



## Support for Parent and Family Engagement in Student Learning

# Mathematics in Kindergarten

## What Do Students Learn in Kindergarten Mathematics?

In kindergarten teaching and learning math is primarily focused on three important areas:

- 1 Learning numbers and what numbers represent.
- 2 Addition and subtraction.
- 3 Identify and work with shapes.



The New Jersey Department of Education Office of Kindergarten to Third Grade is committed to providing families and educators with resources and activities to help children learn both inside and outside of the classroom. This is true every day of the school year and it also applies during the summer months, holiday breaks and other school closures.

The key to extending student learning beyond the classroom is to build strong, informed learning partnerships between home and school. This document can serve as one way to help families facilitate learning with homework, technology-based projects, learning packets, or remote learning projects. It is a tool for teachers to expand student learning and explain how families can be a “learning facilitator” when their child isn’t in the classroom. It is also a way for parents to learn ways to support the teaching and learning that takes place at school.

This resource, *Young MATH MASTERMINDS*, serves as one example for teachers and families to communicate about student learning in kindergarten. Documents like this one can develop into a long-term communication strategy to help children expand their learning.

### FIVE GUIDING POINTS TO BUILD A HOME/SCHOOL LEARNING PARTNERSHIP:

Parents can be most helpful to their child’s learning process when teachers help them understand

- 1) what their child is learning,
- 2) why they are learning it, and
- 3) how they can help their child apply new knowledge and skills to life outside of the classroom.

Parents can also provide meaningful feedback on their child’s progress outside of class if teachers provide families with

- 4) ways to observe active learning, and
- 5) an opportunity to communicate their observations back to their child’s teacher.

In kindergarten students can do a variety of things to understand math.

### What are some important mathematic skills in kindergarten?

- ⇒ Count to 100 by ones and by tens.
- ⇒ Know number names and the count sequence.
- ⇒ Count to tell the number of objects and comparing the quantities of two groups of objects.
- ⇒ Compare numbers between 1-10 to identify which is greater or less than the other.
- ⇒ Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.
- ⇒ Compose and decompose numbers from 11 to 19 into tens and ones (such as  $18 = 10 + 8$ ).
- ⇒ Understand that 2-digit numbers are made up of tens and ones.
- ⇒ Adding and subtracting within 5.
- ⇒ Breaking up numbers less than or equal to 10 in more than one way for example,  $9 = 6 + 3$ ,  $9 = 5 + 4$ .
- ⇒ For any number from 1 to 9, finding the missing quantity that is needed to reach 10.
- ⇒ Representing addition and subtraction word problems using objects or by drawing pictures.
- ⇒ Solving addition and subtraction word problems within 10 using objects or drawings.



## SOLVE WORD PROBLEMS

Here are a few examples of the skills and strategies students will develop as they solve word problems in kindergarten math. Your child needs to build on these skills to learn math in first grade.

Base-level kindergarten skills	Preparing for skills in first grade
<ul style="list-style-type: none"> <li>• Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (such as claps), acting out situations, verbal explanations, expressions, and equations.</li> <li>• Solve word problems by adding or subtracting numbers up through 10 using objects and drawings.</li> </ul>	<ul style="list-style-type: none"> <li>• Solve simple word problems by adding or subtracting numbers up through 20.</li> <li>• Solve more challenging one- and two-step word problems by adding or subtracting numbers up through 100.</li> <li>• Solve addition and subtraction problems for different unknown numbers such as:                             <ul style="list-style-type: none"> <li>• <math>20 - \text{what number} = 15?</math></li> <li>• <math>9 + 4 = \text{what number?}</math></li> </ul> </li> </ul>



Students in kindergarten use these types of addition and subtraction in word problems:



Add to	Marta had five marbles. She got five more. How many does she have altogether?
Take From	Luke had seven toy cars. He gave away three. How many does he have left?
Put Together and Take Apart	Two red apples and two green apples are on the table. How many apples are on the table? JoJo had five flowers. Some were yellow and some were green. How many of each did he have?



# PLACE VALUE

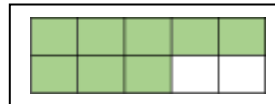
Here are a few examples of how students will work with numbers and learn to think of ten as one unit.

Base-level kindergarten skills	Preparing for skills in first grade
<ul style="list-style-type: none"> <li>Count to 100 by ones and tens.</li> <li>Understand that 10 can be thought of as a bundle of ten ones—called a “ten.”</li> <li>Understand that numbers from 11 to 19 contain a ten and some leftover ones (for example, <math>14 = 10 + 4</math>).</li> </ul>	<ul style="list-style-type: none"> <li>Understand that 100 can be thought of as a bundle of ten tens—called a “hundred.”</li> <li>Understand that the two digits of a two-digit number represent amounts of tens and ones -called a “place value.”</li> <li>Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones (place value).</li> <li>Add and subtract numbers through 100 using what students have learned about place value.</li> </ul>



## SAMPLE PROBLEM – KINDERGARTEN

Students learn to find the “partners” that make ten for any number (5 squares and 5 partner squares make a total of 10 squares). This drawing also shows that if you have 8 squares, it takes 2 more to make 10 squares. Students can use groups of 10 to count/add each group of 10.

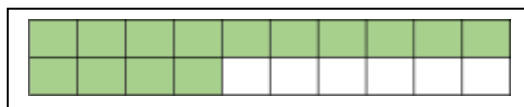


$$5 + 5 \text{ squares} = 10 \text{ squares}$$

$$8 + 2 \text{ squares} = 10 \text{ squares}$$

$$10 \text{ squares together} = 1 \text{ unit}$$

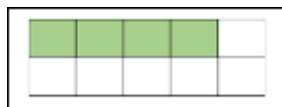
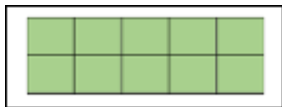
14 squares



10

+

4



Once students understand that a group of 10 squares can represent one unit, then they can add smaller amounts of squares until they get 2 units, or 20 squares. To subtract, students can break large groups apart to show the group of ten and some leftover squares.

### 2-WAYS THAT MAKE THE MATH LEARNING CONNECTION WORK FOR STUDENTS

- ✓ Teachers use instructional strategies to teach students new knowledge and skills. They can also provide families with instructional support strategies that reinforce their child’s new knowledge and skills as they use it in their everyday life.
- ✓ Parents can ask teachers questions about the “what and why” of the math their child is learning, and they can ask about “look-fors.” (“Look-fors” are a child’s behaviors or comments that families can observe to know if their child understands and can perform the new skill). It is important for parents to share their observations with their child’s teacher and for teachers to tell families how to communicate that information to the best of their ability.

This document was created by staff at the New Jersey Department of Education, Division of Early Childhood Services, Office of Kindergarten to Third Grade Education. It is part of a model of home/school partnerships that complement the state’s student learning standards. The Division of Early Childhood Services acknowledges the term “parent” to indicate an adult who plays a legal and significant role in a child’s life. This may include parents, stepparents, parents’ partners, foster parents, grandparents, extended family caretakers, and others who regularly contribute in important ways to a child’s education and development. When known, the term “parent” or the term “family” is used precisely. When referring to groups, or those who share responsibility for the well-being of a child, the use of both terms, “parent and family” is inclusive and more accurate.