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Kids/Blocks/Learning

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Teachers in the primary grades have known for some time that children are entering school lacking the experiences upon which our educational expectations are built. We have assumed that children have spent their first years engaged in play at home but observation of four and five year olds in classrooms make it clear that many are unfamiliar with toys as basic as blocks. While leaders in the education field have finally recognized that children are starting school with deficits in language development, in fact, the deficits extend to virtually all areas of development including play. Societal changes are evident as many urban children are not permitted to play outdoors due to the violence in their neighborhoods. Further, parents respond to the techno-toy industry by investing in Nintendo instead of "old-fashioned" toys such as blocks. Children describe spending their time watching T.V. and playing video games. They are passive receivers of fleeting images on a screen which are not of their own creation. A vast majority of Kindergartners have not used scissors or crayons before entering school. As a result, they do not bring a repertoire of insights, a visual bank, to school built on personal experiences gained through play with objects and in places imagined or real. Children come to urban schools in observable states of shock, veterans of the war of poverty and violence. Ideally, the classroom becomes a haven of hope where we have a brief opportunity to restore the childhood lost.

Current discussions at the federal level regarding educational reform emphasize the need to focus on early childhood issues. However, not all administrators or teachers take these issues seriously nor do they subscribe to developmental theory which promotes the value of learning through play. However, this approach to learning is not new. In fact, we are revisiting the reforms presented by the 19th century German educator Friedrich Froebel (1782-1852) founder of the Kindergarten movement.

Froebel's aim was "to educate the child through self activity beginning with what he can grasp and what is attractive to him." He emphasized the "inner connection between the pupil and the object which he studies" as the law of development of the child. He investigated the relation of the child and his activities in play to the growth of his mind. "The mind grows by self revelation. In play the child ascertains what he can do, discovers his possibilities of will and thought by exerting his power spontaneously. In work he follows a task prescribed for him by another, and doesn't reveal his own proclivities and inclinations; but another's. In play he reveals his own original power." [1] While Froebel's intent was to reform German education, his doctrines also had a strong influence in England and America. It seems he laid down the gauntlet for what was to become an ongoing discussion between what we know today as the developmentalists or interactionists and the behaviorists. Education swings like a pendulum between the two philosophies. After several decades of "back to basics" also known as "drill and kill", reflecting the behaviorist school of thought, we are once more

embracing the developmentalist/interactionist view advanced by Jean Piaget and Jerome Bruner. One notable difference in the current wave of reform is the effort to create a national curriculum.

My experience as a parent and educator leads me to believe that the lack of traditional play experiences helps explain the numbers of children coming to the classroom with deficient eye/hand coordination, two-handedness and visual/spatial understanding as well as poor language development. It may be that the technological changes we are experiencing in our world are so profound that these skills will not be needed in the future. For now and however long our society values these skills, it is incumbent upon the early childhood teacher to fill the gaps before the child can successfully enter the curriculum our school systems present. I welcome the educational reforms which focus on early childhood developmental issues and eliminate the workbook/paper & pencil approach to early learning. It must be noted that at the same time the curriculum is integrating technology through the use of age appropriate computer software for Kindergartners. Education, like all social institutions, must continually change to meet contemporary needs.

This unit is presented as a discussion of the role of blocks in the learning process.

HISTORY/BLOCKS

The earliest references to building blocks come at the end of the 17th century when mentioned by the English philosopher and educator John Locke (1632-1704). In his work, “Some Thoughts On Education,” he cites a number of educational toys, among them, alphabet blocks. In the late 1790’s, English educational theorists Maria Edgeworth and Richard Lovell Edgeworth wrote of the potential of toys for learning. It was in this setting, with the emergence of the child-centered culture in Europe, that Friedrich Froebel developed the Kindergarten movement in Germany. His lasting contribution to education was a series of toys and activities he called the “Gifts” and “Occupations”.

