Strengthen Executive Function with 20 Brain Coaching & Cognitive-Motor Activities to Improve Self-Regulation, Attention, Memory and Response Inhibition in Children and Adolescents

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Workshop Overview

- Importance of Executive Function
- The Ready To Learn Brain
- Co-Existing Conditions Data Integration
- Cognitive Motor Movement
- Brain Lessons
- Cognitive Skill Coaching & Motor Integration

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We are Here to Shift the Trajectory of Children's Learning

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Disclosures

Dr. Kenney is a pediatric psychologist in the State of Arizona practicing on an intensive language and executive function treatment team at Wellington-Alexander Center for the treatment of Dyslexia, ADHD, Dyscalculia, and Dyspraxia.

As the author and co-author of five books, Dr. Kenney receives royalties from three publishers. Dr. Kenney develops executive function curriculum and cognitive-motor physical activity programs that are used worldwide. She is the creator of the CogniSuite™ Collection and co-creator of CogniMoves®. Dr. Kenney co-developed the first executive function and self-regulation roll-out mat, Cognitivities™ with Fit and Fun Playscapes.

Dr. Kenney's primary income is from clinical practice, teaching, and product sales. The products mentioned in this presentation are not sponsored. Resources are shared for your benefit and the well-being of those with whom you work.

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OBJECTIVES: Cognitive Skill Coaching

Learn	Learn about the critical relationship between executive function skills and academic achievement.
Explore	Explore the research regarding co-existing diagnoses including dyslexia, dyspraxia, dyscalculia, ADHD, and ASD from a data-based perspective.
Improve	Improve how children learn by teaching them how their brains work.
Learn	Learn how to teach children to improve their self-coaching skills with research-based activities to improve attention, memory, planning, organization, time management, cognitive flexibility & self-regulation.
Learn	Learn how to use narrative, declarative, and imperative language with students to support cognitive skill development.
Learn	Learn how to have the "cognitive conversation" about executive function skills including self-control, attention, memory, and cognitive flexibility with your students.

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OBJECTIVES: Cognitive-Motor Skill Development

Practice	Practice the CogniSuite™ cognitive-motor activities to alert the brain and engage executive function skills.
Learn	Learn the importance of Tempo, Rhythm and Timing in strengthening cognition and self-regulation.
Learn	Learn how to build intentional motor sequences.
Learn	Learn the importance of beat competency.
Learn	Learn how to co-create with your students.
Practice	Practice sequence development with varying levels of difficulty.
Teach	Teach children the "felt-sense of slowing down" with Cognitivities™.

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Let's Begin with Weight Shift, Posture and Core Strength

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The Ready Position Song

PreK-4th SAM Songs Self-Control Attention Memory The Kinetic Classroom

The Ready Position Song

Head Shoulders Hips and Knees
Hips and Knees
Head Shoulders Hips and Knees
Hips and Knees

Chin up tall
Belly in and
Tailbone down

Head Shoulders Hips and Knees
Hips and Knees

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Cognitive-Motor Warm-Up

R L R R

L R L L

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The Morning Program

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The Importance of Executive Function

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Executive Function Predicts Achievement

For many students, Executive Function Skills and Self-Regulation are more powerful predictors of reading and math achievement than IQ or Socio-Economic Status.

Empirical research demonstrates that the development of executive functions during childhood plays a central role in school readiness, academic achievement, social-emotional development, and life-long success.

See Mulder, et al. 2017; Blair and Razza, 2007; Bull et al., 2008; Clark et al., 2010; Geary et al., 2012; Cortés Pascual et al., 2019; McClelland et al., 2021.

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Executive Function is Central to Immediate & Life-Long Success

- Increased school readiness
- Better performance in reading and math
- More stable relationships
- Less risk-taking behavior
- Better job performance
- Better productivity
- Better physical health
- Higher graduation rates
- Higher income

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What is Executive Function?

Executive Function is a collection of self-regulatory control processes that are divided into core domains of working memory, inhibition, control of attention, and cognitive flexibility. Healthy executive functioning helps us to be adaptive prosocial human beings.

Executive Function includes metacognitive and functional abilities that increase awareness and conscious control of our thoughts, feelings and actions.

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What are Executive Function Skills?

Executive function skills are essential for planning, executing, and monitoring goal-directed behavior, and are therefore central to problem-solving and learning.

EF is associated with core academic achievement in reading, math, science, and social studies for typically developing children as well as those with special needs.

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Working Memory: the ability to hold information in mind for recall and application
Cognitive Flexibility: the ability to think about something in multiple ways, flexibly shift the focus of one's attention, and generate multiple solutions to a problem
Inhibitory Control: the ability to inhibit fast and unthinking responses to stimulation

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How to Develop Executive Function Skills

The current neuroscience in education research shows us there are four evidence-supported non-pharmacological ways to enhance executive function skills:

1) Cognitive Skills Coaching
2) Digital Therapeutics
3) Neurofeedback
4) Cognitive-Motor Movement

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We integrate executive function coaching skill development tools and cognitive-motor activities to engage Self-Regulation, Executive Function, Learning, and Behavior.

Cognitive Skills Coaching
Increase metacognition, self-regulation, attention, memory, planning, organization, and more.

Cognitive-Physical Activities
Improve motor-cognition

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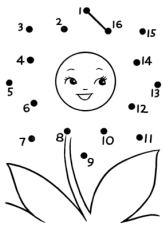
Neuronal Highways

- Pathways to Highways.
- Repetition and Practice.
- Highways improve learning and behavior. "Let's make this easier."



