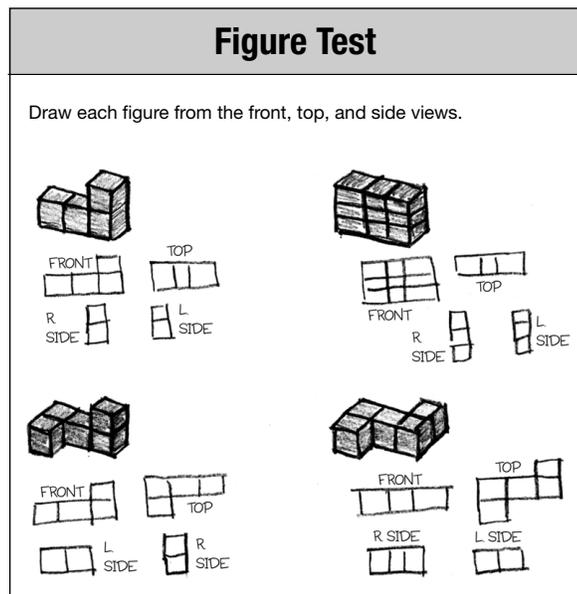


# Simultaneous Processing Explained

*Simultaneous processing* is a mental process used to relate separate pieces of information as a group or see how parts are related to a whole. Usually Simultaneous processing is seen in tasks that involve spatial skills, such as using blocks to build a design, doing geometry, seeing patterns in numbers, seeing a group of letters as a word, understanding words as a whole, understanding a sentence as part of a paragraph, and reading comprehension. The spatial aspect of Simultaneous processing includes the perception of an object as a whole and seeing patterns. Simultaneous processing is involved in reading comprehension in that it requires the integration and understanding of word relationships, prepositions, and inflections so that a person can derive meaning based on the whole idea. Children good at Simultaneous processing easily recognize themes and how facts fit together to form a complete whole.

## Example of Simultaneous Processing in the Classroom

Simultaneous processing is involved in the comprehension of spoken and written language. For example, the sentence “The black cat ran” requires a student to relate the element “cat” with the element “blackness” and relate it to the action “run.” Grouping the words *flowers*, *birds*, *rocks*, and *clouds* into a group of “things you can find outside” uses Simultaneous processing because it requires the student to see how each of those things relates to the others and to the statement.



**Figure 1.** An example of an activity that requires Simultaneous processing.

Simultaneous processing. Relating the picture to what was read or written requires the student to understand the story and how its parts are interrelated.

Simultaneous processing is required for things to be seen as a whole. To recognize a shape in a collection of lines that form a cube requires Simultaneous processing, as does drawing a map (see Figure 1). Drawing or making a map requires grasping the relationship of one place to another in a meaningful way, rather than seeing a map as a bunch of shapes and lines.

A simple but common task for children in school is to draw pictures, often pictures about a story they have written or read. Simply drawing the picture and seeing how each part, color, and design fits to make the artwork meaningful requires Simultaneous processing. A drawing that includes all of the necessary parts in a well-organized group involves Simultaneous processing.

Simultaneous processing describes several activities.

- Relating parts into a comprehensive whole to see how things fit together
- Understanding relationships among words, pictures, or ideas
- Working with spatial relationships
- Seeing several things or integrating words into a larger idea

Here are some classroom problems related to Simultaneous processing:

- Failure to recognize sight words quickly
- Failure to interpret word, sentence, or passage meaning
- Difficulty with seeing the shapes of words or working with spatial tasks
- Failure to see patterns in text or math problems
- Failure to comprehend math word problems

## **Strategies for Developing Simultaneous Processing**

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- Do matching and categorization games (e.g., pictures, words), including opposites, with the child
- Show the child reproductions of figures in rotation and from different perspectives
- Have the child practice on jigsaw puzzles, hidden picture worksheets, and building three-dimensional objects
- Ask the child to supply missing details in stories
- Encourage rhyming
- Have the child use and create maps, both geographical and contextual
- Teach the child how to summarize stories or articles

## **How Is Simultaneous Processing Measured?**

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Simultaneous processing can be measured using the Cognitive Assessment System (CAS). The CAS gives an overall score and separate PASS scores for the four cognitive scales, including Simultaneous processing. The average score is 100. Scores below 90 are considered below average.

## **Resources**

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Kirby, J.R., & Williams, N.H. (1991). *Learning problems: A cognitive approach*. Toronto: Kagan & Woo Limited.  
Naglieri, J.A. (1999). *Essentials of CAS assessment*. New York: John Wiley & Sons.  
Naglieri, J.A., & Das, J.P. (1997). *Cognitive Assessment System*. Itasca, IL: Riverside.