

# #10665 ATTENTION

WGBH, 2000  
Grade Level: 13+  
50 Minutes



## CAPTIONED MEDIA PROGRAM RELATED RESOURCES

[#9339 PARENTING CHILDREN WITH LEARNING DIFFERENCES:](#)

[LD, AD/ HD](#)

[#9891 MISUNDERSTOOD MINDS](#)

[#10670 MASTERING THE CHALLENGE OF READING](#)

# Developing Minds

## About the Developing Minds Video Library



The *Developing Minds* multimedia library features the work of All Kinds of Minds, a private non-profit Institute, affiliated with the University of North Carolina at Chapel Hill. All Kinds of Minds offers a broad range of programs and resources that enable parents, educators, and clinicians to help children and adolescents with differences in learning achieve success in school and life. The Institute was co-founded by Dr. Mel Levine, who for more than 25 years has pioneered innovative programs to enhance the understanding and management of students' learning difficulties. Dr. Levine's comprehensive neurodevelopmental model draws on research from a wide range of disciplines. A renowned developmental-behavioral pediatrician, Dr. Levine is also Professor of Pediatrics at the University of North Carolina Medical School and Director of the University's Clinical Center for the Study of Development and Learning.



all kinds of minds

*Developing Minds* is a library of 22 videotapes with accompanying guides. The library is designed to help parents and teachers of elementary and middle-school children explore differences in learning through the approach and conceptual framework of developmental-behavioral pediatrician, author, and professor Dr. Mel Levine.

The heart of the collection, which features children and early adolescents with diverse learning profiles, is divided into *theme* and *construct* videos. The eight theme videos focus on children's struggles and successes with skills such as reading, writing, and mathematics as well as difficulties in communication, understanding, organization, feelings, and behavior. The eight construct videos begin where the theme videos end, illuminating breakdowns in such key areas of brain function as attention, memory, language, neuromotor, social cognition, temporal-sequential ordering, spatial ordering, and higher order cognition.

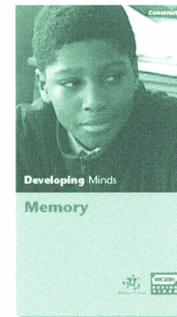
Dr. Levine guides viewers through the videos as he and other experts, teachers, parents, and children provide commentary and strategies. Together, the videos and print guides promote an understanding of learning differences—strengths and weaknesses—and strategies that help children become successful learners. This material also gives parents and teachers a common language to advance effective communication between home and school.



### Theme Videos

Present the learning problems and successes of children and early adolescents (40–60 minutes each)

- Mastering the Challenge of Reading
- Getting Thoughts on Paper
- Thinking with Numbers
- Understanding
- Student Output: Producing, Performing, and Communicating
- Getting Organized/Work Habits
- Feelings and Motivation
- Behavioral Complications



### Construct Videos

Provide deeper insight into specific neurodevelopmental breakdowns that contribute to differences in learning (30–60 minutes each)

- Attention
- Language
- Neuromotor Function
- Memory
- Social Cognition
- Temporal-Sequential Ordering
- Spatial Ordering
- Higher Order Cognition

## How to Use

Together, this video and guide can be used to increase awareness and gain a deeper understanding of children's difficulties with attention. The video is organized according to three systems of attention: *mental energy*, *processing*, and *production*. Scenes feature children in classroom settings struggling with the attention systems. Dr. Mel Levine and teachers offer practical suggestions to help children address a variety of attention problems.

The structure of the guide is similar to the video, with information on each of the three systems of attention as well as a section, *Explore the Video*, that highlights scenes of children struggling with each of the attention systems. In addition, the guide provides a glossary of terms used in the video, a checklist of signs of attention problems, a brief background article on attention, and resources for further information.

There are many ways to use these materials, including watching the video alone, working with a partner, participating in a teacher or parent study group, or using the video and guide at a parent-teacher association gathering. However you choose to use them, these materials will provide insight into important difficulties that children experience with attention. The Viewing Tips on page 8 offer key questions to reflect upon after watching.



### Tips for Using

- Scan the guide and read the introduction and background article. Watch the entire video, then rewatch it, using sections of the guide to reinforce what you see.
- To find information that addresses your needs, go directly to a particular section of the guide, such as *Explore the Video*, then view related video segments—or refer to the guide alone.
- Begin exploring the video library with *Attention* for an overview of the topic. Then watch related theme tapes, such as *Getting Organized*, *Behavioral Complications*, *Understanding*, and *Student Output* for information on how difficulties with attention can affect learning.

### Management by Profile Videos

Introduce a systematic process for developing an individualized educational path based on a child's neurodevelopmental strengths and weaknesses; *A Student Profile* showcases a child as he moves through the process (20–30 minutes each)

- Strategies for Parents
- Strategies for Teachers
- A Student Profile

### Introduction Videos

Provide a brief description of the video library components; the Parents' and Teachers' videos also introduce the philosophy and approach of Dr. Mel Levine (10–20 minutes each)

- Video Library Overview
- Introduction for Parents
- Introduction for Teachers



## Introduction

***“Sometimes I go off track like Pokémon and stuff like that. When my teacher is doing a read-aloud, I just go off, take my Pokémon cards out of my pocket and start looking at them.”***

—John,  
second grade student

***“When I look at something that looks good I want to touch it. I can’t, because I know I will get in trouble, but I just try to act like I’m not doing nothing and I just do it.”***

—Brittany,  
second grade student

Attention plays a central role in the way children learn, behave, and interact with each other. While all children have different capacities for attention, problems with attention can greatly impede academic and nonacademic performance. Relationships at home and at school can suffer, and children may develop behavioral problems as a result of their struggles to cope with attention difficulties. Attention is more than merely “paying attention.” Attention is a system of controls that can help children with such things as working consistently each day, focusing on the right details when reading, and thinking ahead about what to say and do.

Dr. Levine and other researchers are developing an understanding of how aspects of brain function contribute to attention. He and his colleagues view attention as consisting of three control systems: *mental energy*, *processing*, and *production*. Some children experience problems with all of these attention systems, while others may show strengths and weaknesses in different systems.

As Dr. Levine points out, “Children who have attention difficulties are often kids who have very good minds . . . it’s as if there’s no leadership in their minds, and so they keep going astray. It’s kind of like an orchestra without a conductor, or a baseball team without a manager.” Just as an orchestra conductor does not create the sounds of music, but rather controls the players who do, attention controls a large number of brain processes that are essential for learning, behaving, and interacting with others. To help children who struggle with attentional problems, it is important to recognize where breakdowns are occurring. Then appropriate strategies to address these problems can be developed.

## Mental Energy Controls

The first attention control system, *mental energy*, regulates and distributes the “fuel” or energy supply needed for the brain to take in and interpret information and regulate behavior. Children whose mental energy is not working effectively may become mentally fatigued when they try to concentrate, or have other problems related to maintaining the brain energy needed for optimal learning and behavior.

The first control in mental energy is *alertness*, a state of mind in which a child can effectively listen to and watch information being presented. Children who experience difficulty with alertness can appear to be daydreaming.

The second control is *sleep and arousal balance*. This control affects the ability to sleep well enough at night to be sufficiently alert during the day. Children who are experiencing trouble with sleep and arousal may find it difficult to get to sleep at night, or they may sleep poorly. They then have trouble getting up in the morning and may appear tired in class.

