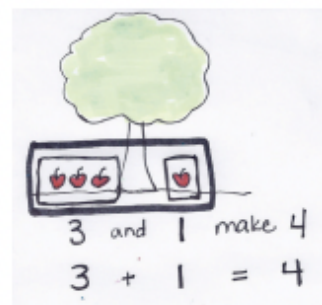


## Grade PK • Module 5

# Addition and Subtraction Stories and Counting to 20

## OVERVIEW

Module 5 is the culmination of children’s work with numbers in the Pre-K year. Throughout Modules 1 and 3, they had extensive counting experiences with numbers 0–10. In Module 4, they examined the relationships between numbers 1–5 through comparison. In Module 5, children transition from the comparative concept of *more* (4 apples is more than 1 apple) to the concept of addition (3 apples and 1 more apple make 4 apples, as shown to the right). They are ready to begin work with operations, focusing on addition and subtraction stories with numbers 1 to 5.



In Pre-K, addition and subtraction stories are limited to numbers 0–5. Children use Level 1 problem-solving strategies to solve, meaning that stories can always be acted out, modeled with objects or fingers, drawn, or solved from pictorial representations. For example, a student might solve a problem such as “Two fish were splashing in the river. One more fish came to splash. How many fish are splashing now?” by demonstrating the story using picture cards and then counting all three fish to find the total. At first, the teacher needs to provide the correct number of objects up front, but with practice, students learn to count out the number of objects needed to solve story problems. Throughout Module 5, children learn to represent addition and subtraction stories with abstract representations including fingers, cubes, and drawings.

Topic A starts the module with children learning to write numerals 0–5 (**PK.CC.2**). Students have been recognizing and matching these numerals to a quantity since Module 1. Now, their fine motor skills have developed to a point where they are ready to write the numerals with paper and pencil as well as forming numerals with tactile materials like dough and sand.

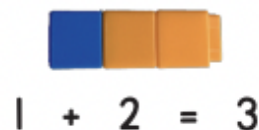
In Topic B, children begin work with addition stories by first acting them out, then manipulating objects, and finally drawing to model the problem (**PK.OA.1**). They work with two types of addition word problems: *add to with result unknown* and *put together with total unknown* ( $A + B = \underline{\quad}$ ). Though similar, there is a key distinction between these two problem types. *Add to with result unknown* problems involve adding to an existing set: “Two children are reading at the library. Two more children come to read. How many children are reading altogether?” *Put together with total unknown* problems, conversely, involve a single whole decomposed into parts, as shown below: “There are 3 copies of *Chicka Chicka Boom Boom*. There are 2 copies of *The Very Hungry Caterpillar*. How many books are there in all?” Building language skills is a key part of this topic; students practice putting the story problem into their own words with careful focus on the question.



In Topic C, students shift focus to subtraction stories, again using actions, objects, and drawings to model the problem (**PK.OA.1**). Here, they focus on one subtraction word problem type: *take from with result unknown* ( $C - B = \underline{\quad}$ ). Something is removed in *take from with result unknown* problems: “Five bears are eating dinner. Three bears leave to sleep in a cave. How many bears are eating now?” Children subtract by either hiding a part or crossing out. The Mid-Module Assessment should be administered after this topic.

Topics D and E enhance the work of Topics B and C, providing opportunities for children to solve addition and subtraction story problems with increasingly abstract representations (**MP.4**). In Topics B and C, children use actions, pictures, and drawings to demonstrate an understanding of addition and subtraction stories.

In Topics D and E, students use fingers, cubes (shown to the right), or more abstract drawings to represent the objects in the story. Students decontextualize the story to represent it with fingers, cubes, or circles, and then recontextualize it to give an answer. For example, students might say, “3 alligators were left” rather than “Three.”



Topic F rounds out the module with an exploration of patterns. Children duplicate and extend simple repeated patterns using objects, sounds, and movements while identifying the repeating part of the pattern (**PK.OA.2**). Their work with repeating and growth patterns helps students to look for and make use of structure (**MP.7**).