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For all parents, caregivers, teachers, and librarians:

You will find lots of information about play and blocks in this notebook. Please feel free to browse through to see:

1. Ideas for block building structures
2. What adults can do while kids play
3. What kids learn through play (aligned with Montana's Early Learning Guidelines Ages 3-5)
4. Research articles on the importance of play
5. Articles on blocks and block play

Please share your comments & questions!

PlaySpace Alignment with Montana Early Learning Guidelines

PlaySpace activities and opportunities align with Montana Early Learning Guidelines: What Children Ages 3-5 Need to Know, Understand, and Be Able to Do in the following key areas:

- Language and Literacy
- Mathematics and Numeracy
- Science
- Social-Emotional Development

Language and Literacy

Guideline 1: Receptive Language (understanding what is heard)

Children enter into the exchange of information around what is seen, heard, and experienced. They begin to acquire the concepts and language that contribute to learning to communicate and, eventually, to read.

A child can be supported by an adult who

- reads to and with the child on a daily basis in a way that makes the child become an active participant.
- talks with the child before, during, and after daily routines, activities, and events.
- offers an environment filled with rich language and many opportunities to hear language and use language for a variety of purposes.
- responds with scaffolding techniques (provides the support necessary for a child to accomplish a new or complex task).

Guideline 2: Expressive Language

Children learn when they talk out loud. Children use words to help adults and others to understand their needs, ask questions, express feelings and solve problems.

A child can be supported by an adult who

- provides a friendly, nurturing, familiar and stimulating environment that allows children to feel confident about speaking aloud, without fear of criticism.
- talks with and listens to the child, frequently encouraging the sharing of experiences and ideas.
- keeps questions to a minimum by using conversation starters such as "I wonder what is going on there?" to encourage the child to use a greater number of complex words in his/her response.

Guideline 4: Print Awareness

Children acquire an understanding that print carries a message through symbols and words. Children learn to make the connection between sounds and letters.

A child can be supported by an adult who

- rereads favorite stories and uses storytelling to encourage the use of new and interesting words.
- provides a print rich environment.
- models reading and writing for many different purposes.
- provides opportunities to become familiar with letter names and sounds.
- draws attention to the relationship between pictures and words.

Guideline 5: Print Development

Children acquire the ability to write through a sequence of stages: writing using scribble-like markings; writing using individual letter-like marks or mock letters; writing using recognizable, random letter strongs; writing using semi-phonetic spelling; and writing using phonetic spelling.

A child can be supported by an adult who

- writes down words and stories dictated by children
- provides literacy-rich environments that allow real opportunities for writing
- provides child with a variety of writing materials
- asks child to "read" his/her writing
- gives encouragement and positive feedback to help the child acquire a sense of being a writer.

Mathematics and Numeracy

Guideline 1: Numeracy Relationships

Children develop the ability to think and work with numbers easily, to understand their uses, and describe their relationships.

A child can be supported by an adult who

- uses a variety of strategies, including questioning, commenting, and counting, to prompt children to think about quantity and number words.
- uses number words and numerals, including zero, in meaningful everyday activities.
- provides objects in the environment with naturally occurring number relationships, such as clocks, timers, calendars, rulers, etc.
- models the "adding to" and "taking away" of objects, making note of what is happening mathematically while, for example, playing with unit blocks.
- provides opportunities for the child to count, divide and/or share in everyday contexts.

Guideline 2: Classification and Comparison

Children apply mathematical skills through counting, sorting, and comparing objects. Children describe their thinking and observations in everyday situations.

A child can be supported by an adult who

- uses words that describe and classify characteristics of items in the child's environment, pointing out colors, shapes, and sizes.
- engages in conversations with the child about quantity and comparisons as the child interacts with materials throughout the day.
- asks the child to verbally describe why he/she sorted or classified objects in a certain way.
- provides opportunities for the child to guess the amount or size of something as he/she works to gain an understanding of concepts like more, less, bigger, and smaller.
- provides a variety of objects and situations for working with 1: 1 relationships.

Guideline 3: Pattern Recognition and Reproduction

Children learn to identify and describe patterns using mathematical language. They develop the ability to reproduce patterns they see and to create new ones.

A child can be supported by an adult who

- provides an environment that is rich in shapes, sizes, colors, and textures.
- helps the child recognize patterns in his/her environment.
- offers hands-on activities to explore and describe patterns and relationships involving numbers, shapes, data, and graphs in problem-solving situations.
- encourages the child to create, identify, and describe patterns in objects, designs, pictures, movement activities, and recurring events.
- provides opportunities for the child to create his/her own patterns for others to follow or extend using prompts.
- helps the child recognize and describe sequences in nature, daily routines, and in stories.
- builds on the child's understanding of a series by making changes and additions in materials by, for example, varying the number of blocks, sizes or shapes of blocks.

Guideline 4: Geometric Shapes and Directional Words

Children build the foundation for recognizing and describing shapes by manipulating, playing with, tracing, and making common shapes using real objects in a variety of activities. Children learn spatial reasoning and directional words as they become aware of their bodies and personal space within their physical environment.

A child can be supported by an adult who

- assists the child in identifying shapes in the environment.
- provides geometric materials in a variety of shapes and sizes.
- provides a variety of materials to create and represent shapes.
- gives the child opportunities to describe the position, direction, and distance of objects in relation to themselves.
- uses and encourages the child to use language and physical gestures to demonstrate directional words (inside, outside, behind, in front, above, below, over, under, next to, near, far) with people and things in the environment.

Guideline 5: Measurement Relationships

Children begin to use measurement instruments to explore and discover measurement relationships. They apply the characteristics of length, quantity, volume, distance, weight, area, and time to real life situations in order to construct concepts of measurement. They begin to develop skills of estimation.

A child can be supported by an adult who

- provides opportunities for the child to experiment with measuring.
- encourages the child to practice measuring with standard and non-standard or arbitrary units of measure (whole body, pieces of string, unit blocks).
- posts charts and posters with measurement language.
- helps child create simple measurement charts and graphs.
- talks about measurement concepts during everyday activities.
- provides opportunities to estimate length, quantity, etc.

Guideline 6: Problem Solving

Children build a foundation for solving problems by formulating questions and possible solutions individually and with others based on their observations and experiences.

A child can be supported by an adult who

- uses graphs, charts, and symbols to organize and interpret information and to show relationships.
- provides a variety of shapes and materials that may be broken into parts and brought back together again (for example, unit blocks, puzzles).
- encourages the child to experiment with many different ways to solve problems ("I wonder if there is another way to do this").
- provides opportunities to integrate science and math (for example, "Which sponge is bigger? A wet one or a dry one? How do we find out?").
- allows the child to struggle with a challenge before stepping in to help.
- asks open-ended questions to encourage the child to come up with his/her own ideas.
- when asked to provide assistance, guides the child in a productive direction and expects him/her to take the next steps in solving the problem.

Science

In the Early Learning Guidelines for Science, children are guided to explore the following basic scientific concepts:

- models (representation of a real object)
- constancy and change
- scale (size, distance, etc.)
- patterns and relationships
- cause and effect
- structure and function (relationship between the way something is built and what it does)
- diversity among objects and organisms in the natural world
- natural systems (for example, weather, the human body)

NOTE: Exploration of science concepts follows the steps of the scientific method.

