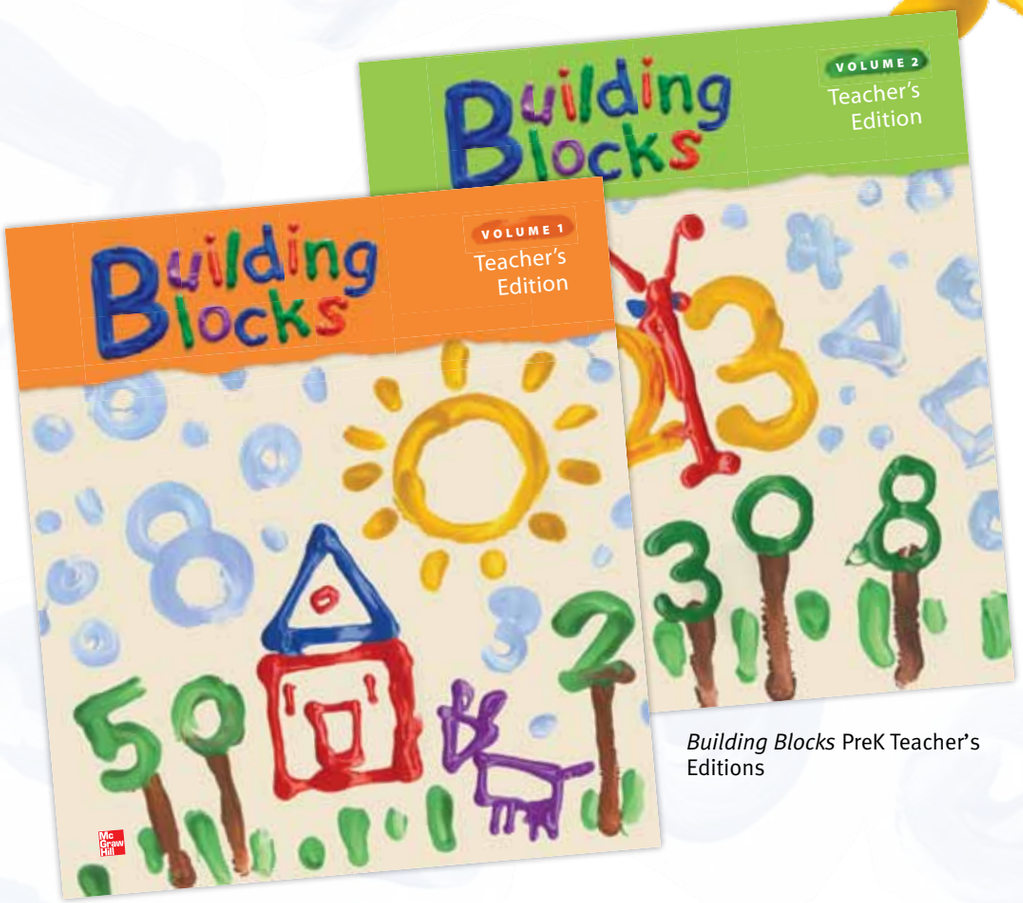
Building Blocks

PreK

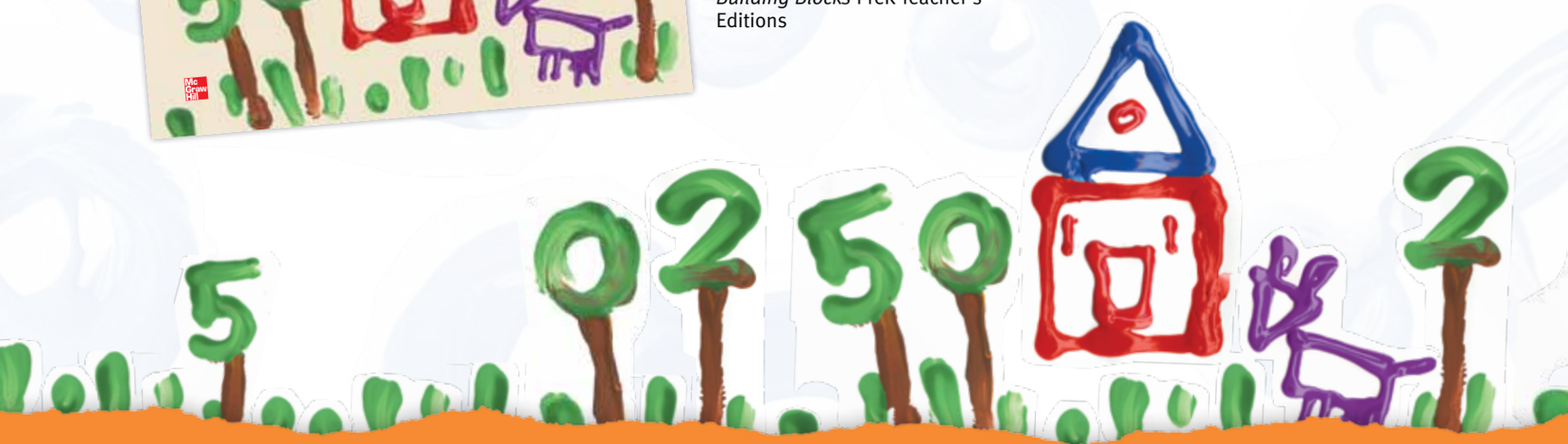
Mc Graw Hill

Develop early learners' mathematical knowledge

Building Blocks helps develop preschool children's early mathematical knowledge by embedding mathematical learning in PreK students' daily activities. *Building Blocks* ranges from designated math activities to circle and story time to help kids relate their informal math knowledge to more formal mathematical concepts.



Building Blocks PreK Teacher's Editions



Inspire PreK learners with an engaging, research-based program

- Offers low-tech, hands-on manipulatives as well as interactive, high-tech activities
- Builds on young children's math experiences by integrating ways to explore through manipulatives, computers, books, and more
- Uses active participation to develop mathematical thinking
- Establishes a solid foundation for future success of mathematics
- Emphasizes the development of conceptual thinking and reasoning abilities to improve skill acquisition
- Develops early childhood mathematics learning in line with state and national standards in the area of:
  - Number and Operations
  - Geometry
  - Measurement
  - Patterns and Algebra
  - Data Analysis and Classification
- Provides appropriate and ongoing use of technology
- Incorporates assessment as an integral part of learning events

Building Blocks
Student Software

Building Blocks

Distinguished Authors