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WE ARE MUSICAL

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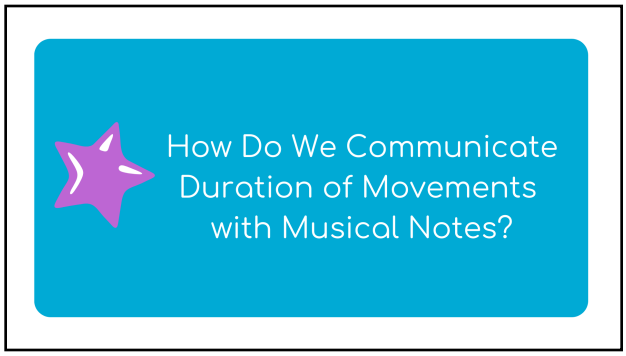
How Do We Communicate Duration of Movements with Musical Notes?

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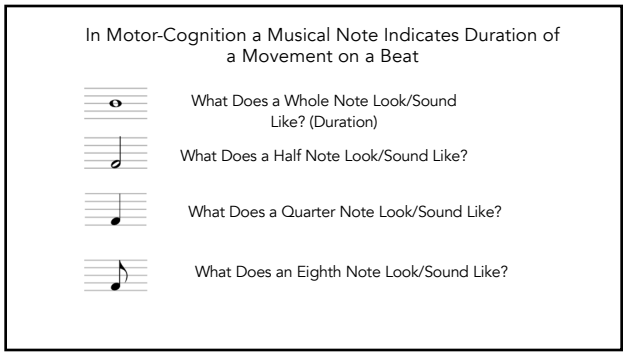
In Motor-Cognition a Musical Note Indicates Duration of a Movement on a Beat
What Does a Whole Note Look/Sound Like? (Duration)
What Does a Half Note Look/Sound Like?
What Does a Quarter Note Look/Sound Like?
What Does an Eighth Note Look/Sound Like?

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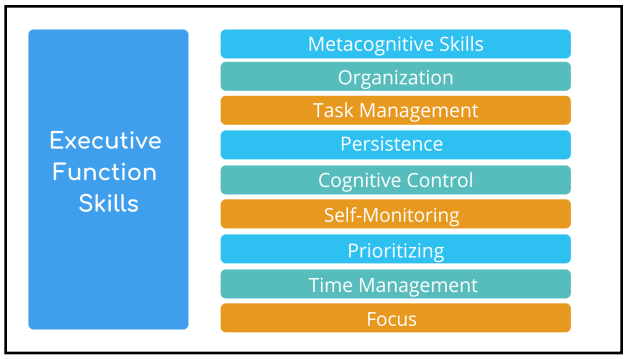
Executive Function Skills
Metacognitive Skills
Organization
Task Management
Persistence
Cognitive Control
Self-Monitoring
Prioritizing
Time Management
Focus

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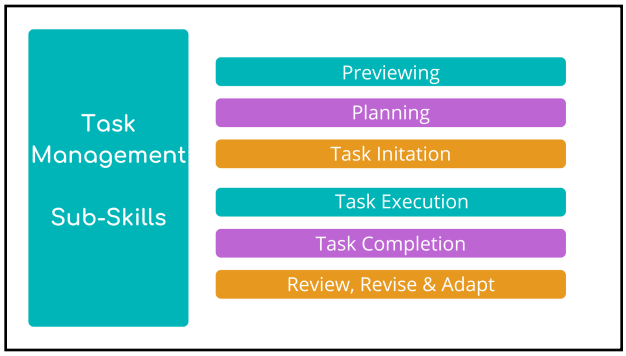
Task Management
Sub-Skills
Previewing
Planning
Task Initation
Task Execution
Task Completion
Review, Revise & Adapt

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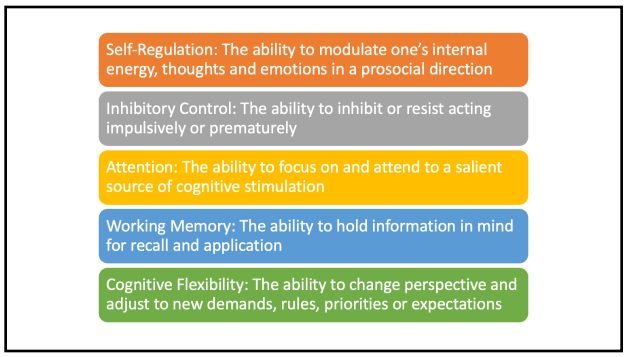
Self-Regulation: The ability to modulate one's internal energy, thoughts and emotions in a prosocial direction
Inhibitory Control: The ability to inhibit or resist acting impulsively or prematurely
Attention: The ability to focus on and attend to a salient source of cognitive stimulation
Working Memory: The ability to hold information in mind for recall and application
Cognitive Flexibility: The ability to change perspective and adjust to new demands, rules, priorities or expectations

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Classroom Impact – Academics & Behavior

- Self-Regulation supports **impulse management and cognitive control** strategies.
- Attention facilitates **attending to salient details** and ignoring irrelevant stimuli or distractions.
- Patterning and sequencing underlie reading fluency and numeracy.
- Working Memory aids children in holding information long enough to **turn salient information into knowledge**.
- Cognitive Flexibility supports a child's ability to **adapt to changes** in expectations, rules, or priorities.
- Executive Function Skills support coordinating specific reading processes including decoding, encoding, retrieving information, supporting mental imagery, and simultaneously coordinating reading processes.