Guideline 1: Formulation of Questions

Children will learn to ask questions about the world around them, the first step in the scientific method, based on observations, experiences, and interests.

A child can be supported by an adult who

- provides opportunities in the child's environment for exploration and listens to and follows up on children's questions.
- uses language associated with science and math (science, investigation, research, predict, hypothesis, experiment, conclusion, order, compare, sequence, spatial relations, etc.)
- observes children's activities and interests
- asks open-ended "What if?" and "How?" questions and comments with "I wonder . . . ."
- is curious about the world and routinely asks questions about it.

Guideline 2: Prediction

Children will learn to predict answers and form hypotheses, the second step in the scientific method.

A child can be supported by an adult who

- extends the child's learning by encouraging the child to make predictions.
- encourages and supports opportunities for children to pan and select science related activities, such as the mechanics of how things work and natural processes.
- extends the child's thinking and learning by posing problems, responding to and encouraging the child's questions and adding complexity to tasks.
- uses language associated with science, math and discovery.
- allows children the gift of time to engage in exploration and discovery.

Guideline 3: Experimentation

Children will learn to conduct experiments in order to test their predictions, the third step in the scientific method.

A child can be supported by an adult who

- provides a variety of tools needed to measure things, solve problems and make discoveries.
- encourages both planned and spontaneous investigations, based on children's questions and predictions.
- helps children notice, explore, test and describe cause and effect.
- helps children make comparisons and find patterns and relationships in objects and the environment.
- helps children manipulate objects and substances to make discoveries.

Guideline 4: Observation and Recording

Children will learn to observe and record findings, the fourth step in the scientific method.

A child can be supported by an adult who

- sets up the environment to provide opportunities to observe, investigate and ask questions.
- assists the child in recording observations and results of scientific investigations.
- guides the child to look for patterns, relationships, and properties.
- uses language associated with science and math.
- allows the child the gift of time to engage in discovery.
- provides opportunities for the child to create own patterns for others to follow and/or extend patterns.
- makes materials available to record findings (paper, markers, clip boards, etc.).

Guideline 5: Formation of Conclusions

Children will learn to form conclusions, the fifth step in the scientific method.

A child can be supported by an adult who

- guides the child's observations with questions and comments in order to hep the child make connections with what is observed.
- provides materials and experiences to support concepts.
- uses language associated with science.
- acts as a guide and facilitator to help children find needed information.

Guideline 6: Communication of Results

Children will learn to communicate final results, the sixth step in the scientific method.

A child can be supported by an adult who

- supports and assists the child in describing discoveries and recording observations through drawings, charts, and graphs.
- provides materials needed for the sharing of findings such as paper, glue, scissors, markers, camera, pencils, etc.
- uses language associated with science
- ensures the child time to share findings with others.

Social-Emotional Development

Guideline 1: Sense of Self

Children begin to identify who they are as a person (such as likes, dislikes, interests, strengths) and develop competence and confidence in their unique abilities. They grow into themselves, differentiating themselves from parents and others.

A child can be supported by an adult who

- offers support that provides some challenge leading to success.
- allows the child time to practice a new skill.
- creates a safe environment to encourage risk taking.
- encourages the child to self-evaluate ("Was that easy or hard for you?").
- engages in genuine conversations with the child based on the child's activities and interests.
- celebrates the child's accomplishments by using specific encouraging words.
- adapts materials and routines to meet the child's individual strengths, interests, and needs.
- respects and accepts the child.
- values a partnership with other people in a child's life.

Guideline 2: Self-Regulation

Children identify and express their feelings in non-hurtful ways, recognize the impact their behavior has on others, and practice self-control.

A child can be supported by an adult who

- listens to the child at the child's eye level and provides guidance.
- offers safe choices.
- allows the child to experience natural consequences within safe limits.
- displays empathy for others.
- helps the child see links between non-verbal communication (such as facial expressions) and feeling words.
- in ambiguous situations, helps child avoid jumping to a conclusion about the behavior, motives and feelings of others.
- actively teaches, models, and encourages problem-solving skills ("What could you do instead of pushing Justin to let him know how you feel?").

Guideline 3: A Caring Community

Children feel secure as they develop relationships of trust with adults and other children in their expanding world beyond the family. They begin to recognize social cues and become sensitive to other's feelings.

A child can be supported by an adult who

- promotes a sense of community and interdependence within the group ("This room belongs to all of us and we all need to take care of it").
- models appropriate social behaviors with other adults and children.
- supports children joining play groups.
- supports and models empathy.
- embraces both similarities and differences of children and families.

Guideline 4: Pro-Social Environment

(an environment that fosters security, safety, independence, and communication, primarily by balancing consistent routines and transitions with flexibility)

Children follow routines with increasing independence and handle variations without discomfort. They make their preferences known in increasingly mature ways and respond to adult guidance appropriately. Children begin to make friends and build relationships with both peers and adults.

A child can be supported by an adult who

- provides the child with the stability to meet the child's indiviual needs.
- communicates with the child at the child's eye level.
- provides opportunities for choices.
- observes evidence of stress and adapts activities accordingly.
- provides reminders and rituals at transition times.
- engages in activities with the child.
- promotes social play opportunities.

Resources for Block Play Ideas and Inspiration

Children's Books about Buildings and Constructions of All Sorts

Anno, Mitsumasa. Anno's Counting Book. HarperCollins, 1990.
A classic introduction to number systems and symmetry as a town is born.

Barton, Byron. Building a House. Penguin Books, 1981.
In simple words and pictures, this book follows each step of building a house, focusing on the workers' specialties and house components such as wiring, pipes, etc.

Beaty, Andrea. Iggy Peck, Architect. Harry Abrams, 2007.
A rhyming book about a passionate – and very creative – young architect and builder.

Crosbie, Michael. Arches to Zigzags: An Architecture ABC. Harry N. Abrams, Inc., 2000.
Uses rhymes and color photographs to introduce children to different architectural elements. Each rhyme ends with a question to spark children's thinking and encourage their exploration.

Dahl, Michael. One Big Building: A Counting Book About Construction. Picture Window Books, 2006.
Children find numerals hidden on each page as the stories of a high-rise increase one by one.

Dupre, Judith. Skyscrapers. Black Dog & Leventhal Publisher, Inc., 1996.
A book of brilliant skyscraper photographs.

Gibbons, Gail. How a House Is Built. Holiday House, 1996.
Illustrations of how a house is built, beginning to end, with descriptions about how architects, surveyors, heavy equipment operators, carpenters, plumbers, and landscapers work together. Also New Road by Gibbons.

Harris, Nicholas. A Year at a Construction Site. First Avenue Editions, 2009.
Watch the seasons change, a building progressing towards completion.

Hayward, Linda. Jobs People Do: A Day in the Life of a Builder. DK Readers Series. DK Publishing, 2001.
Clear photographs and simple text, with picture dictionary of relevant words.

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Hoberman, Mary Ann. A House Is a House for Me. Puffin, 1982.
A rhythmic profusion of different homes.

Hutchins, Pat. Changes, Changes. Collier Books, 1971.
A little wooden couple endure changes when their building block house catches fire.

