
The Impact of Trauma on the Brains of Elementary Aged Students

MICHELE JORDAN, M.A. ED. PSC.
UNIVERSITY OF CENTRAL MISSOURI



Introduction

2

Yearly billions of students experience traumatic events (neglect, abuse, etc.)

Trauma impacts the development of children and their social, emotional, behavioral, academic and physical abilities

During traumatic experiences the brain operates in a state of fear

This state leads to adaptive changes in emotions, behavior and cognitive challenges

Introduction (Continued)

3

The purpose of the session

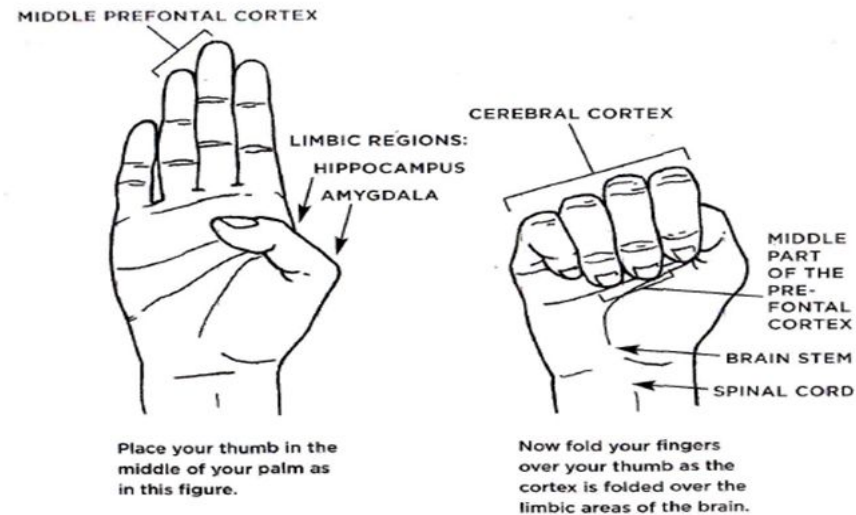
- Describe how traumatic experiences affect brain development
- Impact students in school
- Identify interventions for student success

The Brain

4

The hand model of the brain

Daniel J. Siegel, *Mindsight* (Melbourne: Scribe, 2010), p.15



The Brain (Continued)

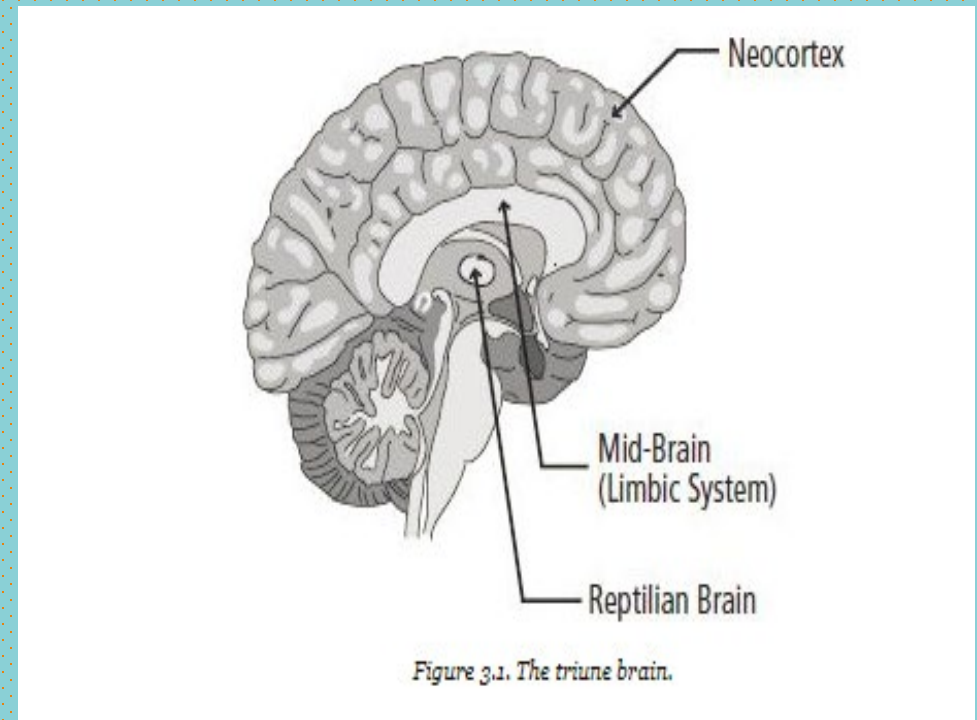
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Three parts of the brain

1. Neocortex
2. Limbic System
3. Reptilian

Neocortex

- Logic reasoning, self awareness, conscious thought, executive control, delayed gratification, insight, etc.
- Needed for decision making skills and future plans

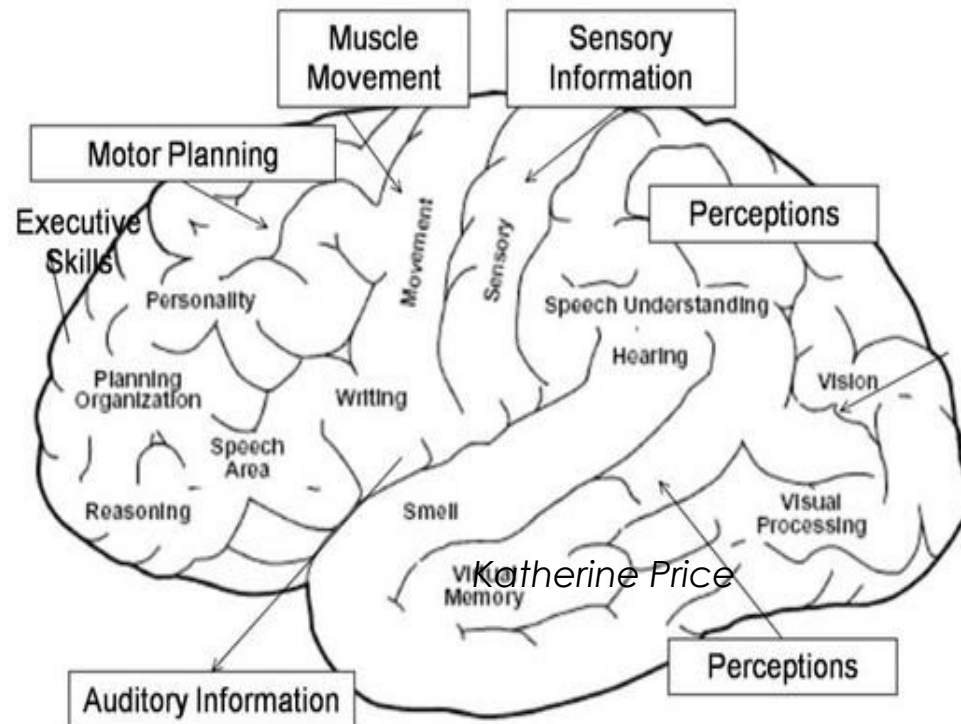


Forbes, H. (2012)

The Brain (Continued)

6

Executive Skills and the Brain



8 Key Executive Functions

Executive functions are skills everyone uses to organize and act on Information. If your child has executive functioning issues, he may struggle with some or all of the following skills.

Skill	What it means	How it looks
Impulse Control	Impulse control helps your child think before acting.	Kids with weak impulse control might blurt out inappropriate things. They're also more likely to engage in risky behavior.
Emotional Control	Emotional control helps your child keep his feelings in check.	Kids with weak emotional control often overreact. They can have trouble dealing with criticism and regrouping when something goes wrong.
Flexible Thinking	Flexible thinking allows your child to adjust to the unexpected.	Kids with "rigid" thinking don't roll with the punches. They might get frustrated if asked to think about something from a different angle.
Working Memory	Working memory helps your child keep key information in mind.	Kids with weak working memory have trouble remembering directions--even if they've taken notes or you've repeated them several times.
Self-Monitoring	Self-monitoring allows your child to evaluate how he's doing.	Kids with weak self-monitoring skills may be surprised by a bad grade or negative feedback.
Planning and Prioritizing	Planning and prioritizing help your child decide on a goal and a plan to meet it.	Kids with weak planning and prioritizing skills may not know which parts of a project are most important.
Task Initiation	Task initiation helps your child take action and get started.	Kids who have weak task initiation skills may freeze up because they have no idea where to begin.
Organization	Organization lets your child keep track of things physically and mentally.	Kids with weak organization skills can lose their train of thought--as well as their cell phone and homework.

www.NCLEXQuiz.com

The Brain (Continued)

7

Limbic System

- Main emotional center and pleasure seeking part of the brain
- Attachment/relationships & emotions are stored
- Regulates mood, memory & attention
- Manages self preservation (fight, flight, freeze)
- Amygdala, hypothalamus, hippocampus

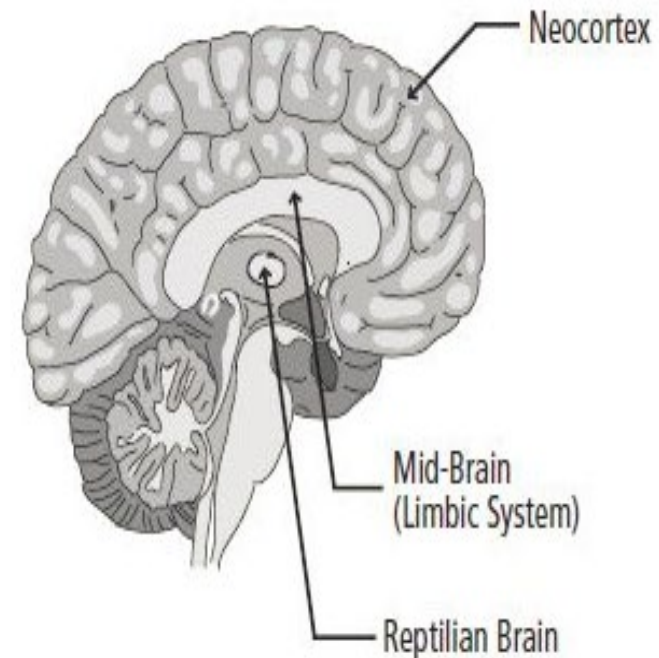


Figure 3.1. The triune brain.

