

PURPOSE OF BLOCK PLAY IN THE INFANT-TODDLER CLASSROOM



Blocks are timeless play materials that have endured as an activity through many ideologies, beliefs, and theories of child development. Blocks can be an integral part of the learning environment throughout childhood, beginning with infants and toddlers.

Block play offers opportunities for learning scientific concepts such as cause and effect, and mathematical concepts such as quantity, classification and ordering. As children grow and develop in their block play, their understanding of the complexity of blocks, how they compare to one another, and the many ways that they can be used increases. This developing understanding of and familiarity with the materials enables them to construct more elaborate and complex structures as they grapple with engineering habits of mind such as creativity, collaboration, communication, optimism, and ethical considerations.

SENSEMAKING IN BLOCK PLAY

Including unit blocks and mini unit blocks in infant and toddler classrooms is a way to honor what young children know and can do. Even seasoned infant toddler educators can be surprised by what children with access to these rich materials can create!

Blocks are the kind of classroom material that will entice children of any age to explore and investigate. These high-quality materials are the quintessential loose parts with no end of potential for STEM-rich play. Open-ended play materials such as unit blocks allow children to make choices, express their creativity, and support their independence. We often begin with [mini unit blocks](#) in infant and toddler classrooms and marvel at the way these blocks fit perfectly into a baby's hands and respond to a child's desire to make something interesting happen. Even children who are not yet sitting are curious about how they can make a stack of mini unit blocks topple over with a "bang" when they move their arms or legs. Unit blocks are ripe with possibilities for science, technology, engineering, and math play.

"Block play transcends all forms of infant-toddler play and supports all domains of development" (Wellhausen & Kieff, 2001, p. 65). Children strengthen cognitive development when they pursue a task such as building a tower and persist in this task even after several iterations prove unsuccessful. As children build, they increase their development of social-emotional regulation while building near other toddlers and using the same set of blocks. Building provides many opportunities for children to engage in interactive exchanges that support both emotion regulation and language development. Vocabulary is enriched when adults label blocks and props during interactive play or assist children in conflict negotiations that occur while building together. They gain a working understanding of the science of balancing one block on top of another, and how the properties and placement of a block impact its stability when stacked. Spatial ability is an important math outcome that is supported in the block center when children use trial and error to choose blocks of different lengths and widths to pursue a building goal or when they realize that the space they have for building does not support the idea they have in mind. There are additional math concepts that children encounter while building including more/less, sorting, patterns, numeracy, shape, size, measurement, and symmetry. There are opportunities for creativity when selecting materials, finding props, and describing what they are building. As children have more experience with blocks and building materials, the structures often take on aesthetically pleasing forms and children are excited about finding colored shapes, jewels or stones, and other natural materials to decorate their work.



WHAT DO INFANTS AND TODDLERS DO WITH BLOCKS?

- Bat at blocks before they can grasp
- Reach for blocks that are placed in proximity to their play area
- Manipulate and feel blocks with hands
- Grasp
- Pass from hand to hand
- Bang two blocks together
- Put blocks in mouth
- Engage in volumetric block play
 - Dumping out a tub of blocks
 - Placing blocks in containers (such as tubs, baskets, or muffin tins)
- Carry blocks around the room
- Drop blocks repeatedly and watch them fall (especially if in a highchair)
- Look for a hidden block (approximately 8-12 months)
- Knock over block structures erected for them
- Stack blocks as high as they can and knock them over (toddlers)
- Begin to build recognizable structures (older toddlers)
- Begin to name their work (this is the farmhouse where the farmer lives)



WHAT ARE INFANTS AND TODDLERS LEARNING WHEN ENGAGING IN BLOCK PLAY?

Block play is a rich context for physical development as well as cognitive, math, science, and social-emotional learning. Infants and toddlers practice eye-hand coordination when they reach for and grasp, knock down, or stack blocks. They develop both **fine and large motor skills** as they figure out how to grasp, bang, stack, and carry blocks.