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Classroom Impact - Motor Skills

- **Balance, Posture and Weight Shift** lead to cognitive and motor fluidity and efficiency in the classroom.
- **Core and Shoulder Strength** support posture related tasks such as writing, drawing, reading, using manipulatives, and completing worksheets.
- **Motor Tempo, Rhythm and Timing** support approach to tasks, organization, attention, memory, and reading prosody.
- **Vestibular strength** facilitates attention, visual tracking, awareness in space, and body management.
- **Graphomotor skills** support cognitive output.

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Fitness, Cognition & Achievement

Fitness & Standardized Testing: Physically fit children demonstrate greater attentional resources, have faster cognitive processing speed, and perform better on standardized academic tests. Source: Educating the student body.

Fitness & Executive Function: A growing body of research in children and adults indicates that higher levels of fitness are associated with better control of attention, memory, and cognition (Colcombe and Kramer, 2003; Hillman et al., 2008; Chang and Etnier, 2009).

Fitness & Cognitive Efficiency: The cognitive efficiency seen in higher-fit children, is a predictor of arithmetic and reading aptitude independently of IQ and school grade (Hillman et al., 2012).

Fitness & Mental Health: Fitness is also associated with less depression and anxiety, (Kandola et al., 2019).

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The Ready to Learn Brain:

Developmental Precursors to Learning

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? A 4-6 year old is ready to learn when …

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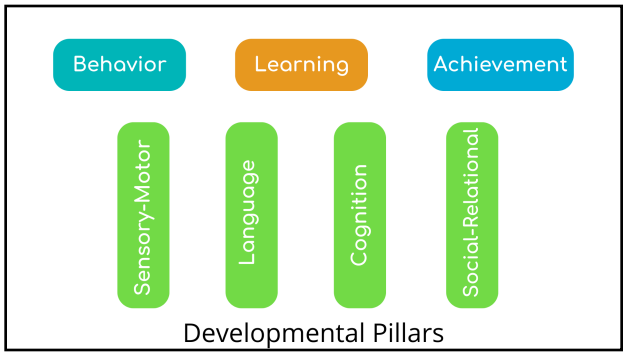

Developmental Pillars

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Before the 1990's	Late 1990's - 2024
Balancing on rocks, train tracks and trees Creating and running obstacle courses Hours of digging building and tunneling Hours of imaginary play Jumping into lakes Jumping off swings Jumping rope Playing on the floor Playing in nature Playing independently outdoors Playing hand games Singing rhyming songs Swinging on a rope Swing upside down from trees Taking physical risks	Fewer family meals Less free time Less opportunities for sensory activities Less opportunities for vestibular activities Less physical movement Less time outdoors Less unstructured time with family More isolation with digital devices More sitting More structured and scheduled play Screen time further rose during the pandemic and has remained high On average, **children** ages 8-12 in the United States spend 4-6 hours a day watching or using screens, and teens spend up to 9 hours, AACAP, 2024

Sources: Pew, 2018; CHILDWISE, Connected Kids 2015; Souza, 2017; Common Sense Media, 2020; Nakshine et al., 2022

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Predictors Early Years Success

Early Academic Building Blocks and Executive Function are particularly predictive of later success

- Highly predictive language precursors include vocabulary, phonological awareness, and letter knowledge (Overdeck Family Foundation).
- Early academic skills include basic literacy (e.g., being able to recognize letters, phonemic awareness) and numeracy (e.g., knowledge of numbers and understanding the order of numbers) abilities that position a child to learn from formal instruction (Duncan et al., 2007).
- Learning-enhancing behaviors include attending to classroom activities, following classroom rules, working cooperatively in groups, and persisting at academic tasks, Rabiner et al., 2016 p. 250.

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Fundamental Motor Skill Deficiencies

- **77% of preschool-age American children** were considered at-risk for developmental delay (scored at or below the 25th percentile), Brian et al., 2019.
- Rainer and Jarvis 2020, showed that the overall FMS proficiency levels of Welsh children aged 10 to 11 years were low, with fewer than 10% of both boys and girls demonstrating complete mastery in any of the FMS.
- O'Brien et al. 2016, found that overall skill performance among Ireland adolescents aged 12 and 13 is low, highlighting the fact that almost **90% of students did not achieve mastery level in locomotor skills** (e.g., running, skipping, jumping) or that only 11% of students in their study displayed advanced FMS proficiency.
- The FMS proficiency of Australian children aged 9–15 was also identified as low by the authors of a 13-yr report of motor competence, highlighting the fact that vertical jump performance significantly decreased from previous assessments Hardy et al., 2013.
- Considering the low levels of FMS globally, it seems that more awareness-raising activities among policymakers, teachers and parents are needed, Makaruk et al., 2023.

