

# Understanding Addition as Putting Together and Adding to

## Key Content from This Unit:

*In this unit, students will represent addition in a variety of ways. They will solve addition word problems and add within 10 by using objects or drawings to represent the problem. Students will decompose numbers less than or equal to 10 into pairs by using objects or drawings.*

## MATH DRAWINGS

Math drawings are different from artistic drawings. With artistic drawings, children may focus on details, color, or the type of media used. Math drawings focus on representing the situation efficiently so children can make sense of the situation and find an accurate solution promptly.

Each of the drawings to the right represent the story: Four lizards are running. One more lizard joins them. How many lizards are running now?

Children can use any of these drawings to solve the problem, but the last two drawings took less time and effort to create, allowing the focus to stay on solving the problem. As students are developmentally ready, they will be encouraged to use more math drawings.

## Vocabulary to Know:

**Addition:** to combine; put together two or more quantities

**Counting on:** a way to add, starting with the bigger number and counting on from there

**Decompose:** to separate a number into 2 or more parts

**Number pair/bond:** a pair of numbers that make a simple addition sum which has become so familiar that a child can recognize it almost instantly

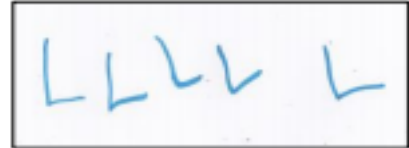
**Number story:** A word problem or mathematical context

**Result unknown:** A problem type in which the sum is unknown

**Total:** the sum in an addition problem

### Addition words:

*add, plus, more, in all, join, total, combine*



## What came before this:

Young children enter school with many intuitive mathematical understandings. At home and at school, children have had some experience counting objects and combining groups.

## What comes after this:

Later in the year, children will apply their knowledge of composing and decomposing to solve subtraction problems and represent both addition and subtraction stories with equations.

## Common Core Focus:

- Represent addition with objects, sounds, fingers, drawings, mental images, acting out situations, and verbal explanations.
- Solve addition word problems and add within 10 by using objects or drawings to represent the problem (result unknown).
- Decompose numbers less than or equal to 10 into pairs by using objects or drawings and record by drawing a representation.

K.OA.1, K.OA.2, K.OA.3

## Spotlight on Math Practices

### **Construct Viable Arguments and Critique the Reasoning of Others**

Mathematically proficient students construct arguments using objects, drawings, and actions.

Students *construct viable arguments* when they:

- Act out a problem with blocks
- Draw a picture to represent a story

Students *critique the reasoning of others* when they:

- Interpret the drawings of a classmate that represent a story problem
- Reason that it is more effective to draw a simple picture than a detailed one to help solve a problem

## How Can You Help?

- Ask your child to act out story problems to find out the total when objects are added to or put together.
- Show children a picture or two sets of objects and ask them to tell you an addition story about them.
- Help your child focus on the variety of addition situations (i.e., join, combine, come, add ...). Don't focus on the equations at this time.
- Count out a number of objects (10 or less) and have your child tell you all of the possible combinations (i.e., 6 objects can be grouped 1 and 5, 2 and 4, and 3 and 3)

## KEY MATHEMATICAL MODELS of the COMMON CORE ADDITIVE PROBLEM TYPES

In real-life there are a variety of contexts for addition and subtraction. The Common Core identifies various, research-based problem types that students need to be familiar with. It is not important that children are able to identify the types by name, but that they are able to understand how to solve problems in the various contexts.

This year, students will begin with addition types “add to” and “put together”. Some children find “add to” problems easier like, “*There were 6 birds and 3 more joined them. How many birds are there now?*” because they involve actions so are easier to act out. “Put together problems do not involve adding like, “*Sam had 3 red pens and 2 green pens. How many pens did Sam have?*” Later this year, students will work with subtraction problem types like “take from” problems, like if some of the birds flew away, and “take apart” problems in which the reader knows that Sam has 5 pens and 3 of them are red. How many are green if the rest are green?

For each problem type, the unknown or part you are trying to solve for can be found in various places. You might be solving for the result, like in the “add to” problem above. You might also be solving for a missing part or the change, *There were 6 birds and some more joined them. If there are 9 birds now, how many joined them?* Kindergarteners focus on the easier, result unknown problems. Other problem types will be mastered in first and second grade.

## Some Resources to Help at Home

- <http://www.iboard.co.uk/iwb/Simple-Addition-Stories-721> has interactive addition stories.
- [http://www.curriculumsupport.education.nsw.gov.au/countmein/children\\_butterfly\\_ten\\_frame.html](http://www.curriculumsupport.education.nsw.gov.au/countmein/children_butterfly_ten_frame.html)
- <http://www.k-5mathteachingresources.com/addition-and-subtraction-activities.html>