When adults play with blocks with infants they promote the development of **object permanence** (the understanding that objects continue to exist even when they cannot be seen, heard, touched, smelled, or sensed). The development of cognitive skills continues as infants and toddlers play with a variety of blocks. They encounter the **science** of physical properties as they mouth, grasp and manipulate, drop, or bang different kinds of blocks together to make interesting sounds. Toddlers experience the effects of gravity and balance; cause and effect.

Infants and toddlers engage in **mathematics** as they begin to notice likenesses and differences, begin matching, grouping, classifying, and organizing. They grapple with spatial thinking as they place blocks on, under, in front of, and behind each other. Babies begin stacking objects at one year, which demonstrates the infant's understanding of the spatial relationship of "on" (Kamii, Miyakawa, & Kato, 2004). The "next-to" relationship develops at about 18 months and two-year-old toddlers begin to place blocks on or next to the block previously placed (Stiles-Davis, 1988). Two-year-olds appear to understand that blocks do not fall when stacked carefully on one another (Kamii, Miyakawa, & Kato, 2004).

The ability to construct a tower that uses the builder's knowledge of balance has been linked to high performance in math and science starting in middle school. Children who work with blocks in the early years outperform their peers who have not had these experiences in math and science because of all of the mathematical concepts that can be addressed through block play.

Finally, through block play, infants and toddlers can exhibit their developing **emotional regulation** when they show surprise and anticipation when the blocks are introduced or when they are able to calm themselves when frustrated. Block play provides many opportunities to develop problem solving skills, the power of imagination, persistence, and confidence in their ability to create.

STAGES OF INFANT AND TODDLER BLOCK PLAY

Stage 1: Sensory Exploration During this stage infants and young toddlers learn about the properties of blocks by mouthing, touching, moving, holding, feeling, and knocking them down.

Stage 2: Carrying This stage typically begins in children under the age of two. During this stage blocks are generally not used for construction. Children carry blocks around from place to place, explore them with their senses (touch, sight, taste),

hit blocks together or against other objects to explore sound and dump them in piles from containers filled with blocks.

Stage 3: Stacking The number of blocks that a child can stack is correlated with their level of motor development. A 15-month old can stack 2 blocks, an 18-month old at least 4 blocks, and a 24-month old can stack 5 or more blocks.

Stacking may:

- be either vertically in towers or horizontally in rows (demonstrating relationship of **on** and **next to**)
- be haphazard
- be meticulous (demonstrating toddler is noticing congruence)
- be in multiple rows and towers
- resemble floors and walls
- show flexibility in integrating parts of the structure

Stage 4: Bridging Bridges are the spaces between two upright blocks made with a third block. Bridging and enclosures often happen at around the same time. Toddlers who have had a lot of experience with blocks may demonstrate these two behaviors but don't expect to see it with children under three.

Stage 5: Enclosures: Children begin to place blocks purposefully to enclose a space. When making enclosures they may begin to be more careful about aligning corners and making things fit. Older toddlers may begin to build enclosures to make a house, garage, or a pen for animals. Props become important when their designs become more complex.

COMMENTS AND QUESTIONS FOR ADULTS TO CONSIDER

COMMENTS	QUESTIONS
Model self-talk as you play with the blocks (I'm knocking the blocks together.) Narrate baby's actions- (The block falls down-Crash!)	Will all the blocks fit on this shelf? These blocks are the same. Are there more like this that we can use?
You are laying the blocks next to one another. Then you put another one on top .	How are these blocks different?
Look how high that is. I wonder if they could go higher.	Can you find another block that you can use to make a bridge?
Oooh, you stacked that one on top. Now there are 1-2-3-4-5-6 blocks on the tower.	Could you make another one like it? Bigger? Smaller?
I wonder what would happen if you turned that piece around and tried again.	That's a problem! What can you do about it?
I see you playing with blocks a lot. This is one of your favorite centers.	What happened when you added the big block to the top of the tower?
You are putting all of the red blocks in one bucket. You're sorting! It looks like the blue blocks are going into the basket. You have lots of blocks in your pile!	I see that you're only using unit blocks to make your house. Can you tell me why you chose those?
	You are laying the blocks next to one another. Then you put another one on top .

