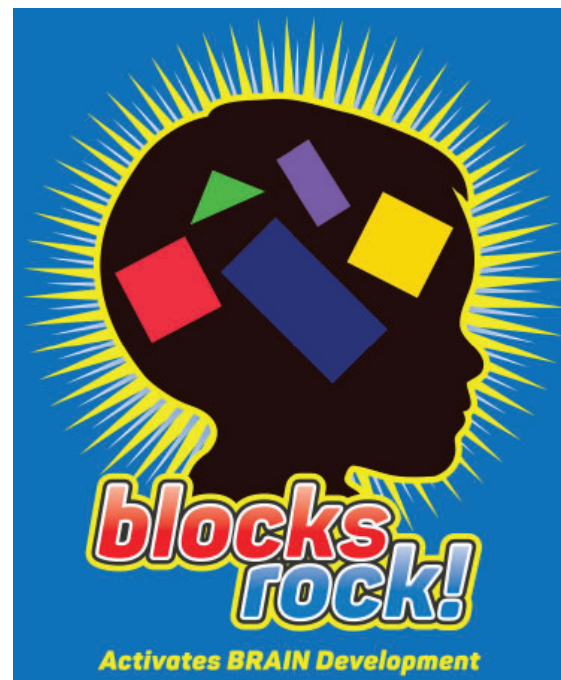


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Purdue University Northwest



# Texas Curriculum Guide

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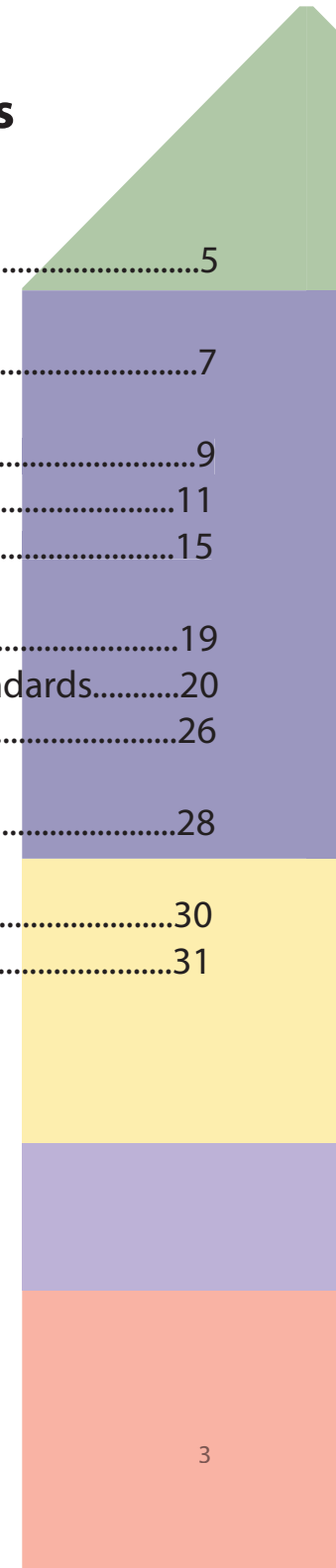
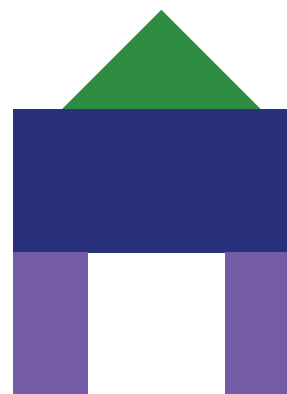
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## SAMPLE LETTER TO FAMILIES

Dear Families,

We have been playing a new game in our classroom, Blocks Rock! This competitive block-building activity helps children develop spatial thinking and mental rotation skills. Blocks Rock! encourages creative problem-solving, positive social interactions, and fun!

As your child's first teacher, you play an important role in modeling curiosity and persistence to support learning. At home you can create an environment where your child feels safe in taking risks, asking questions and making leaps in their thinking. Extend your child's experience with this game by asking about playing Blocks Rock!:

- o Tell me about the block game you played today.
- o Which friends played Blocks Rock! with you?
- o Tell me about what you built with the blocks.
- o Describe how you played the game? What did you use?

Blocks Rock! has been proven to help children develop important knowledge and skills in science, technology, engineering and mathematics (STEM). Playing this game with an adult or a classmate is another way that your child is learning essential concepts. If you are interested, you can purchase Blocks Rock! to play at home or you can download the app. Check out the Blocks Rock! website to learn more about this class favorite - <https://blocksrock.com/app>.

