

Assistive Technology Tools & Strategies to Support Executive Functions



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Introductions

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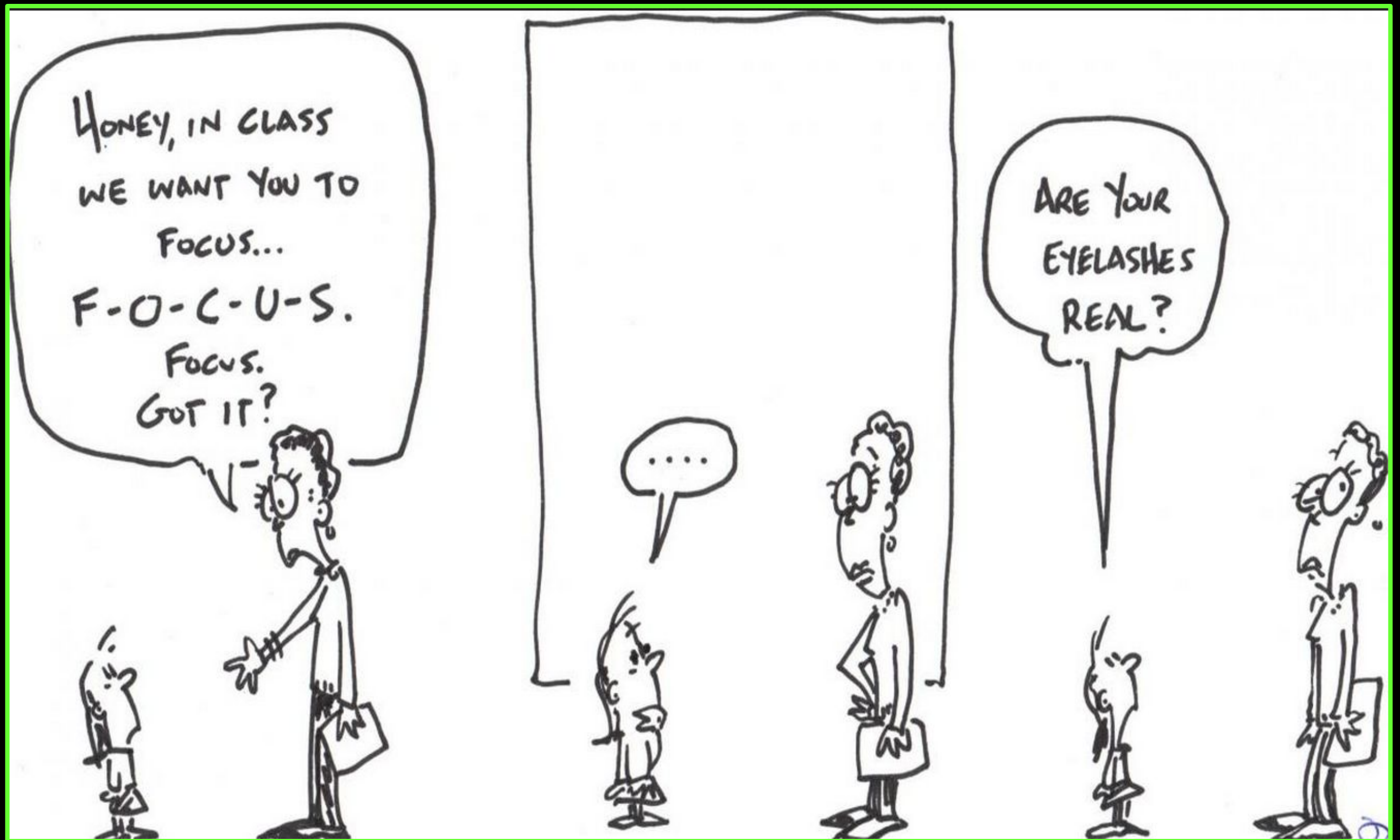
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**All materials and handouts
for this presentation can be
found here:**

<http://bit.ly/ExecutiveFunctions>

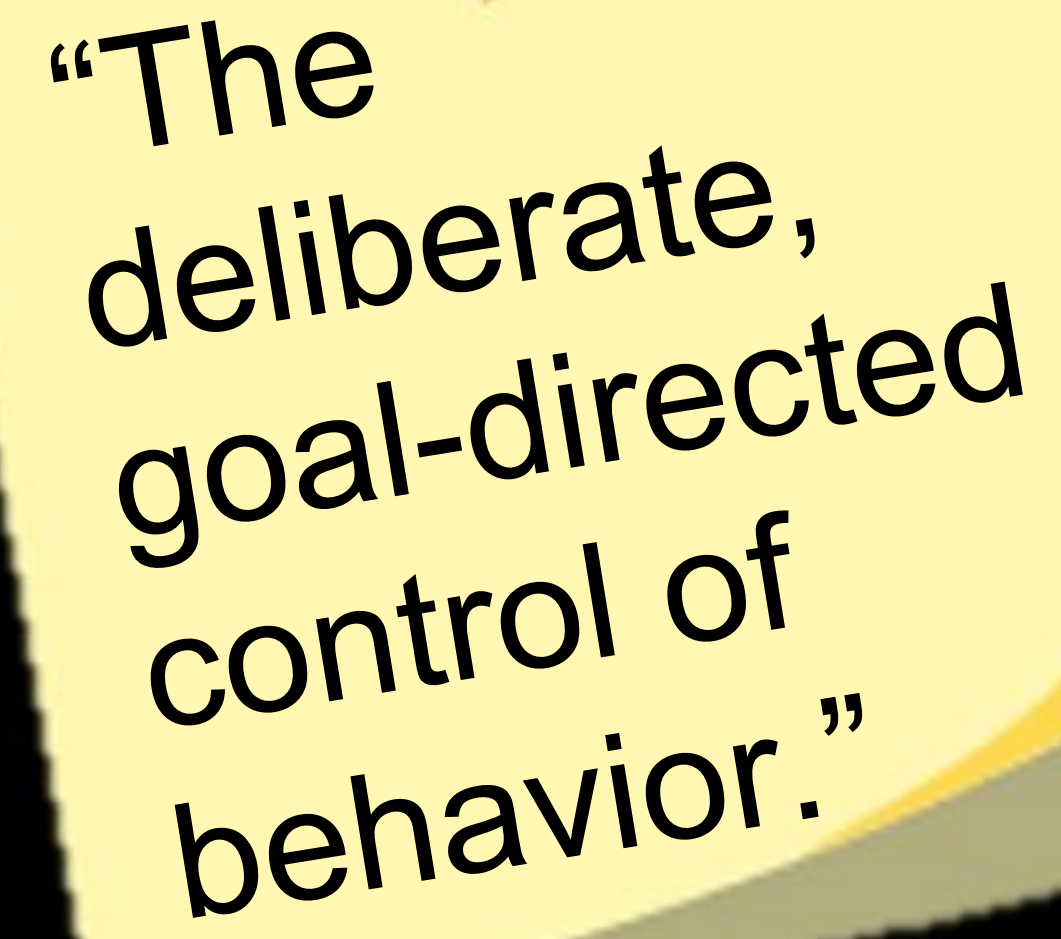




Executive Functions

Executive functions are a set of processes that relate to managing oneself and one's resources in order to achieve a goal. (Cooper-Kahn, 2008).