Froebel described the gifts and occupations and the lessons they were meant to teach in his book, “The Education of Man” written in 1826;

GIFTS

A. Bodies (Solids)
I. Color.....Six colored worsted balls, about an inch and a half in diameter. First Gift.
II. Shape.....Wooden Ball, cylinder. and cube, one inch and a half in diameter. Second Gift.
III. Number.....Eight one-inch cubes, forming a two inch cube (2x2x2). Third Gift.
IV. Extent.....Eight brick shaped blocks (2x1x1/2) forming a two-inch cube. Fourth Gift.
V. Symmetry.....Twenty-seven one-inch cubes, three bisected and three quadrisected diagonally, forming a three-inch cube (3x3x3). Fifth Gift.
VI. Proportion....Twenty-seven brick-shaped blocks, three bisected longitudinally and six bisected transversely, forming a three-inch cube. Sixth Gift.

B. Surfaces. Wooden Tablets. Seventh Gift.

I. Squares (derived from the faces of the second or third gift cubes).

1. Entire squares (one and a half in. square of one-inch square).

2. Half-squares (squares cut diagonally).

II. Equilateral triangles (length of side, one inch, or one inch and a half).

1. Entire triangles.

2. Half triangles (the equilateral triangle is cut in the direction of the altitude, yielding right scalene triangles, acute angles of 60 degrees and 80 degrees).

3. Thirds of triangles (the equilateral triangle is cut from the center to the vertices, yielding obtuse isosceles triangles, angles 80 and 120 degrees).

C. Lines. Eighth Gift

I. Straight. (Splints of various lengths.)

II. Circular. (Metal or paper rings of various sizes; whole circles, half circles, and quadrants are used.)

D. Points. Beans, lentils, or other seeds, leaves, pebbles, pieces of card-board of paper, etc. Ninth Gift.

E. Reconstruction. (By analysis the “system” has descended from the solid to the point. This last gift enables the child to reconstruct the surface and solid synthetically from the point. It consists of softened pease or wax pellets and sharpened sticks or straws.) Tenth Gift.

OCCUPATIONS

A. Solids. (Plastic clay, card-board work, wood- carving, etc.)
B. Surfaces. (Paper-folding, paper-cutting, parquetry, painting, etc.)
C. Lines. (Interlacing, intertwining, weaving, thread games, embroidery, drawing, etc.)
D. Points. (Stringing beads, buttons, etc.; perforating, etc.)

The core of Froebel's ideas is seen in the Second Gift, a wooden sphere, a cube and a cylinder. These were not random choices, as all of the materials he created were expressions of his mystical and philosophical nature. He believed that a boy's spiritual development resulted from an understanding of his world. (Froebel's reforms did not extend to girls). The sphere with rounded sides is the opposite of a cube which has defined edges. The cylinder is a combination of the two. Opposites merged in one object, or in Hegelian terms, thesis and antithesis yielded synthesis. [2]

The distinction between the "Gifts" and "Occupations" was that the gifts were "intended to give the child from time to time new universal aspects of the external world, suited to a child's development. The occupations, on the other hand, furnish material for practice in certain phases of the skill.....nothing but the First Gift can so effectively arouse in the child's mind the feeling and consciousness of a world of individual things; but there are numberless occupations that will enable the child to become skillful in the manipulation of surfaces.....The gift leads to discovery; the occupation to invention. The gift gives insight; the occupation, power.....The occupations are one-sided; the gifts, many-sided, universal. The occupations touch only certain phases of being; the gifts enlist the whole being of the child.....each gift should ...aid the child to make the external internal, the internal external, and to find the unity between the two." [3]

The block systems that made up the Third through Sixth Gifts were the most widely used of Froebel's materials. He described them;

> "The material for building in the beginning should consist of a number of wooden blocks whose base is always one inch square and whose length varies from one to twelve inches. If, then, we take twelve pieces of each length, two sets—e.g., the pieces one and eleven, the pieces two and ten inches long, etc.- will always make up a layer an inch thick and covering one foot of square surface; so that all the pieces, together with a few larger pieces, occupy a space of somewhat more than half a cubic foot. It is best to keep these in a box that has exactly these dimensions; such a box may be used in many ways in instruction, as will appear in the progress of a boys development." [4]

Froebel wrote,

> "The character and purpose of these plays may be described as follows: They are a coherent system, starting at each stage from the simplest activity and progressing to the most diverse and complex manifestations of it. The purpose of each one of them is to instruct human beings so that they may progress as individuals and members

> of humanity is all its various relationships. Collectively they form a complete whole, like a many branched tree, whose parts explain and advance each other. Each is a self-contained whole, a seed from which manifold new developments may spring to cohere in further unity. They cover the whole field of intuitive and sensory instruction and lay the basis for all further teaching. They begin to establish spatial relationships and proceed to sensory and language training so that eventually man comes to see himself as a sentient, intelligent and rational being and as such strives to live....." [5]

The Industrial Revolution and the need to teach children technical and industrially related skills led to widespread interest in Kindergarten education and the use of Froebel's Gifts and Occupations. More than any other block system, Froebel's contributed to the use of blocks as an integral part of early childhood education.

