major architectural styles and movements. It includes a glossary of architectural terms and several photographs and drawings of constructions and buildings all around the world.
- Shapiro, E., and N. Nager. *The developmental-interaction approach to education: Retrospect and prospect*. New York: Bank Street of Education, 1999.
A necessary book to understand this theory of education. This approach is currently being revised based on some conceptions of child development, critical pedagogy, and social justice.
- Simons, Helen, and Cathryn A. Hoyt. *A Guide to Hispanic Texas*. Austin: University of Texas Press, 1992.
A guide of historic and modern sites and structures that bear Hispanic influence throughout all Texas.
- Sandler, Alan R., ed. *The Source Book II – Learning By Design*. Washington, DC: The American Institute of Architects Press, 1988.
The American Institute of Architects developed this environmental education program in order to provide educational activities and resources for educators. One of its goals is to enable teachers to develop new learning strategies for their students about a quality environment. Teachers and architects both worked together in the creation of activities for classroom use.
- Thomas, Robert D., and Richard W. Murray. *Progrowth Politics: Change and Governance in Houston*. Berkeley: IGS Press, 1991.
This book presents specific data and facts on a variety of Houston issues.

University of Houston Center for Public Policy. *The Houston Metropolitan Study, An Entrepreneurial Community Looks Ahead*. Houston: Rice University/Baker Institute for Public Policy, 1998.

This book provides different data and information about Houston.

Winningham, Geoff. *A Place Of Dreams: Houston, An American City*. Houston: Rice University Press, 1986.

A celebration of the city of Houston, in photographs that portrait the richness and diversity of this place.

Student Bibliography

Some of the following books will be used during our read-aloud time; others will be displayed on the classroom library for free-choice reading and exploration in centers or workstations.

Eisen, David. *Fun with Architecture*. New York: Viking Penguin Books, 1992.

This is a fun book for young children, since it contains a book and stamps in the shapes of seven basic architectural elements (walls, roofs, domes, windows, arches, arcades, and colonnades).

Goldreich, Gloria and Esther. *What Can She Be? An Architect*. New York: Lothrop, Lee and Shepard Company, 1974.

The book introduces the daily work of a woman architect in New York, and all the various aspects of her career. Photographs in black and white.

Johmann, Carol A. *Skyscrapers! Super Structures to Design and Build*. Charlotte, Vt.: Williamson Publishing, 2001.

A hands-on book for children, that teaches them about designs, materials, and how buildings affect the community and the environment. It contains a special focus on the problem-solving strategies.

MacDonald, Fiona. *La vivienda a través del tiempo. Hábitats y vida doméstica*. 1st ed. Translated by Carlos Laguna. Madrid, Spain: Grupo Anaya, 1995.

From the first human shelters to the architectural buildings and constructions in Greece, Rome or Egypt, up to our modern times, this illustrated book translated in Spanish shows sections and elevations of various buildings along the history.

Mendoza, George. *Need a House? Call Ms. Mouse!* New York: Grosset and Dunlap, 1981.

Entertaining book about an architect, designer, and builder mouse that creates the most suitable homes for all her friends at the forest. Colorful and beautiful illustrations for the little ones.

Seltzer, Isadore. *La casa donde vivo*. New York: Macmillian Publishing Company, 1992.
Twelve different homes are shown in this interesting book about constructions in the United States of America. Good resource to compare the differences and similarities of the buildings according to the time in which they were built and the locations. Available in English and Spanish; highly recommended for ESL lessons.

Stewart, Gail. *Houston*. Vero Beach, Fla.: Rourke Enterprises, Inc., 1989.
An introduction for children to the history, economy, people, and notable sites in Houston.

Tamblyn, Catherine M. *Mega-Fun Map Skills*. Jefferson City, Mo.: Scholastic Professional Books, 1998.
Activities for students in grades K-1 about basic geography skills and mapping and modeling.

Teaching with Themes: Homes. Jefferson City, Mo.: Scholastic Professional Books, 1991.
A thematic unit about different kinds of homes, a very comprehensive guide of concepts through literature, ideal to be used in Language Arts; it includes non-fiction and narrative books, activities for the students, posters, and teacher tips. This theme belongs to the *Banners* Program that also contains another unit on communities.

Internet Resources

www.uh.edu/hti

The Houston Teachers Institute official web page contains several curriculum units; one of them is called: *The History, Economic Base, and Politics of Houston*, which is included in Volume 4, 1999. Another that may be of some interest for teachers with Latino students is the one called *Immigration and Latinos in the United States*, Volume 4, 2000.

www.cis.yale.edu/ynhti

In the Yale-New Haven Teachers Institute, 2001, index number 83.01.02, there's a curriculum unit related to architecture written by Patricia Flynn entitled *Architecture: Experiences in Space Perception for Young People*. It contains several curriculum units on architecture and other issues and subjects of study. There are also some units in the 1993, Volume 1 and in the 1983, Volume 1: Elements of Architecture.

http://curry.edschool.Virginia.EDU/curry/class/Museums/Teacher_Guide/General

Interesting web page to be used with the book *Need a House? Call Ms. Mouse*. It helps the students to discern shapes and patterns in architecture, and also the color and texture of the materials.

<http://www.artsednet.getty.edu/ArtsEdNet/Resources>

This page offers the students several opportunities to get them involved in the interpretation of spaces and structures, through photographs and drawings. Good lessons for third, fourth, and fifth graders.

www.pbs.org/teachersource/mathline/concepts/architecture

Shapes are all over in the students' communities. This Website helps the students to find them and to become more aware of the designs of the world around them.

<http://www.sanford-artedventures.com/play/arch1>

Good web site that uses photos and brief texts to show the connection between art and architecture. It also includes some good beginning architecture activities.