Kitchen, Bert. And So They Build. Candlewick, 1995.
Twelve different animal builders and the purposes behind their building designs.

Lewis, Kevin. The Lot at the End of My Block. Hyperion Books, 2001.
Rhyming tale about a boy as he watches a building go up in his neighborhood. Includes construction vehicles.

Lowell, Susan. The Three Little Javelinas. Rising Moon, 1998.
A multicultural version of The Three Little Pigs, with houses made of tumbleweed, saguaro rib, and adobe, with Native American and Latino characters.

Macaulay, David. Building Big. Houghton Mifflin, 2000.
Detailed illustrations of bridges, tunnels, dams and skyscrapers.
Other Macauley books that address building design, materials, and challenges:
Pyramid, Mill, Castle, Cathedral, City, Underground, and Unbuilding.

MacDonald, Fiona. Homes. (Discovering World Cultures Series). Crabtree Publishing Company, 2001.
Introduces houses from around the world, showing why they differ.

Marshall, James. The Three Little Pigs. Puffin, 1996.
A classic about the strengths and weaknesses of different building materials.

McLerran, Alice. Roxaboxen. Lothrop, Lee & Shepard, 1991.
Children use creativity to create a town out of rocks, boxes, and desert glass.

Morris, Ann. Houses and Homes (Around the World Series). HarperCollins, 1995.
Full-color survey of interesting homes around the world.

Nelson, Peter. Treehouses: The Art and Craft of Living Out on a Limb. Houghton Mifflin, 1994.
The photographs of treehouses in this book will captivate both children and their parents.

Sobel, June. B is for Bulldozer: A Construction ABC. Sandpiper, 2006.

A construction story-based alphabet book, with many aspects of building included.

Stevenson, Robert Lewis. Block City. Simon & Schuster, 2005.

In this classic poem, a small boy constructs a city with blocks.

Wilkinson, Philip. 2000. Building. Eyewitness Book Series. DK Publishing.

Color photos of houses, towers, and their components – windows, doors, ceilings, etc. Provides information about how structures are designed and built. Other relevant titles in this series include Pyramid, Castle, and Force and Motion.

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Resources for Block Play Ideas and Inspiration

Websites:

www.pbs.org/wgbh/buildingbig

Funded by the National Science Foundation, this site is a companion to the David Macauley books and videos. Contains photos of structures from all over the world, with information about their history, who built them, and the science and engineering underlying their design and construction.

www.emporis.com/en

This is the world's largest free-to-use website of built structures in thousands of cities all over the world.

Resources for Block Play Ideas and Inspiration

Resources for Parents, Caregivers and Early Learning Professionals:

Chalufour, Ingrid, and Karen Worth. Building Structures with Young Children. St. Paul, MN: Redleaf Press, 2004.

Viewed as a more detailed, extended Teaching Numeracy, Language, and Literacy with Blocks by Abigail Newburger and Elizabeth Vaughan.

Hirsch, Elisabeth S., ed. The Block Book, rev. ed. Washington, DC: National Association for the Education of Young Children, 1996.

Often called the best existing book about block play, this book describes in detail the stages of block play development and block play as a way to learn science, math, literacy, and "practice" art.

MacDonald, Sharon. Block Play: The Complete Guide to Learning and Playing with Blocks. Beltsville, MD: Gryphon House, Inc., 2001.

Clear description of what children learn through block play, with building activities and challenges for all stages of development.

Newburger, Abigail, and Elizabeth Vaughan. Teaching Numeracy, Language, and Literacy with Blocks. St. Paul, MN: Redleaf Press, 2006.

This book divides block-building development in young children into stages, then offers specific suggestions for parents and other adults who want to facilitate children's learning through block play.

Provenzo, E. and A. Brett. The Complete Block Book. New York: Syracuse University Press, 1984.

In addition to the uses and value of block play for children, this book offers a historical overview of the importance of building with blocks to children's development, covering 200 years.

Walker, Lester. Block Building for Children: Making Buildings of the World with the Ultimate Construction Toy. Woodstock, NY: Overlook Press, 1995.

Focusing on combinations of basic building components, then on detailed "blueprints" for 18 structures, this inspirational book about block-building is a classic.

Science Words

Here are some science and building words you might use in your construction and play projects. Do you have other science and building words that you can add?

design
bigger than
smaller than
equal to
size
measurement
height
width
weight
circle
shape
triangle
square
rectangle
pillar
half
double
quarter
quadruple
corner
pillar
heavier than
lighter than
same as
wood
foam
plastic
names of all colors
symmetry
balance
stability
instability

gravity
tension
compression
lever
incline
pulley
hypothesis
investigate
analyze
documentation
represent
symbol
observe
guess
beam
support
cylinder
ramp
enclosure
bridge
arch
pattern
order
direction
left
right
collaborate
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Math Words

Here are some math and building words you might use in your construction and play projects. Do you have other math and building words that you can add?

large
small
full
empty
first
second
third
fourth
fifth
over
under
around
through
beside
above
between
below
behind
front
middle
back
more
less
a lot
little
big
same
different
equal
single
double
triple

high
low
whole
half
quarter
all
none
nothing
everything
light
heavy
up
down
out
in
forward
backward
wide
narrow
tall
short
count
one
two
thee
four
five
six
seven
eight
nine
ten

eleven
twelve
thirteen
fourteen
fifteen
sixteen
seventeen
eighteen
nineteen
twenty
next
many
few
some
greater than
less than
plus
minus
last
add
subtract
circle
square
triangle
rectangle
bottom
top
____
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Feeling Words

Here are some feeling words you might use in your construction and play projects. Do you have other feeling words that you can add?

happy
super
jolly
joyful
gleeful
laughing
smiley
warm
witty
comfortable
excited
friendly
funny
great
mellow
mild
open
quiet
thoughtful
willing
capable
close
afraid
scared
anxious
apprehensive
concerned
fearful
helpless
hesitant
hurt
lonely

troubled
worried
angry
furious
mad
grumpy
ornery
frustrated
jealous
pouty
sorry
sad
reluctant
crazy
wild
surprised
embarrassed
humble
hopeful
sick
well
tired
unfriendly

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Block Play, Math and Literacy

Pamela C. Phelps, Ph.D. and Laura L. Stannard, Ph.D.

It's been more than two hundred years since Friedrich Froebel introduced wooden shapes for children to explore, take apart, and put together. Since then, blocks have been shown to aid the development of young children. Jean Piaget's theory of stages, for instance, tells us that children develop social, physical, and logico-mathematical knowledge through playing with manipulative materials such as blocks.

In the United States, block play took off at the beginning of the last century, through the pioneering work of Caroline Pratt, a New York City teacher who was frustrated by the "repressiveness of formal education"—and excited by the possibilities of letting children learn through constructive, open-ended play.

In 1983, Stuart Reifel identified 19 stages of block building that children evidence in their play. (They were first described by Guanella in 1934.) More recently, teachers and researchers at the Creative Pre-School in Tallahassee, Florida, have substantiated them.

When children play with blocks, they are practicing mathematical skills. In selecting blocks of different sizes and shapes and comparing surface volumes and areas, for example, they are unwittingly using classification and seriation (Hirsch, 1996). Cleaning up involves math too: sorting identical and dissimilar shapes, and organizing by size (Henniger, 1987).