The third control within this system is *mental effort*. This control initiates and maintains the flow of energy required for a child to start, work on, and complete a task. Mental effort is particularly important when children are faced with tasks that may not be especially interesting or personally motivating. Children who have difficulty with mental effort can benefit from having tasks broken down into smaller, more manageable parts.

The fourth control is *performance consistency*. It works to ensure a reliable, predictable flow of energy from moment to moment and day to day. Children who have trouble with performance consistency don't have problems all of the time. Sometimes they can concentrate and perform well, while other times they cannot. Their work output and behavior may be impossible to predict.

## Processing Controls

The second system within attention is called *processing*. This system helps a child select, prepare, and begin to interpret incoming information. Children who have difficulty with processing may have a range of problems related to regulating the use of incoming information.

The first control within the processing system is called *saliency determination*. It involves selecting which incoming information is the most important. Children who have difficulty with this control may be distracted by things that aren't relevant and miss important information being presented.

The second control in processing is *depth and detail of processing*. It controls how intensely children can concentrate on highly specific data. It enables them to focus deeply enough to recognize and remember necessary details.

The third processing control is *cognitive activation*. Within this function, new information triggers further relevant thinking. This active processing connects new information to what has already been learned through prior knowledge and experience. Children who are inactive processors are unable to connect to prior knowledge to assist their understanding of new information. In contrast, overactive processors are reminded of too much prior knowledge, making it difficult for them to maintain focus.

***“I think it’s important to realize that everyone has trouble with attention—at least some of the time. . . . It’s just that some of us have more attentional difficulties than others. And I think we can also realize that some of the things that cause kids to have the greatest difficulty with attention at a certain age could turn out to be their greatest assets as adults.”***

—Dr. Mel Levine

The fourth control is *focal maintenance*. This allows a child to focus on important information for the appropriate period of time. Dr. Levine explains that, “It isn’t so much how long your attention span is, as it is how well-matched the duration of your attention is to the target at hand.” Some children who don’t concentrate long enough on certain things may concentrate too long on others.

The final processing control is *satisfaction control*. This control involves a child’s ability to allocate enough attention to activities or topics of moderate or low levels of interest. Insatiable is a term used for children with poor satisfaction control who may be unable to concentrate on activities that are not exciting enough.

## Production Controls

The third attention system is *production*. This area governs output—including what children generate academically, behaviorally and socially. Children with production control problems have a range of difficulties related to regulating academic and behavioral output. They may do things too quickly without thinking, planning, or previewing outcomes.

The first production control is *previewing*. It involves considering more than one action or response and anticipating the likely outcome of a particular choice. Children who have difficulty with previewing may plunge into activities instantly and react too quickly.

The second control is *facilitation and inhibition*. This is the ability to exercise restraint and not act immediately, to consider multiple options, and to choose the best one before acting or starting on a task. Children who have trouble with facilitation and inhibition frequently act impulsively and may appear to be doing only the first thing that comes to mind. These children may blurt out answers before being called upon in class.

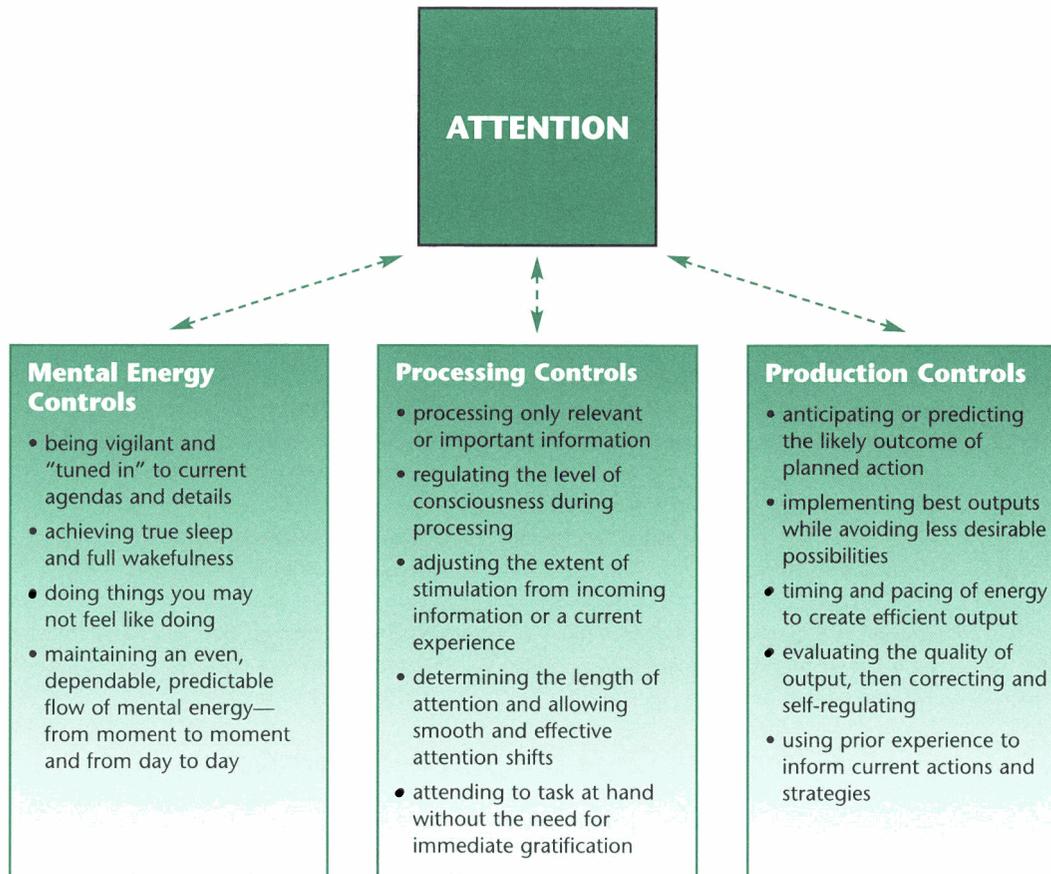
The third control in production is *pacing*, which means doing tasks or activities at the most appropriate speed. Pacing difficulties often show up in children’s reading. Their reading pace may be so fast that they skip over words, have difficulty with multi-syllable words, and show little reading comprehension.

The fourth control is *self-monitoring*. It allows children to evaluate how they are doing while performing and after completing a task. This control allows children to regulate their attention and take corrective action.

The fifth production control is *reinforceability*. It allows children to use previous experience to guide current behavior and approaches to current tasks. Often called hindsight, this ability enables children to make use of precedent, experience, and prior knowledge to guide their decision making and actions.

## Attention Controls Diagram

This diagram offers a visual representation of the attention control systems presented in the video.



## Viewing Aids

The **Glossary** and **Signs of Attention Problems** explain concepts presented in the video. Refer to them as you view the video, or later when reflecting on how you might help a particular child.