As always, thank you for sharing your child with us. Please don't hesitate to call or email with any questions.

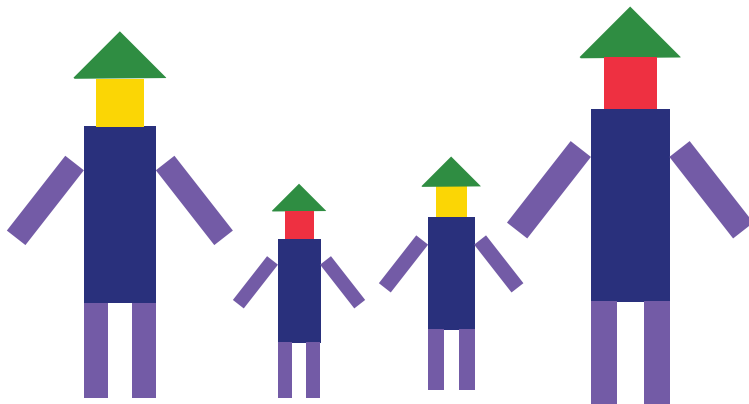
Sincerely,  
Your Name

## Sharing Information with Families

Communicating with families is an important way to connect home and school. Parents are the child's first teacher and when families feel as if they have meaningful interactions with school, they are more likely to stay involved. Helping families to understand their child's experience in your setting is an important step in developing a strong partnership with families.

Suggestions:

- Send a letter home explaining to families that you have been playing a new game and provide them with prompts to engage their child and to learn more about the game. See the sample letter.
- Host a family game night. Young children can learn about taking turns, following directions and sportsmanship when playing games with peers and adults.
- Share information about how to order the Blocks Rock! game for home. Or, provide instructions for downloading the app. To learn more, visit [blocksrock.com](http://blocksrock.com).



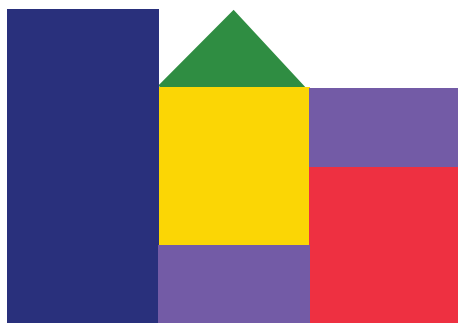
## Welcome to Blocks Rock!

Early childhood educators know that block play is a fundamental experience for young children. The “Block Corner” is a time-honored tradition in early learning environments as block play promotes young children’s growth and learning in many ways – language development, mathematical understanding, curiosity, and friendships. Numerous research studies have shown the benefits of structured block play as part of a young child’s classroom experience. Structured block play requires the ability to analyze a spatial representation and develops skills in estimation, measurement, patterning, part-whole relations, visualization, symmetry, transformation, and balance (Newman, et al., 2016).

**Blocks Rock!** is a competitive block-building activity that helps children develop spatial thinking and mental rotation skills. This brain development tool was created in 2005 as an educational resource to help children learn through play. This guide provides the rationale for using **Blocks Rock!** in your classroom and offers suggestions for implementing the game as well as enhancing the experience.

As an early childhood educator, you play a critical role in modeling curiosity and persistence to support young children’s learning. Creating an environment where children feel safe in taking risks, asking questions and making leaps in their thinking is critical to their success. The competitive nature of this game motivates many children to continue playing the game. Use the **Blocks Rock!** game to encourage creativity in problem-solving, to promote positive social interactions, and to stretch children’s thinking.

**A** word about competition and cooperation: In the early learning environment, educators may observe children engaged in “constructive competition” which is grounded in mutual respect and an understanding that other children possess desirable skills and competencies. Some children are motivated by the competitive aspects of playing the game. Others enjoy the cooperative nature of playing together. Often, the child with specific skills will teach the other children how to play the game and how to use strategies to win. While winning is very important to preschoolers, being friends and spending time with peers is even more important (Sheridan & Williams, 2006). Early childhood educators can support children’s cognitive and social-emotional development by focusing on both competition and cooperation.



