

# Circle<sup>TM</sup> Time MAGAZINE



Talk about patterns seen,  
heard, and experienced everyday.  
*They're everywhere!*

Listen for the beats in music—  
there's a pattern there!



Help children predict what will  
come next in a repeating pattern!





**childcare quality & early learning**  
CENTER FOR RESEARCH AND PROFESSIONAL DEVELOPMENT  
University of Washington



For questions or comments contact [CTmag@uw.edu](mailto:CTmag@uw.edu)

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# PATTERNS: Highlights and Key Ideas

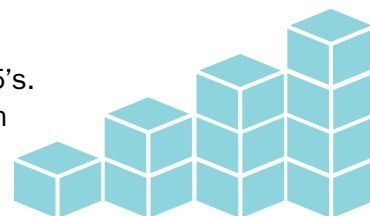
**Patterns** are regular and predictable arrangements of objects, images, numbers, sounds, and movements characterized by repetitions and sequences.

Children see patterns in nature, on clothing, floor tiles, and picture books. They hear patterns in words, stories, and music. They experience patterns of actions in routine activities. Exploring patterns helps children learn to make predictions, discover relationships, and make generalizations. Patterns can be linear (e.g., number sequence, alternating color beads in a necklace) or nonlinear (e.g., concentric rings in a tree trunk, snail shell, snowflakes). There are two main types of patterns:

- **Repeating patterns** > These patterns contain a sequence of elements that repeats again and again. For example, a child may build a tower with blocks repeating a sequence of red and yellow; or hop, then jump multiple times in sequence while listening to a song.



- **Growing patterns** > These patterns change, increasing by a same amount. Children can create a growing pattern by adding one more or counting by 2's or 5's. For example, a child may build a series of increasingly higher towers starting with one block and systematically adding one more to create towers with two, three, four, and five blocks. Many songs and stories have examples of growing patterns (e.g., Old MacDonald Had a Farm, The Gingerbread Man).



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**Mathematizing** means bringing out the math in what children are doing. Help children **notice, describe, create,** and **extend** patterns during everyday experiences. Patterns can involve visual attributes (color, size, shape), movement, sound, rhythm, and sequences of events. You mathematize as you:



- Talk about simple patterns children see in objects and daily activities.
- Listen to stories with repetitive words and phrases.
- Move to songs and music that follow patterns.
- Invite children to describe and extend patterns they see and hear in their environment. ("Look for things that happen over and over again." "What might happen next?")



## Supporting Dual Language Learners

- Sing songs and rhymes in children's home languages.
- Use language to match children's proficiency level in English.
- Accompany language with gestures, visuals, and hands-on activities.

## Individualize

- For more support, provide visual models children can copy.
- For more challenge, invite children to duplicate a pattern with different materials (e.g., copying a red-white pattern made with blocks, but using beads to make a bracelet; repeating a loud and soft sound pattern made with shakers but using a drum).
- For more challenge, introduce children to growing patterns that grow (or decrease) by more than one (e.g., objects that come in pairs; counting by 5's or 10's).

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For guidance on what children know and experience about math, refer to the Washington State Early Learning and Development Guidelines (<https://www.del.wa.gov/helpful-resources/washington-state-early-learning-and-developmental-guidelines>) and the Head Start Early Learning Outcomes Framework (<https://eclkc.ohs.acf.hhs.gov/interactive-head-start-early-learning-outcomes-framework-ages-birth-five>). Here are some highlights related to this trunk of materials:

## Learning About My World: Patterns in Math

**Infants** are especially sensitive to patterns in sounds and movement as adults rock babies to sleep, and sing songs and nursery rhymes. Infants benefit from environments with consistent schedules and routines because those are patterns as well. Finger play songs and games are a great way to introduce infants to predictable sequences of actions and words and to a variety of music and rhythms.

### Math:

- Experience patterns through daily routine, music, and play.
- Show interest in patterns and begin to complete simple movement patterns.
- Anticipate "more" during routines.