### Glossary

**accommodations:** adjustments to tasks that work around a child's neurodevelopmental differences or weak skills; sometimes referred to as bypass strategies

**alertness:** attaining an effective level of concentration for taking in information

**cognitive activation:** having incoming information trigger further relevant thinking

**demystification:** the process of helping children understand—and have the terms necessary for coping with—their learning strengths and weaknesses

**depth/detail of processing:** having enough intensity of focus to capture the needed amount of specific information

**dysfunction:** weakness in any neurodevelopmental process, for example, not having enough mental energy to complete a task

**facilitation/inhibition:** perceiving multiple options and picking the best one before acting, speaking, or starting on a task

**focal maintenance:** sustaining concentration for an appropriate period of time

**mental effort:** initiating and maintaining the flow of mental energy needed to start and complete assignments and tasks

**mental energy controls:** regulators of the level of brain energy needed for optimal learning and behavior

**neurodevelopmental functions:** brain-based processes needed to acquire and produce knowledge, skills, and approaches to learning

**pacing:** doing things at the appropriate speed—neither too slowly nor too quickly

**performance consistency:** keeping up a reliable, predictable flow of mental energy, thus ensuring dependable function

**previewing:** the process of thinking about a likely outcome of an action, statement, or plan

**processing controls:** regulating the use of incoming information

**production controls:** regulating academic and behavioral output

**reinforceability:** using previous experience to guide current behavior, decision making, and work output

**saliency determination:** the process of deciding what is important

**satisfaction level:** the degree of interest needed for an individual to focus on an activity or set of tasks

**self-monitoring:** the process of evaluating and keeping track of what you are doing

**sleep/arousal balance:** sleeping well at night and being sufficiently alert during the day

## Signs of Attention Problems

### Mental Energy

- has difficulty concentrating, may complain of feeling tired or bored
- does not seem to be well rested and fully awake during the day
- has inconsistent work patterns that negatively impact quality and quantity of work
- shows over-activity and fidgets—especially pronounced when sitting and listening

### Processing

- processes too little or too much information; can't distinguish what is important and what isn't
- focuses too superficially or too deeply on information presented
- has difficulty connecting new information with information already known
- only pays attention to exciting information or highly stimulating activities
- focuses for too brief a period
- has problems shifting readily from one focus to another

### Production

- fails to preview the effects of statements or actions or to predict the outcomes of tasks or activities
- has difficulty coming up with the right strategy or technique to accomplish a task
- does not monitor quality of work or the effectiveness of strategies
- does not use past successes and failures to guide current behavior, actions, or strategies
- apt to do too many things too quickly and some other things too slowly
- has a poor sense of how time works or how to manage it

## Explore the Video

Go to these scenes to reinforce what you see in the video or to focus your discussion.

### Viewing Tips

- Watch the entire video to get a sense of the concepts and issues presented. Then watch the parts that interest you again.

- View the video with a partner or in a small group, then discuss it. Consider the following questions: *How do attentional problems affect a child's academic, behavioral, and social performance? How might problems with other functions, such as language, affect attention? Which strategies help students become better at monitoring their attention? Are there any strategies you might want to try?*

- Watch the video with a child who has a similar profile, then discuss your reactions. Have siblings watch the video to better understand their brother's or sister's attention difficulty.

### Mental Energy Controls

1. James has difficulty staying alert during class.



#### Strategies teachers use to increase children's alertness include:

- seating that child close to the teacher
- making frequent physical and/or eye contact with that child
- allowing the child to do something with his hands, such as doodling or manipulating a squeeze ball or piece of clay

2. These boys describe their late bedtimes—one reports how he walks around at night when everyone else is sleeping and plays games.



#### Strategies to help promote a good night's sleep so a child can stay fully awake during the day include:

- putting children to bed at the same time every night
- allowing them to read or do some other passive activity in bed until they get sleepy
- having white noise in the background, such as a fan or soothing, sleep-inducing music

### Processing Controls

1. Alexandra is a child whose mind becomes overactivated. She has difficulty focusing on information being presented.



#### Her teacher has taught her to use the following self-monitoring process:

- keep a "mind sheet" on her desk
- log each "mind trip" on the "mind sheet" to create awareness
- evaluate the number of mind trips each day or week
- compare to previous days or weeks to track improvement

2. Ben is someone who has a hard time concentrating in class if the content is not exciting or stimulating enough.



**Ways to help put some controls on insatiability include:**

- setting aside certain times of the day, both at home and at school, when a child's insatiability is acceptable
- explaining the characteristic of insatiability to a child who craves stimulation
- having the child who realizes his insatiability start to curb it himself, perhaps by subvocalizing when he becomes aware that he needs to refocus

*"There may not be a lot of difference between distractibility and creativity. The free flight of ideas may really turn out to be a source of tremendous inventiveness. Children who are insatiable may grow up to be adults who are highly ambitious."*

—Dr. Mel Levine

## Production Controls

1. Brittany has difficulty controlling her responses in the classroom.



**Strategies her teacher uses to help Brittany inhibit her responses include:**

- instituting a reward system
- communicating clearly the purpose of the reward system and the desired behavior
- providing consistent rewards when an established goal is achieved

*"First of all, I slowed her down in her reading. One of the things that this age group tends to [think] is 'the faster you read, the better you are,' no matter if you read accurately or not. So we did a lot of talking about slowing down and looking carefully at words, and she has incorporated that into her reading."*

—Jane Adolph,  
third grade teacher

2. Gideon reports he isn't the best editor of his own work—that he skips a lot and keeps moving ahead instead of self-evaluating while he writes.



**There are ways to encourage good self-monitoring in children, such as:**

- providing a checklist a child can refer to when he writes a report—a list of things like "varied sentence structure" or "spelling" so he can do his own quality control
- having a child evaluate what grade he thinks he got on a test and then comparing that with the grade his teacher gives him

## Home and School Collaboration

*“These kids [with attention difficulties] need to be well organized, or helped to be well organized, so they don’t have any organizational barriers to their work output. They need a really good workspace, a very well designed desk that’s pretty clean and organized. And we also need to find times of day, or settings, in which they seem to have their most mental effort.”*

—Dr. Mel Levine

Attention difficulties can have a tremendous impact on all aspects of life. A candid and consistent dialogue between parents and teachers can provide significant support to a child with attention problems. Mutual respect and open communication can reduce tension and enable parents and teachers to benefit from each other’s expertise and knowledge of the child from different perspectives. Working together, parents, teachers, and the children themselves can inform one another about how best to address the child’s needs.

### Parents and Teachers Communicating about Attention

When you suspect a child is having difficulty with attention, schedule a parent-teacher meeting to share information about the child. The following “talking points” can help structure the discussion.

**Share observations of the child’s profile of attention controls and discuss where the breakdown is occurring.** How is the child exhibiting difficulty with attention? What system of attention seems to be problematic? Is the breakdown occurring with mental energy, processing, or production?

**Identify and discuss the child’s strengths and interests.** How can they be used to enhance his or her attention abilities? Can reading a book, writing a report, or creating a drawing on a topic of interest help a child sustain attention? Have children monitor their own alertness to topics of interest.

**Discuss possible strategies.** What have you tried that has been successful and not so successful? Are there other ideas that might work? Are there strategies that work both at school and at home, such as using eye contact and physical contact with a child to help sustain attention?

**Acknowledge emotional reactions to the situation.** Discuss how children who struggle with attention can become frustrated. Unable to sustain mental energy required for schoolwork, children may become disinterested or even disruptive. Share strategies that might help children become more efficient at monitoring their attention and behavior.

