



Working Memory

Working memory is the ability to keep things in mind while performing an activity. It helps one to remember while you are in the process of learning. It involves the maintenance of information in mind so that an individual can use it for planning, learning, reasoning, and producing a result. Working memory helps to hold a thought or long-term memory in mind so you can act more efficiently in the present moment. For example, working memory might involve shutting off a television and remembering to gather one's coat and backpack before leaving a friend's house.

Home and School Situations Requiring Working Memory

- Taking notes in class
- Recalling plans made or an assignment due date
- Remembering the rules to a game or sport while playing
- Following multi-step directions at both school and at home
- Doing math computations in one's head
- Recalling answers to reading comprehension questions
- Remembering a list of chores, items, or tasks

Hints and Strategies to Improve Working Memory

- Simplify directions as much as possible. Your child will be more likely to recall short, simple, and direct instructions. For example, saying, "When you have finished those two math worksheets, you may watch one episode of the *The Simpsons*," is much more direct and simple than saying "When you finish your homework you can watch some TV."
- Encourage your child to seek assistance from others. Emphasize to your child that it is acceptable to ask the teacher to repeat instructions or to ask a classmate to borrow his notes. Role-play these scenarios at home so that your child will feel comfortable when the situation arises.
- Find a mode of technology that is helpful to your child. For example, use a tape recorder to record notes or directions, or a cell-phone to program in reminders and scheduling changes. Digital picture frames can show a sequence of activities that are easily forgotten, such as eating breakfast, putting dishes away, and washing up.
- Practice verbal memory skills, such as rehearsal, chunking, or mnemonic devices. Help your child to rehearse by whispering directions or lists to himself. Also, practice chunking devices that can help your child to whittle down two-step instructions to one, such as brushing her teeth and washing her face together. Mnemonic devices can be especially helpful, such as how ROY G BIV is often used to recall the colors of the rainbow in order.

- Practice reading comprehension. Read the same material as your child and then have a brief discussion about it. This may help to increase your child's focus and stretch his memory as an active component of working memory skills.
- Showcase your own working memory difficulties by dramatizing your strategies to compensate for them. Many adults report difficulties with working memory in simple tasks such as remembering what they meant to do when they went into the kitchen or leaving the house without forgetting something important. Rather than simply giving in to the fact that working memory diminishes once adults approach their thirties, use compensatory strategies such as making notes, using Post-its, asking someone else to give a reminder, or doing something immediately when it comes to mind. Exaggerating and dramatizing your strategies for compensating your own working memory difficulties may be helpful for a child who has similar difficulties.
- Select video games for your child that require the use of working memory skills. Brain training games, such as Mind Quiz and Brain Age 2, require the use of working memory skills and visual memory tasks. Other longer narrative games, such as the Legend of Zelda series, require that one is able to keep in mind incidents and objects from earlier in the game in order to be successful in one's strategies on later levels. Most importantly, try and get your child to recognize how memory skills can help in games and encourage your child to try out different strategies, such as visualizing what he needs to remember, over-learning math facts so that they become automatic, and repeating things out loud. These strategies may help your child in a number of memory tasks.

Books on Working Memory

Cooper-Kahn, Joyce, Ph.D. and Laurie C. Dietzel. (2008). *Late, Lost, and Unprepared: A Parents' Guide to Helping Children with Executive Functioning*. Bethesda, MD: Woodbine House. [Chapter 14]

Cox, Adam J., Ph.D. (2007). *No Mind Left Behind: Understanding and Fostering Executive Control--The Eight Essential Brain Skills Every Child Needs to Thrive*. New York, NY: Penguin Books. [Chapter 7]

Dawson, Peg, Ed.D. and Richard Guare, Ph.D. (2009). *Smart but Scattered*. New York, NY: The Guilford Press. [Chapter 12]

Richard, Gail J. and Jill K. Fahy. (2005). *The Source for Development of Executive Functions*. East Moline, IL: Lingua Systems.

Websites and Articles on Working Memory

LearningWorks For Kids (<http://www.learningworksforkids.com/EF/working.html>): The premier resource for executive function information, offering a detailed explanation of working memory, tips for parents, and activities to improve this skill.

U.S. News and World Report (<http://health.usnews.com/articles/health/healthday/2009/03/26/working-memory-fluctuates-in-kids-with-adhd.html>): This article discusses the inconsistency of working memory in children with ADHD.

ADDitude (<http://www.additudemag.com/adhd/article/772.html>): This site offers 15 expert tips for boosting memory and improving academic performance in students with ADHD or learning disabilities.

Today's Parent

(http://www.todayparent.com/schoolage/article.jsp?content=20060105_125225_5208&page=1): This site defines the different types of memory and offers tips for parents to help improve their child's memory skills.

Games and Activities That Can Practice Working Memory

- Playing board games
 - Most board games require players to use working memory to recall rules, remember whose turn it is, and relate the spin or roll to the appropriate move. Asking your child to “help” you remember what happens next in the game will even further improve this working memory activity.
- Grocery shopping trip
 - Ask your child to help you keep track of the next three or four items you have to find and have your child count them as you find each one.
- Memory or Concentration
 - This card game challenges players to match pairs of cards by turning them over two at a time while they are face down, allowing your child to practice his working memory skills.
- "I packed my suitcase" Game
 - Players in this game have to picture and remember an increasing list of items. One child starts by saying, “I packed my suitcase and in it I put a toothbrush.” The next player repeats that phrase and then adds another item “a toothbrush and some socks.” Go back and forth adding more items.
- Big Brain Academy
 - This game requires your child to keep facts in mind in order to successfully play the game.