Doug Clements is SUNY Distinguished Professor of Education at the University of Buffalo, SUNY. Previously a preschool and kindergarten teacher, his present research involves the learning and teaching of early mathematics and computer applications. He has published over 100 research studies, 8 books, 50 chapters, and 250 additional publications, including co-author of the reports of President Bush's National Mathematics Advisory Panel and the National Research Council's book on early mathematics. He has directed 20 projects funded by the National Science Foundation and Department of Education's Institute of Education Sciences.

Julie Sarama, Associate Professor at the University at Buffalo (SUNY), has taught high school mathematics and computer science, gifted and talented classes, and early childhood mathematics. She directs several projects funded by the National Science Foundation and the Institute of Education Sciences. Author of over 50 refereed articles, 4 books, 30 chapters, 20 computer programs, and more than 70 additional publications, she helped developed the *Building Blocks* and Investigations curricula, and the award-winning *Turtle Math*. Her latest book is *Early Childhood Mathematics Education Research: Learning Trajectories for Young Children*.

Solid Research

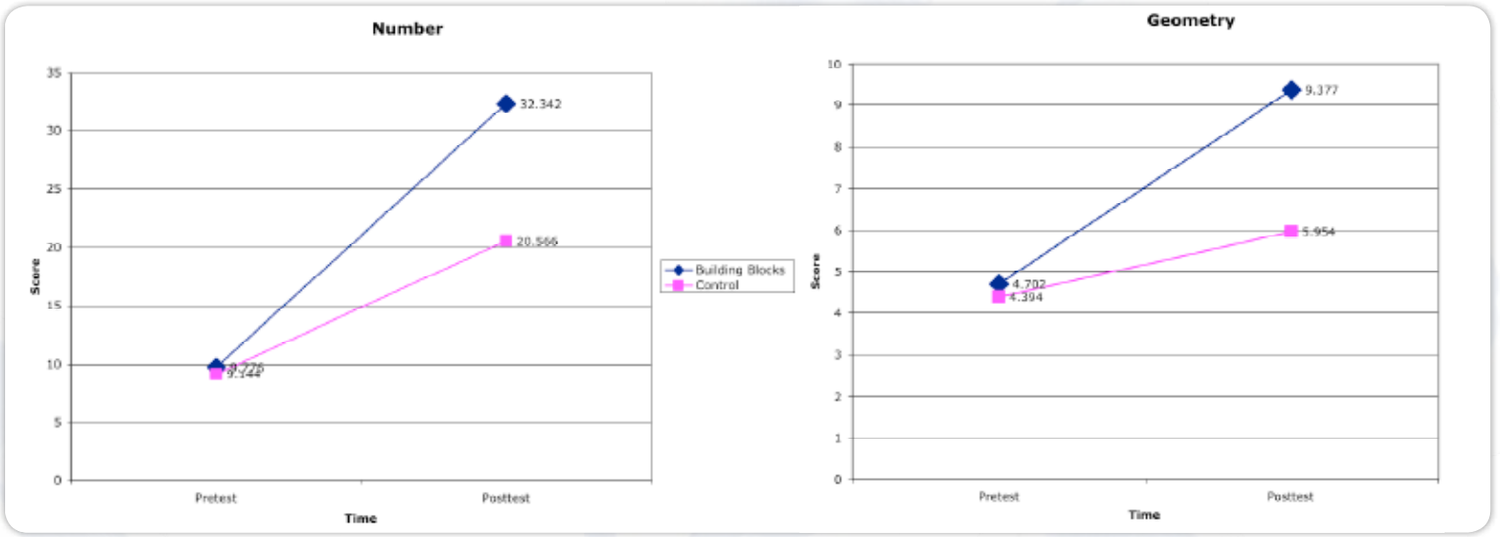
Building Blocks is the result of research funded by the National Science Foundation. The software has been shown to stimulate learning gains near or exceeding individual tutoring.