That these materials are so familiar to us now, nearly 170 years later, is a tribute to their creator. A glance at any of the current catalogues from suppliers of educational materials will confirm the influence Froebel has had on teaching in early childhood and mathematics. Texts about early childhood education commonly begin with a reference to Froebel.

During the late 19th century, blocks became one of the most popular toys in Europe and America. In the United States, the Crandall family dominated the block industry. They developed a system of blocks with a comb-like interlocking mechanism at each end of the block. Jesse Crandall's Nesting Blocks were patented in 1881. They consisted of a series of successively smaller hollow blocks that fit one inside the other. This design is still one of the most popular block systems in use today. Many different types of alphabet and construction blocks were on the market in the U.S. and Europe during the late 19th century. Among them, the Richter Building Blocks, manufactured in Germany, consisted of various shapes cast in cement. The sets included a grid to guide even placement of the blocks.

The beginning of the 20th century saw the growth of psychology and child study. Educational theorists began to include block play into their curricula for early childhood. Italian educator Maria Montessori (1870-1952), invented a series of toys designed to encourage the child's sensory, motor and intellectual development. She felt that toys should help the child learn to observe things, to make comparisons between objects, to form judgments and opinions, to reason and make decisions. An example of her block building exercise consisted of ten blocks which diminished in size from ten cm. to one cm. on a side. The child's task was to stack the blocks in descending order to make a tower. After an initial positive reception and wide recognition of her work in the U.S. prior to the W.W.I, she was later criticized because her work did not encourage spontaneous activity for the child. In fact, free block play was not accepted as valuable learning experience until the early 1920's.

Following Froebel, the person most responsible for establishing block building into the curriculum was as American, Caroline Pratt. She is best known for the Pratt's Unit System consisting of blocks based on a proportion of 1:2:4, half as high as they were wide, and twice as long as they were wide. Pratt was inspired by the work of Patty Smith Hill who provided her Kindergartners with blocks for free play in her classes at Teacher's College, Columbia University. Pratt's Unit System of floor blocks, designed about 1915, are standard equipment in most schools today where they are known simply as Kindergarten Blocks.

THEORY/BLOCKS

Philosophers from Plato to Erikson have developed theories regarding play, each could be applied to block building. Blocks function on many different levels as learning and educational experiences for the child. They enter into the affective, the cognitive, and the psychomotor domains of education.

In the affective domain blocks

—stimulate imagination and creativity
—contribute to self-confidence by allowing a child to be in control and having a feeling of accomplishment
—provide opportunities for dramatic play, sharing and cooperative efforts
—develop sense of responsibility for block care and clean-up
In the cognitive domain, outcomes of block building
—involves math and science pre-number skills ie. size, shape, matching and classification, problem solving is inherent in block play
—visual discrimination, a pre-reading skill
—insight into concepts of inside/outside, open/closed
—development of language and vocabulary through discussion and description
—mapping skills
—color recognition, patterning

Blocks are also used in intelligence tests and in special education.

In the psychomotor domain activities with blocks provide children with opportunities to

—develop gross motor skills through lifting, carrying and stacking
—develop fine motor skills with smaller blocks
—refine eye/hand coordination

DEVELOPMENTAL STAGES/BLOCKS

No definite scale of developmental stages has been established despite attempts dating back to the 1930's. However, some trends in block building do emerge as children get older.

A study by Eleanor Robinson in 1958 found a sequence of activities in block building among children ages three through ten. n6

—stacking and making serial arrangements
—simple structures
—enclosures
—roofed buildings
—symmetrical and balanced buildings
—complex, detailed structures

In a study by Kenneth Moyer and B. Von Haller Gilner in 1956 with 75 children found that girls outperformed boys at all ages. [7] Block building has traditionally been established as the boys' territory, but when girls are encouraged and in some cases provided a separate area or time in the block corner, they play with equal enthusiasm.