Impairments of any or all of these EF skills may be present in spite of strong intellectual skills and unaffected language capacity (University of Michigan, n.d.).



**“The
deliberate,
goal-directed
control of
behavior.”**

Philip David Zelazo
University of Minnesota

Do you have challenges with



?





Neuroanatomy

Of Executive Functions

Executive Dysfunction is not:

A diagnosis

A disorder



Executive Dysfunction may be associated with:

ADD/ADHD

Autism SD

Bipolar Disorder

Depression

Learning Disability

Some medications

TBI

And also...

Every kid you've ever known.

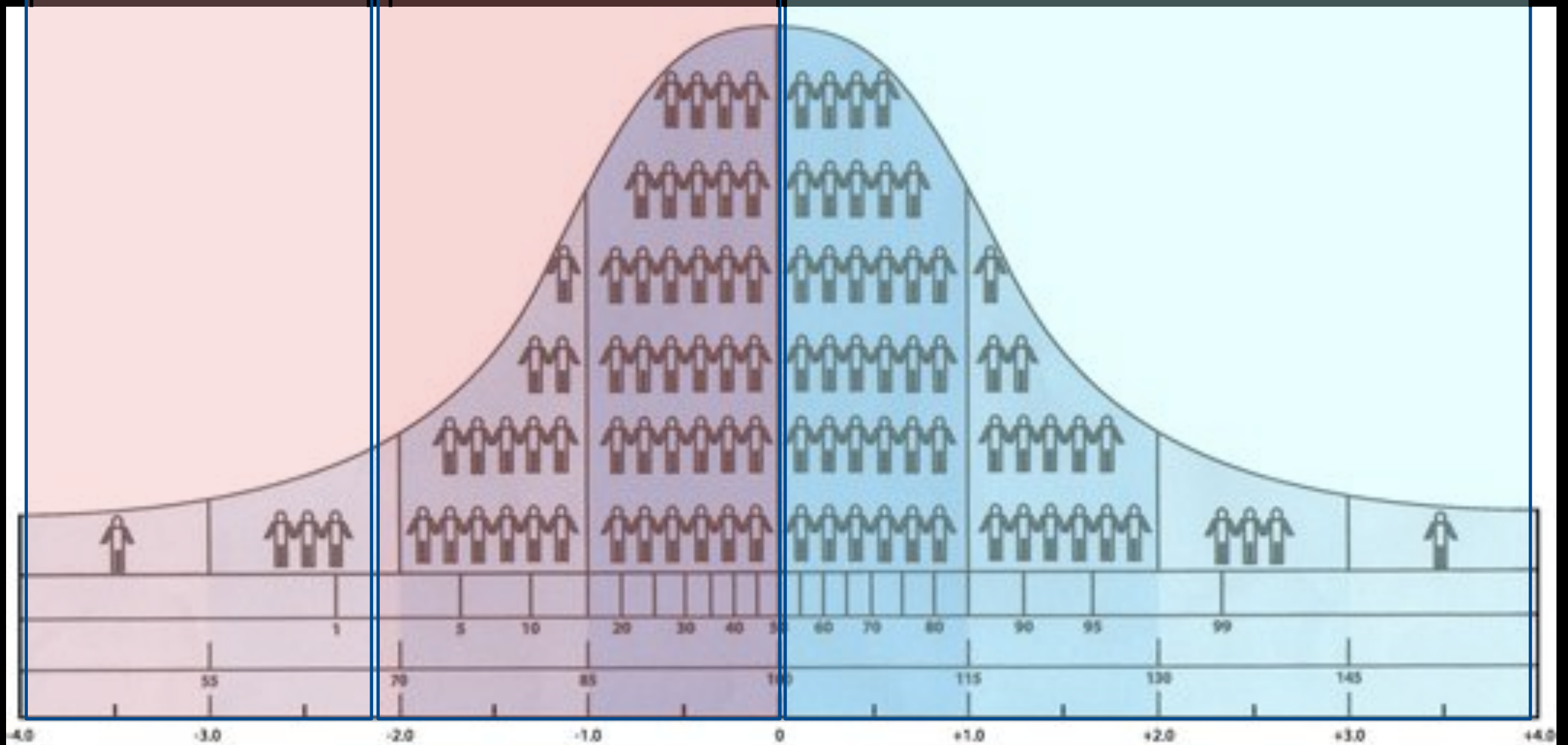


photo credit: <http://www.flickr.com/photos/32029534@N00/23136462252>>you sexy thing!!! -- the rainbow in my heart is the same as yours : fish stories, san francisco (2015) via
<http://photopin.com>>photopin <https://creativecommons.org/licenses/by-nd/2.0/>>(license)

Need a lot of support

Need a little support

Get it "as is"



Parents and educators
must understand that
behaviors seen in
students are not always
due to a lack of trying, but
may be a **lag in their
executive development.**

Marshmallow Test



The Marshmallow Test...

40 Years Later

Students who **could resist** for 15 minutes:

- were significantly **less likely** to have problems with **behavior, drug addiction or obesity** by the time they were in high school
- scored an **average of 210 points higher** on the SAT.
- demonstrated better responses to stress, better social skills as reported by parents.
- were more **verbally fluent, rational, attentive, planful**, and able to deal well with **frustration and stress** during adolescence.

The Stroop Test

Please state the color *of the text*

Blue

Red

Green

Black

Green

Red

Blue

Black

Black

Blue

Green

Red

Green

Green

Black

Blue

Shift

The ability to move freely from one situation to another and to think flexibly in order to respond appropriately to the situation. The ability to shift is often called cognitive flexibility.

Inhibition

The ability to stop one's own behavior at the appropriate time, including stopping actions and thoughts. The flip side of inhibition is impulsivity; if you have weak ability to stop yourself from acting on your impulses, you have lack of "impulsive control".