Research studies include:

1. ***Building Blocks* Summative Evaluation.** This study tested the effectiveness in a small number of classrooms. *Building Blocks* was shown to increase knowledge of multiple essential mathematical concepts and skills.
2. **Preschool Curriculum Evaluation Research.** In this study, *Building Blocks* was used in 40 classrooms with no additional support or training. Mathematics achievement significantly increased in these classrooms as a result.
3. **The TRIAD/*Building Blocks* Study.** This study tested *Building Blocks* against a comparable preschool math program and a no-treatment control group. All classrooms were randomly assigned, the "gold standard" of scientific evaluation. *Building Blocks* children significantly outperformed both control children and the comparison group. Again, effect sizes doubled those usually considered "strong" and matched those of individual tutoring.

WHAT WORKS CLEARINGHOUSE

What Works Clearinghouse, the federal group that reviews scientific evidence of what works in education, has rated SRA's *Building Blocks* PreK as having positive effects on mathematics achievement in early childhood education.



Results showing two *Building Blocks* classrooms significantly outperforming two control classrooms

Lesson Overview

Building Blocks is organized into 30 weeks of activities and concept development. Each lesson starts with an overview and a five-day planner to prepare for the week ahead.

Big Ideas outline the key concepts that will be developed throughout the week.

Teaching for Understanding provides information about how children learn the key concepts.

What's Ahead outlines where students are headed and how teachers can facilitate their learning.

WEEK 3

Overview

Big Ideas

- counting and producing small groups
- recognizing equal groups
- duplicating rhythmic patterns

Teaching for Understanding

Week 3 builds on the counting skills of Week 2, emphasizing four components of counting: verbal counting, the counting of small collections, counting out (producing) small collections, and comparing small quantities. Mastering these components enables children to maintain one-to-one correspondence between each number word spoken and each item counted, as well as to understand that counting tells how many and describes order.

Object Counting

This requires much more than verbal counting. Several activities develop children's early ability to connect small groups of objects to number words. For example, hide a small number of objects, and reveal them one at a time as children count. Research shows that such an activity helps children link each number word they say to the quantity of objects they see. This helps children understand that the last number word in a counting sequence tells how many.

Counting Out Objects

Research also shows that "counting out," or producing a certain number of objects, is more difficult than counting the objects in a group. Both tasks require knowing how to count verbally, keep one-to-one correspondence between number words and objects, and answer the question "how many?" However, when children count out objects, they have to continually recall how many they were supposed to produce and compare that to each number word they say in order to stop at just the right number.

Meaningful Connections

Children learn the sequence of number words over a long period of time so repeated practice is essential. We engage children in rhythmic counting patterns now so that, in later grades, such ideas will grow into knowledge of many number patterns, such as even and odd numbers.

What's Ahead?

Every week we continue to lay the groundwork for counting and other number abilities, while also interweaving many other mathematical topics. The next couple of weeks focus on shapes and geometric comprehension.

Eclipse Studios

Week 3 • Overview 33

Teacher's Edition

Overview

WEEK 3

How Children Learn to Count

Knowing where children are on the learning trajectory for counting and what the next steps are helps facilitate their development. Children who easily surpass these trajectory levels might be challenged by larger quantities and encouraged to assist other children.

Verbal Counting

What to Look For Does the child count to at least 5 with some one-to-one correspondence?

Reciter Verbally counts using separate words ("one, two, three" not "onetwothree") but not always in the correct order, such as "one, two, three, four, six, seven."

Reciter (10) Verbally counts to 10 with some correspondence to objects.

Object Counting

What to Look For Can the child accurately count and produce small groups?