A variety of unrelated studies with young children have shown that positive reinforcement resulted in greater creativity in block construction; proximity to the child and not color was the significant factor in choosing blocks; one group preferred flat rectangular blocks to any other shape; girls tend to create enclosed spaces while boys build tall structures; positive behavior including peer cooperation increases when larger numbers of blocks are provided.

Social attitudes toward block play as "babyish" may explain why it is restricted to the early childhood curriculum. As the use of manipulatives gains acceptance this prejudice may diminish so that blocks could be found in intermediate and upper elementary classrooms.

KIDS/BLOCKS/ARCHITECTURE

Froebel devoted the third through sixth gifts to building. In "The Education of Man" he wrote,

> "Building, aggregation, is first with the child, as it is first in the development of mankind, and in crystallization. The importance of the vertical, the horizontal, and the rectangular is the first experience which the boy gather

> from his building; then follow equilibrium and symmetry. Thus he ascends from the construction of the simplest wall with or without cement to the more complex and even to the invention of every architectural structure lying within the possibilities of the given material." [8]

As a child American architect Frank Lloyd Wright (1869-1959) was introduced to the Froebel blocks by his mother who was a teacher. She had seen them at the World's Fair in Philadelphia. (Taliesen East, Wright's home and studio, is in Spring Green, Wisconsin. It lies about 60 miles from Watertown where the first American Kindergarten was opened in 1855 by a woman who had studied with Froebel in Germany.) The impact of the Froebel blocks on his development has been discussed in detail by architectural historians and critics. Wright described the gifts,

> "The strips of colored paper, glazed and matte, remarkably soft brilliant colors. Now came the geometric byplay of those charming checkered combinations! The structural figures to be made with the peas and globes. The smooth shapely maple with which to build, the sense of which never afterward leaves the fingers: form becoming feeling."

He continued,

> "small interior world of color and form now came within grasp of small fingers. Color and pattern, in the flat, in the round. Shapes that lay hidden behind the appearance all about....." Further, he said the virtue of the materials "lay in the awakening of the child-mind to rhythmic structure in Nature-giving the child a sense of innate cause-and-effect otherwise far beyond child comprehension....." [9]

Art and architecture are a vital part of everyday living. As adults, students will be responsible for decisions which affect our communities. Although architecture is seldom taught is elementary schools, it deserves a place of importance in the learning process. The goal is not necessarily to create architects but knowledgeable citizens prepared to make practical and aesthetic decisions. It is appropriate also to present a meaningful, aesthetic education beginning in the early childhood curriculum.

The block area of an early childhood classroom is a logical place to introduce architecture as part of the math, art and language arts curriculum. A vital component of current reform is integration of curricular areas, removing the artificial lines that have been drawn in recent decades. Building blocks plus imagination could lead in any curricular direction. The curriculum might include basic elements of architecture, vocabulary, related careers, names of important buildings and architects, all of which can easily become part of a young child's body of knowledge.

I taught Kindergarten for five years. I was surprised to find that many children showed no interest in the block area. One year, the corner was completely ignored for the first few weeks of school. I re-arranged the blocks to make them more accessible and attractive and waited patiently. Only a few children ventured into the area to play. Their lack of familiarity with blocks soon became obvious but what really caught my attention was the number of children who tried to build from the top down. Of course, the blocks responded to gravity and fell to the floor, the children then lost interest and abandoned them. George E. Trogler states in "Beginning Experiences in Architecture" "...children...have an intuitive sense of balance and a desire for organization in their designs." [10] In "Why Buildings Fall Down," Mario Salvadori says "Structural behavior can be understood by the uninitiated on the basis of physical intuition and without appeal to physics or math...." [11] These statements raise questions in my mind now, although I may have taken them for granted in the past. I don't know if this knowledge is innate, it might be based on some prior experience. It seems that the children I

observed had not developed an intuitive sense about building. What is the prior experience that leads to this sense? Which brings us back to my concern regarding the lack of traditional play experiences in the preschool years. We can no longer assume that our children have this knowledge when they come to school.

An appropriate place to introduce block building may be with the sequence described by Eleanor Robinson which begins with stacking. Indeed, I found it necessary to sit on the floor with my students to initiate the activity and to model building from the bottom up. (The bottom up concept was reinforced in other areas such as counting on graphs and with towers of blocks). I saw that once they understood this, they began to play with the blocks more often and to experiment on their own.