	1. Social and Emotional Development	2. Language and Communication	3. Emergent Literacy Reading	4. Emergent Literacy Writing	5. Mathematics	6. Science	7. Social Studies	8. Fine Arts	9. Physical Development and Health
Counting Rocks!	•	A, B4, D1			A1-9, B1-3, C1-4, D1-4	A1		B	
Conversations		A, B.1., B2, B4, D	A, D	A1, A2	A1-9, B1-3, C1-4, D1-4	A1	D		C1
Dramatic Play	•	A, B.1., B2, B4, D1	A, D	A1, A2	A1-9, B1-3,	A1		C	A, B, C1
Freeze Dance	•	A, B.1., B2, B4, D1						B	A, C1
Monkey See Monkey Do	•	A, B2, B4, D1	A	A1	B1-3, C1-4, D1-4, E1-3	A1		B1	B
Copy Cat	•	A, B2, B4, D1	A	A1	B1-3, C1-4, D1-4, E1-3	A1		A1	B
Sign Up	•	A, B1, B2		A1	A1-9, E1-3				

Activity	Texas Prekindergarten Guidelines								
	1. Social and Emotional Development	2. Language and Communication	3. Emergent Literacy Reading	4. Emergent Literacy Writing	5. Mathematics	6. Science	7. Social Studies	8. Fine Arts	9. Physical Development and Health
BR! Structured block play with an adult.	•	A, B1, B2, B4, D1			A1-9, B1-3, C1-4, D1-4, E1-3	A1	D		B
BR! Structured block play with a peer.	•	A, B1, B2, B4, D1			A1-9, B1-3, C1-4, D1-4, E1-3	A1	D		B
Free Exploration	•	A, B2, B4, D1		A1	A1-9, B1-3, C1-4, D1-4, E1-3	A1		A1, B1, C	A, B, C1
Read Aloud		A, B2, B4, D1	A, D					C	
Sort it Out	•	A, B4, D1	1, 2, 3, 7		B1-3, C1-4, D1-4	A1		A1	B

## Overview of STEM Curriculum for Early Learning Environments

Early care and education programs are constructed around the concepts of STEM = Science, Technology, Engineering and Mathematics. Through the exploration of STEM concepts, young children increase conceptual knowledge and strengthen social and emotional skills, including executive function, all of which are critical for later school success. The learning environment, experiences and interactions with adults and peers are intentionally designed to promote growth and learning for children.

In a high-quality early learning environment, the key goals and outcomes include:

- Improving the child's social development skills - conversing with peers and adults, being independent, keeping hands to self, sharing and listening.
- Improving the child's cognitive skills. Ex: recognition of letters, pre-reading skills, concepts such as numbers and colors, book knowledge and vocabulary.
- Improving the child's executive function (promoting positive school behavior skills). Ex: turn-taking, manipulating materials, listening to a story, self-help skills.
- Improving parenting and family engagement practices – helping families learn how to observe their child in an educational environment, implementing at-home assignments and leading within the child's learning environment through classroom involvement.

These child outcomes align with the Indiana Department of Education's Academic Standards. The Indiana Early Learning Standards (Foundations to the Indiana Academic Standards) establish guidelines for early learners' development of foundational skills in the content areas as well as critical social-emotional competencies. Specifically, the Foundations which focus on STEM-specific learning and functions include:

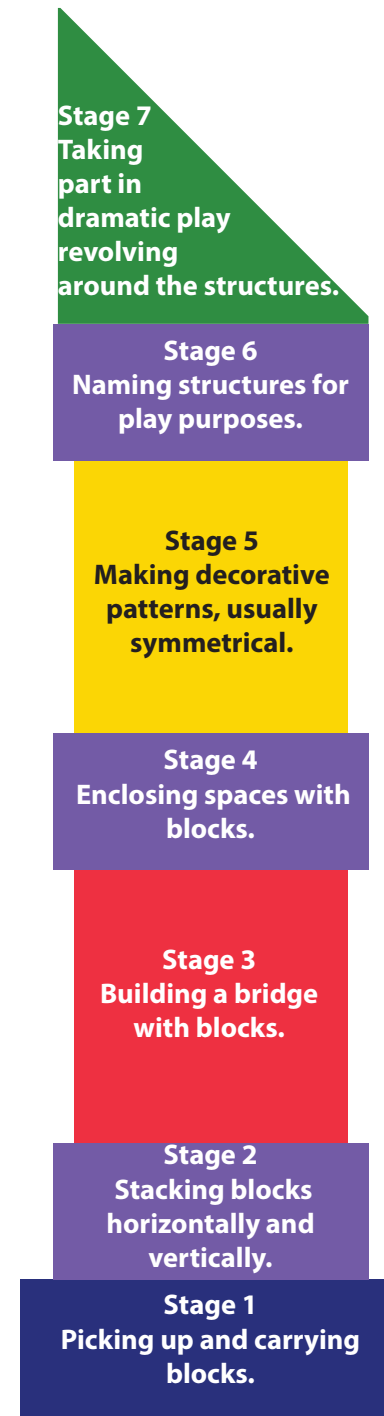
- ▲ Early Reading: alphabet awareness, phonological awareness, concepts of print and comprehension.
- ▲ Numeracy: counting, cardinality, written numerals, quantity and comparison.
- ▲ Computation and Algebraic Thinking: mathematical structure and patterning.
- ▲ Data Analysis: classification, data collection, organization and description.
- ▲ Geometry: spatial relationships and space analysis.
- ▲ Sense of Self: self-awareness, confidence, identification and expression of emotions.
- ▲ Science: properties of objects, characteristics of living creatures and plants.
- ▲ Engineering: solving problems using the engineering design process.
- ▲ Self-Regulation: executive functions such as impulse control, planning and emotional regulation.
- ▲ Building Relationships: social development and engagement with others.
- ▲ Initiative and Exploration: initiative, self-direction, interest and curiosity as a learner.
- ▲ Attentiveness and Persistence: focus on a specific activity; persistence to complete tasks

8. Fine Arts	
A.1. Art Skills—Child uses a variety of art materials and activities for sensory experience and exploration.	Free Exploration Copy Cat Sort it Out
B.1. Music Skills—Child participates in classroom music activities including singing, playing musical instruments, and moving to rhythms.	Free Exploration Freeze Dance Monkey See
C. Dramatic Expression Skills—Child creates or recreates stories, moods, or experiences through dramatic representations.	Free Exploration Read Aloud Dramatic Play
9. Physical Development	
A. Gross Motor Development – Children explore their physical space and understand how their bodies function in space through active movement experiences.	Free Exploration Dramatic Play Freeze Dance Copy Cat
B. Fine—Motor Development Skills – Child shows control of tasks that require small-muscle strength and control.	Playing BR! with a peer Free Exploration Sort it Out Counting Rocks Dramatic Play Monkey See Copy Cat
C.1. Personal Safety and Health Skills—Child practices good habits of personal safety.	Free Exploration Conversations Dramatic Play Freeze Dance
10. Technology Applications	
Technology and Devices Skills—Children learn how technology can enhance our lives.	The Technology Literacy Standards may be addressed with the <a href="#">Blocks Rock!</a> app available from the App Store and Google Play Store. The free app comes with 28 new structures to foster spatial learning. Each player needs a complete set of 24 blocks to play with the app and two players can compete side-by-side using the same tablet. Interacting with the technology to play <a href="#">Blocks Rock!</a> is most effective when supported by an attentive adult.



5. Mathematics	
E.1-3. Classification and Pattern Skills– Prekindergarten children sort and classify objects using one or more attributes.	Playing BR! with a peer Free Exploration Monkey See Copy Cat Sign Up
6. Science	
A.1. Physical Science Skills– The child observes, investigates, describes, and discusses properties and characteristics of common objects.	Playing BR! with a peer Free Exploration Sort it Out Counting Rocks Conversations Dramatic Play Monkey See Copy Cat
B. Life Science Skills– Children understand differences in living and non-living things.	
C.a. Earth/Space – Child observes, investigates, describes and discusses earth materials, and their properties and uses.	
7. Social Studies	
A. People, Past and Present Skills- Children are aware of time and begin to organize their lives around it.	
B. Economic Skills – Children learn that their community benefits from many different people working in many different ways.	
C. Geography – Children begin to think about geography using location and direction.	
D. Citizenship Skills – Child exhibits traits of good citizenship.	Playing BR! with a peer Conversations

# Stages of Block Building



Researchers have long studied the positive contribution of block play to development and have empirically identified the increasingly complex stages of block play in children.

When young children play the **Blocks Rock!** game, they often demonstrate many of these stages. In a study completed at The Indianapolis Children’s Museum, children ages 3 – 5 years old who played **Blocks Rock!** were observed picking up and carrying blocks (Stage 1), stacking blocks (Stage 2), building bridges (Stage 3), and making symmetrical, decorative patterns with the blocks (Stage 5). Young children were more likely to continue playing the game if an adult engaged with them as they played.