Corresponder Keeps one-to-one correspondence between number words and objects (one
may answe

Counter (Sma
many?" wit
small numb

Producer (Sm

Comparin

What to Loo

Perceptual Co
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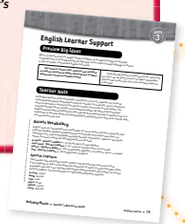
English Learner

Reading aloud counting stories in books is an excellent strategy for building counting-related vocabulary. Review the following: *rows*, *hide counters*, and *empty hand*. Refer to the ***Teacher's Resource Guide.***


English Learner Support

Technology Project

Children may get additional problem-posing and -solving practice using Pizza Pizzazz Free Explore. Children can count along with the program as they place toppings on either pizza, or they may work cooperatively as one child names a number and the other puts that many toppings on a pizza.

Teacher's Edition

Each week additional instruction for **English Learners** is found within the Teacher's Resource Guide.

Math Throughout the Year overviews math strategies and props that teachers can use throughout the day to build math understanding.

Math Throughout the Year

Math Throughout the Year activities are recommended to build on the mathematical skills highlighted in each week. Here are suggested activities for **Week 3.**

Counting Wand (Count All)

Count each child with a gentle tap of the wand, making sure all children count aloud with you. Emphasize that the last number word tells how many children are in class today. If children are ready to take turns tapping one another, use a very soft wand.

Simon Says Numbers

Play traditional Simon Says using only number commands, such as "Jump two times" and "Pat your head six times."

Snack Time

Children take a specified amount of a snack, as well as anything they might need to eat the snack. Demonstrate counting out the items and saying afterward how many there are. You may choose to place a Counting Card on the snack table. For example, use a five card to indicate that children take that many pretzels.

Center Preview

Computer Center

Get your classroom Computer Center ready for Pizza Pizzazz 1: Match Collections from the ***Building Blocks*** software.

After you introduce Pizza Pizzazz 1, each child should complete the activity individually as you (or an assistant) monitor and guide him or her periodically. Ideally, each child will have at least ten minutes of computer time at least twice during the week. To assess progress, observe children as they rotate through all classroom centers.

Hands On Math Center

This week's Hands On Math Center activities are Find the Number, Fill and Spill, and Draw Numbers. Supply the center with these materials: opaque containers, round counters, paper plates, Counting Cards, plastic containers, wooden cubes, drawing paper, crayons, and other drawing materials.

Literature Connections

These books help develop counting.

- *Little Rabbits' First Number Book* by Alan Baker
- *The Very Hungry Caterpillar* by Eric Carle
- *I Spy Two Eyes: Numbers In Art* by Lucy Micklethwait
- *One Was Johnny: A Counting Book* by Maurice Sendak
- *I Can Count the Petals of a Flower* by John and Stacey Wahl

Center Preview helps teachers prepare for the week's Computer and Hand's On Math Centers.

Literature Connections identifies specific trade books that can enhance mathematics.

