

Academic Impact of AD/HD

**10th Anniversary of Adana Foundation
Conference 2007**



17th November 2007

9:30 – 11:00

Sandra Rief, Presenter

www.sandrarium.com

Description of AD/HD

- *Neurobiological inefficiency (underactivity) in the attention/inhibitory center of the brain, affecting utilization of the executive functions.*

What Are Executive Functions?

- The management functions (overseers) of the brain
- The self-directed actions we use
- The range of central control processes in the brain

Executive Function Metaphor

Dr. Tom Brown

- EF is the conductor's role in orchestra.
 - Organizes
 - Integrates
 - Controls the pace and intensity



Some Executive Functions Involve...

- Working memory
- Planning & Follow-through
- Foresight (predicting & planning for future)
- Arousal & Activation (organizing & getting started)

Barkley, R. *Attention Deficit Hyperactivity Disorder*. The Guilford Press, 1998.
Brown, T. *Attention Deficit Disorders & Comorbidities in Children, Adolescents
& Adults*. Washington, DC: American Psychiatric Press, 2000.

Some Executive Functions Involve...

- Sustaining alertness and effort
- Self-regulation (modulating emotions, motivation, managing frustration)
- Internalizing language

Barkley, R. *Attention Deficit Hyperactivity Disorder*. The Guilford Press, 1998.

Brown, T. *Attention Deficit Disorders & Comorbidities in Children, Adolescents
& Adults*. Washington, DC: American Psychiatric Press, 2000.

Common School Performance Difficulties in Students with AD/HD

- Poor organization, time management, study skills
- Some academic weaknesses – particularly in written language/writing skills
- Forgetfulness/memory-related issues
- Minimal/inconsistent production & output (both in-class assignments & homework)

Common Reasons for Failure in Older Students

- Unidentified learning problems
- Failure to complete homework
- Forgetting or losing key assignments, tests, and long- term semester projects
- Not having notes with key points from class lectures
- Difficulty adjusting to increased demands (academic & organizational)

AD/HD

- Disorder in *performance, output, and production*

Key Elements for Success

- Flexibility & willingness to accommodate
- Knowledge & understanding of ADHD, LD, and other neurobiological disorders
- Close home/school communication
- Engaging & interactive teaching strategies



Full Class Active Responses

- Pre-made response cards
- Write-on response tools
- Unison responses to signals
- Team A/Team B (full class games)
- Total Physical Response

Small Group Active Responses

- Create a product (web, map, poster)
- Group summary
- Reviews, sharing, brainstorming
- Sequencing, word sorts, various games



Partner Responses

- Discuss short written document together
- Paired reading
- Question about assigned reading
- Analyze problem
- Recap/summarize lesson
- Develop questions together to ask class or teacher
- Quiz each other
- Compare notes
- Respond to question



How We Learn

(Dr. William Glasser)



10% of what we READ



20% of what we HEAR



30% of what we SEE

50% of what we SEE and HEAR



70% of what we DISCUSS WITH OTHERS



80% of what we EXPERIENCE PERSONALLY

95% of what we TEACH SOMEONE ELSE



Inattention Techniques

- Provide cues (“____, this is an instruction.”)
- Provide reward breaks when completes phases of task.
- Break task into smaller segments which teacher checks as completed.
- Establish frequent check-in times (e.g., every 5 minutes).
- Reinforce students staying on task.