Because it involves measuring lengths, widths, and heights (if only by eye), block play develops a child's ability to mentally visualize relationships. Such manipulations are similar to those used in geometry and algebra during the child's later school years (Henniger, 1987).

Constructive block play also involves the use of spatial configurations (Reifel, 1983), a vital aspect of mathematics and science generally (Casey, Pezaris & Nuttal, 1992). A study that evaluated the block constructions of four-year-olds (in 1982) and compared them with their test scores in high school (in 1998) supported the hypothesis that a child's ability to create complex block constructions can predict mathematical ability. Interestingly, the study found a difference in achievement levels between boys and girls only when the boys were given greater exposure to blocks. When both were given equal opportunities to develop their skills, there were no gender-related differences (Stannard, Wolfgang, Jones, and Phelps, 2001).

In short, unit blocks do not only afford long-lasting play, but also fundamental educational lessons that will be invaluable in later life. Because of this, adults who work with young children would do well to learn the names of geometric shapes, the built-in mathematical concepts their children will draw on in playing with blocks, and the developmental stages exhibited by children during play. Unit blocks ought to be an integral part of every childhood.

All blocks are not equal. Here's why you ought to take time to choose the best. First, poorly made blocks are frustrating for children to build with. Second, unit block measurements ("equivalencies") allow the child to explore, even if unwittingly, the mathematical ideas of multiples or fractions. Be sure your set of small blocks matches your medium or large ones in terms of dimensions and proportions. In other words, make sure they are modular.

Finally, buy generously. When there aren't enough blocks for children to complete the structures they have in mind, it not only frustrates them, but constrains them developmentally.

Both writers are educational consultants at the Creative Center for Childhood Research and Training in Tallahassee, Florida. www.cccrt.org

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Stages in Block Play

Children move through the stages of block play at different ages and occasionally vary the order of stages. Sometimes they move back and forth between stages. With increased exposure to blocks and block play, children move through and within stages more quickly. (A 5---year old who is exposed to quality block play for the first time may play in all 6 stages in a year or less.) Here are some generalities about stages of children's block play:

Stage 1: Exploring Blocks (ages 1-3)

Toddlers love to carry, move, touch, hold, drop and feel blocks, generally exploring their properties. They like a variety of containers in which to pack, repack, and haul blocks.

Stage 2: Building Rows and Towers (age 2-4)

In this stage, children line up blocks horizontally and stack blocks vertically. Children begin to use simple 2---dimensional patterns, gradually moving to more complex patterns, some of them 3--- dimensional.

Stage 3: Building Bridges and Passageways (ages 3-4)

Children form a space between two blocks, and then span the space with a third block. Eventually, children in this stage build stacks and rows, adding bridges and creating passageways.

Stage 4: Building Enclosures (age 4)

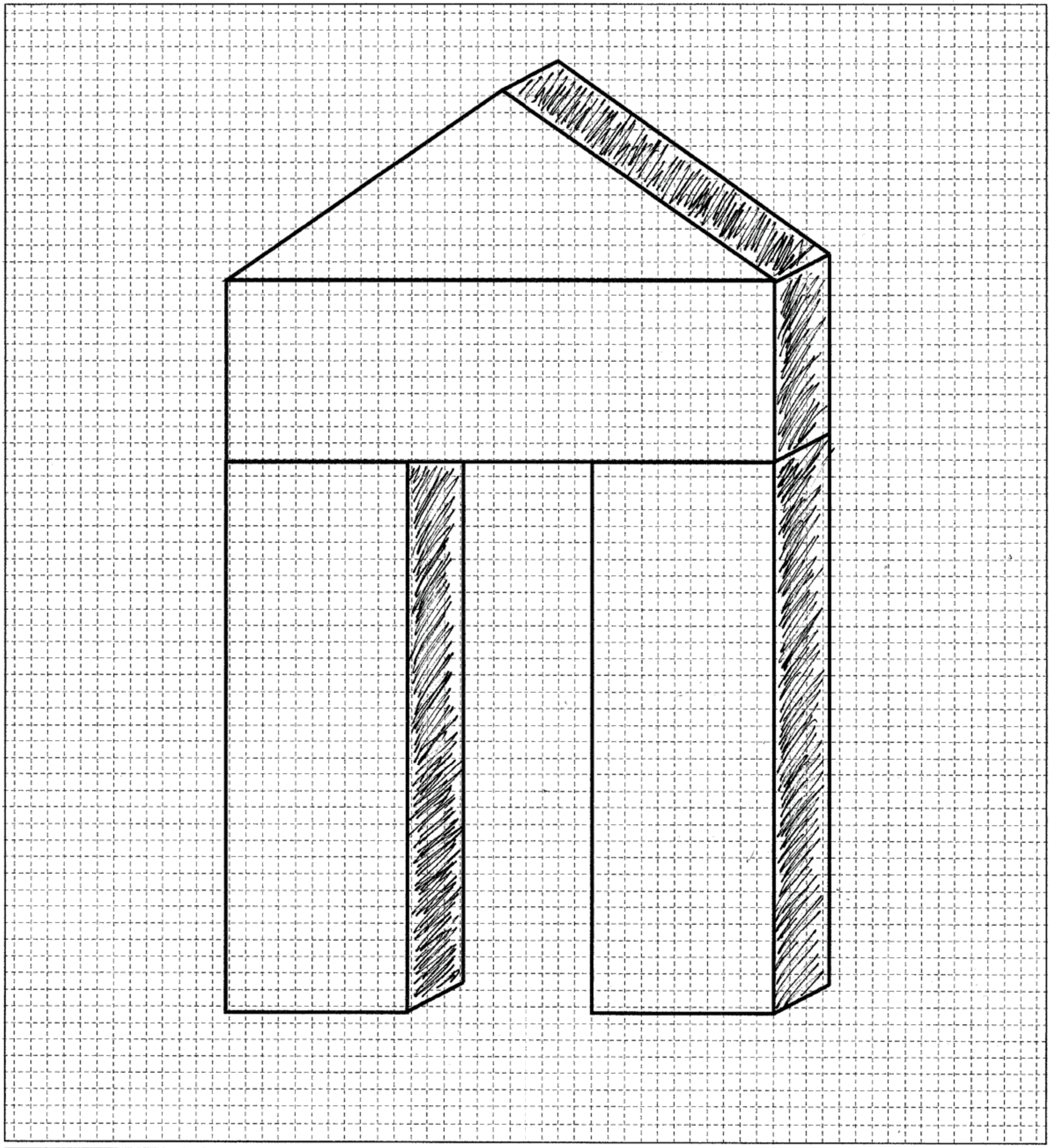
Children close up space between blocks with other blocks. Children begin to plan ahead about how to close up a space and solve problems to reach their goals. After enclosing a space with blocks flat on the floor, children begin constructing stacked enclosures. They include passageways. They often add storylines, incorporating miniature animals, people, signs, etc.

Stage 5: Adding Symmetry, Detailed Balance and More Involved Design to Structures (ages 4-5)

Children's structures include deliberate efforts to achieve symmetry and balance, and prominent, often decorative patterning. They sort and match shapes and sizes, and find equivalences.