KIDS/BLOCKS/MATH

The National Council of Teachers of Mathematics has led the current reform in American education. According to the NCTM Standards, mathematic concepts are introduced and taught with manipulatives, primarily a variety of blocks. Manipulatives are used to teach all concepts at all levels, K-12. A very important and consistent component is a period of exploration with each new manipulative as it is introduced. Despite resistance to change, the reforms are taking hold, with the western and mid-western states embracing educational reform earlier than the eastern states. New Haven has purchased a new math series for the 1993-94 school year from the Addison-Wesley Company, pioneers in the use of manipulatives in mathematics.

We are reminded that mathematics and manipulatives were the core of Froebel's reforms 170 years ago.

According to developmental theory, concepts are best understood by the student at the early childhood level when given concrete representation. Blocks are used to teach the following mathematical concepts in the Kindergarten curriculum;

more/less	seriation
size	categorizing
counting	measuring
sets	taller/shorter
addition/subtraction	longer/shorter
shapes	graphing
vertical/horizontal	left/right

KIDS/BLOCKS/LANGUAGE

As previously stated, children come to school with developmental delays in language. There is a profound lack of vocabulary in both expressive and receptive areas. The new curriculum is focused on this issue. The "Whole Language" approach integrates all subject areas. Math activities include writing about solutions to problems and language arts lessons may include writing or talking about math activities. Children are working in groups

and encouraged to talk among themselves to seek solutions.

Block building provides a excellent opportunity for children coming from cognitively deprived pre-school environments to develop language skills. Conversations between teacher and child or among children about the activity encourage expression based on the experience. Photographs or drawings of constructions accompanied by written descriptions might be exhibited or used to develop stories. Journals may be kept to document a child's creations done over time. Younger children will need to dictate words or sentences, volunteers from other grades can be helpful in this effort.

We know that language is based on patterns. Pre-writing and reading activities include patterning and visual discrimination exercises. Activities with blocks reinforce these objectives.

Materials abound to assist teachers in preparing activities with blocks. Observation of children at play in the block area and a belief in the value of blocks make them a most useful tool in the teaching/learning process.

Lessons

This unit is designed to begin early in the school year in a Kindergarten classroom and continue throughout the year. The lessons are integrated as a Whole Language approach with objectives taken from the Kindergarten curriculum. The unit goal is to lead the student to an understanding of basic principles of building and architecture through block building, language arts and mathematics activities.

The block corner should be established prior to the arrival of the children. It requires storage space accessible to children 4-6 years old, where they can replace the blocks when their work is done. Sufficient floor space for building is crucial and it must be away from the traffic of other children.

Introduction to the block corner includes well established rules such as 1. blocks are never thrown 2. clean-up means carrying the blocks to put them away 3. only 2-4 children will play in the area at the same time.

The unit begins with a period of 4-6 weeks of free play and exploration in the block corner. During this time the teacher should monitor each student to determine their understanding of stacking blocks starting from the bottom and building up as well as their behavior in the area. The attached checklist may be used for monitoring and evaluation. It may be helpful also to find a parent or older student to assist. During the exploration period read stories which treat houses or other buildings as subject matter or have pictures of them. Throughout the year exhibit posters or pictures of buildings near the block corner. They can be found in magazines, calendars and newspapers. Ask the librarian.

LANGUAGE ARTS/MATHEMATICS LESSON

Goal
To develop graphing skills.

Objective

To create a picture graph.

To represent 1:1 correspondence.

To represent same and different.

To draw conclusions.

Materials
Magazines, oak tag 4”x6”, experience chart paper.

Procedure

1. Students will cut pictures from magazines or newspapers of homes like theirs or houses they like . Paste onto oak tag.
2. Graph by having students categorize by type of structure. (house or apartment building). Count pictures in each category and ask which has more? which has less? Count all together. Graphing can be done by lining the pictures up on the floor, taping them to the blackboard or by using a pocket chart. 1:1 correspondence is reinforced by carefully aligning the pictures in the graph.
3. As a whole group activity, write an experience story about the conclusions drawn from the graph.

ART/ARCHITECTURE LESSON

Goal
To develop visual discrimination.