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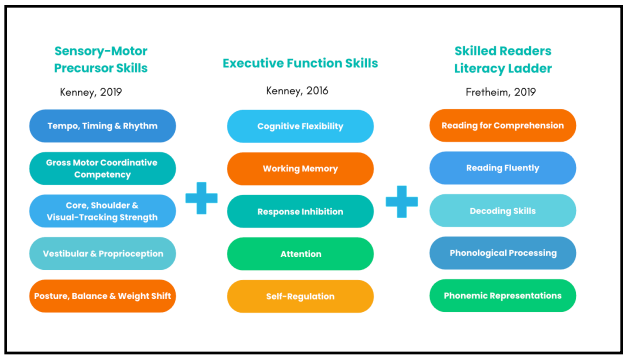

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- The cognitive load theory posits that children possessing **robust motor skills** within the classroom environment are not compelled to allocate attentional focus, resources, or energetic exertion toward behavioral endeavors.
- Children endowed with **robust attentional stability, self-regulation, and operational memory may engage effortlessly** in novel and intricate educational tasks.
- These explanations emphasize the significance of examining the link between motor skills and academic achievement, as well as determining whether this association is limited to specific types of skills, (Wang & Wang, 2024).

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Cogni Suite™

CogniTap | CogniBall | Movimals

Think-Ups | CogniBags | Brain Primers

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Cogni Suite™

- We move in time on the beat together
- We begin in 4/4 Time
- Measures 2, 3 or 4 (8, 12, 16)
- Rhythmic Phrases are 16 beats
- Choose a pattern
- Choose a tempo
- Practice makes progress

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LET'S FIND THE BEAT

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Let's Count

1 2 3 4

1 2 3 4

Foundational Lessons

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Let's Clap on Beat 4

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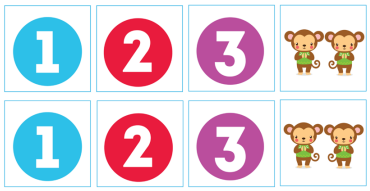
Let's Clap Clap on Beat 4



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Let's Stomp Right, Left

45

Let's Clap & Stomp Right, Left

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Don't Forget to Pause

PAUSE

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BEAT COMPETENCY LESSONS

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REVIEW:
Simple Ways to Assess Beat Competency

- Can Everybody Count?
- Can Everybody Clap?
- Can Everybody Pause?
- 1 2 3 Something

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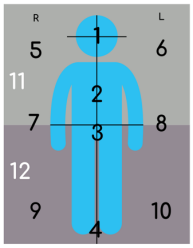

Kenney Movement Quadrants

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CLAP

PAT

STOMP

CLAP CLAP

CLAP PAT

LASSO

1 2 3 Something

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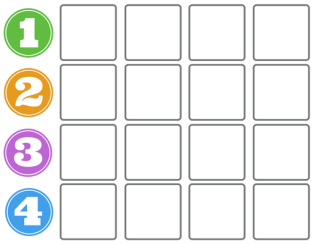

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How Important is Your Cerebellum?

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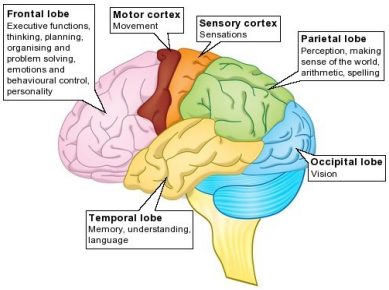

The Learning Brain

Source: https://www.hydrocephalusscotland.org.uk/content/cognition/

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Cerebellum

The cerebellum is the powerhouse of the connections between the cognitive and motor systems.

The cerebellum only accounts for about 10 percent of your brain's total size. Yet is contains up to 80% of the brain cells in your brain.

The cerebellum is involved in the major brain structures that process language, motor and cognitive skills. In fact, the cerebellum is connected to every area of the cortex except the parts of the occipital lobe where low-level visual processing occurs.

The cerebellum is responsible for balance, coordinating motor movements, visual control, language processing, and cognition.

The cerebellum determines verbal fluency (both semantic and formal) expressive and receptive grammar processing, the ability to identify and correct language mistakes, and writing skills, Starowicz-Filip et al. 2017.

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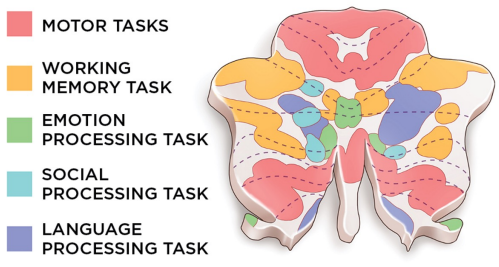

Source: https://www.the-scientist.com/features/the-multitasking-cerebellum-roles-in-cognition-emotion-and-more-70349

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Executive Function Assessment & Data Integration

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Executive Function Skills Developmental Progression

Foundational Skills as Early as Age 18 months

- Response Inhibition
- Self-Control
- Working Memory
- Emotional Control
- Cognitive Flexibility
- Focused Attention
- Sustained Attention
- Previewing
- Planning
- Task Initiation

More Advanced Skills Ages 6 and Above

- Organization
- Prioritization
- Planning
- Goal-Directed Persistence
- Time Management
- Metacognition (self-assessment, self-monitoring, monitor change, problem solving)

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Executive Function impairments are observed in neurodevelopmental disorders, such as Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorder (ASD), Specific Language Impairment (SLI), developmental coordination disorder, and dyslexia. When we improve executive function skills in children with learning, attention, and developmental challenges we improve their lifelong success.

See: Center on the Developing Child at Harvard University, 2011; Blair & Razza, 2007; Benson et al, 2013; Diamond & Ling, 2016; Masten, et al. 2012; Obradovic, 2010 (as cited in Zelazo, et al. 2016); Sciotti, et al. 2019.

