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Introduction

Why not give young children the chance to move, use their bodies, and play physical games—all while learning primary math concepts? It's a perfect combination for young children whose natural tendency is to move around. The activities in *Math in Motion* have a magical effect on children because they combine the physical with the cognitive. Children participate enthusiastically and take more ownership of their learning because their own bodies are involved.

On the cognitive level, *Math in Motion* activities encourage children to explore sorting, comparing, counting, skip-counting, estimating, measuring, and much more. Children expand their math vocabulary as they talk about *how many are left* and *how many all together,* as well as identify shapes, patterns, and attributes. On the physical level, children run, jump, gallop, leap, wiggle, hop, tiptoe, and throw, as they practice a variety of gross motor skills and gain a sense of their own personal space. Because children practice physical skills at their own developmental level, they increase their confidence in their bodies *and* their math skills.

With activities for small- and whole-group instruction, *Math in Motion* provides a variety of opportunities to assess and observe individuals because the lessons are designed to allow for individual differences. Children's actions, expressions, and responses will tell you worlds about their developmental levels, both physically and cognitively.

Each fun "math-and-movement" activity requires everyday materials and is quick and simple to set up. Detailed instructions and a variety of reproducibles keep teacher preparation time to a minimum. Use the math skills inventory and the gross motor skills index to decide which activities focus on the developmental needs of your students. Use the variation ideas to adapt each activity to best meet the unique needs and skills of your class. Incorporate the recommended music and literature links to extend the learning and fun. Just think how exciting math can be when it's connected to movement!

Getting Started

The activities in *Math in Motion* are divided into sections based on the math concept each activity introduces. However, many of the activities cover more than one math concept. Each activity page includes four sections:

Get Ready lists the necessary materials.
Get Set describes the teacher preparation.
Go! outlines the step-by-step directions.
Variations are ideas for making the activity easier or more difficult. (Materials and math concepts related to the variations are not listed on the activity page.)

Teacher Preparation

Minimal teacher preparation is required for most of the activities. Some activities require children to wear number-card, dot-card, or shape-card necklaces. All the necklaces are made in the same way; the only difference is in the reproducible cards required. Use the following directions to make these student necklaces:

1. Copy the reproducible cards as noted in the Get Set section.

2. Cut apart the cards, and laminate them for durability.

3. Hole-punch the top corners of each card. Tie one end of a piece of yarn or string to each hole.

Activities that require number-card and dot-card necklaces suggest which cards to use. However, use the cards that are most appropriate for the needs of your class. For example, a first-grade teacher may choose to use cards with numbers that are higher than the ones an activity suggests.

Assessment & Observation

The first page of each main section features a list of questions to ask yourself when children are doing the math-and-movement activities. These questions address the main mathematical goals of the activities in that section. Use the Math Skills Inventory (page 94) to chart each child's progress. Carry the inventory on a clipboard. Mark a plus for mastery, a check for satisfactory progress, and a minus for lack of progress. Use this inventory to see at a glance which skills each child needs to develop.

Music & Literature Links

Because music lends itself to movement, this book includes a list of songs in addition to recommended books (page 95). Some of the music suggestions are popular children's songs that have been recorded by many different artists. Use the recommended books to integrate math and literature.

Gross Motor Skills Index

Each activity involves at least one type of gross motor skill. Use the index on page 96 to quickly find which activities allow children to develop their hand-eye coordination or their locomotor, nonlocomotor, or balance skills.

Addition & Subtraction

In this section, children will explore the concepts of addition and subtraction by participating in activities that involve joining and separating sets of concrete items. While children are engaged in the activities, have them verbalize their actions to establish math language patterns. Encourage children to use terms such as *joining, plus*, and *how many all together* when they are adding and terms such as *take away*, *minus*, and *how many are left* when they are subtracting.

ASSESSMENT & OBSERVATION QUESTIONS

- What strategies did children use to arrive at their answers? Did they count on? count on their fingers? use addition facts?
- Do children realize and understand that they are combining two sets?
- Are children able to create addition/subtraction sentences based on groups they form?
- Do children verbally express the outcome using appropriate math language?
- Can children make a number equation to describe the results (e.g., 1 + 3 = 4)?

We CAN Add & Subtract

GET READY

MATH CONCEPTS

addition, number conservation

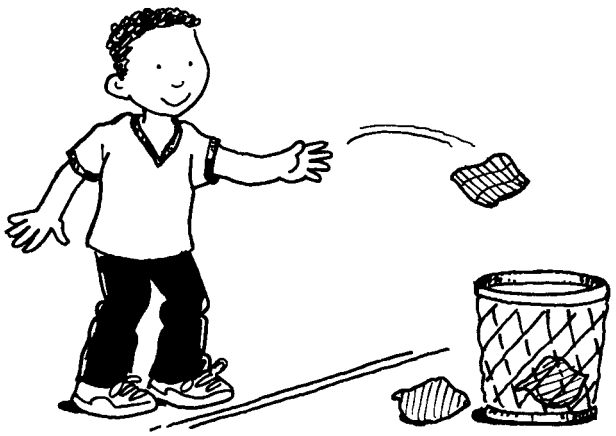
- chalk
- large container (e.g., wastebasket or bucket)
- beanbags

GET SET

Set up the activity area by drawing a starting line with chalk. Set an empty container 4'–5' (1.2 m–1.5 m) from the starting line. Divide the class into groups of three to five. Work with one group at a time, or set up an activity area for each group.

GO!

1. Have one group line up behind the starting line. Give each child a beanbag. Have children count how many beanbags their group has all together.
2. Tell children to take turns tossing their beanbag into the container.
3. Have the whole group assess what happened to the beanbags. Ask *How many beanbags landed outside the container?* and *How many beanbags landed inside the container?* Have children explain how they arrived at their answers.
4. Encourage children to say a number sentence that describes the outcome of their group's tosses (e.g., *2 beanbags were inside the container, 1 was outside, so 2 + 1 = 3*).
5. For subtraction practice, invite children to tell how many beanbags are left in the container. For example, if a group tosses five beanbags and three beanbags land outside the container, prompt children to explain that there must be two beanbags left in the container. Encourage children to say a subtraction sentence to describe this (e.g., *5 – 3 = 2*).



VARIATIONS

- Give each child more than one beanbag to make the activity more challenging.
- Have children write down all possible equations for a sum (e.g., *3 + 1 = 4, 1 + 3 = 4,* and *2 + 2 = 4).*