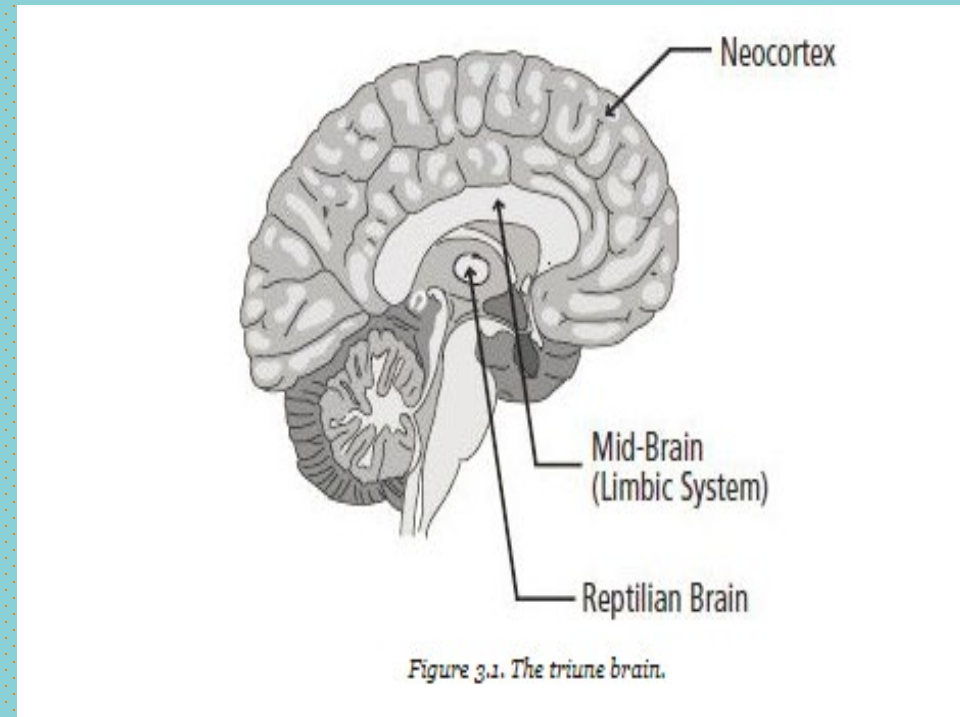
Forbes, H. (2012).

The Brain (Continued)

8

Reptilian

- Brain stem and cerebellum
- Vital functions
 - Digestions, breathing, circulation, heart rate, stress response

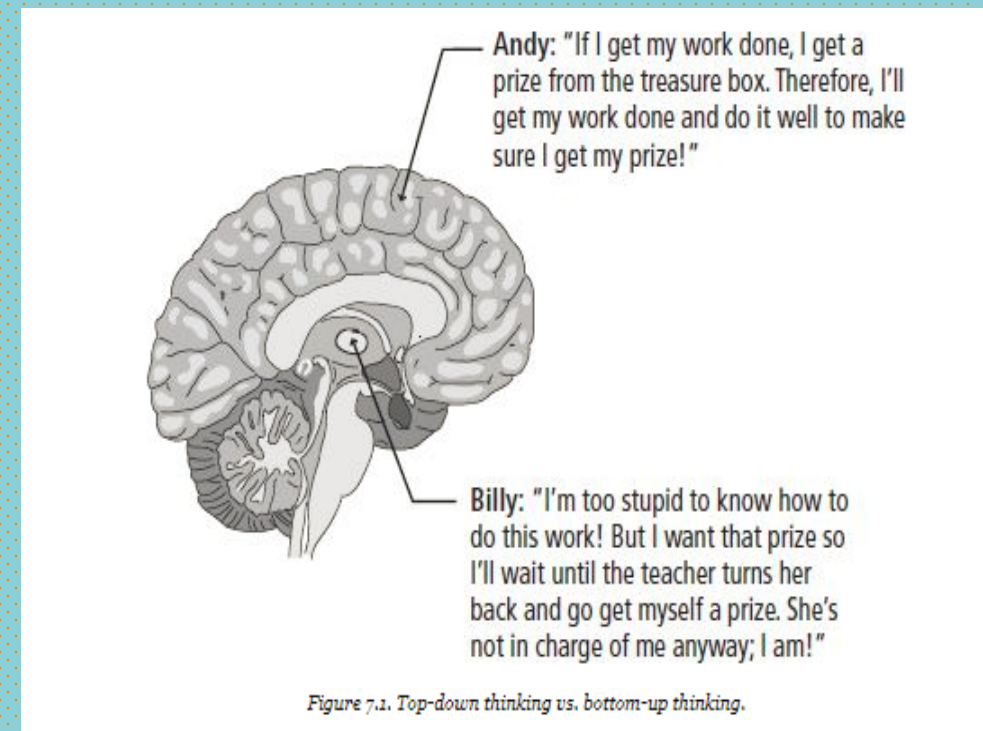


Forbes, H. (2012).

The Brain (Continued)

9

- Main function is survival
 - Non existence of past or future - here and now



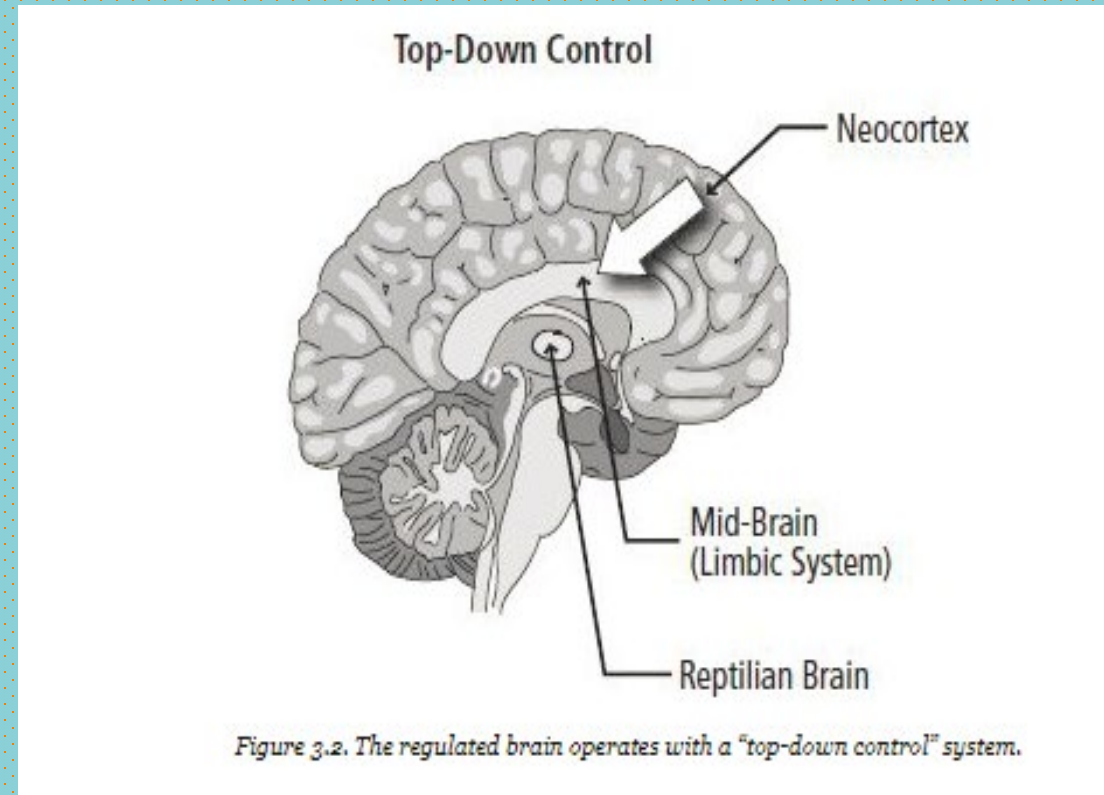
Forbes, H. (2012)

The Brain (Continued)

10

Normally the neocortex functions from top to bottom motion

- Neocortex is in control (i.e. someone angry)