SLANT

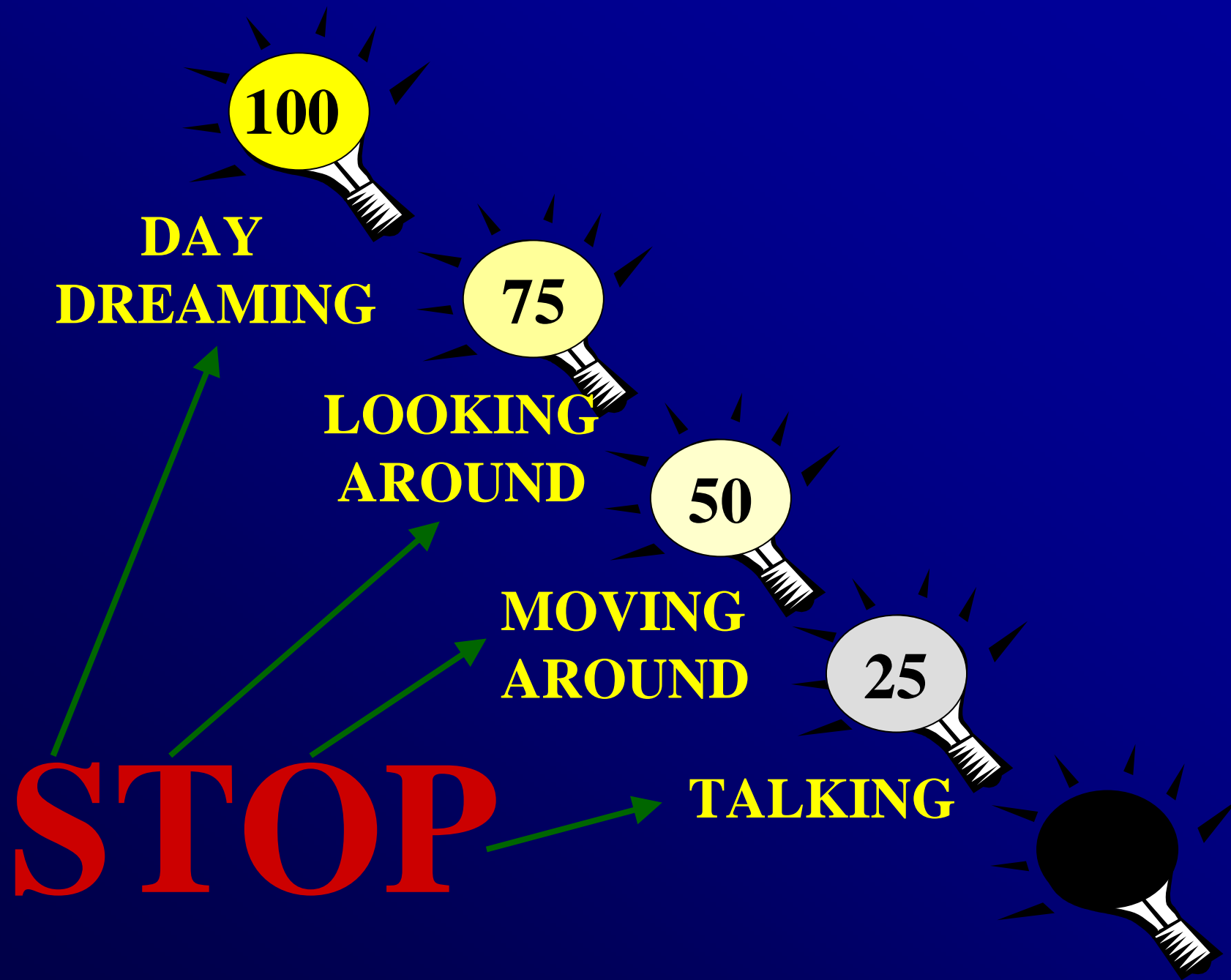
Sit up

Lean forward

Act interested

Nod your head

Track the teacher



Work Production Goals & Rewards

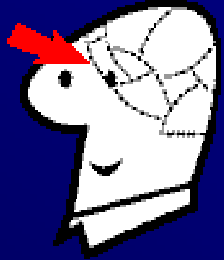
Goal: Working efficiently for a 20-minute period of time.



Set timer in two 10-minute sessions.

If you _____ by the 10 minute timer, you will get...

Paying Attention



- Brains are programmed to pay attention to the unusual
- Intensity of stimuli affects attention

Brain Fact



- *Need, novelty, meaning and emotion* are four ways to gain student's attention.

Brain Facts

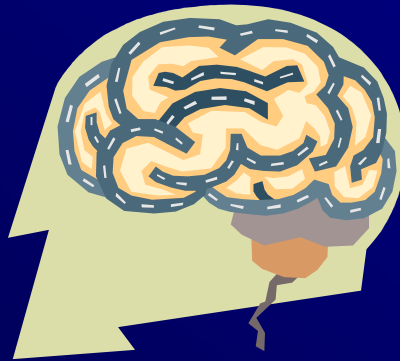
- Brains thrive on engaging challenge, physical exercise, and social exercises.



L. Poolman & L. Crawford. "Connecting Brain Research with Student Achievement" presented at: Brain Expo, San Diego, CA ; Jan. 15-17, 2005;

Brain Facts

- Impact of threat or high stress can alter and impair learning and even kill brain cells.



L. Poolman & L. Crawford. "Connecting Brain Research with Student Achievement" presented at: Brain Expo, San Diego, CA ; Jan. 15-17, 2005;

Brain-Compatible Strategies

Music

Drawing/Artwork

Visualization/Guided Imagery

Rhythm/Rhyme

Writing/Journals

Movement

Manipulatives

Graphic Organizers

Role-Play

Storytelling

Technology

Cooperative Learning

Mnemonics

Games

Labs/Experiments

Metaphor/Analogies

Key Elements for Success

- Effective classroom management
- Environmental adaptations & accommodations
- Positive behavioral supports and interventions



Key Elements for Success

- Respecting & accommodating learning style differences
- Adaptations and modifications according to student needs
- *Differentiated instruction practices*



What is Differentiation?