**Discuss appropriate next steps.** Establish a plan for ongoing discussion and problem solving. How will expectations and progress be shared? How can you best advocate for the child?

### When a problem with attention has been specified:

- Learn more about attention from other experts, reference books, and Web sites. (See Resources beginning on page 20.)
- Seek assistance from colleagues and experienced parents, professional organizations, and support groups.
- Request that the school’s special education teacher or learning specialist observe the child and consult with you about strategies to use in the classroom and at home.
- Investigate the availability of professional help from pediatricians, learning specialists, school psychologists, and others.

# Talking with Children about Their Strengths and Weaknesses

*“In the adult world, what really counts is how strong your strengths are, not how weak your weaknesses are.” —Dr. Mel Levine*

Children are expected to use their attention skills to succeed with schoolwork, control behavior, and relate well to others. Some children who have difficulties with attention give up and see themselves as failures; others exhibit behavior complications that relate to their difficulties with attention. Dr. Levine suggests using a process called demystification, which, through open discussion with supportive adults, helps children learn to put borders around their differences and understand that, like everyone else, they have strengths and weaknesses. This process creates a shared sense of optimism that the child and adult are working toward a common goal, and that learning problems can be successfully managed. The following suggestions can help you demystify children’s difficulties with attention.

**Eliminate any stigma.** Empathy can reduce children’s frustration and anxiety about their attention difficulties. Emphasize that no one is to blame and that you know that they often need to work harder than others to concentrate and monitor their attention. Explain that all children have differences in attention skills. Reassure children that you will help them find ways that work for them. Share an anecdote about how you handled a learning problem or an embarrassing mistake in which your attention abilities broke down.

**Discuss strengths and interests.** Help children find their strengths. Use concrete examples but avoid false praise. You might say to a child who can devote total attention to an area of interest, “You are really able to concentrate on your video games.” Identify books, videos, Web sites, or places in the community that can help children build on their strengths and interests.

**Discuss areas of weakness.** Use plain language to explain what aspect of attention needs to be developed or monitored. Contrast breakdowns with areas of attention that are intact, and explain the difference. You might say, “You might have difficulty paying attention to what the teacher says because you are not filtering out the other noise around you, yet your attention when working on the computer is great.”

**Emphasize optimism.** Help children realize that they can improve—they can work on their weaknesses and make their strengths stronger. Point out future possibilities for success given their current strengths. Help children build a sense of control over their learning by encouraging them to feel accountable for their own progress. A child with attention difficulties can become responsible over time for remembering to take frequent breaks, keep checklists, and set short-term goals.

**Identify an ally.** Help children locate a mentor—a favorite teacher, an adolescent, or a neighbor—who will work with and support them. Explain that children can help themselves by sharing with others how they learn best. Older children can explain the strategies that work for them, while younger ones may need adult support. Encourage children to be active partners with their allies.

**Protect from humiliation.** Help children strengthen self-esteem and maintain pride by protecting them from public humiliation related to their learning differences. Always avoid criticizing children in public and protect them from embarrassment in front of siblings and classmates. Don’t require a child with attention difficulties to sit still and concentrate on a task for an extended period of time.

## Management by Profile

Demystification—helping children understand their neurodevelopmental strengths and weaknesses—is part of Management by Profile, a process developed by Dr. Levine and All Kinds of Minds for managing the education of children with differences in learning. Teachers, parents, and the children themselves participate in developing a learning plan for the child that includes strengthening of strengths, accommodations, interventions at the break-down points, and protection from humiliation.

For more information on Management by Profile, see the *Management by Profile guide and the videos, Strategies for Parents, Strategies for Teachers, and A Student Profile.*

## Strategies to Try

### Strategy Tips

- Decide which strategies to try by observing the child and identifying the ways in which he or she learns best.
- It may take several attempts to see positive results from one strategy. Don't give up too soon.
- If the first few strategies you try do not improve the child's skills, try others.
- Most of these strategies can be adapted for use with different age groups.

You may use the strategies on the following pages to help children who are experiencing difficulties with attention. Many of these strategies are accommodations—they work around a child's differences by offering alternative approaches. Slowing the speed of a presentation for someone who is not alert is one example. Other strategies are designed to specifically strengthen a weakness. For example, a child with attention problems might benefit from a system of cues that help her ability to stay focused. From the strategies suggested below, select those that you and the child think might work best.

### General

**Allow longer breaks.** Extending the amount of time given for breaks (such as recess) can be beneficial, especially for elementary-school children.

**Use different methods of instruction.** Use verbal, visual, and experiential methods to enhance attention. Make frequent shifts between discussion, reading, and hands-on group activities.

**Accentuate important information.** Let children know when important information is about to be presented. Slow the speed of oral delivery, include pauses, and accentuate by intonation and gesture what is most important. Preview, repeat, and summarize important points.

**Have children discuss the lesson.** Take time during a lesson for children to talk to each other about the facts or skills they are learning, such as what strategies they are using to complete an activity.

**Be a coach or a mentor.** Make statements about how you schedule your daily activities and the positive benefits of such planning and scheduling. Be a check-in person with whom the child can share what he's accomplished.

### Mental Energy

**Provide preferential seating.** Seat children with attention difficulties close to the teacher. Make eye or physical contact to sustain attention. Tables grouped in clusters or staggered desks allow for an unobstructed view of signals and easy access for physical contact.

**Provide frequent short breaks.** Breaks can be especially helpful during and between tasks that require intense concentration—and sometimes not just for one student, but for the whole class. Throughout activities, intersperse brief breaks that allow children to move around. Encourage constructive movement tasks, such as collecting papers or erasing the chalkboard. At home, allow children to take a five- to ten-minute break to stretch or play with a pet after every 30 minutes of homework.

**Encourage physical activity.** Some type of physical activity helps children sustain their attention during classroom instruction. Doodling, squeezing a ball, rolling clay, tapping a pencil on one's thigh, or moving to a rocking chair can be helpful activities. Of course, these activities can't be disruptive to other children in the class.

**Find ways to make material less complex.** Use outlines, color, or organizers to help make complex activities or ideas more easily understood. Warn children in advance about what will be presented, e.g., tell the class that you will present five ideas, then present the ideas in stages and check for understanding before moving on to the next stage. Provide summary charts, partially completed outlines, or other aids to reduce the amount of mental energy required when working with complex concepts, ideas, or activities.

**Prepare children before asking them to respond in class.** Let children know in advance that they will be called on in class. Before the start of class say quietly to a child, “I’m going to call on you to answer the first question on the blackboard.”

**Keep a diary or log.** Have children monitor their periods of effort and concentration with a diary or log. Children can create charts to track their improvement.

**Provide opportunities for high interest activities.** Set up a space in the classroom where children can go to build on their strengths. Use their affinity areas, such as computers or art, to enhance their alertness while letting them gain more expertise in that area.

**Use energy buddies.** Pair children so they can work together by providing jump-starts for one another. Children can take turns starting math problems or reading the passages of a text.

**Recommend a bedtime routine.** Talk with children about the importance of having a consistent bedtime schedule to help them get a good night’s sleep. The use of “white noise” or background noise (e.g., soft music) to help filter sounds that might interfere with relaxing can sometimes be helpful to children who have difficulty getting to sleep.