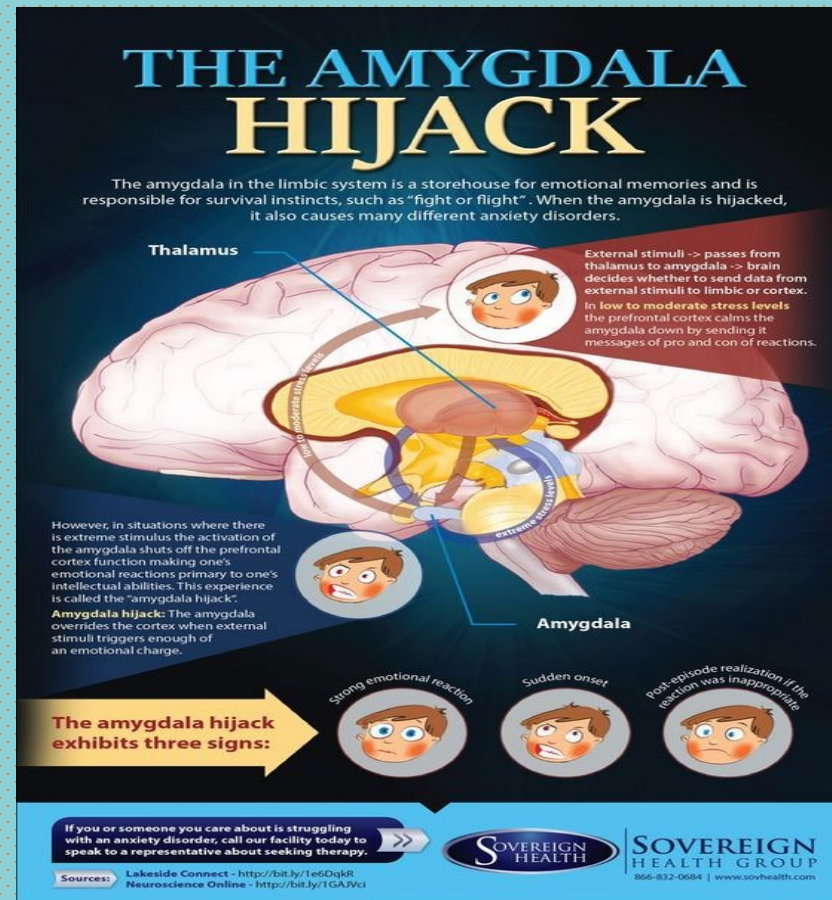


Forbes, H. (2012)

The Brain (Continued)

11

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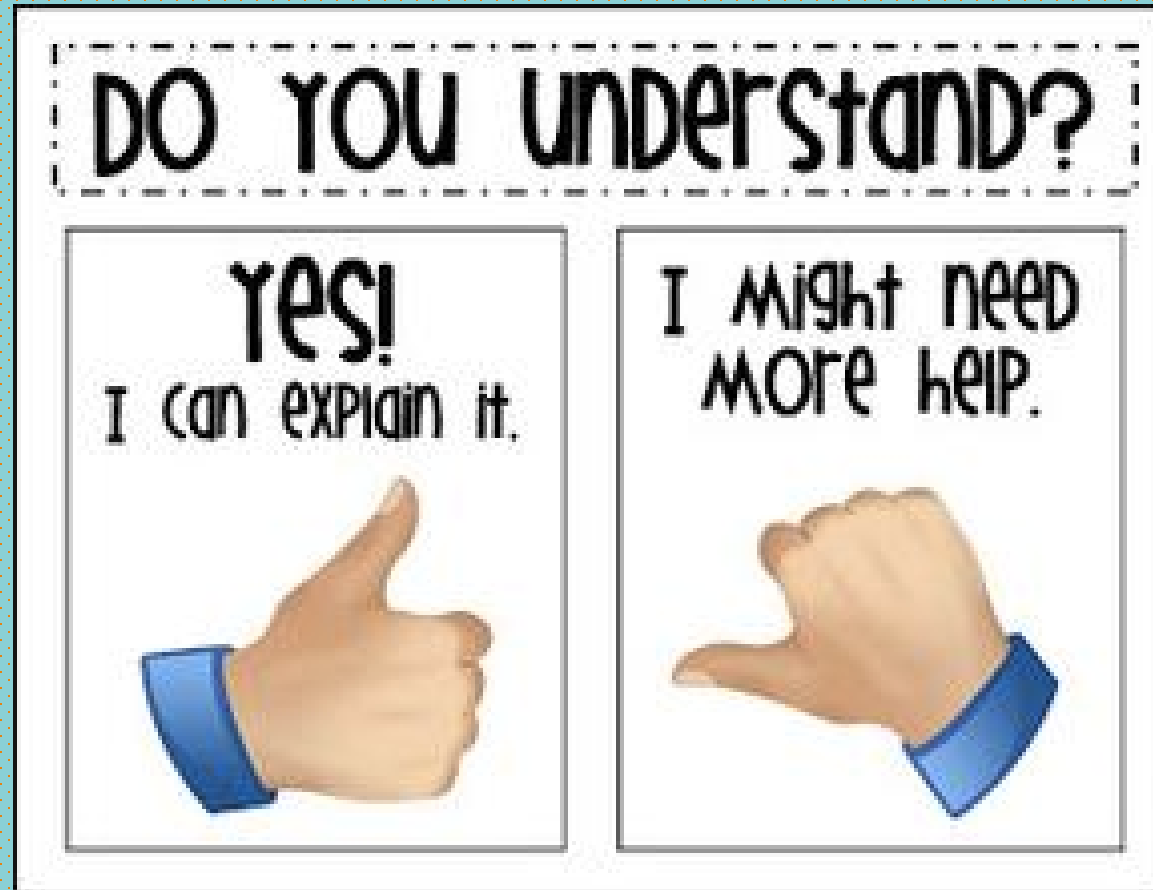
The Brain (Continued)