Emotional Control

The ability to modulate emotional responses by bringing rational thought to bear on feelings.

Initiation

The ability to begin a task or activity and to independently generate ideas, responses, or problem-solving strategies.

Working Memory

The capacity to hold information in mind for the purpose of completing a task.

Planning/Organization

The ability to manage current and future-oriented task demands.

Self-Monitoring

The ability to monitor one's performance and to measure it against some standard of what is needed or expected (Cooper-Kahn, 2008).

What does Executive
Dysfunction
look like in the
classroom?

He's just lazy.

He just seems lost.

He's constantly
blurting out answers!

Her backpack is such a mess!

I have to tell him the
directions a million times!

She argues about everything!

He can do the work- but
he can't get started on
his own.

He takes everything
so personally!

He is always off topic.

She has great ideas-
but she can't get them
down on paper.

What it REALLY
looks like...



Disclaimer

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The ESS–Assistive Technology (AT) team does frequently review software, devices, and curriculum support items to determine if they may be used to assist students with disabilities in accessing and benefiting from the general education curriculum. These supports may be considered assistive technology, as defined in the Individuals with Disabilities Education Act (IDEA). The ESS–AT team may procure, demonstrate, and provide training on a wide range of assistive technology items and may compare and contrast the features of these items, but the team is precluded from making any recommendations for one product over another

ORGANIZATION

- Organization is a subset of executive function along with other neurologically based skills.
- An area in which a child can receive targeted support through strategies and assistive technology.
- It is important to identify the specific area of difficulty in order to choose the right tool (ie. loses homework)

ORGANIZATION

- Self-management
- Time management
- Information management
- Material management

SELF MANAGEMENT

Allows students to manage their their behaviors in accordance with a set of rules, procedures, or standards.

- Sitting on the carpet in circle time rather running than around the classroom
- Paying attention to the teacher and not daydreaming
- Raising one's hand and not blurting out the answer

DENNIS THE MENACE



"BY THE TIME I THINK ABOUT WHAT I'M GONNA DO... I ALREADY DID IT!"

SELF MANAGEMENT

Self-management includes

- the ability to filter, regulate, and attend
- the ability to use goal-directed skills
- the ability to complete tasks

SELF MANAGEMENT

- Sensory Regulation Tools
- Movement and Deep Pressure Tools
- Fidgets
- Auditory Tools
- Visual Tools/Supports

OT/PT Room Sensory Choice Board



bolster swing



trampoline



bike



squishy ball



platform swing



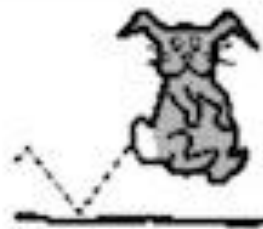
molding clay



push



crawl



hop



button



build



push down



jump



T-stool twist



large ball



zipper



bounce on ball



lpad



throw



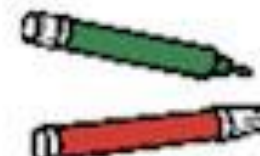
water table



puzzle



scissors



markers



draw



Muscles, Motion 'n Touch



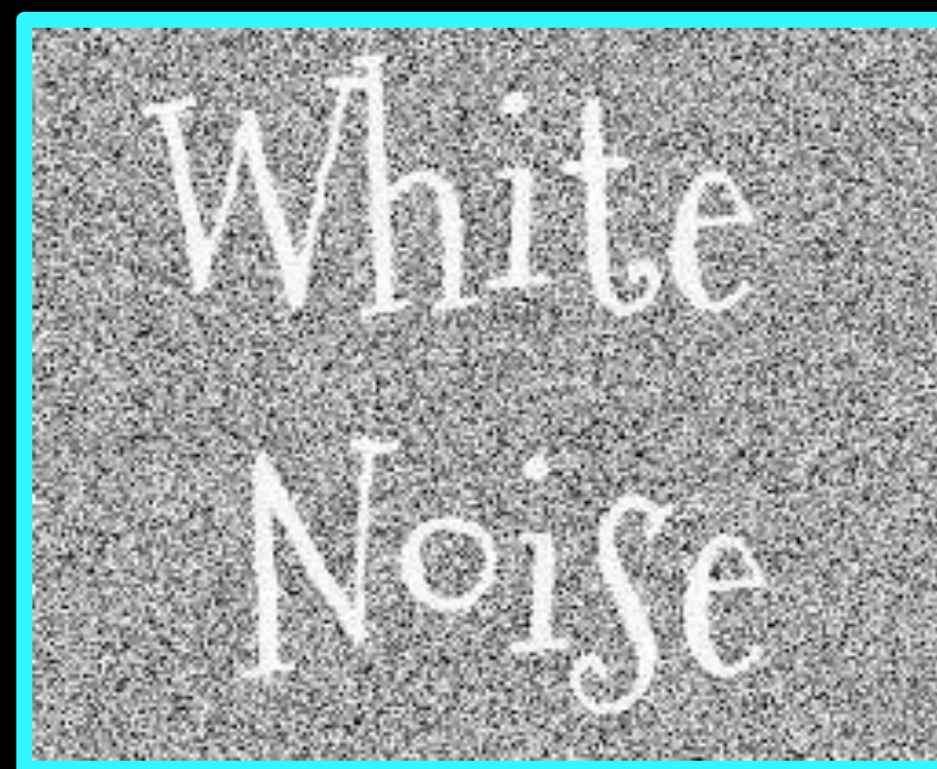
Sensory

TREAT











Visual Directions



Power Card



Dolphin wants you to remember:

- Share your toys
- Friends share their toys even if it is your favorite toy
- Friends share!