" A way of teaching in which teachers proactively modify curriculum, teaching methods, resources, learning activities, and student products to ...maximize the learning opportunity for each student in the classroom."

Carol Ann Tomlinson (2001) *How to Differentiate Instruction in Mixed-Ability Classrooms*

Key Elements for Success

- Help & training in organizational/time management/study skills
- Explicitly teaching learning strategies
- Developing & bringing out student strengths
- Belief in student...Doing what it takes





Differentiation

Differentiation adapts what we teach, how we teach and how students learn, and how students show what they have learned based on the *readiness levels, interests,* and *preferred learning modes* of students.

At Work in the Differentiated Classroom
ASCD, Alexandria, VA

Differentiation Takes Into Account

- *Readiness*: student's entry point relative to a particular understanding or skill
- *Interest*: a child's passion or curiosity for a particular topic and skill
- *Learning profile*: how a student learns

Differentiate by Readiness

- Small group lessons on varied skills
- Resource materials at varied levels
- Vary pacing
- Varied levels of difficulty on same key learning goals



"Curriculum tells us *what* to teach.
Differentiation tells us *how* to teach
the same standard to a range of
learners by employing a variety of
teaching and learning modes."

Tomlinson, Carol Ann (2000) *Educational Leadership*, 58 (1), 6-11.

Differentiation

“Multiple approaches and adaptations in the areas of *content* (what students learn), *process* (the ways students learn and how content is taught), and *product* (how students present or demonstrate their learning.”

Differentiate Process

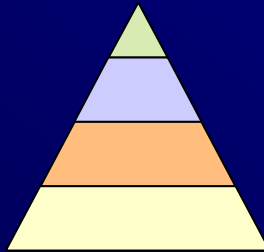
- Activities & instructional strategies
- Attention to varied learning styles & multiple intelligences
- Multiple types of assessment
- Making adaptations (accommodations, modifications)
- Choices (project menus, options for working/learning)

In order to differentiate, teachers need to...

- Know their students' strengths, weaknesses, interests, special needs
- Have a strong repertoire of teaching strategies
- Build in variety (of methods, activities, materials, instructional formats)

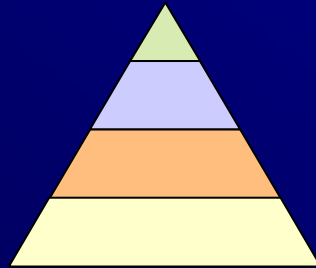
Levels of Activities Tiered by Challenge & Complexity

- Easy/moderate/challenging
- Basic/advanced



Tiered by Resources

Materials at various reading levels and
complexity of content



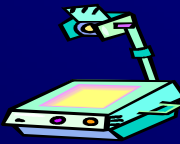
Heacox, D. (2002). *Differentiating Instruction in the Regular Classroom*.

Differentiating the Product

*How students demonstrate and extend
what they learned*

Visual Strategies



- Pictures/illustrations
- Strategic use of color
- Graphic organizers
- Overhead/PPT 
- Charting/Mapping
- Visual prompts/cues
- Visual timers

Auditory Strategies



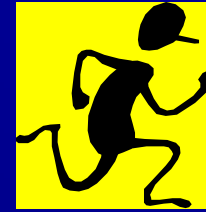
- Use of songs, melodies, chants
- Think/Pair/Share
- Discussion formats
- Use of listening centers & music 
- Debates, Interviews

Tactile Strategies



- Use of manipulatives
- Hands on games and activities
- Use of props
- Drawing, building, labs/experimenting
- Use of post-it notes, sentence strips in planning/organizing

Kinesthetic Strategies



- Physical games to aid learning
- Review information while in movement (walking/jumping)
- Movement responses to questions
- Standing partner activities

We May Need to Adapt or Modify

- Materials
- Methods
- Pacing
- Environment
- Feedback
- Testing/Evaluation
- Reinforcement
- Input/Output
- Level of Support
- Degree of participation
- Time allotted
- Size/Quantity

Common Accommodations



Time - Adapt the time allotted & allowed for learning, task completion, or testing

- *Size/Quantity* - Adapt the number that the learner is expected to learn or complete.
- *Input* - Adapt the way instruction is delivered to the learner

Common Accommodations

Output - Adapt how the learner can respond to instruction

Level of Support - Increase the amount of personal assistance to the student



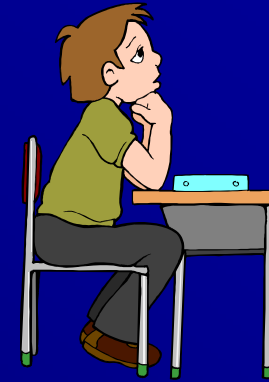


Not Fair

- Fairness is giving everyone what they need, not equal treatment.
- Fairness does not mean sameness, it means everyone treated with equal respect & equal opportunity to succeed.
- Accommodations provide = footing; not unfair advantages; based on need.