<https://youtu.be/Lr-T6NAV5V4>



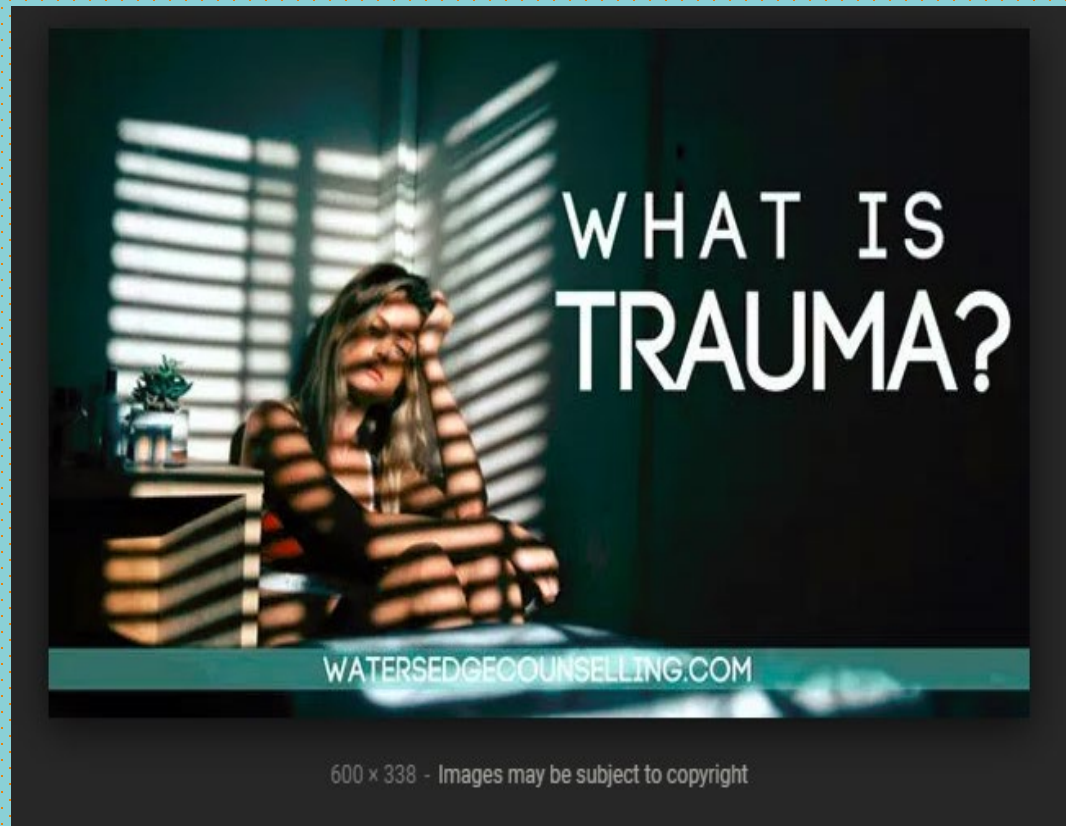
Check for Understanding

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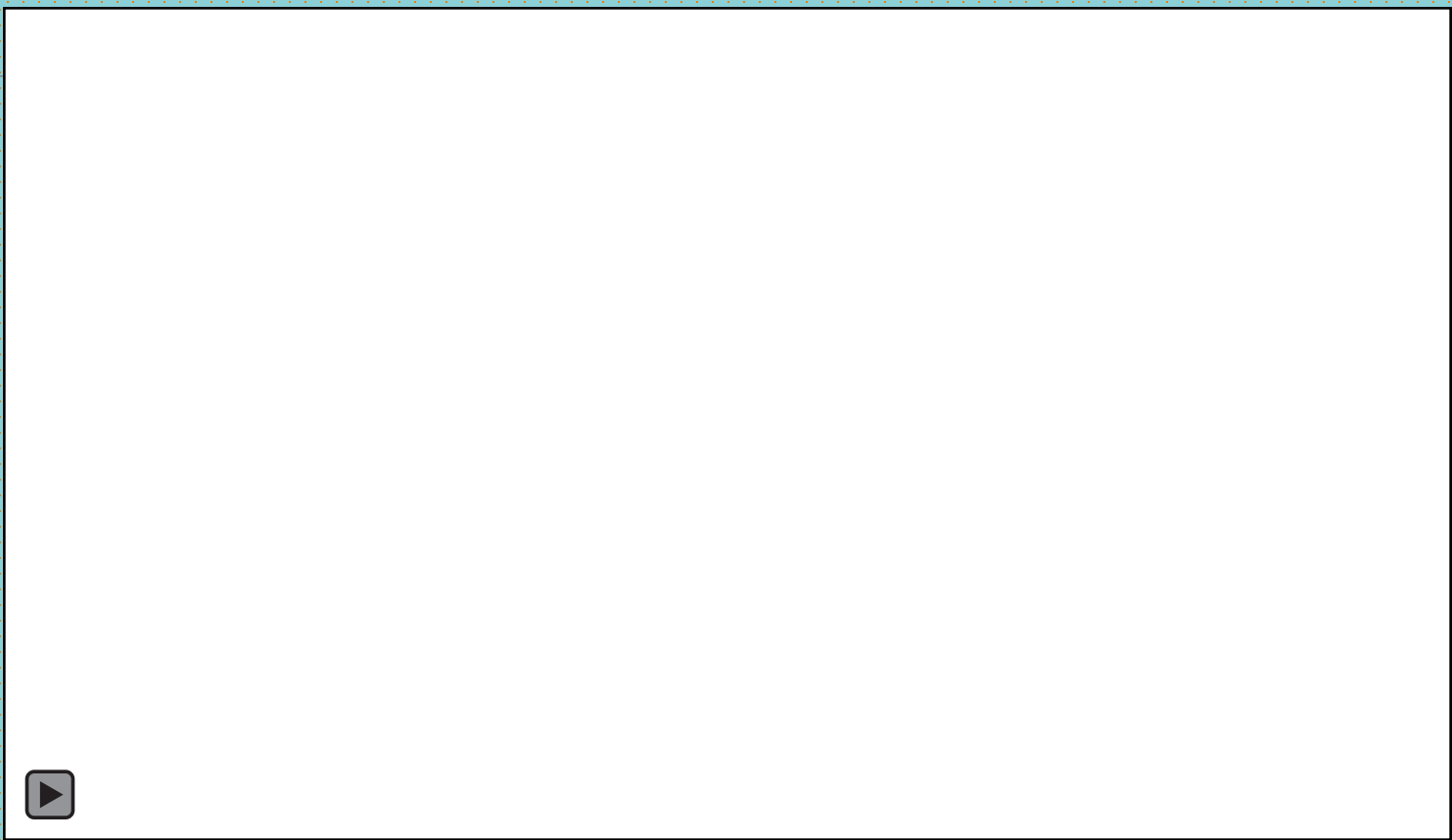


The Effects of Trauma

14



[Education](#), [Mental Health](#), [Trauma](#)





What is Trauma

16

Forbes defines it as “Any event that is more overwhelming than which is ordinarily expected”

This event can have the child feel hopeless, scared, worthless & insecure

- Body/emotional dysregulation

Trauma is different for each person

- The perception of the child and the event
- It is inevitable – environment plays a role in the degree of severity experienced by the child

Forbes, H. (2012).

What is Trauma

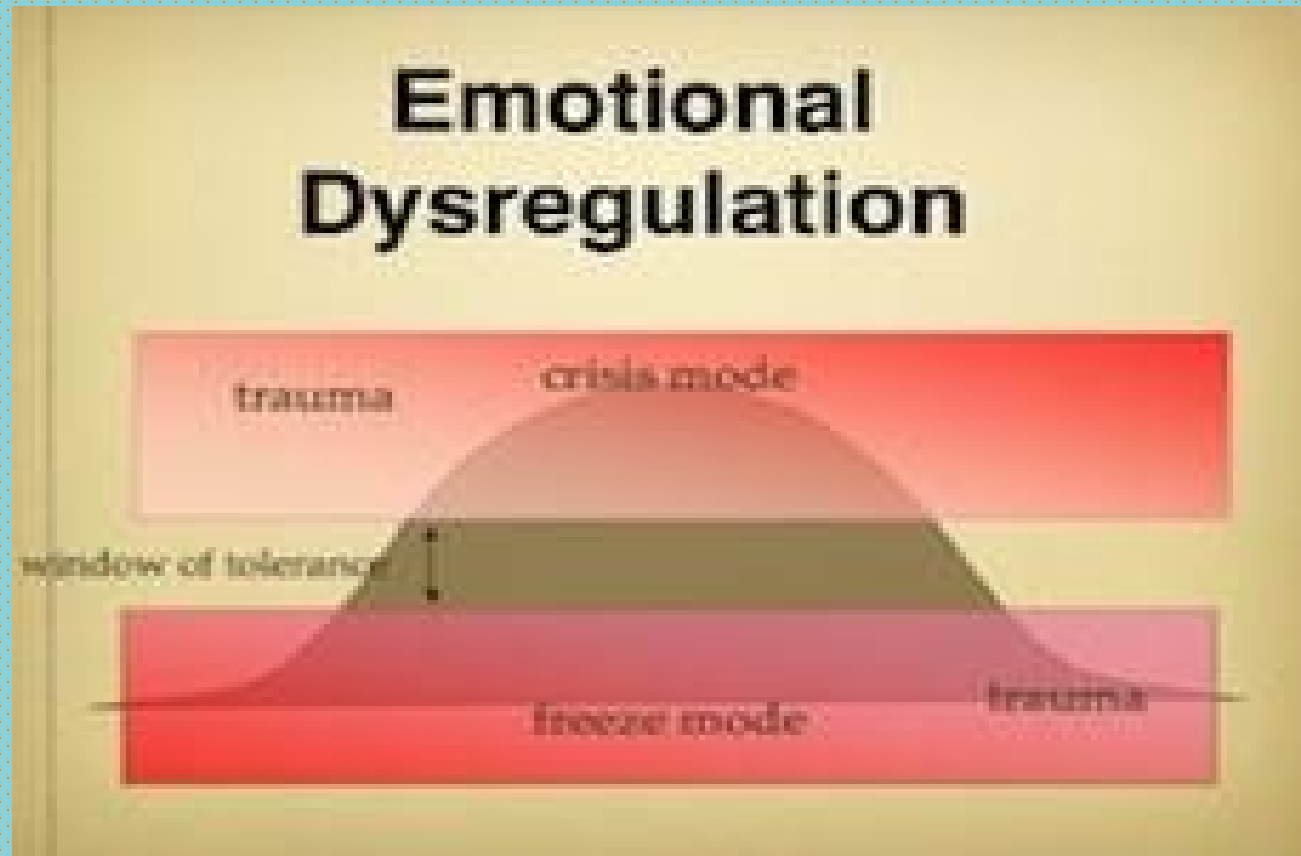
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Possible Traumatic Childhood Events

- | | |
|--|--|
| <ul style="list-style-type: none">• Separation from a parent• Disruptive home life• Medical procedures and/or serious illness• Unmet needs• Mother with post-partum depression• Poverty• Lack of a stimulating environment• Racial discrimination• Sexual, physical, or verbal abuse• Divorce• Neglect• Bullying (including from siblings)• Absence of consistent rules and boundaries• Parent's emotional rigidity• Domestic fighting or violence | <ul style="list-style-type: none">• Single-parent households• Two-parent working households• Multiple siblings• Poor nutrition• Foster care• Adoption• Car accidents• Deaths in the family• Parent's failure to express affection• Depressed parent• Absent parent• Unattuned parent• Overwhelmed parent• Witnessing community and televised violence• Parent's failure to praise and encourage• Frequent moves |
|--|--|

What is Trauma

18



Forbes, H. (2012).



How Trauma Can Impact Children at School

19

- National Child Traumatic Stress Network
 - Trauma impacts relationships
 - Trust, connection, self regulation, safe vs. unsafe
 - Problems in above areas carry over in friendships and school

(The National Child Traumatic Stress Network, n.d.)