Stage 6: Planning and Building Elaborate Structures (ages 5 and older)

Children work individually – but also cooperatively – to plan and build elaborate structures, revising their plans as they work. When building together, they often assign each other builder roles. They use a variety of materials to achieve desired effects. They spend much time sorting, matching, and arranging. They incorporate dramatic play around their block structures.



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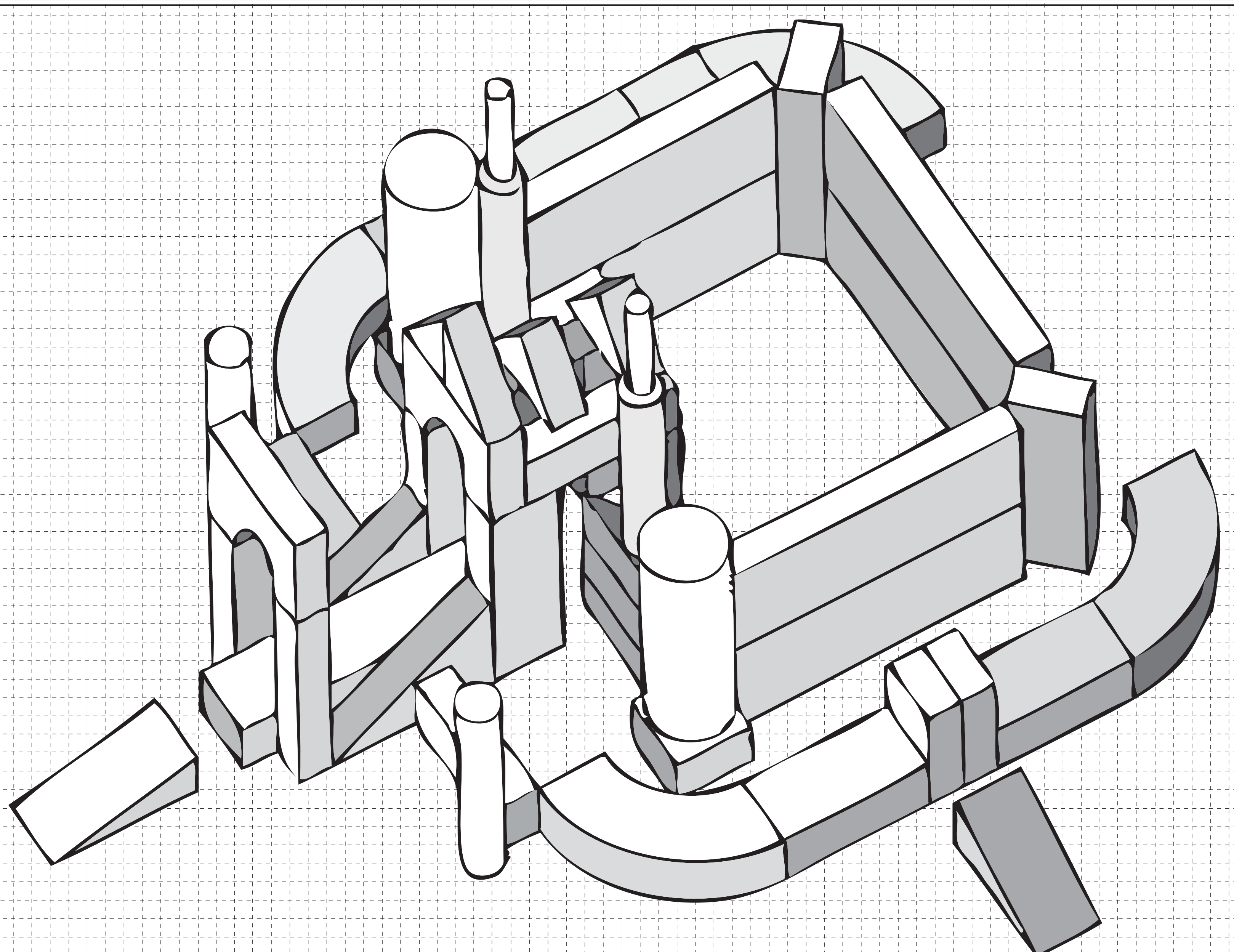
Library:
Title:
Scale:	Materials Needed:



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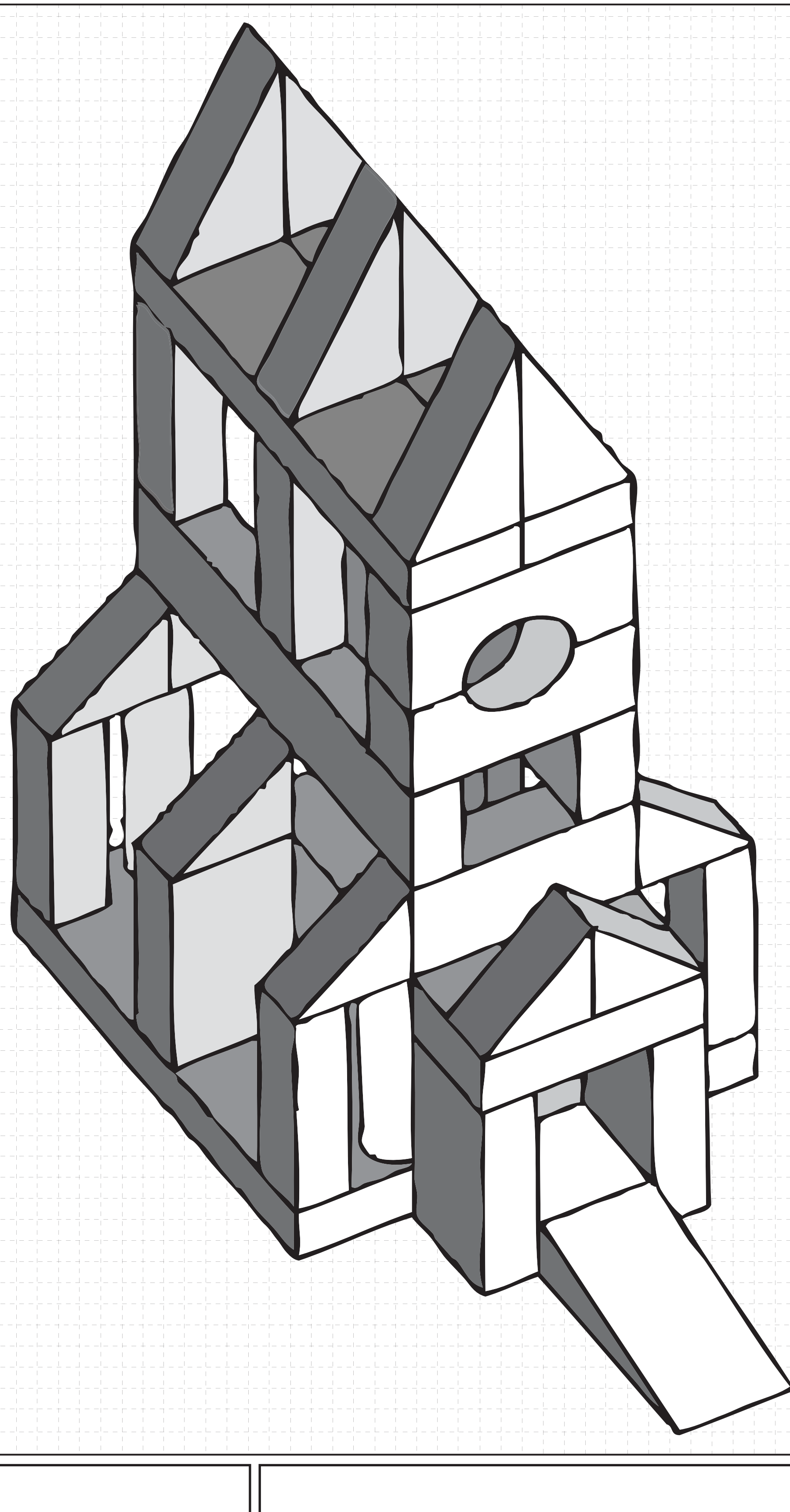
TITLE: castle