(t)Matt Meadows (b)Eclipse Studios

Teacher's Edition

Building Blocks

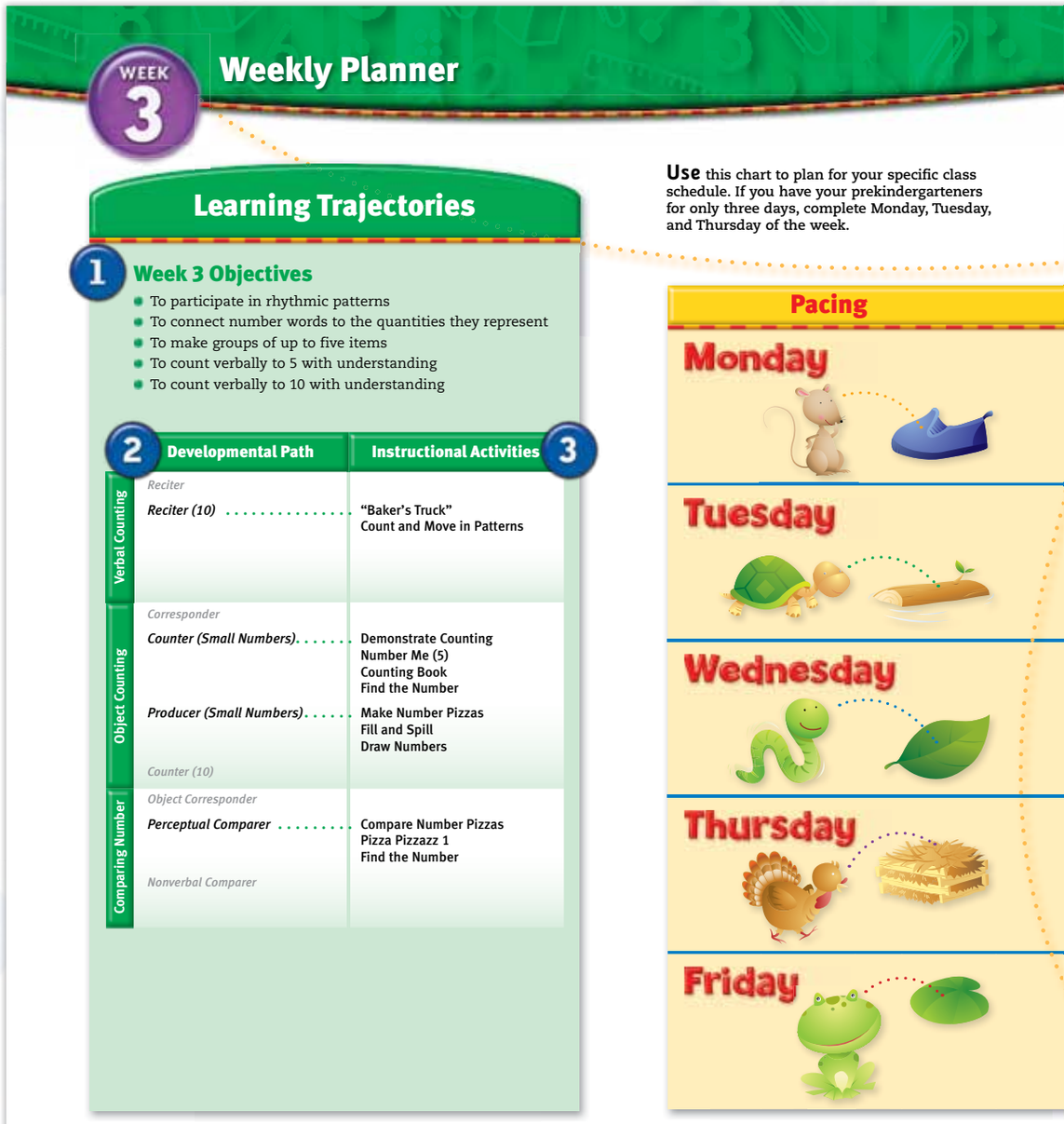
Lesson Planner

The lesson planner provides objectives, learning trajectories, correlating activities, materials, and program-specific resources to prepare for each week.

Learning Trajectories are the observable, natural developmental progressions in learning. Curriculum research has revealed effective sequences of activities to guide children through these levels of thinking. These developmental paths are the basis for *Building Blocks* learning trajectories.

Learning trajectories have three parts:

1. **A mathematical goal**
2. **A developmental path along which children progress to reach that goal**
3. **A set of activities matched to each of the levels of thinking in that path that help children develop the next higher level of thinking**



WEEK 3

Weekly Planner

Learning Trajectories

1 Week 3 Objectives

- To participate in rhythmic patterns
- To connect number words to the quantities they represent
- To make groups of up to five items
- To count verbally to 5 with understanding
- To count verbally to 10 with understanding

2 Developmental Path		3 Instructional Activities
Verbal Counting	*Reciter*	
	Reciter (10)	"Baker's Truck" Count and Move in Patterns
Object Counting	*Corresponder*	
	Counter (Small Numbers)	Demonstrate Counting Number Me (5) Counting Book Find the Number
	Producer (Small Numbers)	Make Number Pizzas Fill and Spill Draw Numbers
	Counter (10)	
Comparing Number	*Object Corresponder*	
	Perceptual Comparer	Compare Number Pizzas Pizza Pizzazz 1 Find the Number
	Nonverbal Comparer	

Use this chart to plan for your specific class schedule. If you have your prekindergarteners for only three days, complete Monday, Tuesday, and Thursday of the week.

Pacing

Monday

Tuesday

Wednesday

Thursday

Friday

Teacher's Edition

Weekly Planner

Work Time

Whole Group	Small Group	Computer	Hands On	Program Resources
"Baker's Truck" **Compare Number Pizzas** *Materials:* *round counters paper plates		Pizza Pizzazz 1	**Find the Number** *Materials:* opaque containers *round counters paper plates *Counting Cards	Building Blocks ***Assessment*** Weekly Record Sheet
Count and Move in Patterns **Demonstrate Counting** *Materials:* *counters	**Make Number Pizzas** *Materials:* *round counters paper plates	Pizza Pizzazz 1	**Fill and Spill** *Materials:* plastic containers wooden cubes *Counting Cards **Find the Number**	Building Blocks ***Assessment*** Small Group Record Sheet
Count and Move in Patterns **Demonstrate Counting** *Materials:* *counters **Compare Number Pizzas** *Materials:* *round counters paper plates		Pizza Pizzazz 1	**Fill and Spill** **Find the Number**	Building Blocks ***Assessment*** Weekly Record Sheet
Count and Move in Patterns **Number Me (5)**	**Demonstrate Counting** *Materials:* *counters **Make Number Pizzas** *Materials:* *round counters paper plates	Pizza Pizzazz 1	**Draw Numbers** *Materials:* drawing paper nontoxic markers **Fill and Spill** **Find the Number**	Building Blocks ***Assessment*** Small Group Record Sheet
Count and Move in Patterns **Counting Book**		Pizza Pizzazz 1	Draw Numbers Fill and Spill Find the Number	Building Blocks ***Assessment*** Weekly Record Sheet ***Teacher's Resource Guide*** Family Letter Week 3

