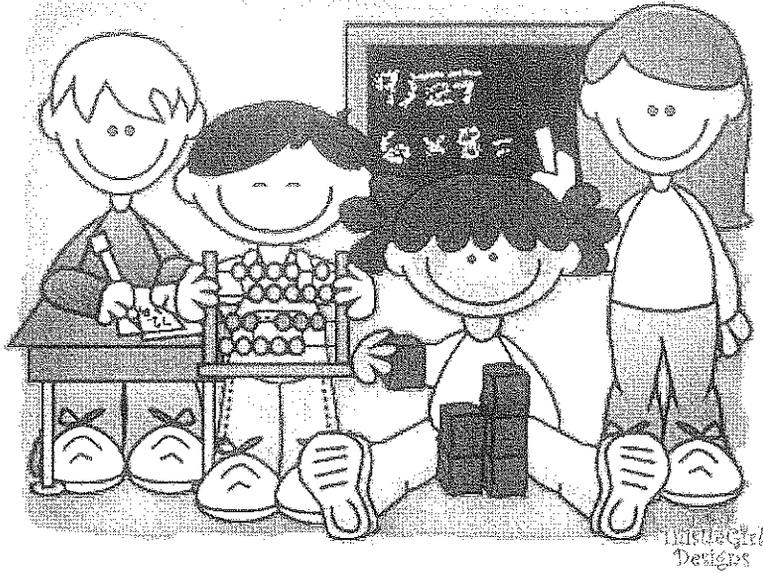


# Understanding Combinations



## Memorizing Addition Facts vs. Understanding Combinations

Most of us were taught to memorize math facts with little or no deep understanding for the application of the skill.

Today many students lack early numeracy skills for a variety of reasons:

☞ Too few mathematical experiences early in life due to the fast pace of our lives, which leaves little time to absorb, practice, and experience objects in the physical world

☞ State requirements push children through standards at such a rapid pace that there is little or no time to apply what is being taught.

☞ Many children lack foundational skills, such as visual memory for number quantities.

We know that visual memory plays a vital role in helping children learn to read.

But what does visual memory have to do with numeracy development and

number sense? Why is it a vital readiness skill in math?

Let's try this exercise to help make sense of this:

Picture the word "said" in your mind or visual memory. Close your eyes if you need to. Then answer these questions:

- ▶ What color is the font of the word?
- ▶ Is the word in uppercase or lowercase?
- ▶ Is the word in typed print, cursive or perfect elementary print?

Most audiences would respond that the font is black, the word is in lowercase and the font is either typed or printed neatly. Next, while picturing the word "said" answer these questions:

- ▶ What are the first two letters you see in the word? (sa)
- ▶ What are the last two letters you see in the word? (id)
- ▶ What are the two middle letters you see in the word? (ai)
- ▶ Spell the word backwards? (dias)
- ▶ Now spell the word. (said)

Now let's switch this concept to math:

- ▶ Picture eight in your mind or visual memory?
- ▶ Sky-write in the air what you see.

Most people will draw the figure or number symbol for eight "8". Why is it we picture the parts of words as readers and spellers, but when it comes to math we see only the symbol or the digit? Why don't we see a dice pattern of five and three or a ten frame with five in one row and three in the next row to represent the number quantity? Seeing the number value or quantity is vital for children to understand that a single number or quantity is made up of smaller parts.

When talking about addition facts this is why it is important to understand combinations through visual memory and have a deep understanding of the process. Instead, early on students rely on counting on their fingers due to feeling pressured to get the answer fast instead of trying to visualize the problem and answer with accuracy.



What is something fun I can  
 do to help my child  
 understand combinations?

## Understanding Combinations

Print out the "Dot Combination" cards to use for practice at home 2-3 nights a week. Put your finger over the "digit" total and ask your child, "How many do you see?" Have your child use their visual memory to tell you the combination they see.

Flash the card for no more than 3-5 seconds while encouraging your child to just tell you the total they see instead of trying to count each dot on the card to gain the total.

Soon you will discover which "facts" they know quickly and which "facts" need some more practice.

Encourage your child to tell you what they saw after they have told you the total. For example:  $4+4=8$  I saw 4 red dots like a dice and 4 black dots like a dice which is a total of eight.

Be sure to keep a high rate of success with a small bit of challenge to keep your child interested yet challenged. This may require taking out some of the harder cards until they start to understand visualization of number groups or combinations.

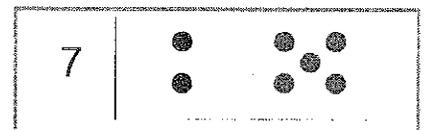
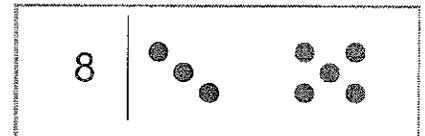
## Missing Part

Once Understanding Combinations is mastered move onto Missing Parts. Follow this same procedure however this time cover a "part" using a post-it note or a dark colored piece of paper.

While flashing the card for no more than 3-5 seconds say, "I wish I had 7 but I only have 2, how many is hidden"

This is a great pre-algebraic skill for students to understand by taking their understanding combinations a step further.

Encourage them to visualize the other part that is hidden instead of trying to count auditory the missing part.



## Pencil Paper

Once your child is able to do all of these activities successfully start to bring in addition facts on paper while showing the visual representation for what they are seeing.

You will see a big difference in their understanding of this skills which will help promote a lifetime of mathematical thinking!

Other Products that work on this same skill:



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