SCALE:

MATERIALS NEEDED:



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TITLE: cathedral

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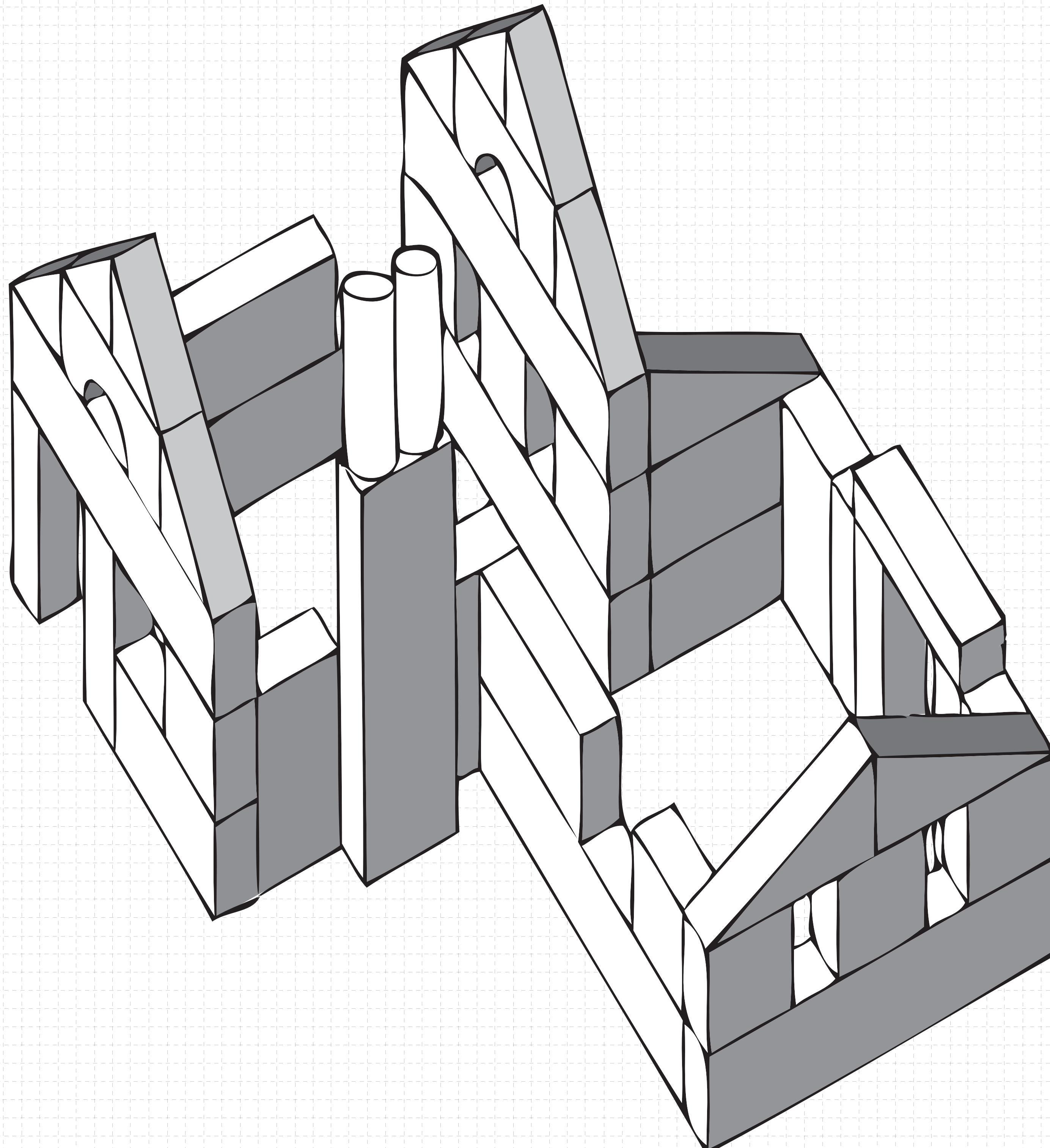
MATERIALS NEEDED:



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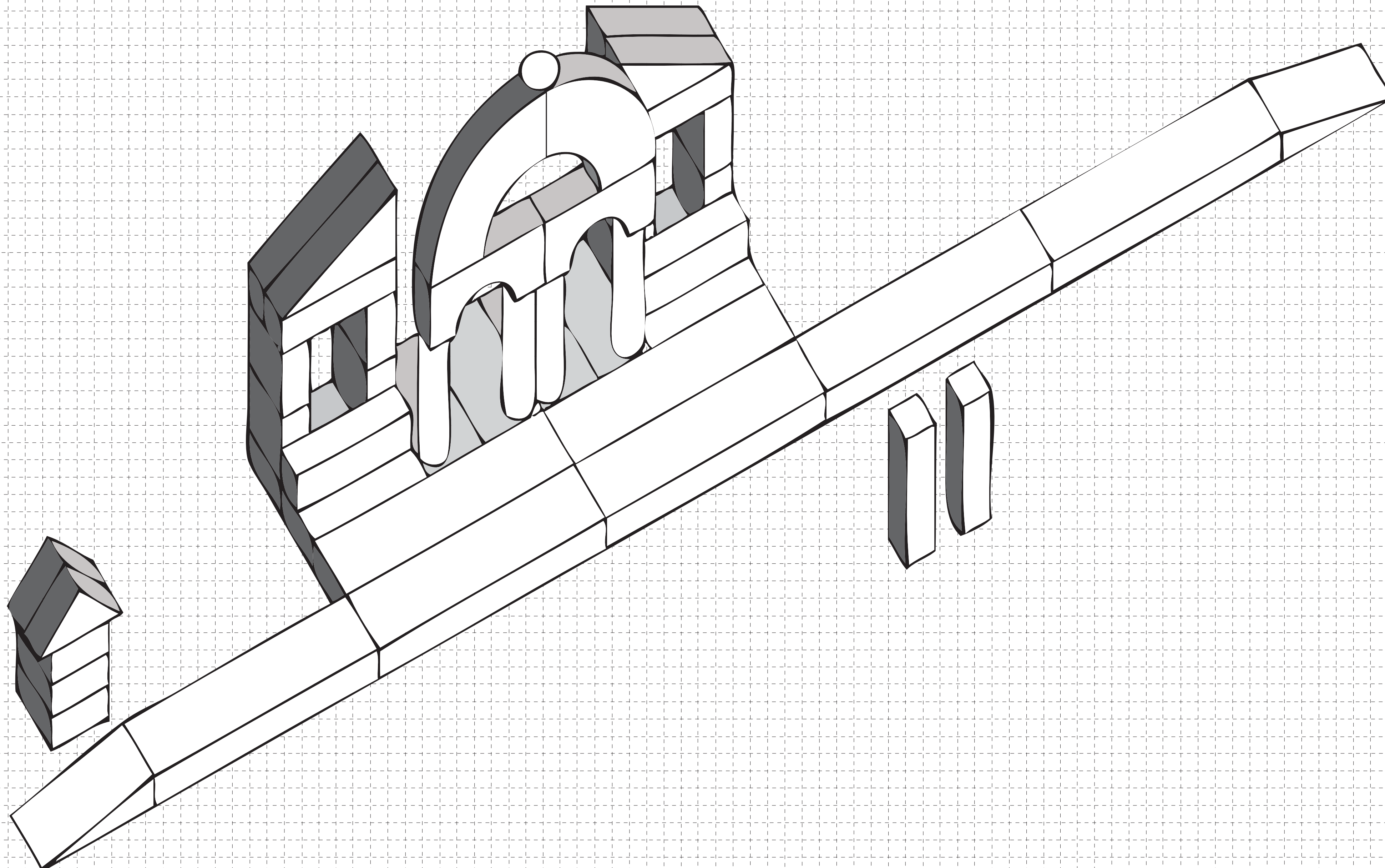
TITLE: house