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Executive Function Deficits Exist Across Diagnoses

- Executive function is a broad group of mental skills that enable people to complete goal-directed tasks and interact in a socially appropriate manner with others.
- An executive function disorder can impair a person's ability to organize themselves and properly manage their own behavior. However, executive function disorder is not a specific standalone diagnosis or condition in the DSM-V.
- Executive Function Deficit ICD 10 R41.844 executive function dysfunction or executive function deficit is a disruption to the efficacy of executive functions which is a group of cognitive processes that regulate, control and manage other cognitive processes.

Source: Medial News Today

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Co-Existing Conditions

More than 80% of the population diagnosed with ADHD has a comorbid condition, Lino & Chieffo, 2022.

Patients with ADHD often have difficulties in coordination and motor programming just as children with DCD show greater impulsivity and difficulties in inhibitory control, Lino & Chieffo, 2022.

Nigg et al., 2005 observed that almost 80% of children with ADHD exhibited a deficit in at least one EF, while this only occurred in 50% of children with typical development (TD).

50% to 80% of children with ADHD or Dyslexia have co-existing diagnoses with 25%-40% meeting criteria for both ADHD and Dyslexia, Boada et al., 2012.

Developmental coordination while existing in 5-6% of the population exists at substantially higher rates 50%-80% in children with ASD, ADHD and Dyslexia.

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What is already screened?

- Reading deficits
  - Phonological awareness
    - Phonological Awareness Literacy Screening (PALS)
    - Dynamic Indicators of Basic Early Literacy Skills (DIBELS)
  - Decoding and Word Recognition
    - Word Identification and Word Attack subtests
    - Woodcock-Johnson Tests of Achievement
    - Test of Word Reading Efficiency (TOWRE)
  - Reading Comprehension
    - Gray Oral Reading Test (GORT)
    - Comprehensive Test of Phonological Processing (CTOPP)

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What is already screened?

- Math skill Deficits
  - Number sense
    - Test of Early Mathematics Ability (TEMA)
    - Number and Operations Subtest of Woodcock-Johnson Test of Achievement
  - Calculation skills
    - KeyMath Diagnostic Arithmetic Test
    - Kaufman Tests of Educational Achievement (KTEA)
  - Math-Problem-Solving
    - Mathematical Problem Solving subtest of the Wechsler Individual Achievement Test (WIAT)
    - Test of mathematical abilities for gifted students (TOMGAS)

We are NOT screening for

attention, working memory, self-regulation, cognitive flexibility, and impulsivity!!

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Skills To Consider Assessing

- AUDITORY PROCESSING
- ABILITY TO VISUALIZE
- APPROACH TO TASK
- BALANCE/WEIGHT SHIFT
- COGNITIVE CONTROL
- COGNITIVE FLEXIBILITY
- CORE STRENGTH
- DECISION MAKING
- DISTRACTIBILITY
- EMOTIONAL OVEREXCITABILITY
- EMOTIONAL REGULATION
- EXPRESSIVE LANGUAGE
- FINE MOTOR SKILLS
- FOCUSED ATTENTION
- GAIT
- GIFTEDNESS
- GROSS MOTOR SKILLS
- LANGUAGE COMPREHENSION
- MANAGEMENT OF MATERIALS
- MOTOR TIMING
- NUMERACY
- ORGANIZATION
- ORTHOGRAPHIC MAPPING
- PACING
- PHONEMIC AWARENESS
- PHONOLOGICAL PROCESSING
- PLANNING
- PREVIEWING
- PROBLEM-SOLVING
- READING COMPREHENSION
- READING FLUIDITY
- RECEPTIVE LANGUAGE
- RESPONSE INHIBITION
- SELF-REGULATION
- SELF-CONTROL
- SENSORY OVERSTIMULATION
- SENSORY UNDERSTIMULATION
- SEQUENTIAL PROCESSING
- SIMULTANEOUS PROCESSING
- SUSTAINED ATTENTION
- TASK INITIATION
- TASK COMPLETION
- TIME ALLOCATION
- TIME ESTIMATION
- TIME MONITORING
- VISUAL SEQUENCING
- VISUAL SPATIAL SKILLS
- VISUAL TRACKING
- WORKING MEMORY

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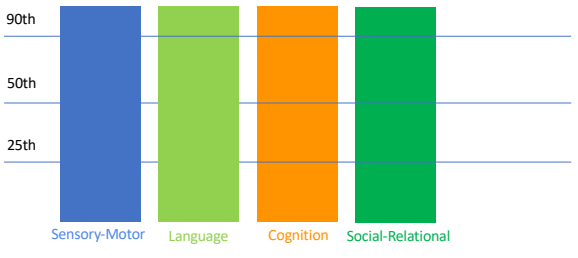
Developmental Domains Precede Learning



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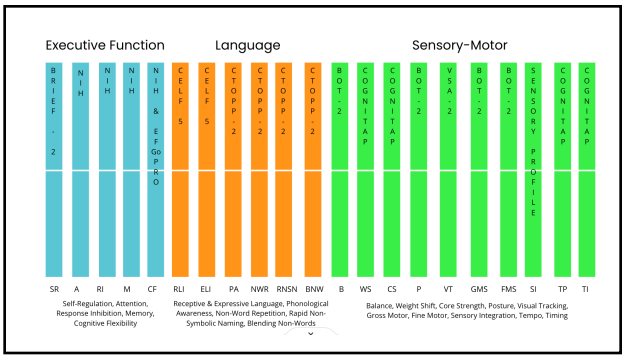

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Current Methods for Screening EF skills