*provided in Manipulative Kit

Building Blocks activities are carefully designed and sequenced to address each level of the learning trajectories in the following areas of mathematics:

- **Number**
- **Measuring**
- **Patterning and Early Algebra**
- **Classifying and Analyzing Data**
- **Geometry**

As children successfully complete activities, they are presented with the challenge of the next developmental level.

Building Blocks

Daily Lessons

Each daily lesson follows a consistent plan to make planning and teaching easier.

1. **Whole Group** includes Warm-Up activity to get children ready for math.
2. **Work Time** outlines the Computer Center, the Hands On Math Center, and Small Group on Tuesday and Thursday.
3. **Reflect** engages children in summarizing and analyzing their mathematical thinking.
4. **Assess** reminds teachers of their informal assessment opportunities each day.

Every lesson includes a variety of small group, whole group, and individual activities

Monday Planner

Objectives

- To participate in rhythmic patterns
- To connect number words to the quantities they represent
- To make groups of up to five items

Materials

- *round counters
- paper plates
- opaque containers
- *Counting Cards

Math Throughout the Year

Review activity directions at the top of page 35, and complete each in class whenever appropriate.

Looking Ahead

Instead of using counters and paper plates for this week's pizza activities, you could make toppings of your choice with felt or construction paper and cut large circles for pizza crusts.

*provided in Manipulative Kit

Monday

1 Whole Group 15

Warm-Up: "Baker's Truck"

- Here are the words and actions:

  The baker's truck drives down the street,
  Filled with everything good to eat.
  Two doors the baker opens wide. *(Outstretch arms.)*
  Let's look at the shelves inside. *(Cup hands around eyes to look.)*
  What do you see? What do you see?
  Three big cookies for you and me! *(Show three fingers.)*

- Adapt the final number of cookies in the finger play to reinforce any number up to 10 that you are teaching.

Compare Number Pizzas

- Tell a story about a pizza chef. Explain that you have to help the chef get the correct number of pepperoni slices on the pizza.
- Use a paper plate for pizza crust and round counters for pepperoni. Show your pizza with two pepperoni slices, leaving it in children's view. Then show three more pizzas with one, two, and three pepperoni slices.
- Ask all children to point to which of the three pizzas has the same number of toppings as the first pizza you showed. Have them discuss how they knew the matching pizza had the same number of toppings.
- Repeat the activity, having children match pizzas with pepperoni amounts of 3 or more as their ability allows.

2 Work Time 20

Computer Center Building Blocks

Demonstrate Pizza Pizzazz 1: Match Collections from the ***Building Blocks*** software. In this activity, children help twins who want the same number of toppings on their pizzas by choosing a pizza to match another pizza with a certain number of toppings. All children should have a chance to complete Pizza Pizzazz 1 this week.

Software activities are tailored to individual needs. The software activities help develop students math proficiencies along the learning trajectories. Activities are supported by drills and instruction based on student performance.

Teacher's Edition

Family Letters from the ***Teacher's Resource Guide*** for each week communicate what children are doing in school and provide an opportunity for children to demonstrate their knowledge.

Building Blocks offers a wealth of support for differentiating instruction.

WEEK 3

Hands On Math Center

Find the Number

- Before children get to the center, conceal several pizzas (paper plates), each with a different number of pepperoni slices (round counters) under its own opaque container.
- Display one pizza with three to five pepperoni slices, or use a Counting Card to represent the target number. The goal is for children to find the hidden match to the pizza on display.
- Children should show their answers to you or another adult who assists your class.

Monitoring Student Progress

If . . . children need help during Find the Number,	**Then . . .** reduce the number of hidden pizzas, or leave all pizza choices uncovered.
If . . . children need a challenge during Find the Number,	**Then . . .** have them work in pairs, determining their own topping amounts and asking each other, for example, "Where is the 10?"

RESEARCH IN ACTION

At this first level of Pizza Pizzazz, some children count while others use visual strategies, especially for small numbers. Such visual strategies range from the informal copying of a design to the sophisticated "seeing," for example, of two rows of three immediately as six.

Research in Action is imbedded in every lesson.

3 Reflect 5

Ask children:

■ **How did you find the number you were looking for?**

Children might say: I counted toppings on each pizza, or I could just see it was 2.