AD/HD: Reading difficulties related to...

- Inattention/distractibility
- Poor memory skills
- Application of metacognitive strategies



Students with AD/HD Often

- Have average fluency and performance on "short" reading assignments
- Have "spotty" comprehension
- Lose their place frequently
- Forget what they read
- Fatigue easily while reading
- Have difficulty reading silently
- Avoid reading (non-choice material)

Students with dyslexia often have significant reading difficulties related to poor:

- Auditory/phonological processing
- Visual processing
- Language and vocabulary
- Memory

To Support Struggling Readers

- Buddy/partner reading
- Break reading into chunks
- Use shorter stories – less complex
- Use texts supported with illustrations
- Enable weak readers to access rich content (e.g., books on tape/CD)
- Practice reading on topics they are interested in (e.g., basketball, horses)

Struggling Readers Need

- More teacher modeling and explicit instruction
- More guided instruction with immediate feedback while practicing skills and strategies
- More time and practice – numerous opportunities throughout the day to read at their level
- Class libraries and book-bags filled with books and other reading materials at their level that they can read.
- Research-validated interventions in area(s) of weakness



Balanced Literacy

Read aloud

Shared reading

Guided reading

Independent reading

Modeled writing

Shared writing

Guided writing

Independent writing

Vocabulary & Word Study (phonics, spelling,
working with words/word analysis)

Balanced Literacy Instructional Format

1. **I do it** (teacher modeling: read aloud, modeled writing)
2. **We do it** (shared and guided instruction with feedback and scaffolding)
3. **You do it** (partner and independent practice)

5 Research Building Blocks for Teaching Children to Read

1. Phonemic Awareness
2. Phonics
3. Fluency
4. Vocabulary
5. Text Comprehension



Proficient Readers

- Search for connections
- Distinguish important from less important ideas in text
- Become aware of thinking process as they read
- Monitor & repair faulty comprehension
- Know how to use "fix up" strategies when text is confusing

"Fix-Up Strategies

- Reread the text
- Read ahead
- Slow down the pace of reading
- Read aloud
- Write down important points



Reading Strategies & Scaffolds



- Preview and pre-read text to focus attention on a purpose for which they will be reading.
- Use a ‘hook’ to motivate students and stimulate interest

Steps to Teaching Comprehension Strategies

Teacher modeling

- Explain the strategy
- Demonstrate how to apply the strategy
- Think aloud to model the mental process when reading

Teacher Models: I DO IT

- how to activate their prior knowledge
- how to make predictions
- how to visualize – create images in their mind
- how to make connections
- how to stop and summarize
- how to monitor comprehension & use “fix up” strategies

Steps to Teaching Comprehension Strategies

Guided Practice

WE DO IT



- Give students more responsibility
- Scaffold students' attempts with corrective feedback and support
- Students share their thinking process with each other during paired reading and discussion groups

Steps to Teaching Comprehension Strategies

Independent Practice

YOU DO IT

- Students try to apply strategy on their own



Before Reading

- Predict what the text is about
- Set a purpose for reading
- Introduce key vocabulary
- Activate prior knowledge and experiences

Activate Prior Knowledge and Use Pre-reading Strategies

- Brainstorm – What do I already know about the topic? What do I want to learn about the topic?
- Video clip
- Anticipation guide

Anticipation Guide

Statement	Agree or disagree	Were you correct? Yes/No	Page Number	Evidence

During Reading Comprehension Strategies

- Stopping at points to process text
- Read-cover-retell
- Read-cover-draw
- Make connections to self, other text, world
- Make predictions and inferences
- Visualize
- Ask questions
- Use context clues to determine word meanings

Reading Interventions

- Divide reading assignment into shorter segments
- Pair students to read and discuss or respond to questions prior to large group discussion
- Use markers to block part of page
- Allow/encourage reading to self orally (use whisperphone)
- Provide graphic organizers to aid thinking about/summarizing reading material



After Reading

- Discuss accuracy of prediction
- Summarize key points
- Retelling
- Re-sequence main events
- Compare/contrast text with others (same topic/author)
- Write a literature response
- Journal entries (notes/comments & connections; what I learned)
- Fill out graphic organizer or story map
- Make a book project