EXTENDING THE LEARNING IN INFANT AND TODDLER BLOCK PLAY

Adults can be the most effective in their teaching when they are aware of infants' and toddlers' developmental levels and previous experiences. This begins when they provide an environment that inspires infant and toddler interests and ideas and allows them to try out their ideas. Suggestions to create such an environment include:

- Provide a stable, flat surface such as a low table or floor for building that allows play to grow.
- Add loose parts that entice toddlers to engage in a variety of play scenarios.
- Add farm animals, construction vehicles, plastic food, and baby dolls to the block area.
- Post pictures of buildings or structures on the wall in the blocks area.
- Keep out only the number of blocks that toddlers can put away on their own or with minimal help.
- Provide woven baskets or other attractive containers for ease of clean up.
- Provide containers of various sizes for dumping and filling blocks.

- Take digital pictures of toddlers as they build structures and display them where the toddlers can easily see.
- Add pictures of children to cylindrical blocks to encourage interest in the blocks center.
- Use careful observation to know when children are ready for more blocks or different props.
- Know when to make comments and ask questions and when to sit quietly to observe.

KINDS OF BLOCKS AND MATERIALS TO CONSIDER IN AN INFANT (0-12 MONTHS) AND TODDLER (12-36 MONTHS) BLOCK CENTER

Age	Needs
Infants (0-9 months)	Selection of blocks with various sizes, weights, textures, & colors Enticement from adult or older play partner to engage in sensory motor play Soft cloth, vinyl, or foam blocks that won't hurt when mouthed and can be washed after use Containers such as cans or boxes that can be filled with blocks and dumped (over & over)
Mobile Infants (6-12 months)	Not too many – enough to make a short stack or dump and to invite exploration Rotate kinds of blocks regularly to provide a range of block sizes, shapes, & types Blocks in different shapes that they can grasp Containers to drop blocks into
Young Toddlers (12-24 months)	Large, soft foam blocks for stacking & knocking down Large interlocking blocks such as Mega Bloks® or Duplos® Thin plastic boxes or empty cardboard cartons or boxes that can be knocked down Medium-sized wood blocks in a variety of shapes & colors Wagons for hauling Buckets/baskets for carrying Boxes to pile the blocks Suitcases or briefcases to pack the blocks
Older Toddlers (24-36 months)	Protected block area so children can build & save their structures Many different types of blocks & of a quantity so multiple toddlers can build A good set of wood unit blocks including arches, pillars, ramps, & curves (essential) Large hollow blocks Small color cubes Large interlocking blocks (Mega Bloks® or Duplos®, bristle blocks) Interesting blocks to inspire imagination (window blocks, magna-tiles, natural tree blocks) Materials to support dramatic/creative play (toy people, animals, vehicles, trees, wooden trains & tracks) Materials to encourage pretend play (small pieces of fabric, colored paper, foil) Fiction & non-fiction books about building

LINKS TO DIRECTIONS FOR DIY BLOCKS

- Cardboard Building Blocks:** B-Inspired Mama
Milk Carton Blocks: Baby Toolkit
Home-Made Wooden Blocks: The Created Home
Jumbo Building Blocks: The Stay-at-home Mom Survival Guide
Wooden Tree Blocks: ADVENTURE-IN-A-BOX
Fabric Blocks for Baby: ANDNEXTCOMES

RECOMMENDED RESOURCES/READING

- Iowa Regents' Center for Early Developmental Education (2026, April). *STEM Experiences for Classrooms: Infants & Toddlers*. regentsctr.uni.edu/educator-resources/stem-experiences-classrooms
- Kamii, C., & DeVries, R. (1978/1993). *Physical knowledge in Preschool Education: Implications of Piaget's theory*. New York, NY: Teacher's College Press.
- Lewin-Benham, A. (2010). *Infants and toddlers at work: Using Reggio-inspired materials to support brain development*. New York, NY: Teachers College Press.
- VanMeeteren, B., & Peterson, S. (2022). *Investigating STEM With Infants and Toddlers*. Teachers College Press.
- Wellhausen, K., & Kieff, J. (2001). *A constructivist approach to block play in early childhood*. Albany, NY: Delmar.