4 Assess

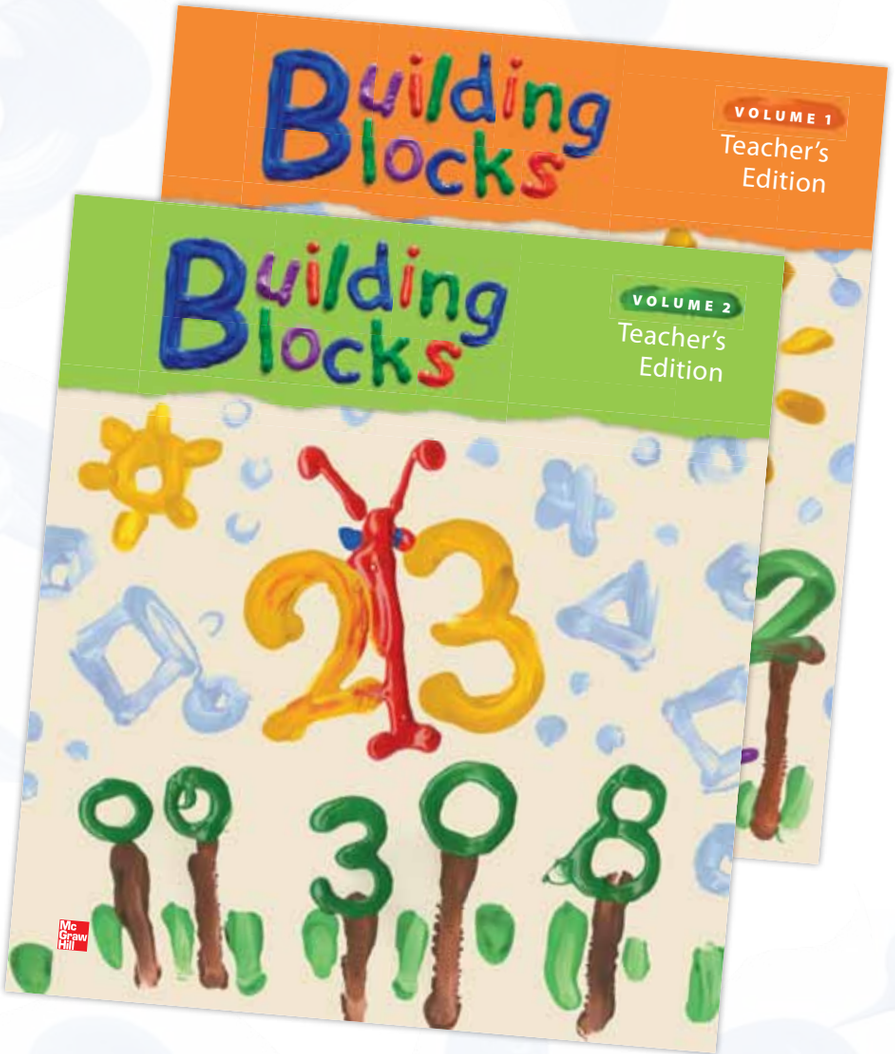
Use the Weekly Record Sheet from ***Assessment*** to record children's progress. Use their time at the centers as an opportunity to complete your observations.

Assessments, including the *Building Blocks* software management system, Small Group Record Sheets, Trajectory Assessments, and informal weekly assessments, provide teachers with reliable data on which to gauge children's proficiency and inform their instruction.

The ***Wrap-Up*** for each week includes ***Assess*** and ***Differentiate*** strategies for teachers based on where students are in a week's key learning trajectories for math.

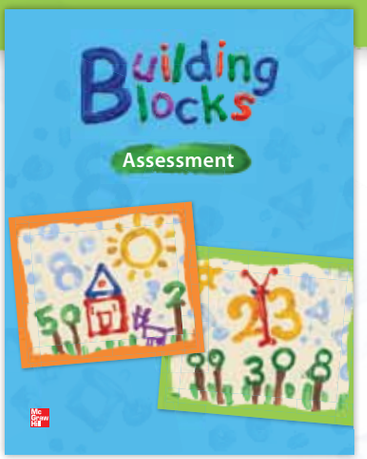
Tools for Teaching

Building Blocks PreK provides all the components you need to teach the program and engage early learners in mathematics.



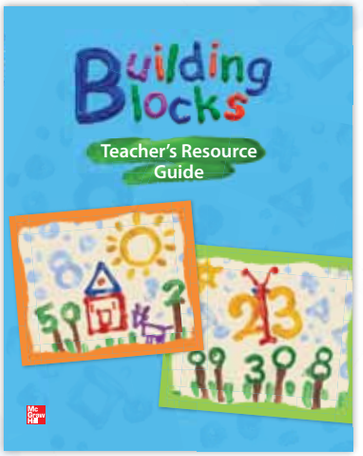
Teacher's Edition

The Teacher's Edition are the heart of the *Building Blocks* curriculum. It provides background for teachers and complete lesson plans with explicit suggestions on how to develop math concepts.