Alternatives to Books

- Software that reads text on a PC or MAC
- Closed captioned television
- Textbooks and other books on tape/digital recording
- Comics, magazines, song lyrics, poetry

Setting Individual Reading Goals

- Reading a book from a different genre
- Reread the part where understanding broke down
- Reading an extra 10 minutes each day
- Stopping and thinking about what has been read by summarizing thoughts on a sticky note
- Using the chapter titles to check comprehension

Executive Function-Related Classwork & Homework Challenges

- Memory, Forgetfulness
- Planning, Prioritizing, Organizing
- Judging and Managing Time
- Breaking things down into steps
- Activation (mobilizing, getting started)
- Sustaining Attention, Alertness, and Effort
- Self-management (including managing frustration and emotions)

Today's Kids Need to Manage

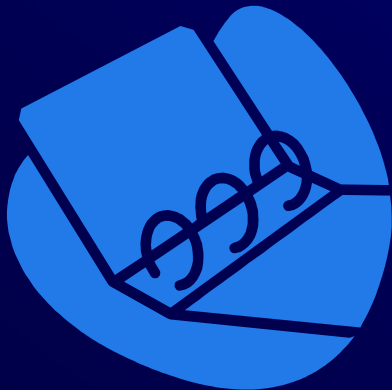
- Hours each day lost to e-mail, instant messaging, and the Internet
- Numerous other distractions
- All the extracurricular activities
- Complex situations at home

Homework Steps

- Know what the assignment is
- Record the assignment
- Bring the required materials home
- Do the homework
- Return the homework to their backpack
- Turn in the homework

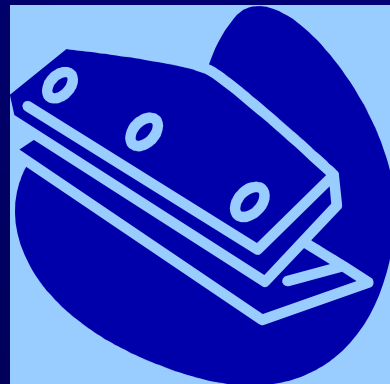
Organization & Homework Support

- Required backpack and 3-ring binder or alternative of accordion file (pocket folder for K-2)



Organization & Homework Support

- 3-hole punch all papers given to students.
- Colored folders or hole-punched envelopes



Organization & Homework Support

- Consistent use of planner/agenda/calendar/assignment sheet



Homework Assignments

Week Of _____

Assignments	Class/ Teacher	Assigned date	Due date
1			
2			
3			
4			
5			

Organization & Homework Support

- **Color code:** schedule, books, notebooks, folders, unit sheets, handouts
- Assign study buddies with phone numbers/emails.
- Build cleaning/organization of notebooks and desks into the schedule.
- Provide a second set of books for home.
- Write due dates on assignments and estimated time required to complete.

Organization & Homework Support

- Walk through recording of assignments
- Partners assist/check for organized materials, accurately recorded assignments
- Dismiss groups when the group has verified that everyone has the information recorded correctly.

EF Dysfunctions= Difficulties with Long-Term Projects

- Picking topics
- Breaking assignments into parts
- Planning assignments
- Gathering materials
- Getting started
- Determining deadlines
- Estimating time
- Self-monitoring

Organization & Homework Support

- Provide class syllabus and project timelines
- Chunking down long-range assignments (interim due dates, monitoring, heads-up to parents)
- Teach students how to do “back-planning” - starting with final due date and working backwards (with mini-deadlines)

Organization & Homework Support



- Place checklist of what needs to be brought home on which day on inside of the locker
- Call parent if 3 assignments are missing
- Tell students where each piece of paper goes and give them time to follow through

Organization & Homework Support

- Place copies of schedules in binders, lockers, and taped to desk.
- Have student phone home from school to leave voice mail reminder messages.

Organization & Homework Support

- Post all assignments, schedules, materials needed, timelines
- Provide information for easy access to students & parents (e.g., school web sites, voice mail, newsletters).

Organization & Homework Support

- Supervise for materials as leaving room, sign monitoring form ticket out the room

Organization and Homework Support

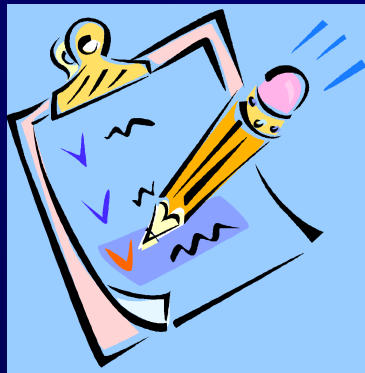
- School-wide supports: Supervised study periods, homework labs, Learning Strategies class