Adapted from Gagnon, 2001



Technology Count Down Board

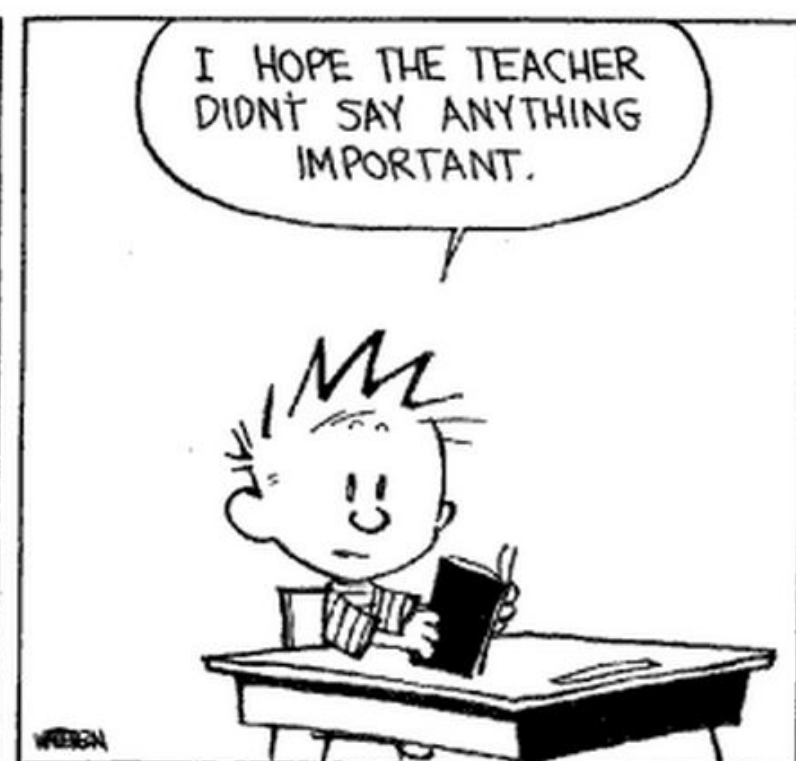
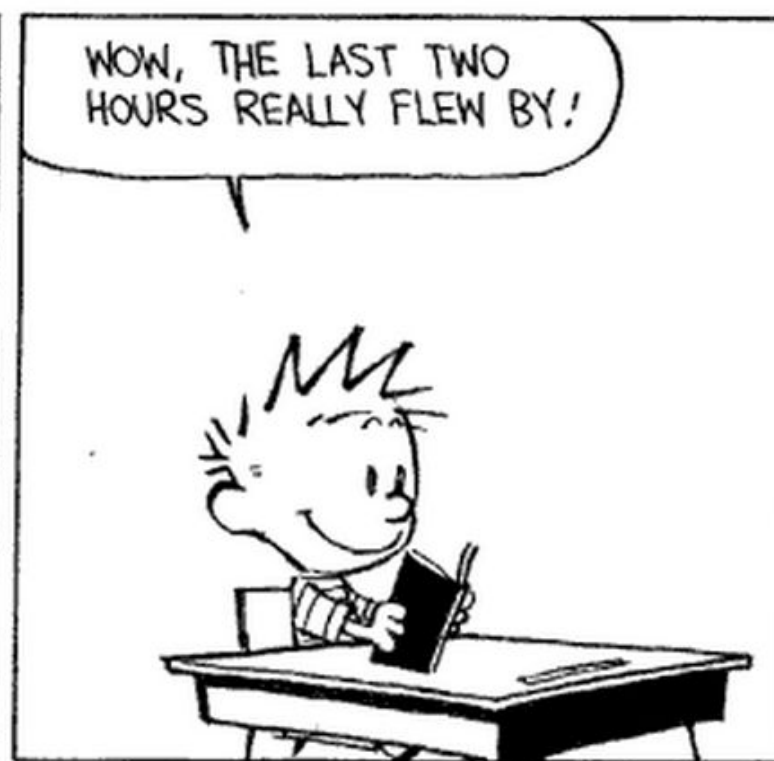
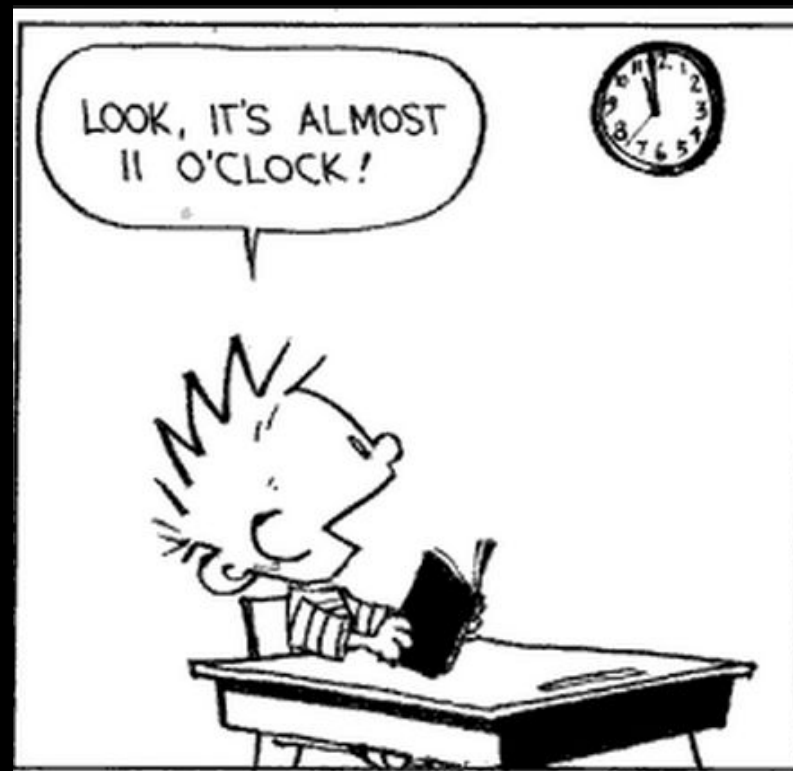


TIME MANAGEMENT

Making Tasks more Manageable

- Task Analysis
- Chunking
- Batching
- Routines/habits
- Analog Versus Digital
- Clock Time Versus Perception of Time





Task Analysis and Time Estimation Sheet

Task:

Estimated Time to Complete Task:

Actual Time to Complete Task:

Difference between Estimate and Actual:

Detailed Steps:

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10

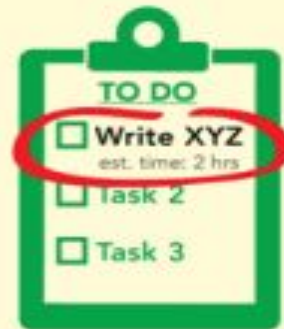
HOW TO BE PRODUCTIVE USING



THE POMODORO TECHNIQUE

NAMED AFTER THE ITALIAN WORD FOR TOMATO SINCE THE TIMER USED BY THE TECHNIQUE'S CREATOR WAS SHAPED AS A TOMATO

PICK A TASK



A list should be planned ahead of time.

SET THE TIMER TO 25 MINUTES



Although a mechanical timer is suggested (like this tomato-shaped kitchen timer), any type will do.