- Performance-based measures
- Neuropsychological batteries
- Research-informed questionnaires

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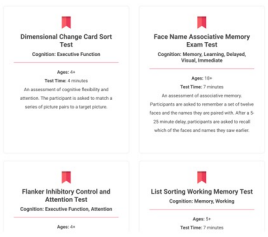
Screening Tools for Executive Function

- NIH Toolbox
- Creyos
- EFGoPro
- Brief - 2



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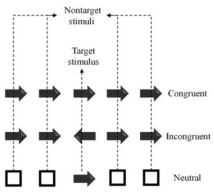
Flanker

Source: NIH Toolbox



Source: Neurocognitive Mechanisms of Attention, 2021

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EF Go Pro

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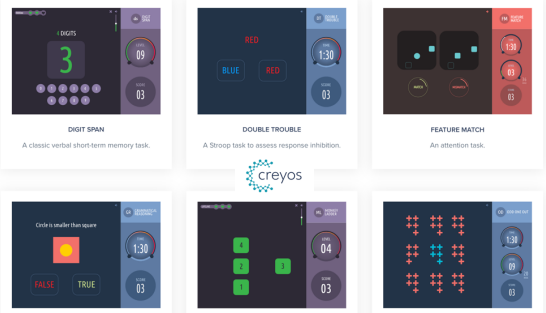

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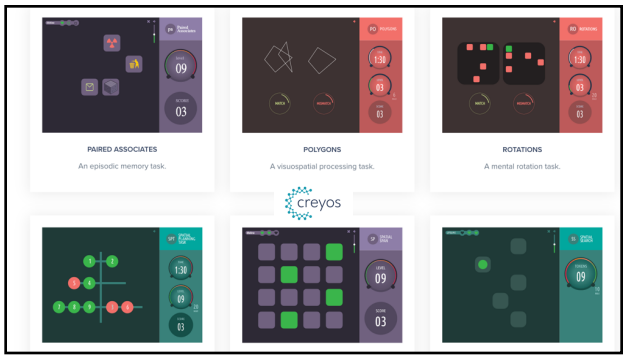

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Let's Try Some Cognitive Tasks

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Here are links to the cognitive task videos
Creyos https://www.youtube.com/@trycreyos
BART https://www.brainturk.com/bart
Flanker https://youtu.be/x2NvYsswIto
NIH Task Descriptions
https://www.nihtoolbox.org/domain/cognition/
Stop Signal Task https://youtu.be/LMCHacP3eXI
STROOP https://youtu.be/EGpzftQf8oI

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Let's Experience Attention & Memory Skills

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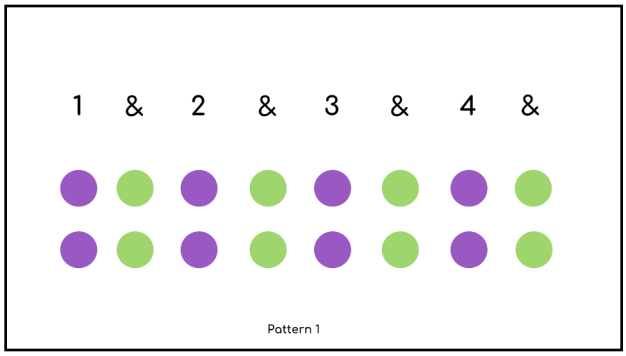

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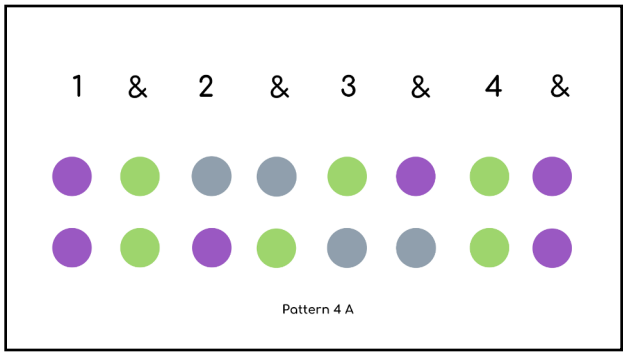

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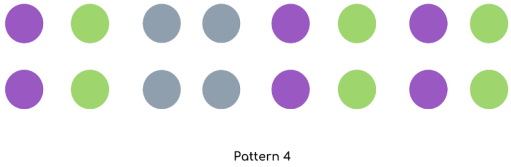
1 & 2 & 3 & 4 &

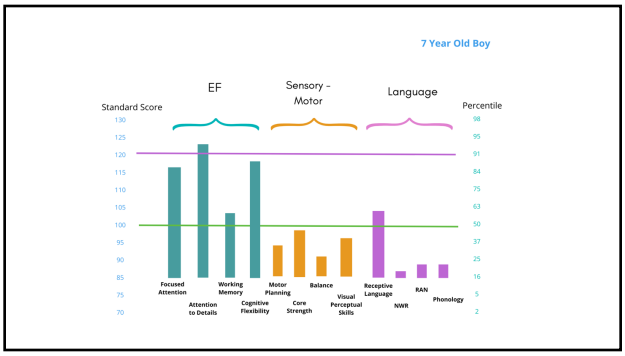


Pattern 4

79

Relationships Between Language, Motor & Cognition

80



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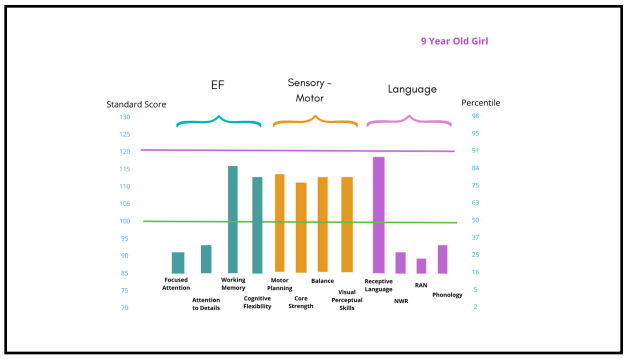