Source: Wolf, 2011



4. Emergent Literacy—Writing	
A.1. Motivation to Write Skills—Child intentionally uses marks, letters, or symbols to record language and verbally shares meaning.	Free Exploration Conversations Dramatic Play Monkey See Copy Cat
A.2. Motivation to Write Skills—Child independently writes to communicate his/her ideas for a variety of purposes.	Conversations Dramatic Play Sign Up
5. Mathematics	
A.1-9. Counting Skills—Prekindergarten-aged children show basic counting readiness and counting by using nonverbal and verbal means.	Playing BR! with a peer Free Exploration Counting Rocks Conversations Dramatic Play Sign Up
B.1-3. Adding To/Taking Away Skills—Prekindergarten children use informal and formal strategies to make a collection larger or smaller.	Playing BR! with a peer Free Exploration Sort it Out Counting Rocks Dramatic Play Monkey See Copy Cat
C. 1-4. Geometry and Spatial Sense – Prekindergarten children recognize, describe, and name attributes of shapes.	Playing BR! with a peer Free Exploration Sort it Out Counting Rocks Conversations Monkey See Copy Cat
D.1-4. Measurement Skills – Prekindergarten children verbally describe or demonstrate attributes of persons or objects, such as length, area, capacity, or weight.	Playing BR! with a peer Free Exploration Sort it Out Counting Rocks Monkey See Copy Cat

2. Language and Communication Domain	
B.4. Speaking (Conversation) Skills—Child demonstrates understanding of terms used in the instructional language of the classroom.	Playing <b>BR!</b> with a peer Free Exploration Read Aloud Sort it Out Counting Rocks Conversations Dramatic Play Freeze Dance Monkey See Copy Cat
D.1. Vocabulary Skills—Child uses a wide variety of words to label and describe, people, places, things, and actions.	Playing <b>BR!</b> with a peer Free Exploration Read Aloud Sort it Out Counting Rocks Conversations Dramatic Play Freeze Dance Monkey See Copy Cat
3. Emergent Literacy—Reading	
A. Motivation to Read Skills—Child engages in pre-reading and reading-related activities.	Read Aloud Conversations Dramatic Play Monkey See Copy Cat
D. Comprehension of Text Read Aloud Skills—Child uses information learned from books by describing, relating, categorizing, or comparing and contrasting.	Read Aloud Conversations Dramatic Play

## Playing the Game

The **Blocks Rock!** game has a set of cards; two identical sets of blocks of varying shape, size, colors; and a bell. Each player has a set of blocks, and one player turns over a card during play that has a particular structure, point value, and how to build the structure (e.g., up or flat on the table). The complexity of the structure increases during play. Each player attempts to build the structure as fast as possible with the player who does so correctly first and rings the bell being awarded the points displayed on the card. The score is kept and once all cards have been played the winner is the player with more points or cards.

Helping young children to be ready for **Blocks Rock!** includes several opportunities for the exploration of the game. To do this, select a low-traffic area for guided explorations of the game materials. In this space, sit down with a child and place the same number, color, and shape of blocks in front of both of you. Be sure to have the bell handy, so that this can be practiced as well. Begin by stacking your blocks on top of each other, and ask the child to do the same. Even though in **Blocks Rock!** children will be asked to organize the blocks horizontally, begin with vertical stacking to capitalize upon children’s natural inclination to build vertically. Once the child has built the tower, let them ring the bell.

After you have practiced building towers and ringing the bell, you will want to move to demonstrating how towers can be built on their sides (horizontally). As you place blocks in a predictable sequence (e.g., red-red-blue, blue-red-blue, etc.) horizontally in front of you, be sure to talk about what you are doing. Ask the child to create the sequence with their blocks as you are building yours. When they have completed the pattern, let them ring the bell. Once they are able to match your pattern, ask them to create a pattern for you to make and ring the bell.