To develop appreciation for building.

To encourage verbal expression.

Objectives
To find shapes in the environment.

To engage in counting activities.

To develop descriptive vocabulary.

Materials
Notepad or clipboard. Large sheets of paper & black marker.

Procedure

1. Prepare a list of questions to ask while on the walk. Keep a clipboard or notepad to record buildings with simple drawings. Record number of windows etc.
2. Take the class on a walking tour of the area near the school. Look at the shapes of windows, count them. Look at tall buildings, do they have stairs or elevators? Do people live or work in the building? Look at roof shapes.
3. In the classroom, draw simple shape of a building seen on the walk. Put in the number of windows recorded and count them with the group. Repeat with another building for comparison.

ART/ARCHITECTURE

Goal
To develop basic principles of building/architecture.

Objective
To introduce basic elements of architecture

Materials
Kindergarten blocks, black construction paper, scissors white paper 24x36.

Procedure

1. Prepare a set of posters to be displayed in the block area illustrating the basic elements of architecture and building. Trace blocks onto black paper and cut. Write the appropriate name on each poster. Paste onto the white paper and laminate or cover with clear contact. (Leave about 1/8” between the paper blocks) Make a poster for each of the following;

colonnade	roofs & domes
walls	windows
arcades	entries and arches

2. Display one or two of the posters at a time in the block corner. Demonstrate how to build each element as it is introduced.

Add sheets of heavy cardboard in a variety of sizes, bowls of varying sizes and paper tubes to the block area. Encourage students to bring other materials and discuss in group whether or not they are ok to use.

3. Physicalize a building to include (one at a time) the basic elements. Students stand shoulder to shoulder to make a wall. Students should face into the space created. Provide large sheets of heavy cardboard to make a roof by taping sheets together. It can be rested on their heads of held

up with their hands. How can windows and entries be shown?
4. Use the checklist to monitor and evaluate student progress.

LANGUAGE ARTS/ART/ARCHITECTURE LESSON

Children may draw and attempt to construct with blocks the buildings that they saw on the tour. Exhibit the photos and drawings from the tour. An experience story would provide an opportunity for sequencing. The photos could also be arranged in order. Vocabulary list can be developed from the tour.

MATHEMATICS/BLOCK BUILDING LESSON

Encourage cooperative learning and greater complexity by grouping four students together to make one building. Leave the structure standing for a day if possible. Photograph. When it's time to tear it down, have the students count the blocks and categorize them according to size and shape. Create a real graph by lining them up on the floor. A pictorial graph can be done next by using black construction paper cut-outs and arranging them on a large sheet of white paper. Save the information so constructions made by other groups can be compared. Who had more/less blocks? Etc.

LANGUAGE ARTS/BLOCK BUILDING LESSON

Goal
To create BIG BOOKS.

Objectives
To organize experience in story form.

To represent three dimensional experience in two dimensional form.

To develop understanding of books.

To develop language.

Materials
Matte (available at an art supply store), ring binders, paper punch, clear contact, black construction paper cut-

outs, picture from magazines, photographs or student drawings.

Procedure

1. Cut the matte into several sheets of equal size.
2. Make a book using a theme such as student drawing of buildings, pictures from magazines, photos (enlarged) of buildings from a field trip or cut-outs to represent buildings.
3. Students may dictate text for BIG BOOK. Group should agree on what is written.
4. Cover with clear contact. Punch holes on one edge and use rings to hold it together.
5. Use as any other BIG BOOK, children can read it aloud too.

Vocabulary words for the unit should include; structure to mean walls, colonnades and arcades and space or enclosures which are created by structures. Inside/outside can be discussed in this context.

FIELD TRIP TO THE NEW HAVEN GREEN

"New Haven A guide to Architecture and Urban Design" by Elizabeth Mills Brown, pp. 100-118 will provide all the information you need to prepare a great trip. The book is available at any book store or library in the area. Limit the trip to the streets immediately around the Green as there is a lot to see for little kids. Start the tour at the Library, if you walk on the Green side of the street the whole tour can be done without crossings to negotiate. The tour will end on the corner of Elm & Temple Streets where it began. Take pictures and make simple drawings to record basic appearance of the buildings.