Organization & Homework Support

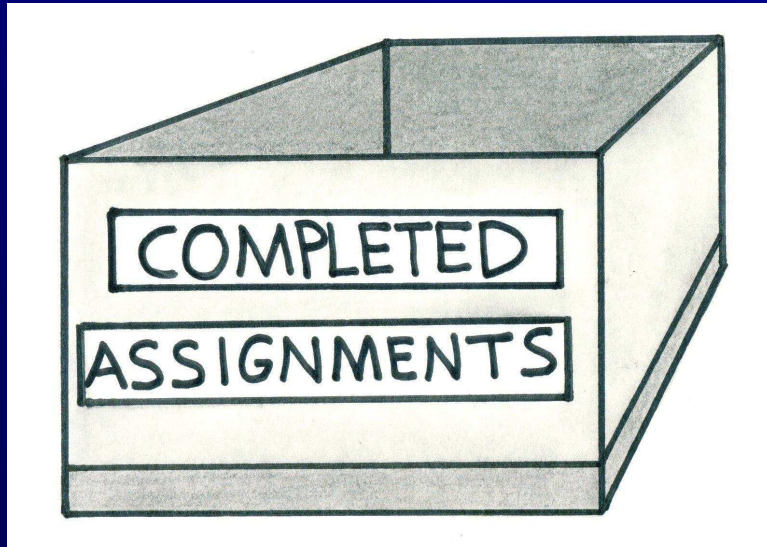
- Keep teacher copy of student planner or assignment sheet filled out & accessible.
- Bonus points (e.g., "What was math assignment for October 21?")

Organization & Homework Support

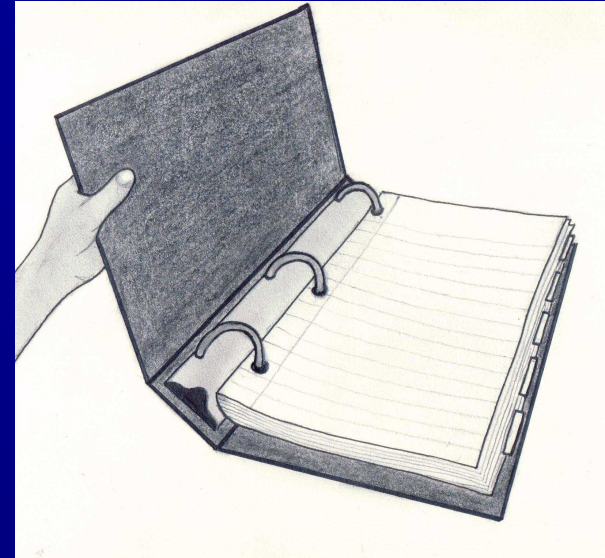
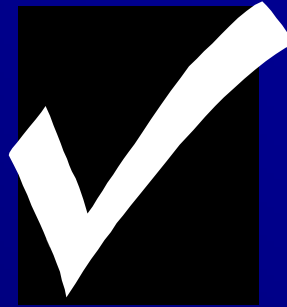
- Teach students to use a "things to do" list and other checklists



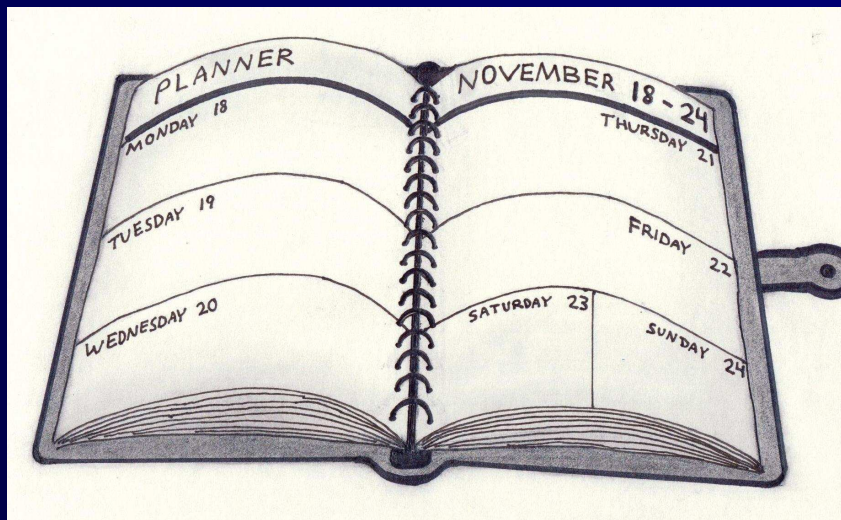
End of Day



Work turned in



Papers in notebook



All homework recorded in planner



Pack all needed books and supplies

Organization & Homework Support

- Use a monitoring form to track and communicate between home and school.