GET TO WORK



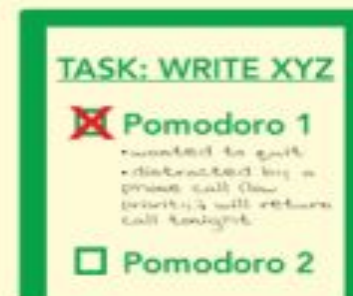
NO DISTRACTIONS ALLOWED

STOP WHEN TIME IS UP



This block of work time is called a POMODORO.

RECORD PROGRESS



Make note of anything that could aid future improvement.

TAKE A FIVE MINUTE BREAK



Breaks keep you fresh.

GET BACK TO WORK



AND REPEAT PREVIOUS STEPS

AFTER THE FOURTH POMODORO TAKE A LONGER BREAK (15 - 30 MINUTES)



Squeeze in mindless chores for increased productivity.

CONTINUE LIKEWISE UNTIL CALLING IT A DAY



With such focus and flow, time is used more efficiently while reducing mental fatigue.

THE POMODORO TECHNIQUE® IS A REGISTERED TRADEMARK OF THE TECHNIQUE'S CREATOR FRANCESCO CIRILLO. FOR MORE INFORMATION, VISIT WWW.POMODOROTECHNIQUE.COM.

TIME MANAGEMENT

- Visual Schedules
- Checklists
- Planners
- Timers
- Reminders/Notes
- Apps/Extensions

Schedules



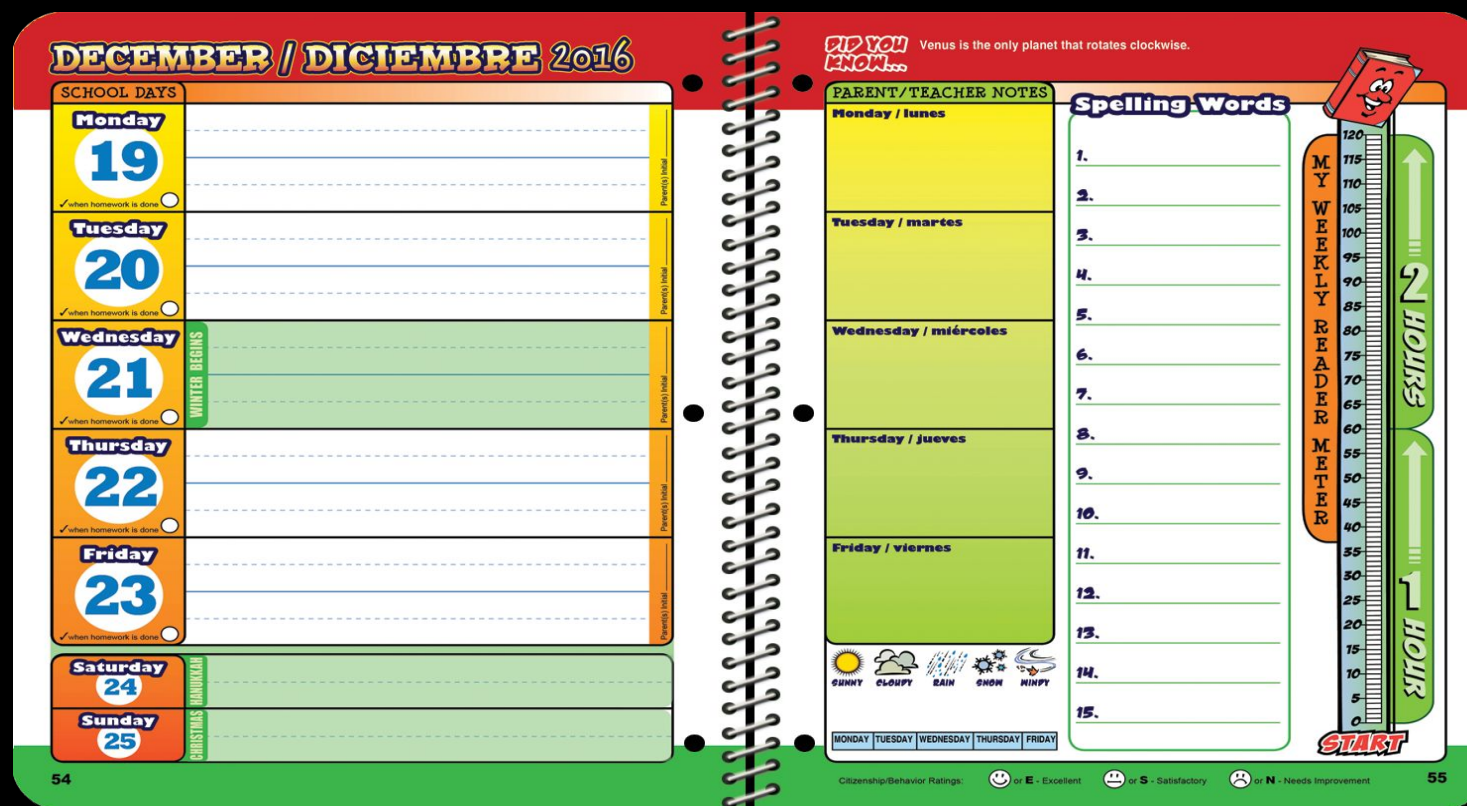
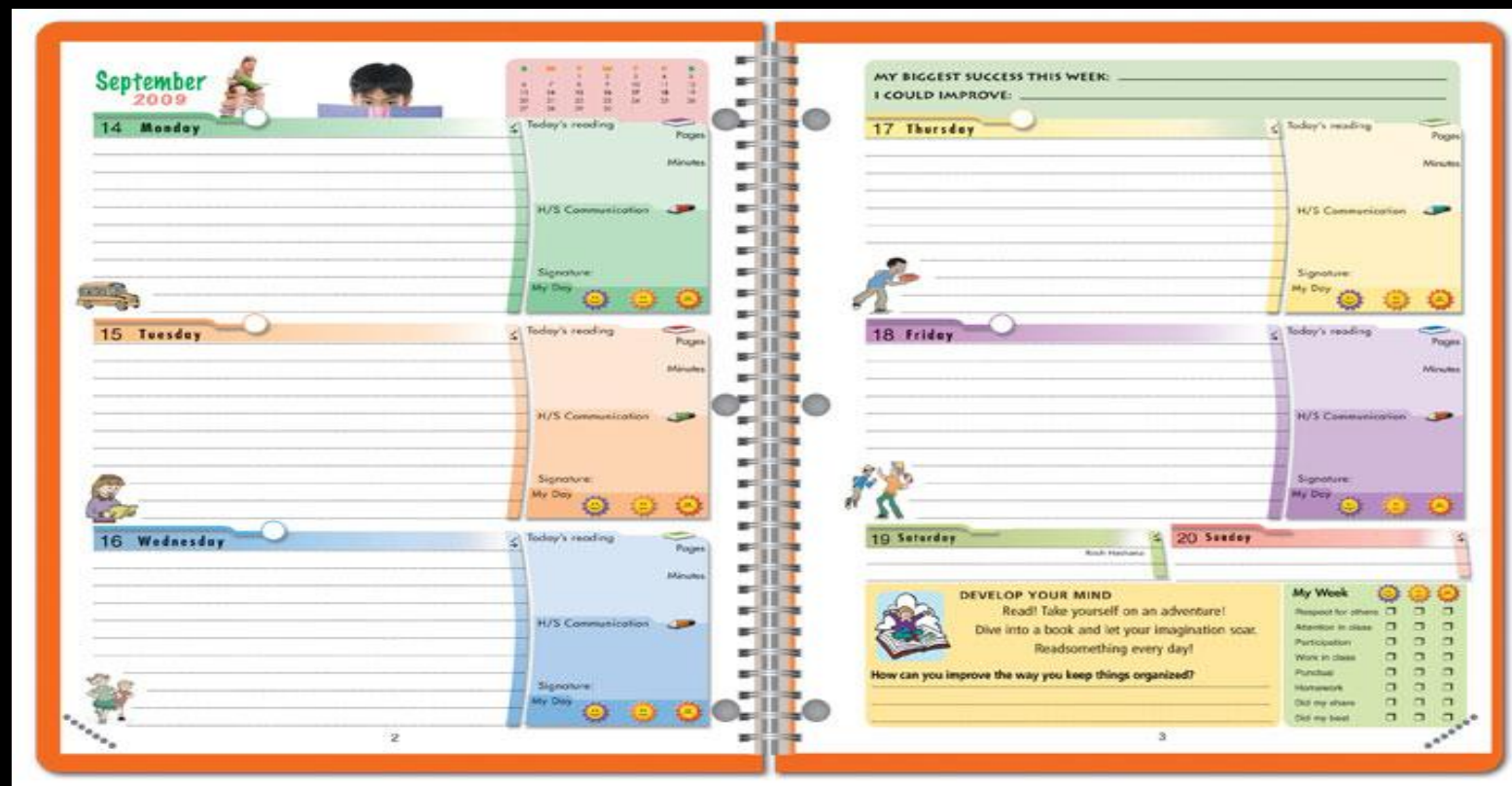
- Schedule of the learner's day at school
- Class schedule posted at a central location, available for all students
- Sequence of two events to help a student understand what comes next

