

# IMPACTFUL LEARNING DESIGNS

## Basic Addition Learning Progression Activities

This document provides engaging learning activities that teachers can use with students as they move along the [Basic Addition Learning Progression](#). The required resources like the game sheets, record sheets, numeral cards, etc. have been linked where available. Keep in mind many of the games require dice or playing cards. Remember if you do not have the particular dice needed, wooden cubes make it easy to create any type of dice you may need. Have fun!

Phase 1 – Counting Strategies		
<b>Direct Modeling</b> Counting objects or fingers	Counting All	<a href="#">Bear Counts</a> by Karma Wilson (Source: Stanford DREME) <a href="#">Count to Tell the Number of Objects</a> (pgs. 12-15) (Source: National Center on Intensive Intervention) <a href="#">Frumps' Fashions</a> (Source: NCTM)
	Counting on from First	<a href="#">I Wish I Had</a> (Source: Teaching Student-Centered Mathematics K-3, Van de Walle and Lovin, 2006) <a href="#">Double Digit War</a> (Source: The Robertson Program)
	Counting on From Larger	<a href="#">Count on to Add</a> (pgs. 27-29) (Source: National Center on Intensive Intervention) <a href="#">Pip Counting</a> (Source: Throndsen, 2024)
<b>Counting Abstractly</b> Counting without objects	Counting on from First	<a href="#">Counting on Up</a> (Source: Throndsen, 2024)
	Counting on From Larger	<a href="#">Greater Number First</a> (Source: Throndsen, 2024)
Phase 2 – Reasoning Strategies		
<b>Knowledge of Properties</b>	Zero Property	<a href="#">What's Alike? Zero Facts.</a> (Source: Teaching Student-Centered Mathematics K-3, Van de Walle and Lovin, 2006)
	Commutative Property	<a href="#">Snap It! Flip It!</a>

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		Source: Throndsen, 2024
	Associative Property	<a href="#">Triple Time</a> (Source: Throndsen, 2024)
<b>Explicit Strategies</b>	Adding with one or two	<a href="#">Rolling for One/Two More</a> (Source: Throndsen, 2024)
	5 as an anchor	<a href="#">Say the Five Fact</a> (Adapted from Teaching Student-Centered Mathematics K-3, Van de Walle and Lovin, 2006) <a href="#">Rolling Sums of 5</a> (Source: Throndsen, 2024)
	Making 10	<a href="#">Say the Ten Fact</a> (Source: Teaching Student-Centered Mathematics K-3, Van de Walle and Lovin, 2006) <a href="#">How Many Reds?</a> (Source: Adapted from About Teaching Mathematics: A K-8 Resource, Burns, 2007)
	Making 10 and Adding On	<a href="#">Flip Two</a> (Source: NCTM) <a href="#">Totally 10</a> (Source: Throndsen, 2024)
<b>Known Fact Derivations</b>		<a href="#">Addition Top-It</a> (Source: Adapted from Everyday Mathematics: Teachers Guide to Games, 2003) <a href="#">Less Than You!</a> (Source: Adapted from Everyday Mathematics: Teachers Guide to Games, 2003)
<b>Redistributed Derived Facts</b>		
<b>Phase 3 – Mastery</b>		
<b>Produces answers fluently</b>		<a href="#">Beat the Calculator</a> Source: Adapted from Everyday Mathematics: Teachers Guide to Games, 2003)

### Activities for Addition Skill Development

#### I Wish I Had

Hold out a bar of connecting cubes, a dot strip, a two-column strip or a dot play showing 6 or less. Say, "I wish I had six." The children respond with the part that is needed to make 6. Counting on can be used to check. The game can focus on a single whole, or the "I wish I had" number can change each time.

*Source: Teaching Student-Centered Mathematics K-3, Van de Walle and Lovin, 2006*

#### Pip Counting

Hand each student two dice. Have them roll the dice. Then, ask them to identify which die is larger and then count on the additional die to find the sum. Have them record their mathematical equations, too, if desired.

*Source: Throndsen, 2024*

#### Rolling for One/Two More

Provide each student with [the game sheet](#). In pairs, students take turns rolling a dice and identifying what is one (or two) more than the number rolled. They place a counter on the game sheet that represents the one/two more numeral. The first player to get 5 in a row wins!

*Source: Throndsen, 2024*

#### Counting on Up

Use numeral dice (e.g., 0-5, 1-6 or 1-10), have students work in partners to practice finding the sum of the two dice/cards. The first player rolls the two numeral dice and without using objects, fingers, or drawings finds the sum. The second player uses the calculator to check the first player's answer. If the player is correct, they record a tally in their side of the [tally chart](#). Players switch roles. Play continues until one player has at least 10 tallies for correct answers.

Note: You can use numeral cards instead of dice.

*Source: Throndsen 2024*

### Greater Number First

Similar to Counting On Up, use numeral dice (e.g., 0-5, 1-6 or 1-10), have students work in partners to practice finding the sum of the two dice/cards. The first player rolls the two numeral dice and without using objects, fingers, or drawings finds the sum using the larger number as the first addend and records it on the [game sheet](#). The second player uses the calculator to check the first player's answer. If the player is correct, they record a tally in their side of the tally chart. Players switch roles. Play continues until one player has at least 8 tallies for correct answers.

Note: You can use numeral cards instead of dice.