How Trauma Can Impact Children at School

20

Traumatized students do not experience ordinary stress the same

- Physical changes
 - Underdeveloped immune and stress response system

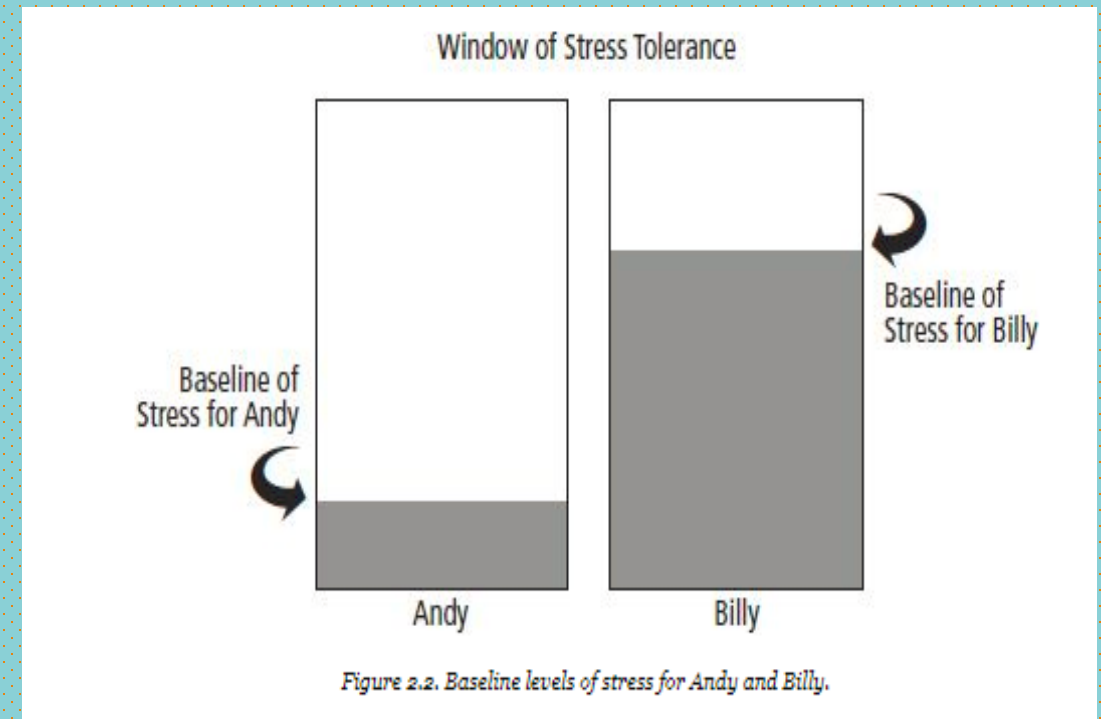
(The National Child Traumatic Stress Network, n.d. p 2)

How Trauma Can Impact Children at School (Continued)

21

Stress Response System

- Increased heart rate, blood pressure, student shuts down
- Body/emotional dysregulation



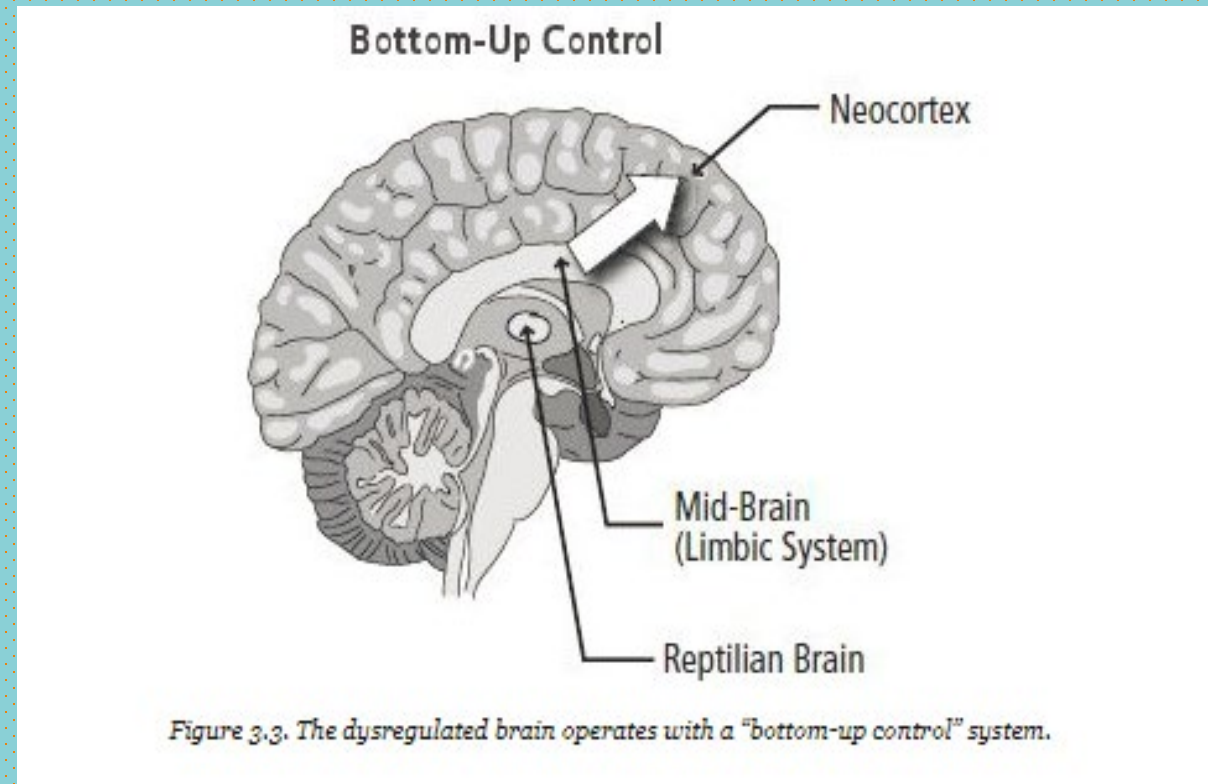
Forbes, H. (2012)

How Trauma Can Impact Children at School (Continued)

22

Hyper-arousal

- Increase anxiety
- Exaggeration of startle responses
- Panic
- Rage
- Accentuation of personality traits



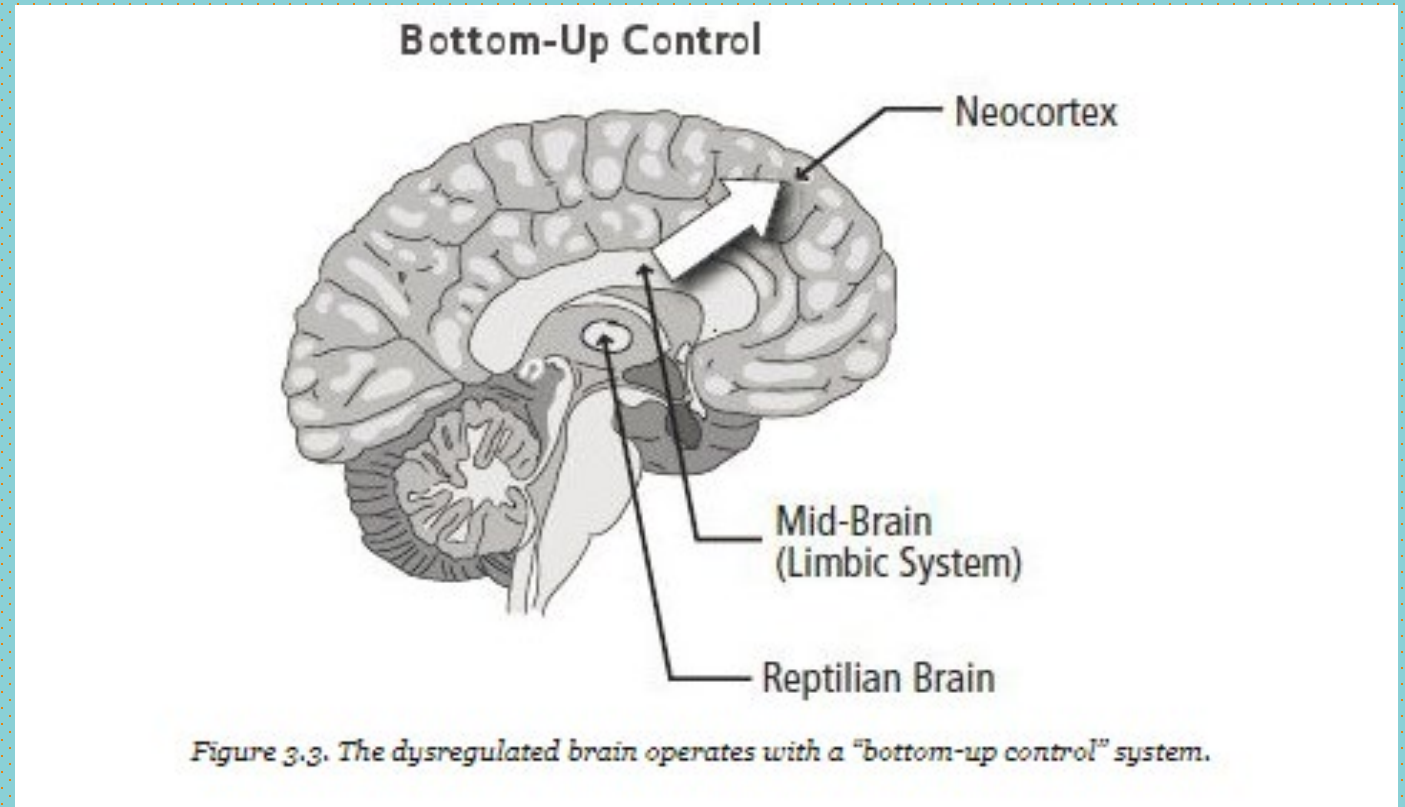
(Forbes, 2012, p. 26)

How Trauma Can Impact Children at School (Continued)

23

Hypo-arousal

- Flatten affect
- Disengagement
- Depression
- Hopelessness



(Forbes, 2012, p. 26)

How Trauma Can Impact Children at School (Continued)

24

Hypo-arousal

- And
- Hyper-arousal

Forbes, 2012, p. 26)