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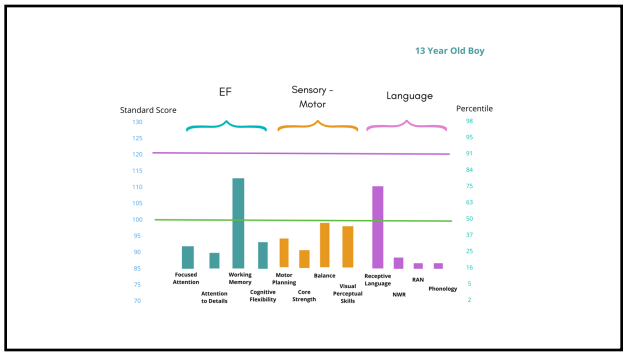
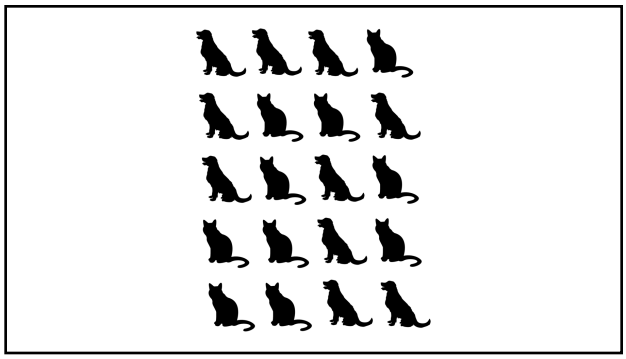


83

Let's Try a Rapid Naming Task with Movement

84



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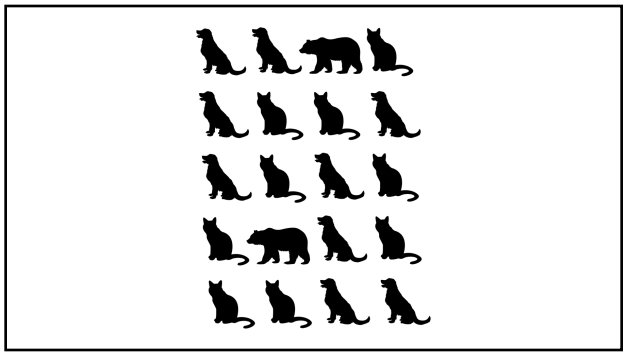

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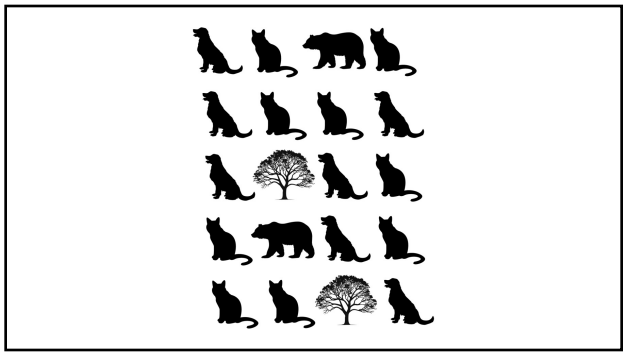

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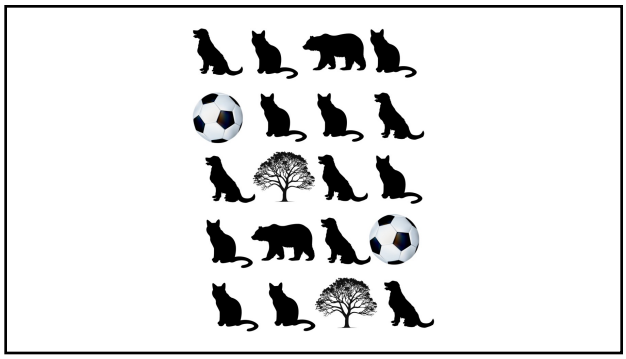
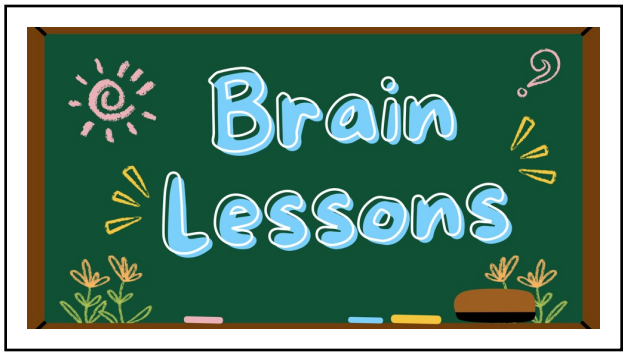