The diagram illustrates a two-step process. It features a light blue background. On the left side, there is a white rectangular box with the word "FIRST" in bold black capital letters. Below this box is a larger, empty white rectangular box. On the right side, there is a similar white rectangular box with the word "THEN" in bold black capital letters, also with a larger empty white box below it. A yellow arrow with a black outline points from the "FIRST" box towards the "THEN" box, indicating a sequence or flow from the first step to the second.

My Morning Schedule

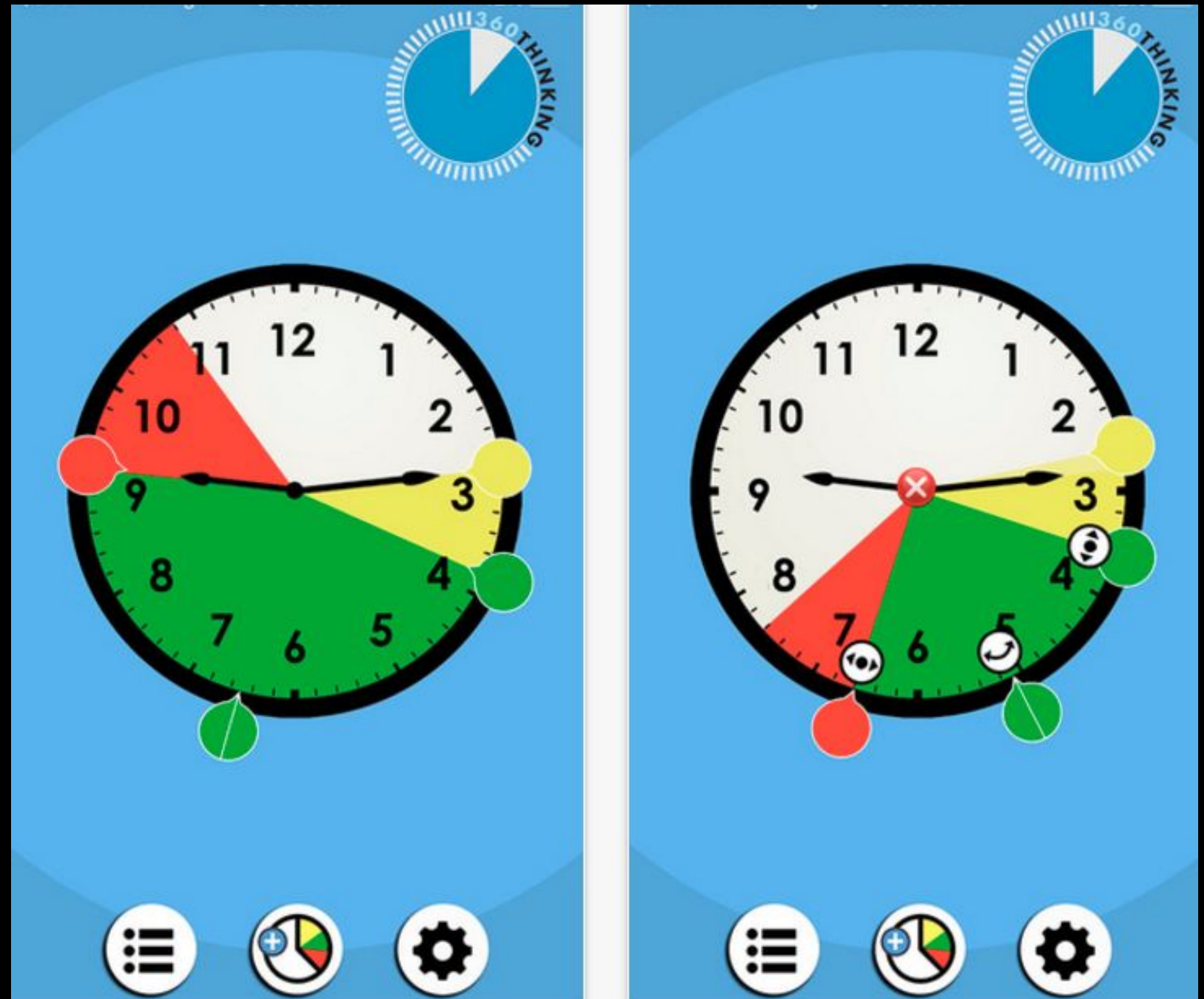
<input type="checkbox"/>		Full-Break Time
<input type="checkbox"/>		Table Work
<input type="checkbox"/>		Art
<input type="checkbox"/>		Speech Therapy
<input type="checkbox"/>		Center Time
<input type="checkbox"/>		Reading Books