Hyper-arousal	Hypo-arousal
Unable to focus or sit still Will not adhere to rules Aggressive Resistant to directives Argumentative Anxious before tests Impulsive Risk-taking	Defiant Withdraws from peers Tardy Absent Disassociates—shuts down Avoids tasks Numbs out—"I don't care" attitude Forgetful

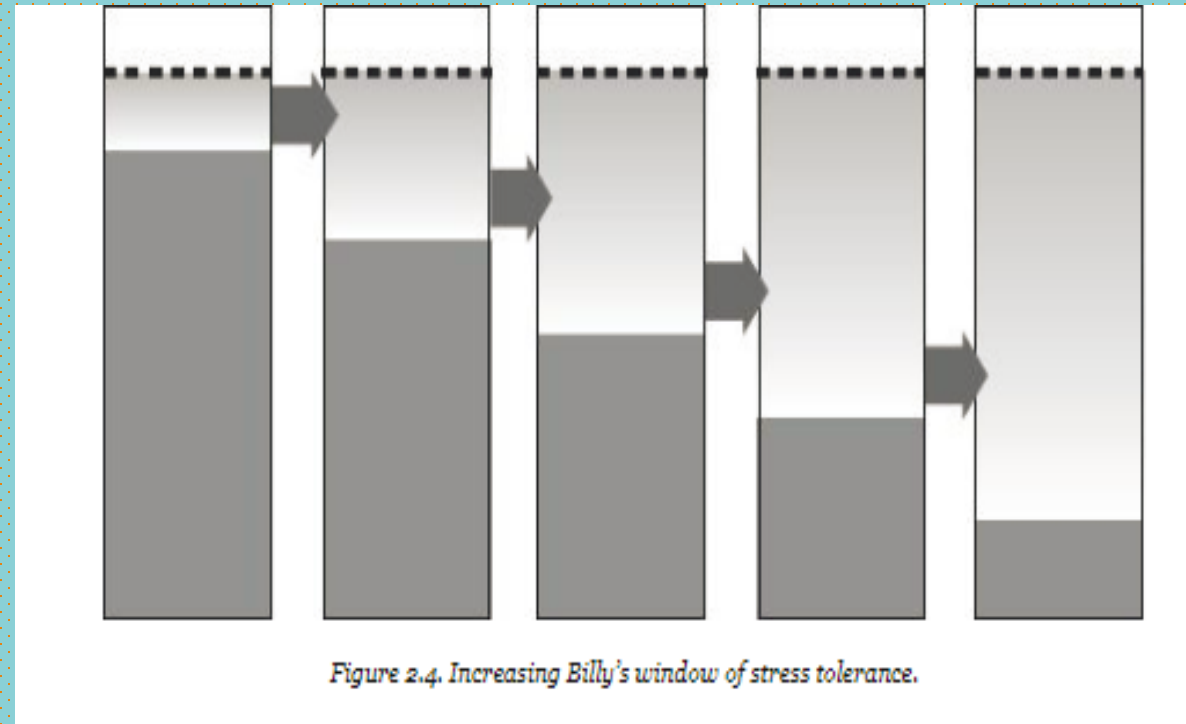
How Schools Can Help

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Children have flexible neurological pathways

- Can adapt to positive or negative experiences

(Craig, 2016; Forbes, 2012)



Forbes, H. (2012)

How Schools Can Help (continued)

26

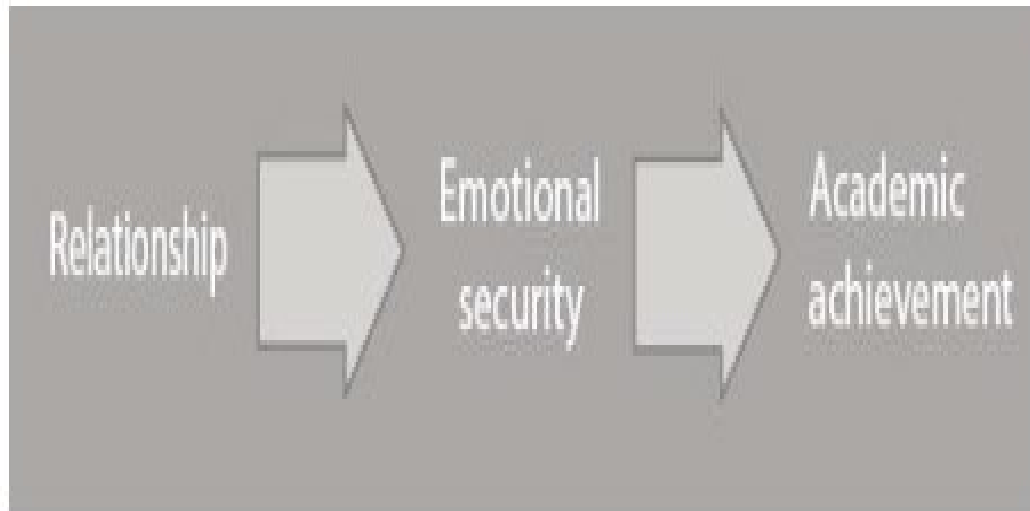


Figure 9.1. Relationship drives academic achievement.

Forbes, H. (2012)

Reprimand in private

- Eye level
- Listening thoroughly
- Grace and accountability

Sense of safety and belonging

(Cole et al. 2005 p 62; Craig, 2016, p 92)

Preventive measures with bullying

(Craig, 2016. p 96)

How Can Schools Help (Continued)

27

Create Emotional Space

- Give acceptance without solving the issue
- Ask exploratory questions to create a deeper understanding
- Allow the child to be upset without insisting the child stop being upset
- Accept that the child's reality may be skewed, and do not try to convince him/her of a different reality
- Tolerate the negative and exaggerated feelings the child is expressing for the moment to help him/her calm down
- Give understanding to the child's issue but not necessarily agree with it

How Can Schools Help

28

- Be kind, loving, safe and patient
- Listen with no agenda of teaching a life lesson – simply listen – the life lesson will come afterwards
- Validate the child's struggle without identifying what he/she needs to do differently That will come later when the child is calm and regulated
- Engage in conversation but do not force or insist on answers
- Focus on the relationship – Strive for emotional safety and stay regulated
- TRUST THE PROCESS!!!

Table 11.2. Tips for creating emotional space

Forbes, H. (2012)

My Personal Experience

29

1st - 5th, grade student
(Self)

3rd - 8th grade student
(Regulation)

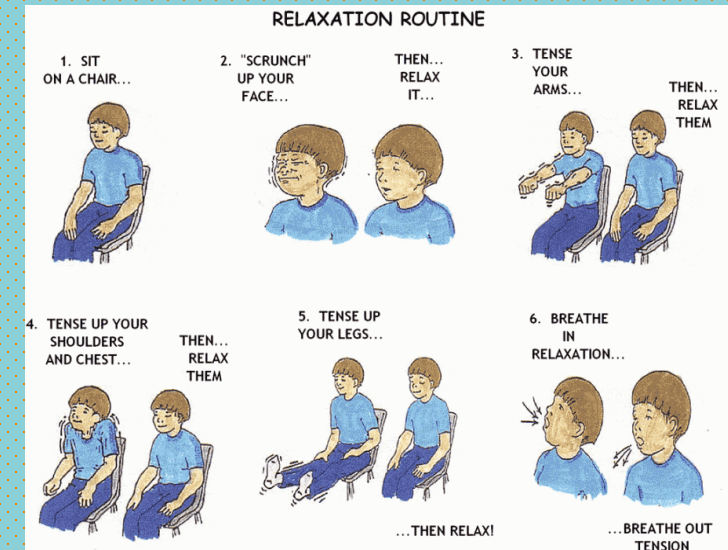
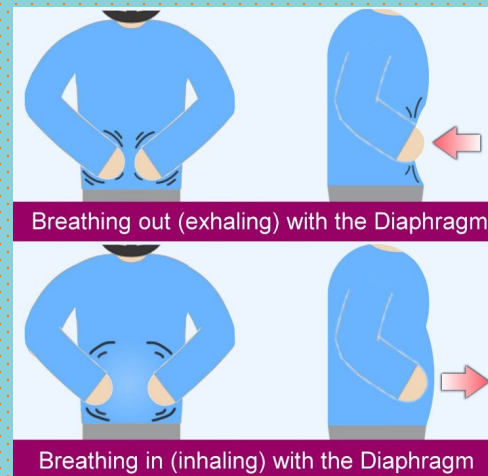


Jordan's Routine

30

Breathing techniques

Body relaxation techniques



Jordan's Routine (continued)

Mindfulness

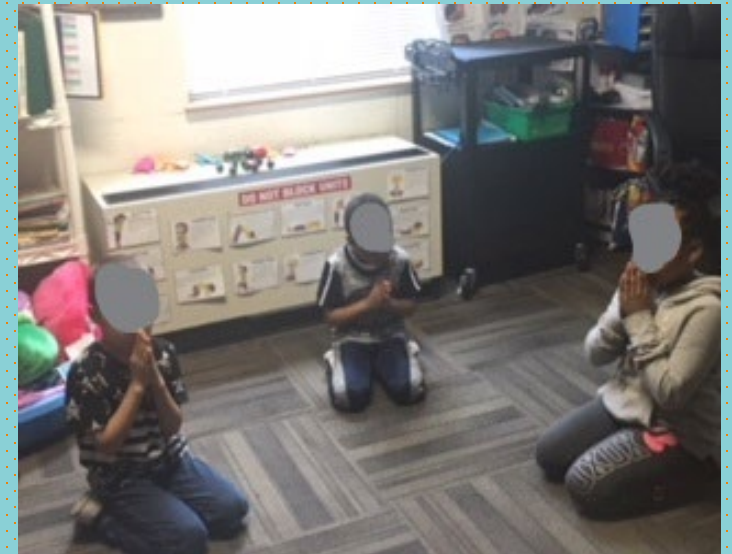
(Tools for centering and grounding yourself in the present moment)

Examples:

Meditation or relaxation recordings, grounding objects (like a rock or paperweight), yoga mat, breathing exercises.