Suggestions for buildings to focus on;

1. New Haven Free Public Library, corner of Temple & Elm Streets. Count the columns, windows & doors. Look at the shapes of windows and the door.
2. New Haven County Courthouse, corner of Elm & Church Streets. Count the columns etc., (if you can brave it, here the kids could really get into the architecture by walking up & down the steps and around the columns and sculpture.)
3. Union Trust Company, corner Elm & Church Streets. A tower. Look at the window patterns. Note location of the door.
4. New Haven Savings Bank, diagonally across from the Courthouse, on the corner of Church & Elm Streets. A tower. How are #3 and #4 alike or different?
5. City Hall, Church & Court Streets. Look at the tower, arcade, window shapes and patterns. Where is the door?
6. Post Office and Federal District Court, Church & Court Streets. Columns and colonnade, find the triangle.

7. Chapel Square, Chapel Street. Note the shape of the building. What is it made of? Are there different kinds of windows? Where is the door?
8. The churches on the Green. Trinity Church, corner of Chapel & Temple Streets. Center Church, Temple Street proceeding toward Elm Street. The North Church, corner of Temple & Elm Streets. Repeat questioning process as above.

K-2 Student Reading List

Bowyer, Carol. “The Children’s Book of Houses and Homes.” London: Usborne Publications, 1978. A look at houses through the ages in North and South America.

Carter, Polly. “The Bridge Book.” New York: Simon & Schuster, 1992. A natural for block building, what kid doesn’t want to build one?

D’Alelio, Jane. Discovering Architecture with Activities and Games “I Know That Building!” Washington, D.C.: The Preservation Press, 1989. The author has designed activities for the National Geographic’s World magazine. Great variety of ways to explore the subject.

Eisen, David. “Fun with Architecture.” New York: Viking Penguin Books, 1992. A kit which includes a book, stamp pad and stamps in the shapes of 7 basic architectural elements (walls, windows, roofs, domes, arches, arcades and colonnades).

Kellogg, Rhoda. “Analyzing Children’s Art.” Palo Alto: Mayfield Publishing Company, 1969. The best book ever about kids and art.

MacAulay, David. “Cathedral The Story of It’s Construction.” Boston: Houghton Mifflin Co., 1973. The author won a medal from the AIA for illustrations and for recording architectural accomplishments. Titles in the series include: “City,” “Mill,” “Pyramid,” “Unbuilding,” and “Castle” (Caldecott winner).

Wilkerson, Philip. “Amazing Buildings.” New York: Dorling Kindersley, Inc., 1993. Introduction to the fascinating world of architecture. A celebration of some of the world’s most amazing buildings.

“The Visual Dictionary of Buildings.” Eyewitness Visual Dictionaries. New York: Dorling Kindersley, Inc., 1992. One of a series, this book includes illustrations of buildings from throughout the world and time beginning in Ancient Greece and Rome to the present.

Notes

1. Friedrich Froebel, “The Education of Man” (New York, 1887), p. vi. Translators preface W.N. Hailman, AM.
2. Eugene F. Provenzo Jr. & Arlene Brett, “The Complete Block Book” (New York, l983), p. 11.
3. Froebel, op. cit. pp. 285-286.
4. Ibid., p. 283.
5. Irene Lilley, “Froebel: Writings” (Cambridge, 1967), p. 98.
6. Provenzo, op. cit. p. 57.
7. Ibid., p. 58.
8. Froebel, op. cit. pp. 281-282.
9. Provenzo, op. cit. p. 3.
10. George E. Trogler, “Beginning Experiences in Architecture” New York, 1972), p. 14.
11. Mattys Levy & Mario Salvadori, “Why Buildings Fall Down” (New York, 1989), p. 14.

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Froebel, Friedrich. “Education of Man.” New York: D. Appleton & Co., 1887. Translated by W.N. Hailman, AM.

Written in 1826, Froebel laid the foundation of early childhood education. His theories as presented here are recognizable in current educational reform.

Gordon, Ira J., Barry Guinagh and R. Emile Jester. “Child Learning Through Child Play.” New York: St. Martin’s Press., 1972.

Very well illustrated, creative ideas for concept teaching with available materials.

Lilley, Irene. “Froebel: Writings.” Cambridge University Press, 1967.

Pratt, Caroline. “I Learn From Children.” New York: Cornerstone Library, 1970 The author is the creator of what we know today as the Kindergarten blocks.

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