With **toddlers**, educators can look for simple *repeating* patterns in daily objects and activities. They can help toddlers learn to make predictions about what comes next in daily routines and finger plays that have predictable sequences of actions.

### Math:

- Recognize simple patterns.
- Fill in the missing element of a pattern with adult assistance.

**Preschoolers** are capable of exploring, identifying, extending, and creating patterns in a more formal and intentional way. Educators can introduce children to *repeating* and *growing* patterns across a variety of modalities. They can help children identify repeating elements, and make predictions about what comes next.

### Math:

- Identify, extend, and duplicate simple repeating patterns.
- Create patterns with a variety of materials.
- Describe patterns.

# Scarves

Children of all ages will enjoy trying these colored scarves in activities involving movement and music. Use these scarves to help children explore a variety of repeating and growing patterns.



## Activities

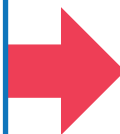
Encourage **infants** to explore and manipulate the scarves. Help them move the scarves *up* and *down*, *high* and *low*. Listen to music and help infants move the scarves to the beat. Use the scarves in finger play with repetitive phrases and actions such as Peek-A-Boo. Pause the play and wait for the infant to request more!

**Toddlers** can practice waving the scarves to the beat, as they recite rhymes and listen to action songs. Begin with simple AB repeating patterns such as *up, down, up, down*, then gradually introduce more complex patterns such as *back, front, around* (ABC) or *up, up, down* (AAB). Have children pretend the scarves are animals—birds that fly *high* and *low*; or snakes that crawl *fast* and *slow*. Use the scarves to create color patterns on the ground.

**Preschoolers** can create *repeating* patterns as they move the scarves to the beat of music, rhymes, or action songs. Help children make a connection between action patterns and sound patterns. For example, have them raise their scarf over their head when they hear a high note and drop the scarf down as they hear lower notes. You can also use scarves to teach children about *growing* patterns. Invite a child to fold a scarf one time, another child to fold a scarf twice, a third child to fold a scarf three times...and so forth. Ask children to compare the results and describe how the scarves change as more folds are added.

### Extension

Translate sound and movement patterns to other forms of representation. After children practice a movement pattern (e.g., *high/low*), help them represent the pattern in other ways (e.g., build tall and short towers with blocks; cut out long and short strips of paper).





## Developing Pattern Skills

Using colored scarves provides opportunities to create learning goals and address the following pattern skills:

- Experience patterns through daily routine, music, and play.
- Recognize simple patterns.
- Identify, extend and create patterns with a variety of materials.

## Mathematizing Teaching Moves

- Describe a pattern ahead of the activity. Check that all children know what they need to do.
- Have an adult or a child model the movements so they can be copied.
- Allow for variations in actions for children who have a limited range of movement.
- Have children move in pairs or small groups lead by a more capable peer.



**TALK**  
about it!

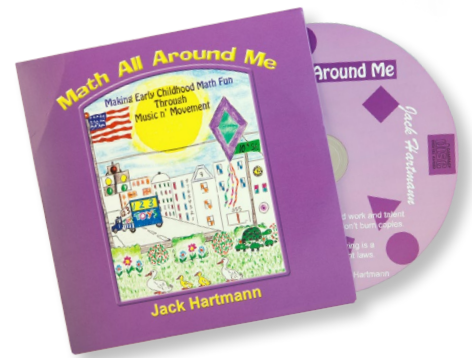
- “Our pattern is going to be: up, up, and around.”
- “Wow, you just translated a sound pattern to a movement pattern!”
- “What patterns do you hear in the music?”
- “What pattern can we make that goes with the music?”
- “What happened to the scarf when you folded it?”



# MATH All Around Me CD

This CD includes songs that help children learn math concepts, including patterns.

*Make a Pattern 1* and *Make a Pattern 2* address different 2- and 3-unit repeating movement patterns. *Count by 2's* and *Count by 5's* are songs about growing number patterns.



## Activities

Listen to the songs with **infants**. Gently rock, or bounce the infant on your lap or knees, or dance around the room with them in your arms. Adjust your movement according to the type of music, e.g., slow and gentle or fast and bouncy.