**N**ow that you have practiced building, it's time to introduce the cards included in the **Blocks Rock!** game. You will want to be strategic here in which cards you begin with (i.e., structures made of four – five blocks are where to begin), and you will want to ensure that both you and the child have the number, shape and size of blocks necessary to build the structure represented on the card. Demonstrate how to construct the structure. As you build, ask the child to make the structure as well. Be sure to use the names of shapes, the color of those shapes, as well as how they relate to the other shapes being used in the structure (e.g., You might say, "Next to my green triangle, I'll put my red square. Can you place your red square next to your green triangle?"). Once the structure is built, ask the child to ring the bell. It is important to remember in this step of the exploratory phase that many attempts and practices will be needed before being able to move forward. To be successful here requires the child to integrate many concepts (i.e., shape rotation, motor skills, hand-eye coordination, and spatial reasoning), to create a plan, and to take turns with another player (you), all things that may be difficult at times.

**A**s children become more competent in building from the templates (i.e., the cards) found in the **Blocks Rock!** game, you will want to introduce the final component to the game...speed. When selecting the cards from which the next structure is to be built, add the idea of being fast at building. To do this, start by looking at the card together and selecting the appropriate blocks to use. Once you both have your blocks picked out, verbalize the steps you will take in putting your structure together (e.g., You might say while pointing to the shapes on the card, "First, I'll put my green triangle here. Then, I'll place my red square below it. Finally, I'll put by blue rectangle under the red square."). Don't expect the child to verbalize their thinking, but model it for them. After you've verbalized your process, ask the child to create the structure. When the structure is made, let them ring the bell.

1. Social and Emotional Development	
C. Relationships with Others—Child initiates problem-solving strategies and seeks adult help when necessary.	Playing <b>BR!</b> with a peer Free Exploration Sort it Out Counting Rocks Dramatic Play Monkey See Copy Cat Sign Up
2. Language and Communication Domain	
A. Listening Comprehension Skills—Child shows understanding by responding appropriately.	Playing <b>BR!</b> with a peer Free Exploration Read Aloud Sort it Out Counting Rocks Conversations Dramatic Play Freeze Dance Monkey See Copy Cat Sign Up
B.1.Speaking (Conversation) Skills—Child is able to use language for different purposes.	Playing <b>BR!</b> with a peer Conversations Dramatic play Freeze Dance Sign Up
B.2.Speaking (Conversation) Skills—Child demonstrates knowledge of verbal conversational rules.	Playing <b>BR!</b> with a peer Free Exploration Read Aloud Conversations Dramatic Play Freeze Dance Monkey See Copy Cat Sign Up

## Alignment with the Texas Pre-kindergarten Guidelines

Standard	Indicators of Child's Progress Key Goals addressed by the structured play with Blocks Rock! are red.	Suggested Activities
<b>1. Social and Emotional Development</b>		
A. Self-Concept Skills—Child shows initiative in independent situations and persists in attempting to solve problems.		Playing BR! with a peer Free Exploration Sort it Out Counting Rocks Dramatic Play Monkey See Copy Cat Sign Up
B.1. Self-Regulation Skills—Behavior Control: Child follows classroom rules and routines with occasional reminders from teacher.		Playing BR! with a peer Free Exploration Sort it Out Counting Rocks Dramatic Play Freeze Dance Monkey See Copy Cat Sign Up
B.2. Self-Regulation Skills—Emotional Control: Child is able to increase or decrease intensity of emotions more consistently, although adult guidance is sometimes necessary.		Free Exploration Conversations Dramatic Play Monkey See Copy Cat
B.3. Self-Regulation Skills—Control of Attention: Child remains focused on engaging group activities for up to 20 minutes at a time.		Playing BR! with a peer Free Exploration Read Aloud Sort it Out Counting Rocks Dramatic Play Freeze Dance Monkey See Copy Cat Sign Up

For young children, three- and four-year-olds, **Blocks Rock!** is a game that they will play with an adult. Typically, these will be one-on-one interactions within a quiet, low-traffic space in the classroom that allows for concentrated efforts to occur. However, this game, once introduced in your classroom, is something that children and parents can play together. Using the **Blocks Rock!** game as a means of guided construction play will help children develop the capacity to rotate and analyze shapes (spatial visualization); the ability to shift focus from one stimulus to another (cognitive flexibility); the aptitude to solve problems in a variety of ways; and the competence to increase language use as they engage in conversations about their building.