SCALE:

MATERIALS NEEDED:



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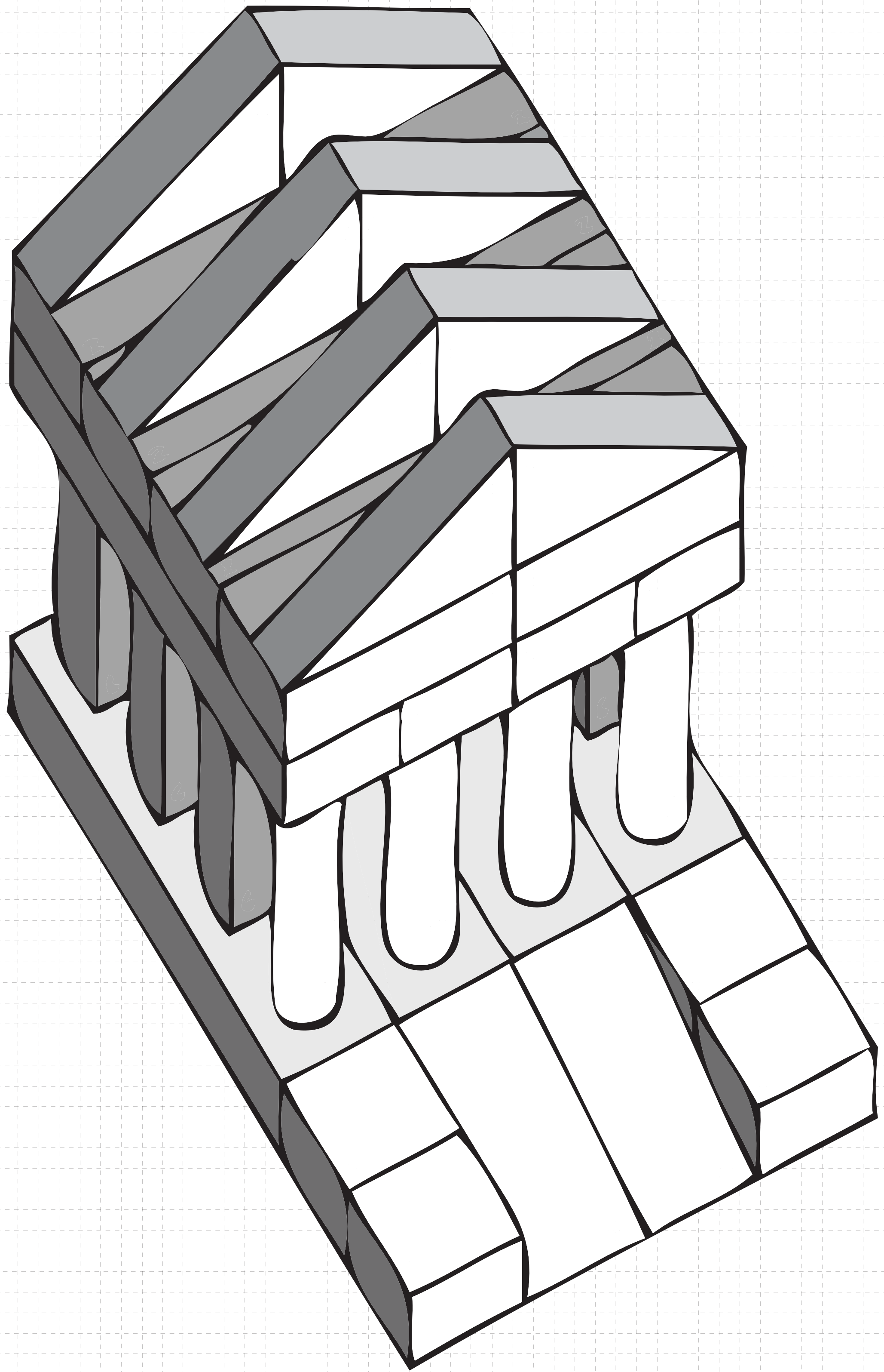
DENNIS & PHYLLIS WASHINGTON FOUNDATION

TITLE: railroad station

MATERIALS NEEDED:

SCALE:



Ready 2 Read! PlaySpace

Montana State Library

DENNIS & PHYLLIS WASHINGTON FOUNDATION

TITLE: temple

SCALE:

MATERIALS NEEDED:

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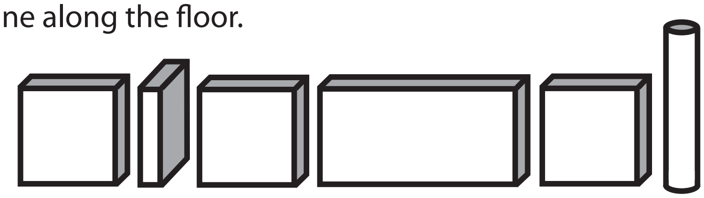
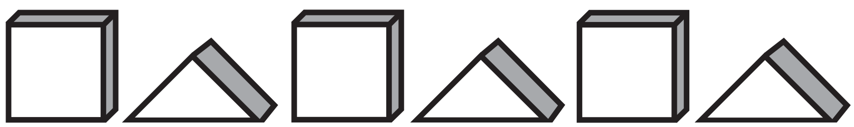
BASIC BLOCK COMPONENTS

1. ROWS

Typically the first building component constructed by children, a row is a repetition of one or more types of blocks in a line along the floor.



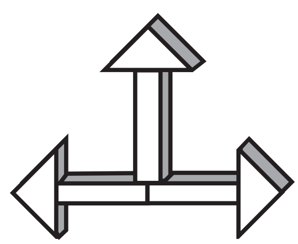
The more types of blocks used in a repeating fashion, the more complex the pattern in the row.