**Monitor performance inconsistencies.** Keep track of the factors that seem to affect a child’s mental energy. Help children understand the time of day and circumstances when they are most focused. Provide guidance on how to use, as well as compensate for, these highs and lows throughout the day.

## Processing

**Provide ongoing reference to information about an activity.** Write important points or directions on the board so that children can refer to them whenever necessary.

**Draw focus to important information.** Have children practice underlining or highlighting key words. Use color-coding to organize key information (e.g., green for main idea, red for details in reading, blue for essential information).

**Use technology.** Devices such as calculators, tape recorders, books on tape, word processors, and software programs may be helpful to children. These devices allow children to control how much information is being presented at one time and how rapidly it is presented.

**Provide outlines, maps, and graphs.** Give children outlines to help them preview the most important information in a lesson or reading assignment. Have them complete a map or web of the main ideas presented in a lesson. Use graphs or graphics to draw attention to the relevancy of information and help children understand why one piece of information may be more important than another.

*“A lot of the attention controls take place unconsciously. . . . The question is, if we make kids more conscious of these things, if we make them even more explicit than they now are, can they do a better job? Can they be more in control? I believe they can, and that we should be teaching kids about the attention controls, so they can be more in the driver’s seat themselves.”*

—Dr. Mel Levine

**Practice paraphrasing and summarizing.** Ask children to write a summary of a lesson in their own words, then review that statement prior to beginning the next class session.

**Promote listening strategies and build listening skills.** Give a strategy to use for listening actively, such as FACT (Focus attention, Ask yourself questions, Connect ideas, Try to picture important ideas).

**Focus on cues for important information.** Identify cues embedded in text or class lessons that children should look and listen for, e.g., “In summary. . .”, “The five reasons are. . .” etc.

**Promote both bottom-up and top-down thinking.** Encourage children to start thinking about the details and work up to the big picture, as well as to start with the big picture and work down to the details.

**Promote collaboration between children.** Pair children who work well with details with children who prefer to think about the big picture. Encourage the children to talk to each other about the thought processes they employ when accomplishing a task or assignment.

**Use subvocalization.** After determining a key piece of information in a lesson, have children repeat it to themselves several times under their breath. Model the strategy for them.

**Connect new information to prior knowledge.** Pause during the presentation of new information and ask children how the new information relates to previously learned material or a personal experience.

**Break tasks into smaller steps.** Help children focus on important information by “chunking” assignments into smaller, more manageable segments. For example, have children highlight the symbol (+, -) in a math problem before calculating the answer.

**Encourage eye contact and repetition.** Have children practice making eye contact with speakers. Remind children by pointing to your eye or quietly stating, “Look at me.” Ask children to repeat information, explanations, and instructions. For example, have a child repeat the directions that have been given for an assignment to check for understanding and retention.

**Use memory strategies.** Teach children to use strategies like imagery and elaboration to strengthen the depth of information processing. Attaching a mental image to an important piece of information, stating the reasons for its importance, and connecting the information to some prior knowledge or area of interest are all examples of memory strategies.

**Review notes after instruction.** Going back over newly learned information as soon as possible will enhance processing. Have children review their notes immediately after a lesson to make sure they got all the important points. Older children could tape record a class lecture, then listen to the tape after leaving class.

**Teach self-testing strategies.** Have children ask themselves questions they think might be on a quiz or test. When reading, have children frequently stop and ask themselves questions about information they have just read.

**Structure time limits to monitor children's processing.** Have children take notes on a reading passage for at least five minutes but no more than 10 minutes. Impose time limits for children who are overactive processors; require them to stop or redirect them, even if they are in the middle of a task.

**Use visual prompts.** Attach brief notes or visual images on notebooks or desks to help children be aware of their own processing. For example, a note might say: "Am I being too passive or too active in my thinking right now?"

**Teach children to prioritize.** Have children complete the most difficult parts of a task when they are able to focus, take a break, and then begin again.

**Teach and model internal standards.** Teach children how to use internal dialogue, or self-talk, to delay gratification when they are working on tasks that are not particularly interesting or gratifying to them. Ask them to brainstorm about rewards that will motivate them to work during periods of low interest and excitement.

**Cue children to upcoming transitions.** Let children know when a task is about to change and their focus will need to be adjusted. For example, "In five minutes it will be time to put your social studies work away and get out your math books." Keep a schedule of activities on the board the children can refer to.

**Use computer software and games.** Allow children to play subject-related computer games to extend attention, then ask them to spend the same amount of time focused on academic tasks.

## Production

**Provide models of assignments and criteria for success.** Give children a clear sense of how a final product might look by showing examples and sharing exemplary products (e.g., essays or drawings). For instance, make work from last year available and draw the children's attention to specific qualities of the work (e.g., "Notice that a good paper has a clear topic sentence."). Do not, however, compare children's work with that of peers or siblings.

**Build in planning time.** Give children five minutes of planning time before beginning an assignment. Provide guidance in effective planning when necessary.

**Use stepwise approaches.** Require children to break down tasks into parts and write down the steps or stages. Compile steps of frequent tasks into a notebook for easy reference during work assignments.

**Provide guidelines for self-monitoring.** Give children explicit guidelines for checking their progress along the way. For example, tell children that every five minutes they should stop and check to see if their plan is still working. Use a timer to signal when to start checking. Also encourage children to self-monitor following the completion of a task (i.e., ask themselves a series of questions such as, "What have I left out?").

**Provide pathways to success.** Let children who may not be able to articulate a plan, draw a road map to their final product. Possibly include a fork in the road showing the path to success and the path to failure.

**Teach proven strategies.** Provide children with specific age-appropriate strategies to use in checking work. For example, use COPS (Capitalization-Organization-Punctuation-Spelling) for proofing written work. Children can create a reminder card to keep on their desk or in their assignment book for quick reference to the strategy.

**Stress the importance of organization.** Have children preview an assignment and collect the materials they will need before starting it. Guide children in keeping their materials and notebooks organized and easily accessible. Emphasize the positive impact that organization and preplanning will have on the completed project or assignment.

**Let children wait to turn in work.** Instruct children to allow a day or two to elapse between writing a report and re-reading the report for quality. This will give children enough perspective to catch errors or add more details and produce better results in the end.

**Encourage self-grading.** Set a standard of work quality or criteria for success for children to follow, and allow them to self-assess the quality of their work before turning it in. If the grade matches the child's appraisal, give extra points for good self-assessment.

**Set goals and record progress.** Have children set a short-term goal, such as completing all homework for the week. Record the daily progress toward the goal so the children can observe their progress. Graphic recording, such as plotting their own line graphs, may be particularly reinforcing for some children.

**Eliminate incentives for frenetic pacing.** Remove any positive reinforcement for finishing first. State the amount of time a task should take. This will slow down children who work too quickly and will speed up children who work too slowly.

**Use assignment books.** Teach children to use assignment books and "To Do" lists to keep track of their short- and long-term assignments, tests, and quizzes. Use peers to help monitor other children's assignment books.

**Use a diary or tape recorder.** Have children note what went well and where or when they went astray during the day. Encourage them to identify some techniques that can be used to improve their production and include them in the diary.

**Provide consistent feedback.** Create a feedback system so children understand which behaviors, actions, or work products are acceptable and which are not. Use specifics to praise good work and recognize when children use strategies effectively. For example, "I like the way you elaborated in this description," or "Asking to take a break really seemed to help you come back and focus."