Organization & Homework Support

- Be responsive to parent feedback and frustration about homework difficulties.

S2 TOP Strategy

To help stay focused when studying

- **S**et a timer and sit down to study.
(Set for certain period of time you plan to study.)
- **S**ee if you are off-task. (When noticing mind has drifted, tell self you are not studying and have to go back to studying.)
- **T**ouch the circle. (Draw a circle on paper. Every time you become aware of daydreaming, make a mark inside circle)



S2 TOP Strategy

To help stay focused when studying

- **O**rganize your thoughts. (After making a mark, take few seconds to organize thoughts, shut eyes and tell self to get back to studying)
- **P**roceed again. (Once organized thoughts, begin to study again. Once study session is over, count # of marks in circle. Goal is to decrease next time you study. Strive for studying without any marks in circle.)

COPS for Editing

Capitalization

Organization

Punctuation

Spelling

POWER Strategy

P - Plan

- _ I chose a good topic.
- _ I read about my topic.
- _ I thought about what the readers will want to know.
- _ I wrote down all my ideas on a "think sheet".

POWER Strategy

O - Organize

- _ I put similar ideas together.
- _ I chose the best ideas for my composition.
- _ I numbered my ideas in logical order.

POWER Strategy

W - Write

- _ I wrote down my ideas in sentences.
- _ When I needed help I...
 - ___ did the best I could
 - ___ looked in a book
 - ___ asked my partner
 - ___ asked the teacher

POWER Strategy

E - Edit

- _ I read my first draft to myself.
- _ I marked the parts I like.
- _ I marked the parts I might want to change.
- _ I read my first draft to my partner.
- _ I listened to my partner's suggestions.

POWER Strategy

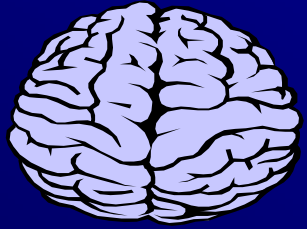
R - Rewrite

- _ I made changes to my composition.
- _ I edited for correctness.
- _ I wrote the final draft in my best writing.



Mnemonic Strategies

- Acronyms (1st letter mnemonics)
- Acrostics (sentence with 1st letter)
- Rhymes
- Songs (singing information to be remembered to familiar music)
- Chants
- Keywords

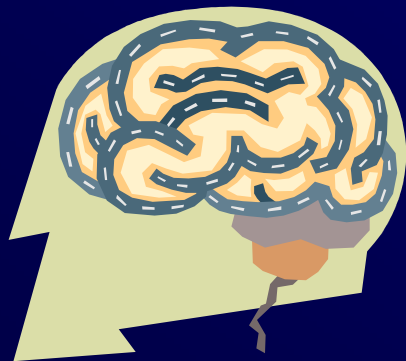


Why Mnemonics Work

- Based on principle that brain is a pattern-seeking device, always looking for associations between the information it is receiving and what is already stored.
- They create links or associations that give the brain an organizational framework on which to hook new information.

Working Memory

- In most learning situations, we are required to hold some bits of information in consciousness while we are manipulating other bits of information relevant to the task (reading passage, solving math problem).



Math Difficulties Due to Weaknesses in..

- Working memory
- Long term memory retrieval (steps, rules, vocabulary, processes, math facts)
- Attention
- Sequencing (multi-step procedures, counting)
- Perceptual-motor/Spatial organization
- Language (abstract terms, word problems)
- Self-monitoring (estimating, pacing)

Academic Interventions for Math Weaknesses

- Allow use of calculator & multiplication chart
- Use graph paper to space numbers
- Provide immediate correctness feedback
- Give clues to the process needed to solve problem
- Color-code processing signs
- Provide time to let students work with each other (partners/groups) solving problems, checking and reteaching

Why is Writing is Such a Struggle?

- Planning & Organization (topic, ideas, sequence, structure of genre)
- Memory (working & long term)
- Language (logical, coherent, vocabulary usage)
- Spelling
- Grapho-Motor Skills (physical task)
- Editing (revision, proofreading)
- Self-Monitoring (make sense? enough detail?)
- Speed of Written Output & Production



Struggling Writers Often...

- Are discouraged because the process is overwhelming.
- Can't think of ideas or have enough information to write about the topic.
- Lack the organizational skills to plan for the writing.
- Don't know the structure and format of the writing genre.
- Have underlying processing problems (e.g., grapho-motor skills, memory, language).



Provide Modeling & Examples

- Analyze exemplar pieces of writing – referring to the standards.
- Do lots of modeled and interactive writing.
- Share many good writing examples and use as a reference.