[illegible]





Based upon
the “Get
Ready, Do,
Done”
instructional
method
developed by
Ward and
Jacobson



360 Thinking Timer

INFORMATION MANAGEMENT

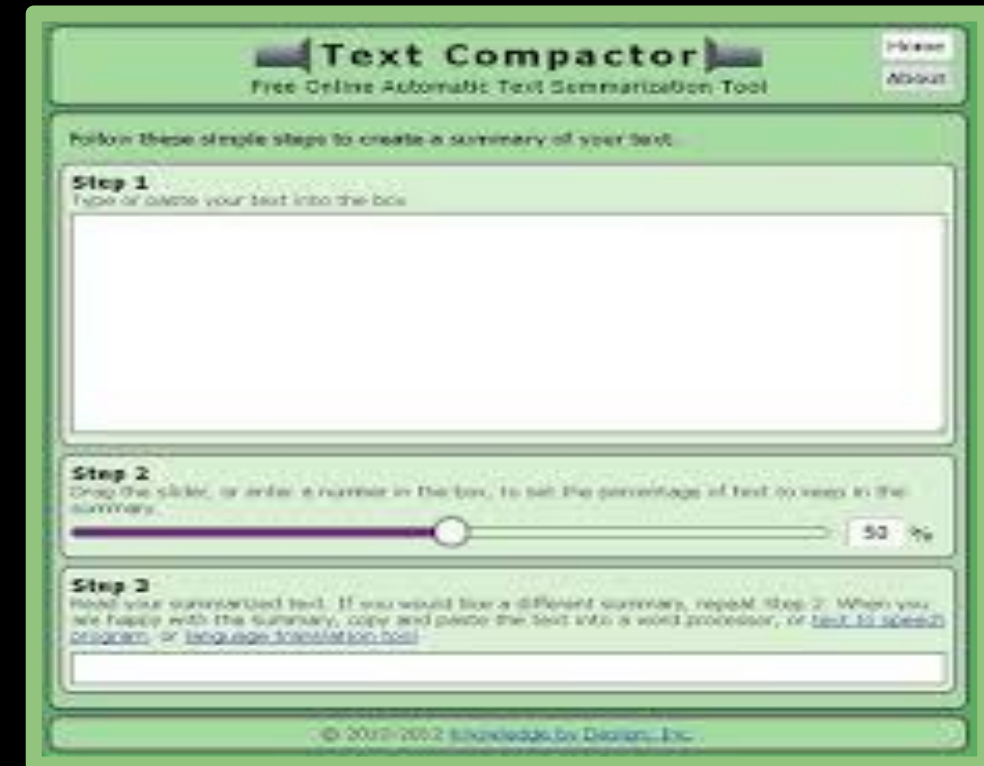
Organizing Information

- Color and Size
- Sticky Notes
- Tabs
- Flags
- Index Cards
- Notebooks
- Binders
- Focusing Information

Retaining Information

- Highlighters
- Highlighter Tape
- Mnemonics
- Flashcards
- Study Guides
- Recordings







MATERIALS MANAGEMENT

1. Ability to keep workspace, play areas, and materials orderly
2. Ability to determine what materials or resources are necessary for a task and have them readily available.



Students who have difficulty with organization may lose materials and/or fail to turn **in completed work.**

SCHOOLIES

© 2002 by John P. Wood

HOW CAN I BE FAILING
WHEN I HAVEN'T EVEN
TURNED ANYTHING IN?



- **Classroom Organization-** Structured routine, Keep materials in the same spot, preferential seating, etc
- **Cubby-** Consider location, Let student assist in organization, Pictures with or without words.
- **Desk Organization-** Plastic tray with color coded bottoms, Bins, Pull out drawer with string attached, additional storage , Picture of a clean desk
- **Folders/Binders-** Coded (color, word labels, symbols, pictures)
- **Electronic Filing and Storage-** Computer, Apps, Cloud

Boundaries

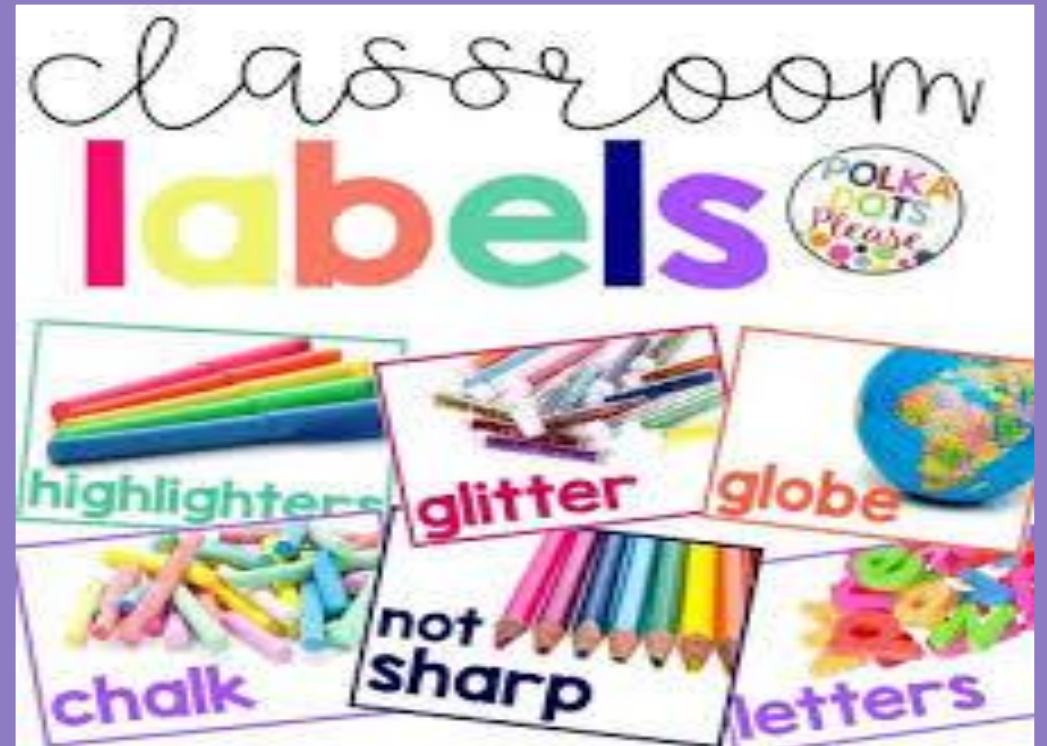


- Arrange the environment in a systematic way.
- Includes covering materials unnecessary for performing skills