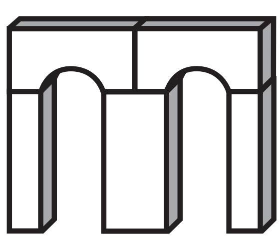
2. GEOMETRIC CONSTRUCTIONS

Geometric constructions are sometimes used as basic building components, and sometimes used to add distinctive style or interesting design to components such as towers, bridges and enclosures.

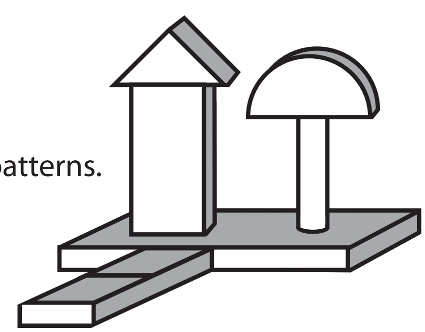
Geometric constructions can be 2-dimensional patterns.



Geometric constructions can be 3-dimensional patterns.



Geometric constructions can be combinations of 2- or 3-dimensional patterns.



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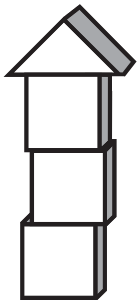
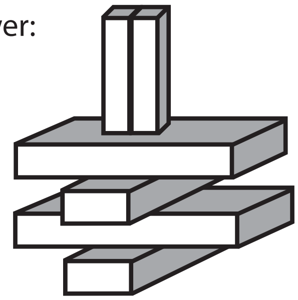
3. STACKS AND TOWERS

A stack is two or more blocks placed one on top of another, up from the floor. As blocks are added in a balanced way, a tower is formed. Complex towers may incorporate many blocks of various sizes and shapes.

A simple stack:



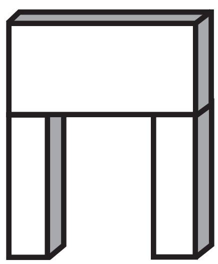
A complex tower:

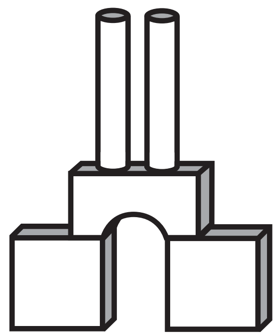


4. BRIDGES AND PASSAGEWAYS

A simple block bridge or door frame is composed of a horizontal load-bearing block (an arch or beam) supported below by vertical posts (or columns).

Together, the horizontal and vertical components create an enclosed passageway such as a tunnel or a doorway.

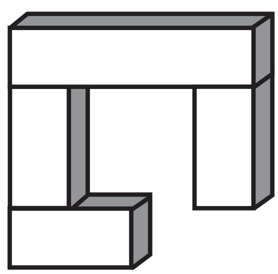




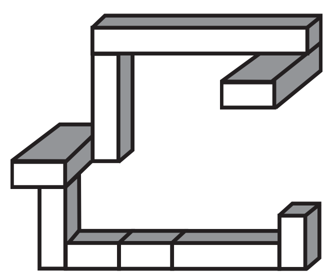
5. ENCLOSURES

Enclosures such as fences and walls are created when open spaces are 'closed' or defined by 'touching' blocks.

Simple, mostly 2-dimensional enclosures, can be made by placing blocks flat on the floor, touching each other.



More complex 3-dimensional spaces are built with touching stacks of blocks or by standing touching blocks on their edges.



Note: A typical block enclosure does not include a roof. By leaving enclosures open at the top, block builders are better able to understand and use the space they created.

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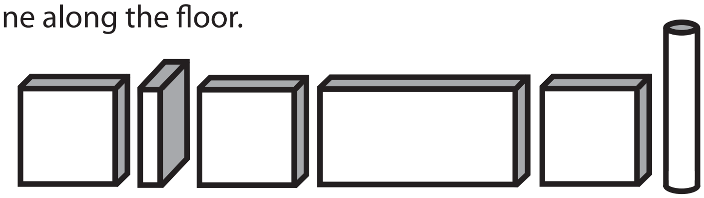

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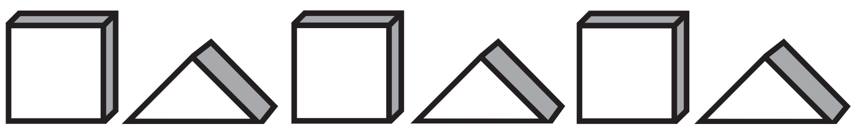

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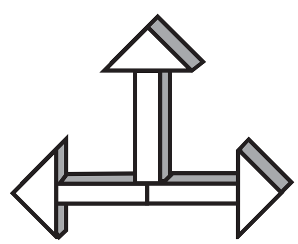
Geometric constructions can be 2-dimensional patterns.



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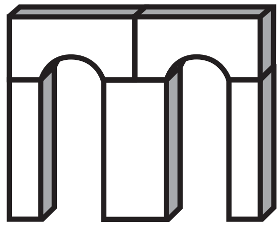

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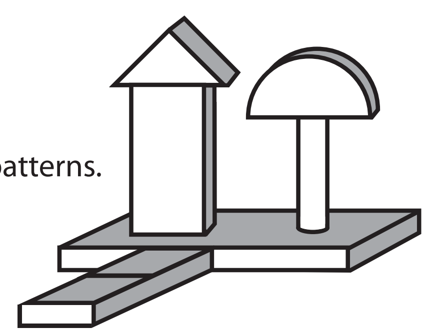

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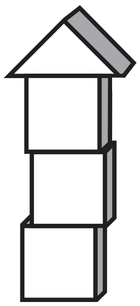
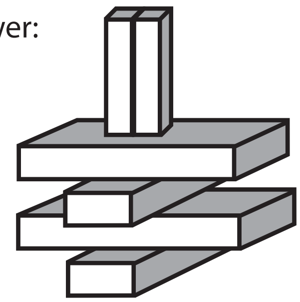


A complex tower:



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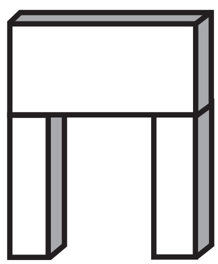

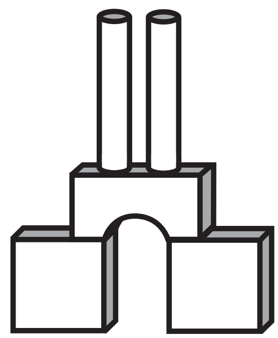

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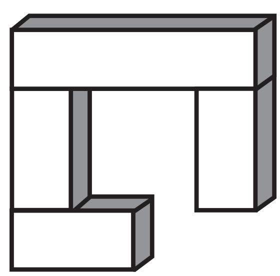

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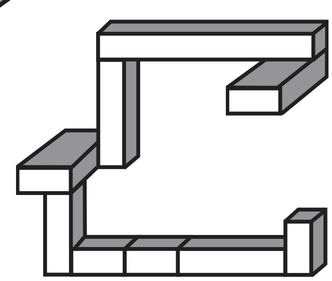

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