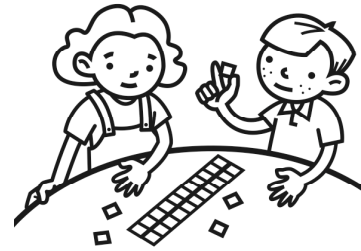


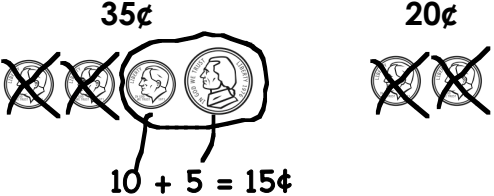
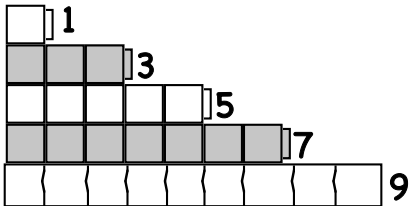

## Grade 2, Unit One: Sorting, Patterning & Number

In this unit your child will:

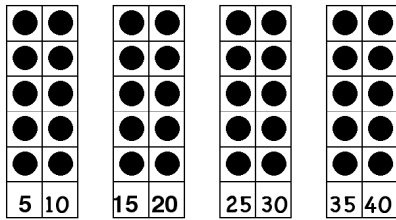
- count by 1's, 2's, 5's, and 10's
- find the value of mixed coin collections to 50¢
- sort a group of objects in 7 to 10 different ways
- use patterns to solve problems
- determine one quantity when given another, based on a simple relationship (e.g., number of wings based on the number of flies)



Your child will learn and practice these skills by solving problems like those shown below. Keep this sheet for reference when you're helping with homework.

Problem	Comments
<p>You have 35¢ and your friend has 20¢. How much more money do you have?</p> 	<p>This student crossed out 20¢ in each group of coins and then figured out how much was left in the first group. To solve problems like these, students must recognize coins, be able to count or quickly recognize the value of mixed coins, and be able to find the difference between two quantities. For now, students can use pictures of coins to solve problems involving money. By the end of the year, many students, especially if they have spent a lot of time working with coins, will quickly recognize that the difference between 20¢ and 35¢ is 15¢.</p>
<p>How many Unifix cubes will be in the next row of this pattern?</p> 	<p>This student labeled each row and then drew a row of 9 on the bottom to show what comes next. Students who are accustomed to thinking about patterns only as something that repeats might say that a row of 1 comes next (and then 3, 5, and 7, and so on). In this unit, students study patterns that change in predictable ways. Such patterns include counting patterns (10, 20, 30 or 2, 4, 6, 8), which are a first step toward multiplication for young students.</p>
<p><b>6</b>  How many wings in all?</p> <p>1 2 3 4 5 6 2, 4, 6, 8, 10, 12      <b>12 wings in all</b></p>	<p>This student counted by 2's to determine how many wings 6 flies have in all. This is a beginning multiplication problem, and students will eventually solve such problems by recalling basic multiplication facts. For now, the work students are doing with growing patterns (including counting patterns) prepares them to solve problems like these by finding and extending a pattern.</p>

Complete the 5's counting pattern.



Use the pattern to complete these equations.

$20 + 5 = \underline{25}$

$35 + 5 = \underline{40}$

$25 - 5 = \underline{20}$

$40 - 5 = \underline{35}$

Students will eventually be able to solve problems like  $20 + 5 = 25$  mentally. Ultimately they will probably just remember that the answer is 25; they won't really need to calculate in any strict sense of the word. Working with growing patterns (like counting by 5 on these ten-frames) helps students see relationships and patterns among numbers. This understanding of patterns and relationships is what allows students to calculate fluently, and to instantly recall certain number facts.

## Frequently Asked Questions about Unit One

**Q: Why do students do so much work with patterns in this unit?**

**A:** Most second graders are familiar with repeating patterns (e.g., triangle, square, circle, triangle, square, circle), but they need many different experiences to get comfortable with growing patterns like the one shown in the second example on the first page. In a growing pattern, something changes in a predictable way; when students can figure out how the pattern is growing, they can use that information to determine what must come next. This is an early step toward using patterns to solve problems (like the third example on the first page), which is a key to success in all levels of mathematics.

**Q: How can I help my child with the money work? We usually just use a card when we're out shopping.**

**A:** The work students do with money in this unit focuses on collections of mixed coins with a total value of about 50¢ or less, so having coins around the house is a good idea. Ten pennies, 10 nickels, 10 dimes, and 5 quarters would probably be enough. Keep them handy so your child can use them when doing homework.

If you're planning to go to the store, you might invite your child to come with you and give her a certain amount of money to spend on a small treat; ask your child to count the money before you go so she will know how much she has to spend. If you do pay with cash at the store, ask your child to count the change you get. You might also ask your child to help you count out coins for parking meters, tolls, or vending machines if you use them.