Mindfulness Techniques
(Craig, 2016, p 77)

- Grounding the body
 - Growth Mindset
- Thinking – thoughts affect feelings which affect actions



Jordan's Routine (continued)

- Visualization techniques



Jordan's Routine (continued)

- **Additional calming supports**
(Cole et al., 2005, p 62; Craig, 2016, p 92)



Jordan's Routine (continued)

- Calming corner
 - Sensory tools

(Craig, 2016, p 38)



Jordan's Routine (continued)

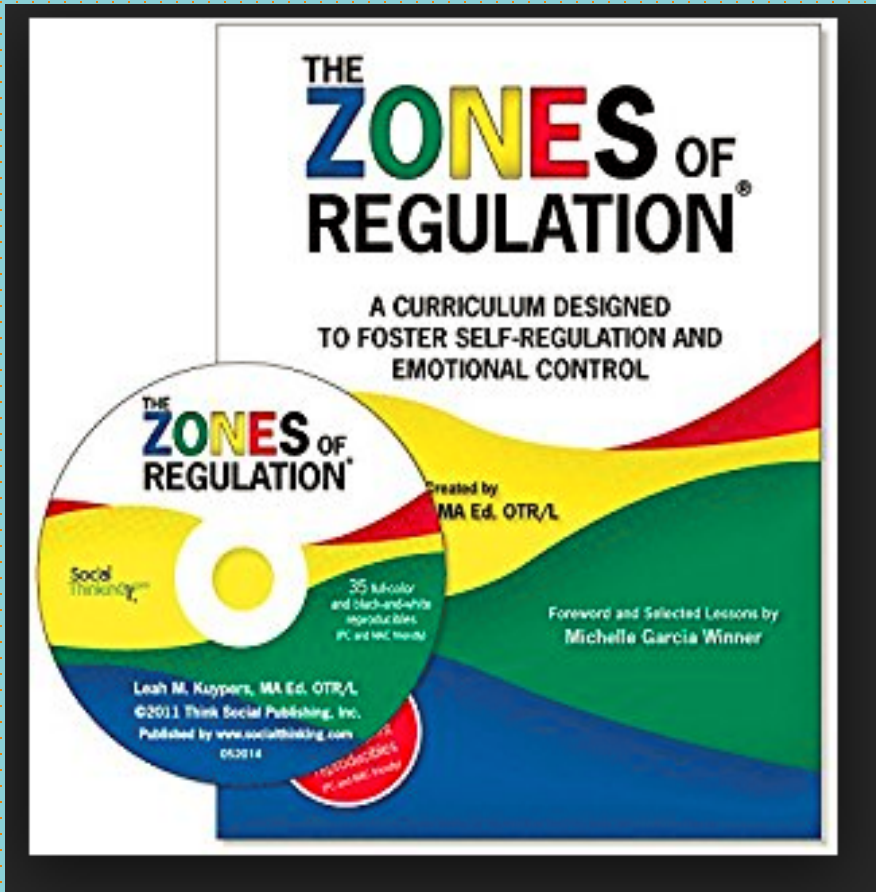


Jordan's Routine (continued)

36

Self regulation skills

by [Leah Kuypers](#)



Jordan's Routine (continued)

37

Self regulation skills







by [Leah Kuypers](#)

Jordan's Routine (continued)

38

➤ Setting realistic goals

 Blue Zone Tools: Rest Stop	 Green Zone Tools: Go Time
<ul style="list-style-type: none">• Take a break.• Think happy thoughts.• Talk about your feelings.• Ask for a hug.• Draw a picture	<ul style="list-style-type: none">• Complete your work.• Listen to the teacher.• Remember your daily goal.• Think happy thoughts.• Help others.
 Yellow Zone Tools: Slow Down	 Red Zone Tools: Stop
<ul style="list-style-type: none">• Take a break.• Talk to the teacher.• Squeeze my stress ball.• Go for a walk.• Take three deep breaths.	<ul style="list-style-type: none">• Take a break.• Squeeze my stress ball.• Take three deep breaths.• Count to ten.• Talk about my problem.

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student **SMART** goals

Specific (simple, sensible, significant).
Measurable (meaningful, motivating).
Achievable (agreed, attainable).
Relevant (reasonable, realistic and resourced, results-based).
Time bound (time-based, time limited, time/cost limited, timely, time-sensitive).

DATE: _____

goal #1	I want to _____ by _____ so I will _____ _____ to meet my goal.
goal #2	I want to _____ by _____ so I will _____ _____ to meet my goal.
goal #3	I want to _____ by _____ so I will _____ _____ to meet my goal.
goal #4	I want to _____ by _____ so I will _____ _____ to meet my goal.

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Jordan's Routine (continued)

39

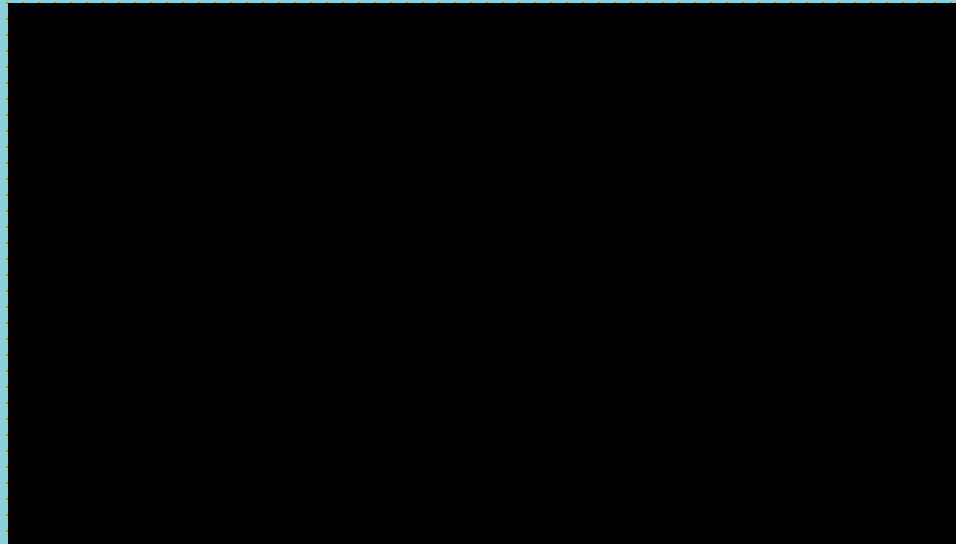
➤ Teaching social emotional learning





Just Breathe

40





Conclusion

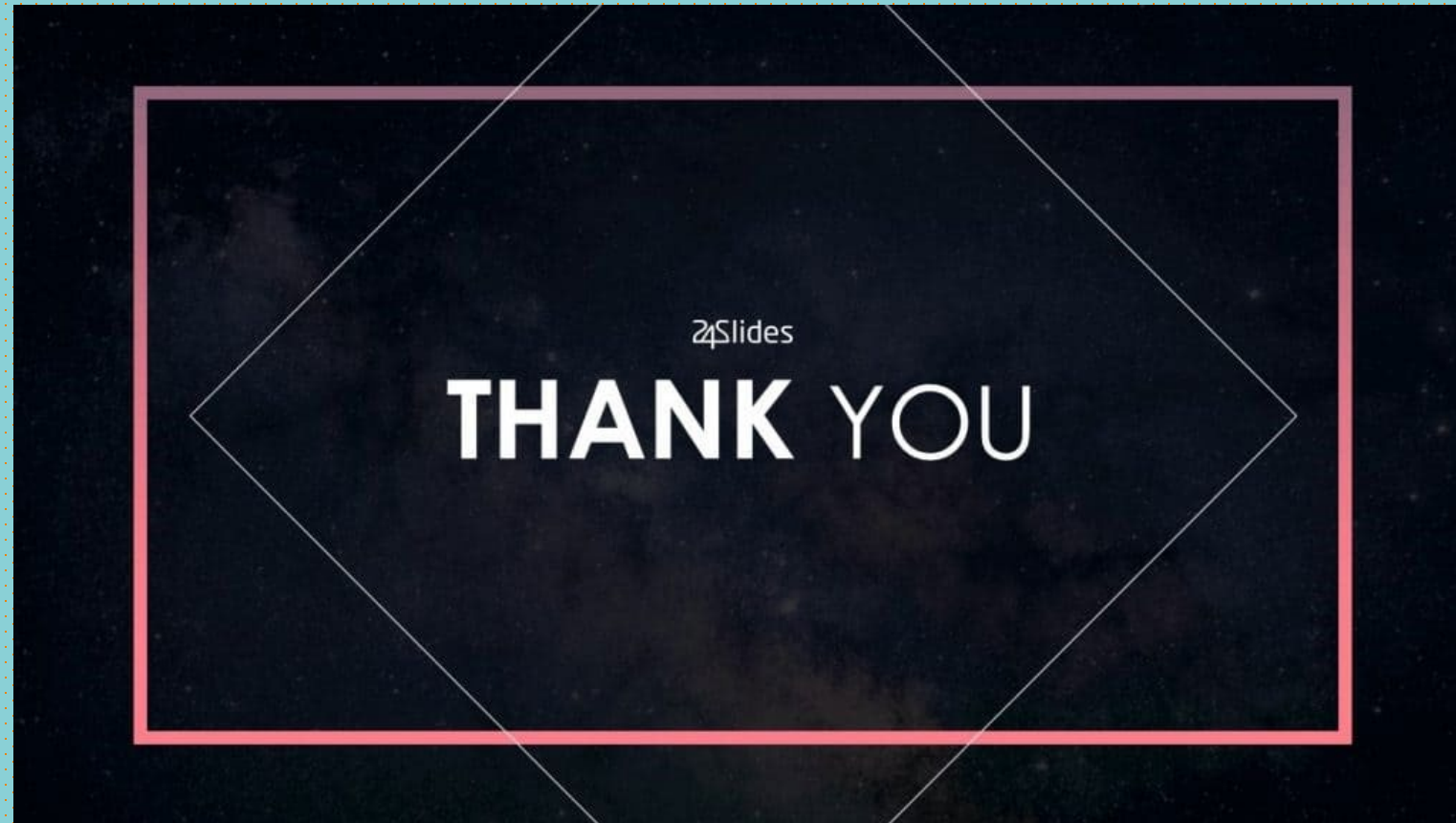
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Trauma –

