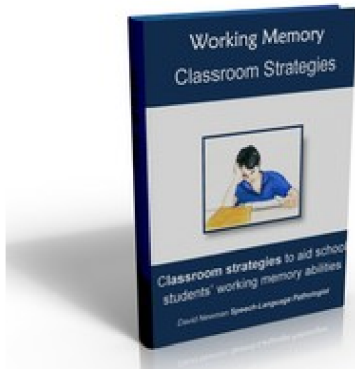


# Working Memory Classroom Strategies

by David Newman BAppSc (Speech-Language Pathology)



Thank you for taking the time to look at the **Working Memory ebook**.

All of the activities and strategies in the ebook have been designed to be as user friendly as possible. The activities will assist your students to sharpen and improve their ability to retain new information.

I have included a full table of contents and thumbnails of some of the exercises and activities included in the program to give you a sense of the look and feel of the ebook.

## Table of Contents

What is working memory?.....	4
<b>Classroom Strategies</b> .....	5
Warning signs.....	5
Watch carefully for tell-tale signs.....	7
Cut back the amount of information to be learned.....	9
Repeat complex instructions.....	12
Student directed strategies.....	13
<b>Language intervention strategies</b> .....	14
Working memory intervention .....	17
Working memory tips.....	19
<b>References</b> .....	20

# Some thumbnails of the program...

## Classroom Strategies

This program, which has a classroom centered approach, is designed to lessen the working memory burden on school-age children who experience memory overload. This guide provides several memory aid and receptive language strategies to enable teachers to better assist their students to access classroom discourse and verbal and written information.



## Working Memory Warnings

The following are lists of warning signs to look for in your students to indicate if their working memory systems are being overloaded.

## Difficulty understanding and following instructions

This may manifest as the student being unable to remember a multistep instruction. So, for instance, if you were to say, "turn to chapter 3 and start reading page 100," a student with working memory problems may have difficulty mentally processing the amount of information and may process no further than, "turn to chapter 3."

For instance, a child may be required to process and store complex, unfamiliar information, such as, "Before the British could rule the Caribbean Sea, they had to first capture Port Royal from the buccaneers." A child with working memory difficulty would be overwhelmed with the length and complexity of the sentence and also the unfamiliar language such as, "buccaneer, Port Royal, etc."



## Strategies: Cut back the amount of information to be learned at any one time

There are a number of strategies that can be used if they are used appropriately. Students with working memory difficulty follow these strategies:

- **Reduce** the working memory load by breaking down the amount of information they have to process into smaller sentences, and pause often to allow time to process new information.
- **Increase the meaningfulness** of the information by providing context for it. A key way to provide context is to provide a particularly effective when introducing new concepts. If a child has a familiar context, it is easier to process new information.



## Strategies: Repeat complex instructions and encourage students to use memory aids

- **Repeating complex instructions** sounds like simple advice but can be often overlooked, so it is important to mention it. Students with working memory difficulty may need instructions to be repeated several times during a class activity. If students feel that they struggle with complex instructions or information, they should be encouraged to ask the teacher for **clarification**. Teachers, of course, need to provide an environment where students feel comfortable to ask the teacher for clarification if they have missed the *gist* of verbal or written instructions.
- Memory aids are recommended for students to review instructions or information, or to guide the completion of a specific activity. For instance, if we return to the **story grammar** example, when learning the sequence of story grammar elements, students can be provided with a memory aid to help them remember the sequence.

# Excerpt from the ebook...

## Working Memory Intervention *Example*

The following passage is an example of a teacher introducing the structure of a story writing to her grade 5 students. Story grammar concepts can be very difficult material for students to learn, particularly if they have little experience at thinking about the mechanics of story writing. Students with working memory problems would be at a distinct disadvantage if the teacher's instructions were *complex*. Particularly if there was little thought given to appropriately scaffolding the material presented. In this example the teacher narrated the instructions and expected her students to write the instructions down.

### **The class teacher's Instructions to her students**

The instructions the teacher delivers here are entirely verbal, with no written material to support the information. **Class Teacher:** *'Today we are going to learn about story writing. To be a good story writer requires that you construct a story following several principles. You need to have a clear beginning, middle and end. You also need to devote attention to the setting, character motivation, and a problem a main character has to overcome.*

*Now, I want you to write a story about a happy event in your own life that you remember vividly. Before you begin to think about a happy story though, I want you to quickly write down these main headings,*

*because we are going to spend a bit of time on each. The main headings are: setting, beginning, middle and end, character and story sequence.'*

As you can see, there is a significant amount of information for the grade 5 students to process in this example. The children with good working memories and strong receptive language skills may have a little difficulty coping with the amount of information and keep up with the teacher's thoughts. They may even be actively writing down the key headings as instructed by the class teacher.

However the children with poor working memory will quickly flounder with the amount of information they have to process. Much of the teacher's instructions would be lost to them. If we analyze what the teacher was doing it may provide some insight into how to better scaffold the information for students with working memory difficulties.

- First, there is too much information to process at once. Students with working memory difficulties will not be able to keep up with the teacher.
- Second, the sentences are too complex. Many of the sentences contain relative clauses which may be too difficult to process for students with poor working memory.
- Third, the instructions are poorly organized and the teacher hasn't really provided any scaffolding before launching into talking about writing a story from the students own experiences. The teacher then expects the students to write down the main headings without providing any written information.

# Working Memory Exercises *Example*

## Word Sequence – physical attributes (foods)

**Instructions:** I'm going to read out a list of foods to you. I want you to listen carefully and then *say* them in order from **largest** to **smallest**. So for instance if I was to say *pea, watermelon, apple* you would say *watermelon, apple, pea*.

### Largest to Smallest

- |    |            |    |                |    |               |
|----|------------|----|----------------|----|---------------|
| a. | orange     | b. | banana         | c. | sultana       |
|    | grapefruit |    | bean           |    | apple pie     |
|    | watermelon |    | pumpkin        |    | egg           |
| d. | grape      | e. | brussel sprout | f. | sardine       |
|    | rock melon |    | cabbage        |    | loaf of bread |
|    | apricot    |    | tomato         |    | potato        |
| g. | peach      | h. | peanut         | i. | grapefruit    |
|    | cabbage    |    | walnut         |    | lime          |
|    | olive      |    | brazil nut     |    | orange        |