**Try a mentor.** Some children may benefit from a mentor who will work with them to dissect the day, brainstorm alternative strategies, and provide recognition of progress. The mentor must be seen as credible and may be an individual from within the school or from outside the school.

*"There's a timer set, and that timer will give me—give everyone—a chance to know when it's time to move on to something else or when a project is being finished."*

—Michelle Jones,  
second grade teacher

For more strategies to address weaknesses with attention, refer to the *Memory, Temporal-Sequential Ordering, Mastering the Challenge of Reading, Thinking with Numbers, Understanding, and Getting Organized* videos and guides in this library.

## Background on Attention

Every child occasionally has difficulty paying attention to class lessons, homework, or a coach's instructions. Some children, however, are unable to concentrate in any number of settings in which they find themselves. In the last 10 years, there has been considerable research—and controversy—on the subject of attention. Opinions vary on how to diagnose and manage children who have difficulty with attention.

Students with attention difficulties exhibit a wide range of characteristics. Some may daydream, appear bored, or tune out before instructions are completed. Others may miss out on important information, fail to complete assignments, and exhibit unpredictable work patterns. Students may fail to preview outcomes, doing or saying the first thing that comes to mind, or may appear to make frequent careless errors in their work. Children's difficulties with attention can affect their academic achievement, behavior, and social interactions. It is critical to help children with these difficulties. Research shows that problems related to attention difficulties may continue into adulthood, influencing later education, occupations, and personal relationships.

In the last 10 years a large number of children have been diagnosed with attention-related difficulties. Studies suggest that between three and five percent of all children are affected by attention difficulties. It also appears that attention problems are more common for boys than for girls. This finding may be due in large part to the fact that behavioral rating scales, which focus upon highly noticeable behaviors such as impulsivity and high activity levels, are often used to diagnose children. Historically, many terms have been used to describe children with attention problems including minimal brain dysfunction, or hyperkinetic, attention deficit disorder (or ADD), and attention deficit hyperactivity disorder (or ADHD). Exactly how to manage children with attentional difficulties is a subject of great debate across the country, particularly when it comes to the use of medication like Ritalin.

Dr. Mel Levine, of All Kinds of Minds, approaches the identification and management of attention difficulties by focusing on the underlying brain functions which impact children's attentional abilities. Dr. Levine says simply labeling children as ADD doesn't take into account the complex nature of attention. He breaks attention down into three control systems in the brain. The first is the mental energy system, which regulates and distributes the mental fuel a child's brain needs for optimal learning and behavior. Mental energy allows students to be alert, maintain the energy needed for work, have enough sleep at night and be sufficiently awake during the day, and have a reliable flow of energy to get them through the day's tasks.

The second system, called processing, regulates the use of incoming information. The processing controls help children figure out what is important, how deeply to focus on information, and how much time to concentrate on a certain task. Processing abilities also impact how new information helps trigger further relevant thinking as well as children's ability to concentrate on activities that are of moderate or low interest. The third control system, production, regulates children's academic and behavioral output. To produce well, children need to anticipate the likely outcomes of their actions, use previous experience to guide their behavior and work, think about their options before starting a task, do things at the appropriate speed, and constantly assess how they are doing during a task. Dr. Levine also notes that children with attention difficulties may also have problems with other neurodevelopmental

### Helping Children Strengthen Attention

- Teach children to repeat new information under their breath in order to remember it.
- Help children become aware of how often their minds drift by having them note on paper every time drifting occurs.
- Reinforce good behavior by complimenting children when they concentrate for the right amount of time.
- Encourage children who tend to act on their first impulse to take a moment before responding.
- Have children track the amount of time needed for each step of a task to teach them how to pace themselves the next time.
- Gently remind children to slow down and think about what they are about to do.

functions, such as memory, language, or social cognition.

Many researchers, like Dr. Levine, suggest that efforts to manage attentional difficulties must be multimodal in nature, or combine training, tutoring, strategies, and, if necessary, medication. There is no “one size fits all” solution to attention problems. Levine maintains that children need to be helped to understand their own particular profile of strengths and weaknesses with attention—a process called demystification. Then children, teachers, and parents can work together using strategies and techniques to work around the attention problems. For example, if a child’s mind appears to drift during instruction, Dr. Levine suggests they sit closer to the teacher who can monitor them and tap them gently to bring them back into the lesson.

Sandra Rief, an experienced special education teacher and author, has designed strategies for teachers to use with students who are having attentional difficulties. In her book *How to Reach and Teach ADD/ADHD Children*, Rief says that teachers need to give these students structure and clarity. For example, teachers should explicitly state what is acceptable and unacceptable in their classrooms, allowing children to practice and review expectations and rules. In addition, teachers should actively engage students in lessons. Some students, for example, may thrive when paired up with a buddy with whom to work.

Dr. Dan Hallihan and many other researchers recommend that students with attention difficulties be taught self-monitoring techniques, or specific ways to check themselves when they are doing an assignment. For example, children may consult a checklist before, during, and after completing a written assignment. Using their checklist, students scan their writing to make sure they have included a topic sentence and main idea and have

edited for spelling and grammar, etc. The checklist can remind children where they are in the writing process and what still needs to be accomplished. If a child has trouble producing work because of attention problems, adults can break down assignments into smaller chunks for the child to do.

Dr. William E. Pelham has developed a widely recognized summer program for children with attention problems that uses a multimodal approach. Children attending the program spend three hours a day in academic and computer classes. The rest of the day they shore up on social skills through games, sports, and other recreation. Medication may be used and parents attend weekly group sessions.

Dr. Edward Hallowell, a Harvard Medical School psychiatrist and coauthor of *Driven to Distraction*, offers concrete tips for adults to help children with attention difficulties. First, he says, be sure of the diagnosis. Then when a child is running into trouble, help him or her come up with specific techniques for solving the problem—using lists, schedules, and rewards for finishing tasks. Most of all, he recommends, parents should negotiate when dealing with children with attention problems, rather than battle with them. Dr. Hallowell also reminds parents—and children—that having attention difficulties isn’t all bad. Many times, he says, people with attention problems are highly creative and intuitive.

Dr. Levine emphasizes that it is critical that children with attention difficulties not be branded with a label, such as *hyperactive* or *misbehaving*, or simply with an attention deficit disorder diagnosis. With an appropriate, multimodal approach to his or her specific attentional profile, every child can be guided through their mental energy, processing, or production problems to feel good about their academic and social life.

## Bibliography

### Articles

Barkley, Russell A. "Attention-Deficit Hyperactivity Disorder." *Scientific American* 279, no. 3 (September 1998): 66–71.

Becker, Brenda L. "Does That Kid Need Ritalin—Or Is He Just Baaad?" *The Baltimore Sun* (January 25, 1998).

Conant, Jennet. "The Crusader." *Offspring Magazine* (August 2000) [www.offspring.mag.com/column](http://www.offspring.mag.com/column)

Gutloff, Karen. "Tips for Dealing with Parents." *NEA Today* (March 1998).

Hsu, Karen. "US To Research Impact of Behavioral Medication on Preschoolers . . ." *The Boston Globe* (March 2000).