### Using Blocks in the Early Learning Environment

#### Ten Things Young Children Learn from Block Play

- Problem Solving
- Imagination
- Self-expression
- Mathematics
- Continuity and Permanence
- Creativity
- Science
- Self-esteem
- Social and Emotional Growth
- Development in all areas

## Materials and Props to Enhance Block Play

The block corner is a powerful arena for children's learning. Consider incorporating a variety of materials into the block corner to encourage children's creativity, spatial reasoning and imagination. The **Blocks Rock!** materials can be housed in the block corner for easy access.

environmental signs  
dress up clothes  
blueprint paper  
tape measures  
wood cookies figurines  
flat boulders mirrors containers  
cars mats rulers  
vehicles pallets tree stumps  
tires pencils low tables  
trucks photos loose parts  
items from nature  
labels shoe boxes  
wooden spools  
clipboards  
cardboard tubes  
fabric pieces  
Blocks Rock! game

## Children's Literature Related to **Blocks Rock!**

### Thinking Like a **S**cientist

Beaty, A. and Roberts, D. (2016). *Ada Twist, Scientist*. Abrams Books for Young Readers.

Murray, D. (2016). *City Shapes*. Little, Brown.

Yamada, K. (2014). *What Do You Do with an Idea?* Compendium, Inc.

### Using **T**echnology

Eggers, D. (2015). *This Bridge Will Not Be Gray*. McSweeney's.

Galdone, P. (1979). *The Three Billy Goats Gruff*. Seabury Press.

Milich, Z. (2005). *City signs*. Kids Can Press.

Portis, A. (2001). *Not a box*. Harper Collins.

### **E**ngineering and Building

Alling, N. (2012). *When I build with blocks*. Create Space.

Barton, B. (1990). *Building a house*. Mulberry Books.

Beaty, A. and Roberts, D. (2007). *Iggy Peck, Architect*. Abrams Books for Young Readers.

Beaty, A. and Roberts, D. (2013). *Rosie Revere, Engineer*. Abrams Books for Young Readers.

Hoberman, M.A. (1978). *A House is a House for Me*. Viking Penguin.

Hutchins, P. (1987). *Changes, Changes*. Aladdin Picture Books.

Shulman, L. and Wolff, A. (2004). *Old MacDonald had a woodshop*. Puffin Books.

### Solving Problems with **M**athematics

Fleming, D. (2006). *Alphabet under construction*. Square Fish.

Galdone, P. (1970). *The Three Little Pigs*. Seabury Press.

Gibbons, G. (1990). *How a house is built*. Holiday House.

Hale, C. (2012). *Dreaming Up*. Lee and Low Books.

Yolen, J. (2016). *What to do with a box*. Creative Editions.



## Copy Cat

Show children how to use the larger play mat with the block designs to replicate, either by placing blocks directly onto the mat, or next to the mat.



## Monkey See, Monkey Do



Invite children to copy or extend a pattern (ABAB or ABCABC) that you have created with movements (ex: clap, stomp, clap, stomp) and then use the blocks to create patterns for children to extend or copy.

## Sort it Out

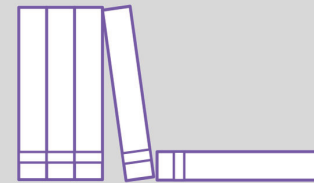
Encourage children to classify the blocks into different categories, focusing on the physical properties such as color, shape, size.



## Activities to Extend Blocks Rock!

In addition to the structured competitive game, [Blocks Rock!](#) offers endless possibilities for learning. Early childhood educators can use the materials from [Blocks Rock!](#) to introduce new concepts, reinforce learning, and encourage innovation and creativity in thinking. Educators can structure activities during free play, as center activities or in small groups with guided instruction.

## Read Aloud



Introduce STEM concepts by reading aloud picture books (see list). Use vocabulary related to building and problem-solving to give children a foundation in the language of STEM. Prompt discussion with questions to foster comprehension and predictions.



## Free Exploration

Allow children to use the materials independently. This provides the child opportunity to explore all facets of the materials, to construct an understanding of the physical properties of the blocks, to practice using the bell, and to develop confidence using the materials.



## Let's Play



Observe how children use the blocks as symbolic representations of items in their dramatic play. For example, using the rectangular blue block and pretending to make a phone call on a mobile phone

## Counting Rocks!



Model 1:1 correspondence, counting, grouping, count sets of items, compare sets – use words such as more, fewer.

## Sign Up

Demonstrate how to make a sign-up sheet for children to take turns using the Blocks Rock! Game. Encourage children to create their own lists to track who has the next turn.



## Conversations:

Use the playing cards to start conversations, talk about the designs, use concept words – on top of, below, next to, more than, etc.



## Freeze Dance

Use the bell as a signal for children to "Freeze" when dancing to music.

