**NOTE: Counting on is not a sophisticated strategy. Children coming from Kindergarten are expected to recognize small sets of numbers but may count. Children in first and second grade are expected to take the next step by creating and using more sophisticated strategies such as the ones listed below.**

# Addition Strategies

## Zero

- One addend is always zero
- There are 19 facts where zero is one of the addends
- Be sure to show 0 + 6 and 6 + 0
- Children assume that addition sentences result in a larger number

*Note:* This may seem easy; however, students over generalize that an addition sentence always equals a larger sum.

## One/Two More

- One addend is 1 or 2
- 36 facts
- Students are ready for these activities when they can identify 1 or 2 more without counting

## Commutative Property

The order of the addends does not change the sum

$2 + 5 = 5 + 2$

## Doubles

- The two addends are the same 0 + 0, 1 + 1, 2 + 2, etc.
- There are 10 doubles facts
- These facts will be anchors for other facts (such as 4 + 4 = 8 so 4 + 5 = 9 , see Near-Doubles)

## Near-Doubles

- All combinations where one addend is one more than the other

*Note:* Some children will double the smaller fact and add up 6 + 6 = 12 so 6 + 7 = 13. Others will double the greater fact and subtract one 7 + 7 = 14 so 7 + 6 = 13

*Be sure students are exposed to both so they can decide which is better for them.

## Sums of Ten

- The two addends equal the sum of ten
- These facts will be anchors for other facts (such as 9 + 1=10, so 9 + 4 becomes 10 + 3)

## Ten Plus

- One addend is 10, 10 + 4, 4 + 10
- Children need to recognize that a set of ten and a set of 4 total 14 without counting.

* This is not an appropriate place for the term 1 ten as regrouping for first graders. The term 1 set of ten not a 1 in the tens place should be used to meet the needs of the early first grade student.

## Make-Ten

- These facts all have 8 or 9 as one of the addends
- Children use 10 as a way to "bridge" to get the sum 6 + 8. Start with 8; decompose the 6 into 4 + 2 add the 2 to 8 and get a sum of 10. 10 and the remaining 4 equals 14 so 6 + 8 = 14.

**NOTE: Counting on is not a sophisticated strategy. Children coming from Kindergarten are expected to recognize small sets of numbers but may count. Children in first and second grade are expected to take the next step by creating and using more sophisticated strategies such as the ones listed below.**

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# Addition Strategies (Continued)

## Remaining 4 Facts

**3 + 5  3 + 6  4 + 7  5 + 7**

The children have learned or discovered strategies to solve the 4 strategies above. Now encourage the students to apply and choose a strategy that will work for them.

| | |
|---|---|
| 7 + 4 | decompose the 4 into 3 + 1 to make ten, add 1 more |
| 7 + 5 | decompose the 5 to make 3 + 2, therefore making a ten creating a fact they know (7 + 3 = 10), then add 2 more |

## Invented

- Students create and/or apply any of the above strategies to other equations.
- Students will create ways to solve problems that are not noted above.
- Encourage students to create other ways to solve problems other than counting.
- Invented strategies are number-oriented, flexible, and constructed by students.

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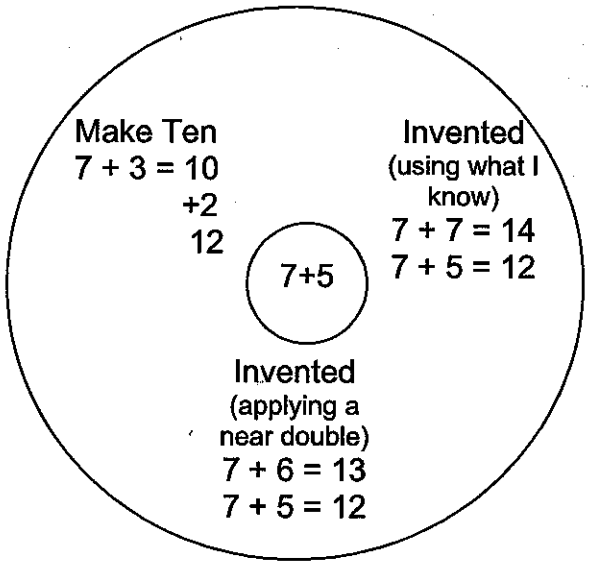
## Circle Map



# Subtraction Strategies

## Think-Addition

The children will use the known addition facts to produce the missing addend.

B. This strategy works best for sums less than 10 because 64 % of the 100 subtraction facts fall into this category, for example: 9 – 4 (think 4 + 5 = 9)

C. Such facts as 7 – 2 would go along well with 2 more, now think 2 less along with 2 + 5 = 7, so 7 – 2 = 5

## Build Up Through Ten

- This group includes all the facts where the part is either 8 or 9
- Start with the 8 or 9 and ask how much to ten and then build up

## Back Down Through 10

- It is most useful for facts where one digit is close to the number it is being subtracted from
- 14 - 6, remove six from a ten frame and then two more to get the eight

## Invented

- Students will create ways to solve problems that are not noted above
- Encourage students to create other ways to solve problems other than counting

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Circle Map