Grade Level Writing Rubrics

4 - Above Standard (Expert)

3 - At Standard (Practitioner)

2 - Approaching Standard (Apprentice)

1 - Below Standard (Novice)

Persuasive 5 Paragraph Essay – Organization & Content

- ✓ 1st paragraph includes a hook to capture reader's attention & interest
- ✓ 1st paragraph thesis statement clearly state's writer's position on issue, and why reader should agree with writer's point of view
- ✓ Body paragraphs to include 3 main ideas/reasons defending position on issue
- ✓ Each main idea/reason is backed up with supporting details/evidence to defend writer's side of the argument

Persuasive 5 Paragraph Essay- Organization & Content

- ✓ The counter-argument/rebuttal on the issue is also given to address reader's concerns
- ✓ Concluding paragraph restates thesis statement and writer's case for/against the topic
- ✓ Smooth flow and transitions between paragraphs
- ✓ Presented a convincing case for writer's side of argument

Organization & Content Scoring Guide

- 4 – meets 7-8 of these criteria
- 3 – meets 5-6 of the above criteria
- 2 – meets 3-4 of the above criteria
- 1 – meets less than 3 of the above criteria

Language Usage, Spelling, Mechanics, Neatness

- ✓ Complete sentences throughout (no run-ons)
- ✓ Descriptive vocabulary and word choice
- ✓ Used a variety of sentence beginnings and lengths
- ✓ Spelling correct most of the time
- ✓ Correct punctuation most of the time
- ✓ Correct use of capitalization most of the time
- ✓ Made efforts to edit and correct mechanics and spelling errors
- ✓ Neat and legible final product

Language Usage, Spelling, Mechanics, Neatness Scoring Guide

- 4 – Demonstrates 7-8 of these criteria
- 3 – Demonstrates 5-6 of these criteria
- 2 – Demonstrates 3-4 of these criteria
- 1 – Demonstrates less than 3 of these criteria

Sentence Starters

- In the story we see how_____.
- This is evidenced by_____.
- This is demonstrated by the fact that _____.
- We see an example of this when_____.
- The main character demonstrates this when_____.

Some Writing Accommodations



- Pre-Writing and Organizational Supports (e.g., use of graphic organizers, checklist or rubric of required components, talk through ideas first)
- Editing Assistance (teacher/peer, spell-check)
- Bypass Strategies (e.g., permission to dictate portions, print instead of cursive, access to computer/assistive technology)
- Shortened/modified written assignments
- Use of scribe, note-taking assistance
- Alternatives/Options to Writing Assignments

Assistive Technology Software

Read & Write GOLD (www.texthelp.com)

Kurzweil 3000 (www.kurzweiledu.com)

Word Q & Speak Q (www.quillsoft.com)

Read:OutLoud, Write:Outloud, Draft:Builder,
and Co:Writer 4000 (www.donjohnston.com)

ReadPlease (www.readplease.com)

(Word prediction, text-to-speech, audible spell checker)

Inspiration (www.inspiration.com)

Fluency

- The speed, smoothness, and ease of oral reading
- Fluent readers read more quickly and smoothly, allowing them to focus on comprehension.
- Fluent readers enjoy reading more than students who devote all their energy to sounding out words.



Fluency Strategies

- Repeated oral readings & practice of text
- Short passages, word lists
- Read along with tape/CD
- Timed readings (several 1-minute reads to improve reading rate and accuracy)
- Choral, echo, and partner reading

Increase Vocabulary Through

- Exposure to words through rich oral language experiences and teacher/parent reading aloud
- Direct instruction in vocabulary & word learning strategies
- Dictionary and thesaurus skills
- Charts, lists, vocabulary walls

Barriers to Having Students Evaluated for AD/HD

- Parent doesn't consent to evaluation
- Parent does take child to doctor for AD/HD evaluation, but school fails to provide data/evidence needed for diagnosis.



Barriers to Educating Students with AD/HD Effectively

- Teacher knowledge and training in strategies and interventions. Want to help, not sure how.
- Teacher willingness to accommodate and put forth the extra work and effort involved.
- Lack of resources
- Class environment – large class size, may be many students in class with special needs – teacher overwhelmed



Barriers to Educating Students with AD/HD Effectively

- May be little administrative support, with message to teachers...handle it the best you can.
- Parents may not be involved or cooperating with school.
- Many children with no treatment.
- Teacher frustration and exhaustion because the “team” does not exist.





Solutions

- Teacher training in effective instructional, environmental, behavioral strategies and interventions
- Timely, efficient team process to discuss and strategize, and facilitate appropriate referrals
- Much closer communication between school/home/physician/other clinicians and service providers

Thank you!

Contact Sandra

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