Source: *Throndsen 2024*

### What's Alike? Zero Facts

Write about ten zero facts on the board, some with the zero first and some with the zero second. Discuss how all of these facts are alike. Have children use counters and a part-part whole mat to model the facts at their seats.

Source: *Teaching Student-Centered Mathematics K-3, Van de Walle and Lovin, 2006*

### Snap It! Flip It!

Place in front of each pair of students two piles of the two colors of connecting cubes (e.g., red and blue) and the [game sheet](#). Each student grabs some from one of the piles. They then count their snap cubes together and write the matching equation (e.g., partner 1 pulled 3 red cubes and partner 2 pulled 4 blue cubes, they snap the 3 red cubes and 4 blue cubes together and write  $3 + 4 = 7$ ). Then, they say, "flip it" and write the new equation (e.g.,  $4 + 3 = 7$ ).

Source: *Throndsen, 2024*

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### Triple Time

In pairs, students take turns rolling 3 dice. The first player rolls the dice and records the number sentence on the [game sheet](#). After writing it down, they circle the two numbers they want to add first and then finish the equation. The other player uses a calculator to check the sum. If the answer is correct, the player gets a point. The player who earns 10 points first wins.

*Source: Throndsen, 2024*

### Say the Five Fact

Hold up a [five-frame](#) card and have children say the “five fact”. For a card with 3 dots, the response is “three and two is five.” Later, with a blank five-frame drawn on the board say a number less than 5. Children start with that number and complete the “five fact.” If you say “four,” they say “four plus one is five.”

*Source: Adapted from Teaching Student-Centered Mathematics K-3, Van de Walle and Lovin, 2006*

### Rolling Sums of 5

In pairs, have students take turns rolling two 0-5 dice. Students find the sum of their dice and if it is combination that makes five record it on their column of the shared [game sheet](#). The first student to get 10 combinations of 5 wins.

Note: If you don't have 0-5 dice, just take a 1-6 die and use a white label to cover the 6 and write a “0” on the label.

*Source: Throndsen, 2024*

### Say the Ten Fact

Hold up a [ten-frame](#) card and have children say the “ten fact”. For a card with 7 dots, the response is “seven and three is ten.” Later, with a blank ten-frame drawn on the board say a number less than 10. Children start with that number and complete the “ten fact.” If you say “four,” they say “four plus six is ten.”

*Source: Teaching Student-Centered Mathematics K-3, Van de Walle and Lovin, 2006*

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### How Many Reds?

In groups of four, using 20 playing cards (A through 10 of a red suit and black suit), students deal out 10 cards to each pair. The pairs then count the number of reds they have and mark off the number sentence that matches on the [game sheet](#). The students then shuffle the cards and redeal. The first pair to mark off all the number sentences wins.

*Source: Adapted from About Teaching Mathematics: A K-8 Resource, Burns, 2007*

### Flip Two

Using [ten frame cards \(0-9\)](#), students practice with sums up to 18. In groups of 4, students work in pairs flipping over two cards and adding the two sums together by making a ten first and then adding on. The first pile should contain only cards representing 7,8, and 9. The other pile can contain 0-9. The goal is for students to determine how many of the second set is needed to make a ten and to add the remaining on. The pair with the larger sum wins the round.

*Source: Adapted from NCTM's Navigating through Number and Operations Prek-Grade 2*

### Totally Ten

Working in pairs, give each set of children two dice, one with numbers 0-10 and one with numbers 5-10. The first player rolls the dice and finds the sum of the two numbers rolled. If given their role, they are able to use the make ten strategy to make it easier to find the sum, then they will record their thinking on the [record sheet](#). Collect the record sheets and examine their notes for who may need more support in using 10 to help solve sums to 20.

*Source: Throndsen, 2024*

### Addition Top-It

Using a deck of [numeral cards of 0-9](#) (at least four of each digit in a deck), students take turns pulling two cards and calling out the sum. Players check each other's sums by using a calculator to check accuracy. The player with the greatest sum takes all the cards. If there is a tie, then each player turns over 2 more cards

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and the player with the greater sum takes the cards from both rounds. The game ends when there are not enough cards left for each player to have another turn. The player who collected the most cards wins.

\*Note: can also be played with dominoes

*Source: Adapted from Everyday Mathematics: Teachers Guide to Games, 2003*

### Less Than You!

Using [numeral cards 0-10](#) (at least four of each digit in the deck), students take turns pulling three cards. The first player discards the card with the highest number and adds the two remaining cards mentally. The second player does the same thing. The players compare sums and the player with the lesser sum wins the round and collects all six cards. Play continues until the pair runs out of cards. The player with the most cards wins.

*Source: Adapted from Everyday Mathematics: Teachers Guide to Games, 2003*

### Beat the Calculator

In triads, there is a “Caller”, a “Calculator”, and a “Brain”. Using a [numeral card 0-10](#) deck (at least four of each digit in the deck) and a calculator, the Caller pulls two cards and reads them out loud (e.g.,  $2 + 5$ ). The Brain attempts to solve the fact mentally prior to the Calculator saying the sum from the calculator. Whoever gets the sum first, the Brain or the Calculator, gets the two cards. When the deck runs out, whoever has the most cards wins.

*Source: Adapted from Everyday Mathematics: Teachers Guide to Games, 2003*