Levine, Mel. "The Dimension of Attention." [www.allkindsofminds.org](http://www.allkindsofminds.org)

Maynard, Janice, Larry J. Tyler, and Mit Arnold. "Co-Occurrence of Attention-Deficit Disorder and Learning Disability: An Overview of Research." *Journal of Instructional Psychology* 23, no. 3 (Summer 1999): 183–187.

Pelham, William E. Jr. "The NIMH Multimodal Treatment Study for Attention-Deficit Hyperactivity Disorder: Just Say Yes to Drugs Alone?" *Canadian Journal of Psychiatry* 44 (December 1999): 981–990.

Reid, Robert. "Attention Deficit Hyperactivity Disorder: Effective Methods for the Classroom." *Focus on Exceptional Children* 32, no. 3 (December 1999): 1–20.

Saltus, Richard. "Shedding Light on Hyperactivity." *The Boston Globe* (February 2000).

### Web Sites

[www.acsu.buffalo.edu](http://www.acsu.buffalo.edu) "Attention Deficit Hyperactivity Disorder Clinic." State University of New York at Buffalo. [www.chadd.org](http://www.chadd.org) "Children and Adults with Attention-Deficit/Hyperactivity Disorder," "The Disability Named AD/HD," "AD/HD and Co-Existing Disorders."

[www.inichcy.org](http://www.inichcy.org) "Educating Students with Attention Deficit Hyperactivity Disorder." National Information Center for Children and Youth With Disabilities.

[www.nimh.nih.gov/publicat/adhd/htm](http://www.nimh.nih.gov/publicat/adhd/htm) "Attention Deficit Hyperactivity Disorder." National Institute of Mental Health fact sheet.

## Resources

For more information about helping children and adolescents with attentional challenges, consult the references listed.

### Web Sites

#### All Kinds of Minds

<http://allkindsofminds.org> Presents and explains All Kinds of Minds' philosophy that everyone is challenged by attention in some way. The Library section of the site includes case studies, activities for students to learn about alertness, effort and consistency, and articles such as "The Dimension of Attention" by Dr. Mel Levine. The site's LearningBase offers further guidance and references for parents and teachers in the feature "Developing Control over Attention."

#### Children and Adults with Attention-Deficit/Hyperactivity Disorder (CHADD)

[www.chadd.com](http://www.chadd.com) Provides support to children and adults with attention difficulties. The online magazine, *Attention!* is available with membership.

#### ERIC Clearinghouse on Reading, English and Communication (ERIC/REC)

<http://eric.indiana.edu> Offers a large collection of educational articles regarding attentional issues for children; search the database to locate articles for teachers, parents, counselors, and children.

#### LD Online

[www.ldonline.org](http://www.ldonline.org) Links to extensive resources on the topic of attention; also offers teaching and parenting tips on accommodations and interventions for children with attentional issues.

#### National Information Center for Children and Youth with Disabilities (NICHCY)

[www.nichcy.org](http://www.nichcy.org) Offers a rich selection of resources on attention. Its bibliography includes an extensive list of videos, print materials, and publishing houses that offer materials on this subject.

#### Schwab Learning

[www.schwablearning.org](http://www.schwablearning.org) Offers families information for identifying and managing differences in learning and resources for connecting with others; provides information in both Spanish and English.

### Article and Poster

Blazer, Bonita. **Developing 504 Classroom Accommodation Plans: A Collaborative Systematic Parent-Student-Teacher Approach.** *TEACHING Exceptional Children* 32, no. 2 (November/December 1999). Outlines effective methods for creating and sustaining a collaborative approach between parents, students, and teachers. Physical, instructional and behavioral accommodations are offered. Text is available online at: [www.ldonline.org/ld\\_indepth/teaching\\_techniques/504\\_plans.html](http://www.ldonline.org/ld_indepth/teaching_techniques/504_plans.html)

Levine, Melvin D. **The Concentration Cockpit.** A brightly printed, laminated poster that helps teach children about attention; includes an accompanying guide for adults. For more information, go to the All Kinds of Minds Web site at [www.allkindsofminds.org](http://www.allkindsofminds.org).

### Books

Hallowell, Edward and John Ratey. **Driven to Distraction: Recognizing and Coping with Attention Deficit Disorder from Childhood Through Adulthood.** New York: Simon and Schuster, 1995. This book explores the concept of attention inconsistency. Using vivid stories, the authors demonstrate the forms attention difficulties take and emphasize the importance of precise diagnosis and treatment of both children and adults. An abridged version is available on audio-cassette.

Hallowell, Edward and John Ratey. **Answers to Distraction.** New York: Bantam Books, 1996. This complement to *Driven to Distraction* answers specific concerns of parents, children, and adolescents in an easily-accessible format. An abridged version is available on audio-cassette.

Levine, Melvin D. **A Mind at a Time.** New York: Simon and Schuster, 2002. Familiarizes the general public with the author's eight constructs (called "capabilities" in the book); provides real-life stories of children, adolescents, and adults who have struggled with their neurodevelopmental profiles. The book also describes systematic approaches to dealing with differences in learning, and it concludes with chapters on what ideal homes and schools should be doing to foster the optimal development of all kinds of minds.

Levine, Melvin D. **Developmental Variations and Learning Disorders, 2d ed.** Cambridge, MA: Educators Publishing Service, 1998. Offers comprehensive information about developmental variations in children that can lead to learning difficulties, and explores research from different disciplines; useful for clinicians, educators, and parents alike.

Levine, Melvin D. **Educational Care, 2d ed.** Cambridge, MA: Educators Publishing Service, 2002. Covers key themes in academic performance. The book is intended to be a practical guide to the understanding and collaborative management of differences in learning. For each topic, there are recommendations regarding what needs to be done at home and also in school to help a struggling child or adolescent succeed.

Levine, Melvin D. **The Myth of Laziness.** New York: Simon and Schuster, 2002. Focusing mainly on students between the ages of 11 and 15, this book deals with the understanding of "seemingly lazy kids." Author describes the many possible mechanisms underlying output failure or low productivity in school; covers, among other possibilities, the roles of weak attention controls, memory shortcomings, language gaps, and organizational problems. Real case material is presented and there are abundant suggestions for managing output problems for educators and parents alike.

## Audio and Videotape

All Kinds of Minds. **Attention Deficits: Understanding Children with No Locus for Their Focus (audio).** Part of the *Reaching Minds* audiotape series. In this tape, Drs. Mel Levine, Stephen Hooper, and Carl Swartz discuss ways to support the child who is challenged by attention deficits. Ordering information is online at [www.allkindsofminds.org](http://www.allkindsofminds.org)

Sam Goldstein. **Educating Inattentive Children (video).** This 1990 video provides information to help identify and evaluate classroom problems caused by inattention and offers guidelines to successfully educate children with attention difficulties. To order, call 1-801-532-1484.

## Resources for Children and Adolescents

**ADD and Adolescence: Strategies for Success from C.H.A.D.D.** Landover, MD: C.H.A.D.D., 1996. This book for teenagers includes articles from many of the leading experts in the nation. Information about diagnosis, treatment, family and social life, academics, and life beyond high school is provided; obtain through the CHADD Web site at [www.chadd.com](http://www.chadd.com).

Gehret, Jeanne. **Eagle Eyes: A Child's Guide to Paying Attention.** Fairport, NY: Verbal Images Press, 1996. This story about a boy faced with attention problems looks at behaviors in a positive light.