Let **toddlers** move in different ways to the music. Help them notice the music and match their movements accordingly. For example, move quickly to a fast beat and move slowly to a longer beat.

Invite **preschoolers** to find patterns in the songs and music. Tell children what to listen to in a song and determine whether the music goes fast or slow (tempo); whether the beats are long or short (rhythm); whether the sounds are high or low (pitch); or loud or soft (dynamics). Invite them to create movement patterns that represent the sounds.

## Developing Pattern Skills

Music provides opportunities to create learning goals and address the following pattern skills:

- Experience patterns through daily routine, music, and play.
- Recognize simple patterns.
- Create patterns with a variety of materials.
- Describe patterns.

## Mathematizing Teaching Moves

- Model tapping the beat with your foot or hand.
- Start with a simple repeating *start-stop* movement sequence.
- Copy a pattern from the CD and extend it by adding on.
- Emphasize new pattern concepts by identifying and talking about patterns often.
- Review number patterns that grow by 2's and 5's before playing the songs.



### Extension

Use songs and music with words and action patterns to help children make smooth transitions between activities.

**TALK**  
about it!

- “This music goes fast. Let’s open and shut our hands quickly.”
- “Stomp your feet when the music is loud, clap your hands when the music is soft.”
- “Describe the pattern you hear in the music”
- “Which movements shall we make with each sound?”



# Shakers

Children can explore many variations of sound and action patterns with these egg shakers. They can use the shakers to keep a steady beat to rhymes, songs, and music—or to create their own music! The *Shake Your Hands* song from the *Math All Around Me* CD works well for this activity.



## Activities

Introduce **infants** to sound patterns by using the shakers in different ways—fast and slow; loud and soft; one shaker or two together. Move the shakers along with songs, rhymes, and stories. Encourage the infant to join in with simple actions. Sing along. Have back-and-forth vocal exchanges.

With **toddlers** take turns to play. Model a sound pattern and ask the toddler to repeat it. Describe the pattern (e.g., fast, slow; soft, soft, loud). Create movement patterns like the patterns in the *Shake Your Hands* song (e.g., shake high, shake low; shake up, shake down).

**Preschoolers** can create their own music and movement patterns. Ask them to describe the patterns they create. Invite them to count forward and backward as they shake. Encourage them to create a *plus-one* growing pattern by shaking once, then twice, then three times, and so forth.



## Developing Pattern Skills

Using egg shakers provides opportunities to create learning goals and address the following pattern skills:

- Show interest in patterns and begin to complete simple movement patterns.
- Recognize simple patterns.
- Fill in the missing element of a pattern with adult assistance.
- Create patterns with a variety of materials.



### Extension

Create a music center where children can explore different types of shakers (maracas, animal shakers) and other musical instruments (tambourines, jingle bells, drums, xylophones).

## Mathematizing Teaching Moves

- Slow down and lower the sound if an infant or toddler starts to fuss.
- Start with a simple repeating *start-stop* movement sequence.
- Adjust pacing. Slow down or speed up based on children's ability to follow the beat.
- Provide a model, or let a child be the "conductor."



**TALK**  
about it!

- "You have to shake the same way over and over again to make a pattern."
- "I saw you shake twice, then turn around. Then you did it again. That's a pattern!"
- "Tell me about your pattern."
- "Why is it a pattern?"

# Pattern Tray

Use this pattern tray to help toddlers and preschoolers practice and create their own patterns. Have them look around their environment for patterns to reproduce. Let them choose their favorite objects to create patterns with.



## Extension

Introduce *nonlinear* growing patterns. Concentric patterns, for example, grow from the inside to the outside. Invite children to look for examples of *nonlinear* growing patterns in nature (shells, tree trunks), on clothing, in pictures, and artwork.



## Activities

**Toddlers** can create simple repeating AB patterns by arranging objects in the tray by color, size, or shape. Invite them to find examples in their environment—on objects, pictures, clothing, or in nature. Help them describe the pattern.