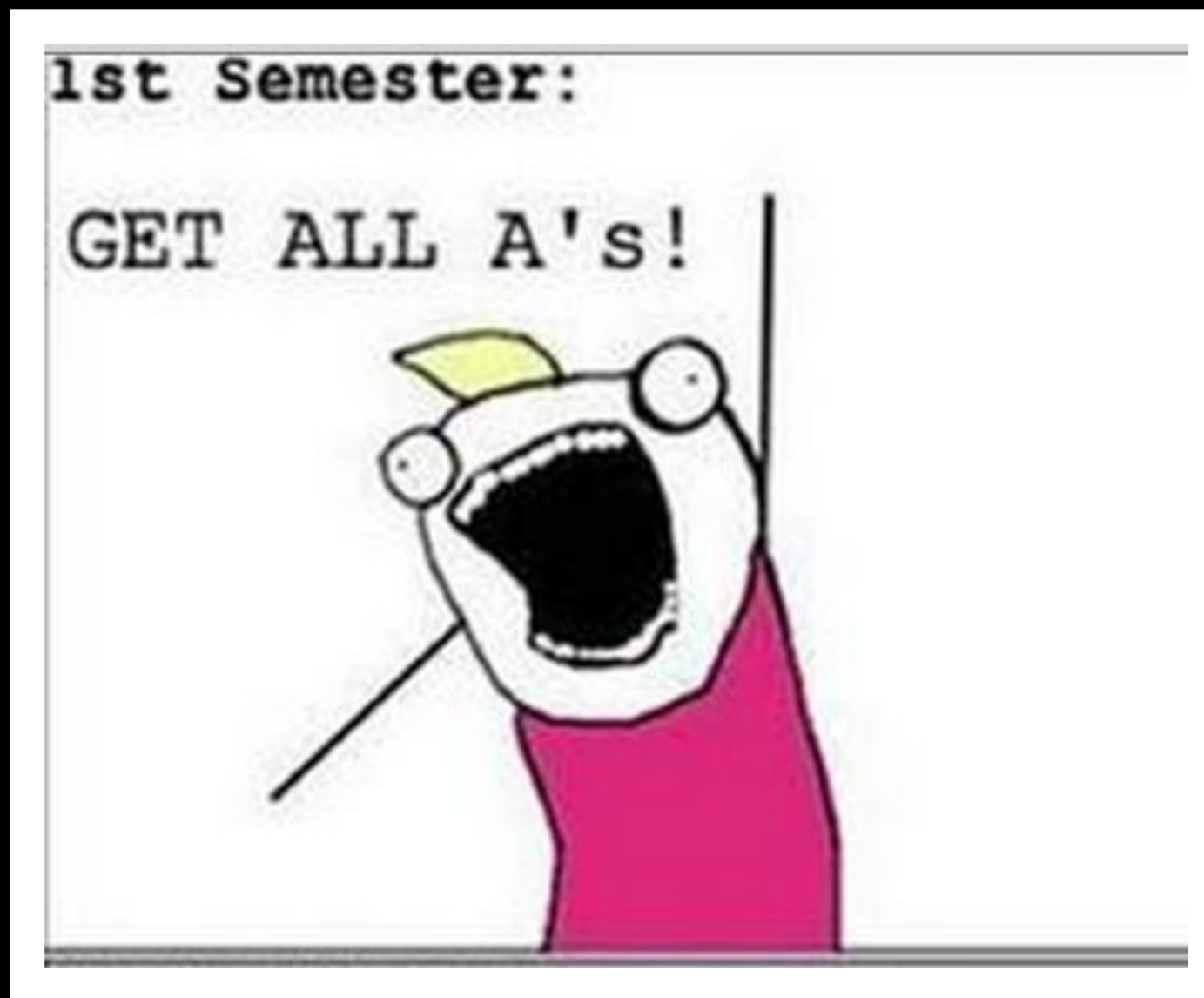




Google Drive



Beginning of the semester: “Get all A’s!”



End of the semester:
“Just don’t FAIL!”



Ready, Set ...**Go!**



Shout out!



“So, how do I get my paws
on all this awesome stuff?”



“So, how do I get my hands on all this awesome stuff?”



www.adeatloan.org



ARIZONA
Technology
Access Program

A Statewide, Phoenix-based program of the
 Institute for Human Development at
NORTHERN ARIZONA UNIVERSITY



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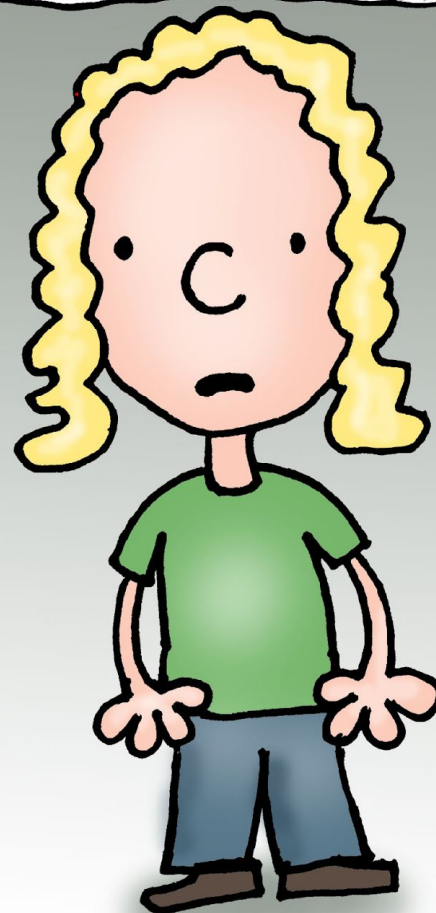
Welcome



Arizona
Department of Education



When a teacher wants to know if there are any questions, she doesn't mean any question. She wants to be asked about the thing she's teaching. So if she's teaching you about Mexico, don't ask if "Bubbles" is a good name for a hamster.



Russ



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Visit our webpage:

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References

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