Gold, Susan D. **Attention Deficit Disorder (Health Watch).** Berkeley Heights, NJ: Enslow Publishers, 2000. One of eight in the Health Watch series, this book on attention problems is written for children ages 9–15. Through the experiences of a young boy, children can learn about one expert's understanding of attention deficits.

Goldstein, Sam and Michael Goldstein. **It's Just Attention Disorder: A Video Guide for Kids (video).** Empowers children and teens to be active participants in their treatment. The use of claymation and the inclusion of advice from an NBA basketball coach, as well as interviews with children enhance the effectiveness of this 1991 video. To order, call 1-801-532-1484.

Gordon, Michael. **I Would If I Could: A Teenager's Guide to ADHD/Hyperactivity.** DeWitt, NY: GSI Publications, 1992. Written from an adolescent's point of view, this book can help teens with attention problems see that they are not alone.

Levine, Melvin D. **All Kinds of Minds.** Cambridge, MA: Educators Publishing Service, 1993. Written for children ages 7–11, this book clearly outlines the neurological reasons for learning differences including attention issues, and their effect on life at home and at school.

Levine, Melvin D. **Keeping A Head in School.** Cambridge, MA: Educators Publishing Service, 1990. Helps children ages 11 and older understand and appreciate their own distinct learning profiles; offers different ways to bypass or strengthen weaker functions. Chapter 2 covers attention difficulties.

Levine, Melvin D., Swartz, Carl and Melissa Wakely. **The Mind That's Mine.** Helps young children discover what goes on inside their brains when they are thinking and learning; available at: [www.allkindsofminds.org](http://www.allkindsofminds.org)

Nadeau, Kathleen and Ellen Dixon. **Learning to Slow Down and Pay Attention: A Book for Kids about ADD.** Washington, DC: Magination, 1997. Geared for children ages 9–12, this book offers practical information for kids that will help them to adapt and compensate for their difference using simple, attainable steps.

Parker, Roberta. **Making the Grade: An Adolescent's Struggle with ADD.** Plantation, FL: Impact Publications, 1992. This fictional story addresses the issues faced by a seventh grader, Jim, who increasingly finds his scholastic and athletic success threatened by his inattention; available in Spanish under the title *Como Pasar de Grado*.

Quinn, P. and Judith Stern. **Putting on the Brakes: Young People's Guide to Understanding Attention Deficit Hyperactivity Disorder.** New York: Magination Press, 1991. This book for children ages 9–12 and their parents is easy to read, explains attention deficits, assures kids that they are not alone, and highlights how attention problems affect their lives at home and school; has an accompanying activity book to be used by kids or by educators, parents, and professionals dealing with attention difficulties.

## Credits

The *Developing Minds* video library is produced by the Educational Programming and Outreach department, Special Telecommunications Services division of the WGBH Educational Foundation.

### WGBH Educational Foundation

#### Executive Producer

Michele Korf

#### Project Director

Laurie Everett

#### Curriculum Director

Denise Blumenthal

#### Producers

Philip Gay  
Denny Houghton

#### Series Editor

Glenda Manzi

#### Associate Producer

Laura Azevedo

#### Production Coordinators

Judy Bourg  
Sandra Lapa

#### Production Manager

Mary Ellen Gardiner

#### Director of Educational Print and Outreach

Karen Bars

#### Manager of Educational Print

Sonja Latimore

#### Project Director

Pamela R. Giller

#### Associate Editor

Gay Mohrbacher

#### Production Coordinator

Amy Kittenplan Hubbard

#### Writer

Warger, Eavy and Associates  
Reston, VA

#### Background Article Writer

Beth Daley

#### Researchers

Susan Buckley  
Corinne Pierce

#### Design

Janet Bolton  
Julie DiAngelis  
Katie Hogan  
Gaye Korbet  
Daryl Myers  
Scott Thorpe

#### All Kinds of Minds

Mel Levine, M.D.

#### Cofounder

Mark Grayson

#### Executive Director

Carl Swartz, Ph.D.

#### Research Faculty

Tamara Nimkoff, M.A.

#### Research Faculty

#### Project Advisors

Cynthia Mata Aguilar  
Education Development Center  
Newton, MA

Robert B. Brooks, Ph.D.  
Harvard Medical School  
Boston, MA

Rose Christiansen  
Lincoln School  
Brookline, MA

Drake D. Duane, M.D.  
Institute for Developmental  
Behavioral Neurology  
Scottsdale, AZ

Edwin S. Ellis, Ph.D.  
University of Alabama  
Tuscaloosa, AL

Nancy R. Hester  
Durham Public Schools  
Durham, NC

Lauren Katzman, Ed.D.  
Harvard University  
Cambridge, MA

Steven Leonard, Ed.D.  
Jeremiah E. Burke High School  
Boston, MA

Louisa C. Moats, Ed.D.  
WICHD Early Intervention Project  
Washington, D.C.

Michael W. Spence  
Parsons, Howland & Spence, Inc.  
Boston, MA

Ann Stern, Ph.D.  
Educational Consultant  
Waban, MA

Elisabeth H. Wiig, Ph.D.  
Knowledge Research Institute, Inc.  
Arlington, TX

#### Guide Content Reviewers

Michelle Bisson  
Parent  
Merrimac, MA

Catherine Boyle  
Parent  
Winchester, MA

Corrine M. Collar  
Curriculum Specialist  
Revere Public Schools  
Revere, MA

Lisa Guisbond  
Parent  
Brookline, MA

L. Lynn LeSueur, Ph.D.  
Psychology Assessment Center  
Massachusetts General Hospital  
Boston, MA

Kim Pedersen  
Shore Country Day  
Beverly, MA

Penny Prather, Ph.D.  
Educational Enhancement Center  
Newton Center, MA

Joan Sedita  
Educational Consultant  
Boxford, MA

Bonnie D. Singer, Ph.D.  
Educational Enhancement Center  
Newton Center, MA

Sarah Shmitt  
Portland High School  
Portland, ME

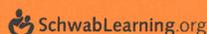
Elsie Wu  
Bancroft Elementary School  
Andover, MA

*Developing Minds* is a production of WGBH Boston in association with All Kinds of Minds.

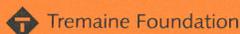


Major funding for *Developing Minds* is provided by Schwab Learning, a program of the Charles and Helen Schwab Foundation; ExxonMobil Foundation; Spencer T. and Ann W. Olin Foundation; Emily Hall Tremain Foundation; The Roberts Foundation; and Geraldine R. Dodge Foundation.

*Developing Minds* is closed captioned for viewers who are deaf or hard of hearing.



SPENCER T. AND ANN W. OLIN FOUNDATION



THE ROBERTS FOUNDATION



GERALDINE R. DODGE FOUNDATION

©2002 WGBH Educational Foundation and All Kinds of Minds.

To order any of the *Developing Minds* videos or the complete library, contact WGBH Boston Video at 800-949-8670, or visit [www.wgbh.org](http://www.wgbh.org). For more information about programs and services offered by All Kinds of Minds, call 888-956-4637 or visit [www.allkindsofminds.org](http://www.allkindsofminds.org)

WG1251

ISBN 1-57807-756-7



UPC

7 83421 34463 1