- Impacts brain development
- Negatively impacts relationships
- Detrimental to academic welfare
- Weakens self regulation skillset

Schools, families, and communities can work together to counteract the adverse effects of trauma

End of Presentation



Appendix



Robert Plutchik's Wheel of Emotions

Appendix



Robert Plutchik's Wheel of Emotions

Appendix

MOVE~ Move in Space Task Cards

A heavy toy, a few books, a file to the secretary, an envelope to the custodian, an old phone book in a box, any object that the child can carry and feel they are making a special and important retrieval or delivery.

Take school mail from the office to the loading dock or from the loading dock to the office

Collect recycling from classrooms.

Chairs are an excellent beginning of the day or end of the day task but there are often areas in schools that chairs do not get moved first thing or can be put up early. These can be used for a mid-day heavy work task.

A room of paper to the copy machine, a room of paper to a classroom teacher.

Classroom books to the library. Collecting library book to return to the LMC from several rooms.

Carry and water plants in the school garden, a classroom garden or flower box for great heavy work.

Using the enlarged keyboard [or other letters & number] posted on the wall, have the child use a bean bag to throw out letters to find abc's, spell words, count to 20, or answer math problems.

Special Delivery	Paper Delivery	Book Delivery
Collect Recycling	Deliver Mail	Water Garden
Chairs up	Chairs down	Wall Writing

In the gym, empty cafeteria, auditorium, or outside space.

Count repetitions to motivate the child to try to improve skills.

5 minutes jumping can be doubled up with practice for a spelling test, multiplication tables, singing songs, or telling jokes.

If your school has a treadmill or other exercise equipment get help learning how to use it and manage kids safely if it is new to you.

Child not yet strong enough to shoot basketballs? A couple crumpled pieces of paper can substitute.

A couple laps around a designated route in school. Children are motivated to show responsibility and do this one independently.

Ad 5 -10 pound rice to make this a great heavy work task. Let the child wear a hero mask as they walk the designated route to make it more fun.

Jump Rope	Run Laps	Power Walk
Trampoline	Treadmill	Walk weighted backpack
Dribble	Dribble	Shoot Hoops

Ballon volley, keeping the balloon up in the air as long as possible, is great fun for children who lack the skills to throw and catch balls.

After the child can maintain the hoop, they can take a few steps forward and back, or 'dance' to music.

Kick the ball ahead of you to make gym laps more interesting.

Five minutes of intense throwing or dribbling can be a great aerobic activity for some.

Five minutes of intense dancing to a favorite tune can help get the wiggles out and bring joy to a sad heart.

Helping the custodian or a favorite teacher clean can help the child feel valuable and build esteem and positive recognition from peers.

Ballon Volley	Shoot Hoops	Dance
Kick	Dribble	Clean

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Appendix



Appendix

WORK~ Move in Place Task Cards

One count = one second. Gradually increase count over time.

Hold this pose for as long as is comfortable, you can talk about where the eagle is flying, in order to encourage a good stretch, do one pose on both sides, then move onto a second pose.

Balance challenged children should keep their toes on the ground so they can hold the pose, they can also lean against a steady object. Have them look at an eye-level place on the wall to improve focus and balance. Do pose on both sides.

Twist trunk rather than neck. Hold this twist for a comfortable amount of time on both sides and then do a second yoga pose.

This is a power pose. The child's thigh is on a low chair, not their bottom. Work on maintaining visual focus on an eye-level place on the wall. Do pose on both sides.

This is a challenging one. Here is a great subtle and strong self-regulation task that can be used in the classroom.

The 'Press Here' poster and hand prints can be used. Have fun making believe with the child 'hold back the river' hold up the wall, 'protect the fortress from evil' ...

This done in combination with tall sitting on the floor with V sit stretch is a good counter position.

Count seconds holding the pose and repetitions rather than trying to move onto push ups.

Contract - relax is an effective strategy for some children to learn self awareness of their muscle state and learn to change it by controlling the extremes. Both 'Lemon Squeeze' and 'Tense and Relax' are example of this.

Make this a longer - deeper task by doing 10 repetitions at hands, then toes, hands, toes and so on.

Make this a longer - deeper task by doing 5 repetitions at hands, then elbows, arms, feet, knees and toes.


Repetitions can be counted pushing forward and then the feet moved to the front and pulling back under their seat.

Singing might be all a child can manage if they have just done a hard workout.


Singing can bring joy and comfort to one who is feeling down.

Singing can be added into other Move in Place tasks to help make them longer.


Establish a specific routine based on OT, PT, or PE teacher recommendations.




Eagle Pose




Tree Pose




Chair Twist




Power Pose




Hero Pose




Chair Push Up



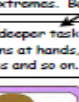
Push Pose



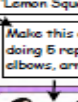
Wall Sit



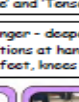
Wall Push



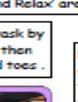
Lemon Squeeze




Fingers & toes




Tense & Relax



Chair band push



Sing



Lifting Weights

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Appendix




Appendix

BREATHE~ Using BreathTask Cards


SEE POSTER

Practice awareness of breath by having the child place their hands on their tummy when sitting or laying on the floor. Encourage them to focus on counting breaths and noticing how this can calm their body and mind.


Pretend each finger is a candle, and blow out one candle at a time.



Count by 5s to ____




Count by 10s to ____




Count to ____ and back to 1.

Counting may be possible before counting breaths is.


Learning to wear headphones can be vital for kids who are sound sensitive or whom need deep pressure on their heads. If they are not able, start with a 5 second expectation, followed by a pleasant activity. Over time make this part of the routine and gradually increase the time worn. Once the child has accommodated to the feeling of headphones, they are more likely to be able to use them to avoid sensory overload in class, at lunch, or at assemblies.




Listen to music




Wear headphones




Peanut Butter & Jelly Sandwich




Pet an animal



Tent Time
quiet, no talking



Weighted Blanket
Quiet - no talking



Wrap in blanket
no talking


Using headphones to listen to a favorite story or music is a great way to practice the skill of wearing headphones.

PB & J is a deep pressure technique. If you have children who frequently seek sensory input, want to crash into things, seek deep pressure, always want hugs, or have a hard time staying in their own body space you may want to try this pressure rolling with a therapy ball. Be sure to apply moderate pressure, but the let the child ask for more or less pressure. One way to engage children is have the child make pretend choices and the adult spreads on the child's choice: SEE POSTER


Pretending you are loving on a favorite pet can be cathartic. Try modeling "nice kitty, I am here for you, I will care for you, what do you need?"

Weighted blankets can be hugely helpful for some children. If you have children who seek deep pressure, always want hugs, or have a hard time staying in their own body space you may want to try weighted blankets, heavy lap blankets, shoulder wraps or weighted vests.


Mountain Breathing
Breathe in through nose, blow out slowly down.



Infinity Breath




Blow ping-pong




Blowing with lips or through a straw can be done on the fly using whatever materials you might have on hand. You might try a ping-pong ball or a crumpled piece of paper.

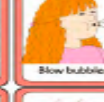
Balloon Breath



Blow feathers with a straw

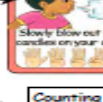


Blow bubbles

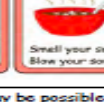


Model and encourage long, slow, and deep breaths in.

Slowly blow out the candles on your cake



Smell your soup
Blow your soup



Model and encourage slow and controlled blowing. Try engaging the child in the soup pretend by asking "What is the soup of the day?" "Chicken noodle, or Roasted red pepper?"

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Appendix



Appendix