**Preschoolers** can notice and create a variety of *linear repeating* and *growing* patterns. Take them on a nature walk to collect pattern materials such as leaves, small pine cones, flower petals, small twigs. Use the materials to create repeating and growing patterns. Invite them to represent the pattern using different materials such as blocks, sounds, or drawings.

## Developing Pattern Skills

Using a pattern tray provides opportunities to create learning goals and address the following pattern skills:

- Recognize simple patterns.
- Fill in the missing element of a pattern with adult assistance.
- Identify, extend, and duplicate simple repeating patterns.
- Create patterns with a variety of materials.
- Describe patterns.



## Mathematizing Teaching Moves

- Encourage children to increase the complexity of a pattern.
- Provide language to describe patterns and identify repeating elements.
- Simplify a pattern activity by using objects that differ by only one characteristic (e.g., shape, color or size).
- Provide visual models for children to copy—a drawing, a completed line of objects on the tray, or stickers inside each square that can be matched.
- Ask children to create an ABAB or AA BB CC pattern.
- Start a pattern and ask children to extend it.

### TALK about it!

- “A pattern is when something happens the same way over and over again.”
- “A growing pattern is when something gets bigger and bigger by the same amount, like stair steps.”
- “You can make little steps by adding one more at a time or big steps by adding by 2’s or by 5’s.”
- “How do you know it’s a pattern?”
- “What other ways can you make this pattern?”
- “What else has a pattern that grows?”





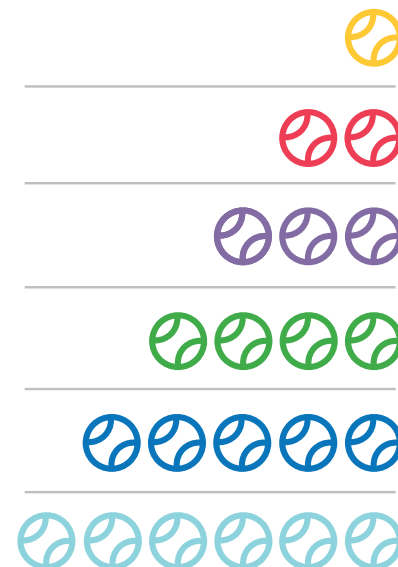
# The Napping House

This story begins with a snoring granny who is taking a nap on a cozy bed. One by one a child, dog, cat, mouse, and a flea all pile on top of the granny while sleeping.

With the rhythmic and repetitive text and consistent addition of one more on the bed for a nap, this book is a fun and meaningful illustration of a *growing* pattern.

## Activities

Read the book three times. Introduce the story, and ask the children to listen for word patterns. During the second reading, talk about how adding one more on the bed makes a *growing* pattern. The third time, invite children to reconstruct the story with their own words, actions, and/or drawings.



With **infants**, talk about the pictures and emphasize the repetitive parts of the text (e.g., “*in a napping house*”). Introduce the concept of *more* (e.g., “one *more* on the bed!”).

Encourage **toddlers** to join you in reading aloud the repetitive parts of the text. Use props to show how the pattern grows as one more is added on the bed.

Invite **preschoolers** to memorize and recite the repetitive text. Ask them to keep track of how many are on the bed by counting. Emphasize the concept of “one *more*.”

## Developing Pattern Skills

Reading this book provides opportunities to create learning goals and address the following pattern skills:

- Anticipate “more” during routines.
- Fill in the missing element of a pattern with adult assistance.
- Create patterns with a variety of materials.

### More books about patterns:

- *Brown Bear, Brown Bear, What Do You See?*
- *One Duck Stuck*
- *Mrs. McTats and Her Houseful of Cats*
- *Jazz Fly*
- *Counting by 5's Counting by 10's*
- *The First Book of Rhythm*

## Mathematizing Teaching Moves

- Use variations in your voice to highlight the repetitive phrases.
- Use story props to illustrate the growing pattern of one more on the bed.

**TALK**  
about it!

- “Listen for the words that repeat again and again.”
- “What happens over and over again?”
- “This is a growing pattern because there are more and more people and animals on the bed.”
- “How does this pattern change?”
- “What do you think will happen next?”