***Building Blocks* Assessment**

A variety of assessments are provided to help determine what children know to inform instruction. These include: Weekly Record Sheets, Small Group Record Sheets, and Learning Trajectory Records



Teacher's Resource Guide

The Teacher's Resource Guide offers key resources that help in delivering the curriculum. These include:

- Family Letters for each week
- English Learner support for each week
- Counting Cards
- Puzzles and Patterns
- Shape Sets
- Shape Flip Book

Manipulatives

Key manipulatives and props promote hands-on activity.

Big Books

Four big books provide excellent math related literature children will want to experience again and again.

- Building Shapes
- Makayla's Magnificent Machine
- Victor Diego Seahawk's Big Red Wagon
- Where's One?

ConnectED

The online content management system provides the following:

- Teacher's Edition
- Teacher's Resource Guide - including Spanish family letters
- Lesson Planner
- Assessment Book
- Online Assessment – tool to grade, track, and report electronic versions of all assessments
- Big Books – in English and Spanish
- Interactive Whiteboard Activities – 11 activities that can be selected individually
- Access to the *Building Blocks* software

Technology proven to develop essential math skills

The engaging software activities are essential to the curriculum. Each software activity addresses a specific developmental level of the math learning trajectories. The nearly 200 activities are carefully sequenced to address standards-based learning trajectories

Includes a variety of activities:

Learning Activities present skill-based tasks in a variety of contexts.

Practice provide a quick way to assess and maintain proficiency.

Free Explore allow students to create their own scenarios, problems, and puzzles.

Learning Activities

Number Snapshots

Description: Students identify an image that correctly matches a target image from four multiple-choice selections.

Skills: Recognize small groups of objects and events, Compare the number of objects, Count objects to 10, Count from 1 to 20

Trajectory: Recognizing Number and Subitizing

Trajectory Levels: Number Sense

Practice

Memory Geometry 1: Exact Matches

Description: Students match familiar geometric shapes within the framework of a ¿Concentration¿ card game. Shapes are in the same orientation.

Skills: Match geometric shapes to other shapes or outline; identify shapes as congruent, Identify and distinguish between basic shapes (square, circle, triangle, etc.)

Trajectory: Shapes

Trajectory Levels: Geometry

Free Explore

Pizza Pizzazz 1

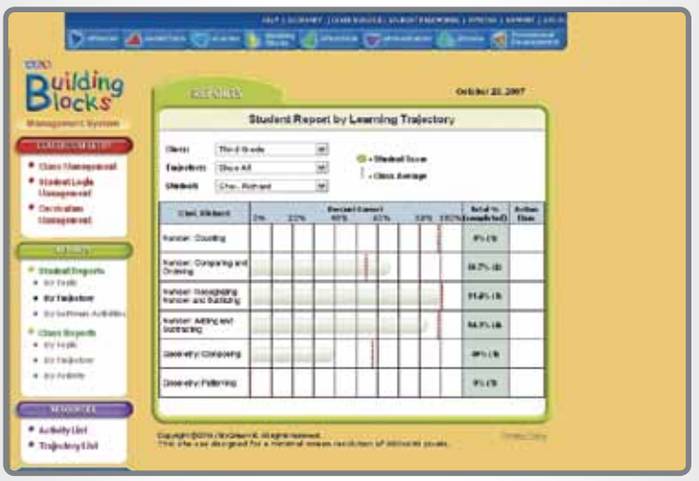
Description: Students explore counting and related number topics by adding toppings to pizzas.

Skills: **Free Explore:** Students continue to work on skills introduced in the preceding activity. However, they can work on a variety of other skills based on teacher guidance.

Trajectory: Comparing and Ordering

Trajectory Levels: Number Sense

The teacher landing page provides a quick overview of assigned activities and how students are doing.



Teachers view class and individual reports to tailor activities to meet students' individual learning levels.

Building Blocks is an engaging math program that stimulates learning and is ideal for your classroom:

- Combines visual displays, animated graphics, and speech
- Provides feedback, tutorials, and individualized tasks
- Increases students' attention and motivation
- Offers multiple virtual manipulatives for interactive learning
- Records and tracks students' progress
- Provides immediate verbal and visual reinforcement
- Includes everyday activities, objects, and processes for students to explore and facilitate mathematical thinking
- Allows flexibility to assign specific activities or have the management system place students in the next appropriate activity based on their performance

Building Blocks

Building Blocks

PreK

For more information go to
EarlyChildhoodConnection.com

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1-800-334-7344

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