88

The Afternoon Program

89



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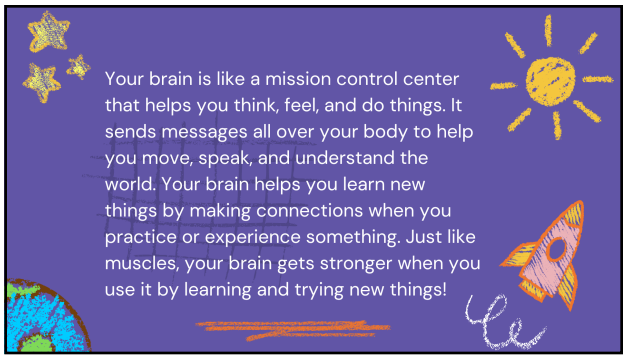
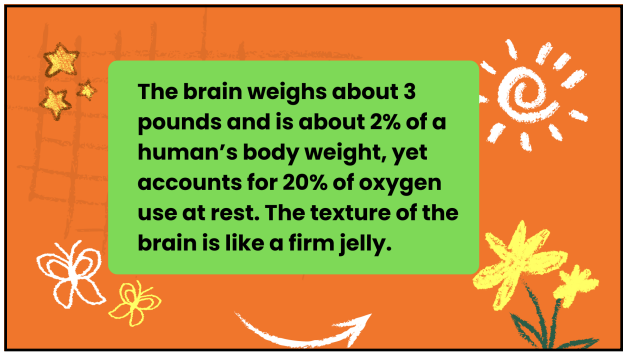
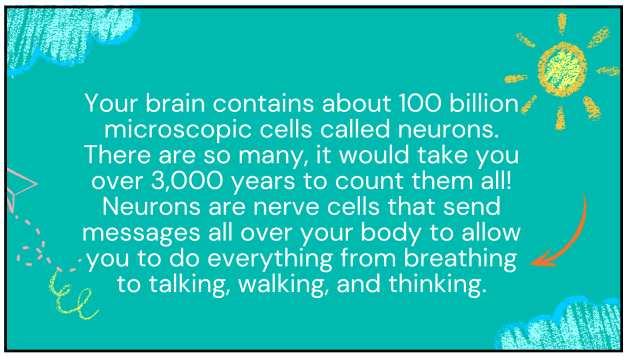

Your brain is like a mission control center that helps you think, feel, and do things. It sends messages all over your body to help you move, speak, and understand the world. Your brain helps you learn new things by making connections when you practice or experience something. Just like muscles, your brain gets stronger when you use it by learning and trying new things!

91


The brain weighs about 3 pounds and is about 2% of a human's body weight, yet accounts for 20% of oxygen use at rest. The texture of the brain is like a firm jelly.

92


Your brain contains about 100 billion microscopic cells called neurons. There are so many, it would take you over 3,000 years to count them all! Neurons are nerve cells that send messages all over your body to allow you to do everything from breathing to talking, walking, and thinking.

93

Neurons carry electrical messages from one part of your body to another. Neurons have parts called dendrites and axons that are used to communicate messages. Axons are covered in a material called myelin that helps the electrical signal move more quickly.

94

Brain Pathways
Brain Roadways
Brain Highways

95

As you practice, your brain sends messages along pathways of neurons again and again, forming new connections. In fact, the structure of your brain changes every time you learn, as well as whenever you have a new thought or memory.

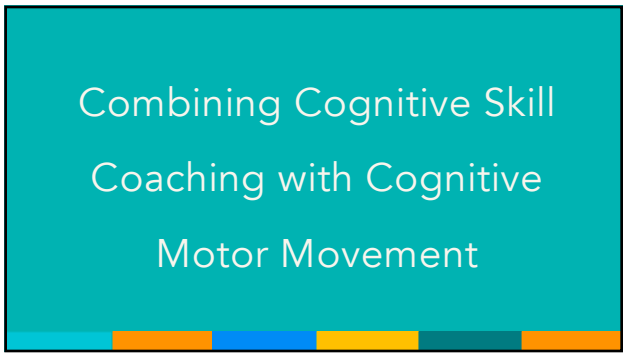
96


The THINKER
THE CAVEMAN
BOOTS

97


Executive Functions are Cognitive Skills & Cognitive Skills Can Be LEARNED

98


Combining Cognitive Skill Coaching with Cognitive Motor Movement

99

100

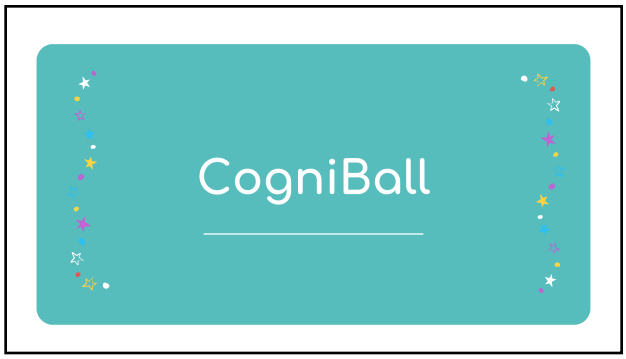
CogniSuite™

- CogniSuite is a collection of 5-7 minute cognitive-motor activities to stimulate Executive Functions, Self-Regulation Attention, Memory, Cognitive Flexibility, Organization, Previewing, Planning, and Approach to Tasks.
- As well as Balance, Beat Competency, Core Strength, Coordination, Motor Timing, Patterning, Sequencing, Processing Speed, Visual Tracking & Vestibular Strength.
- We do these activities 1:1, in small groups, or as a class, each, for 5-10 minutes at a time to stimulate executive function and motor-cognition.

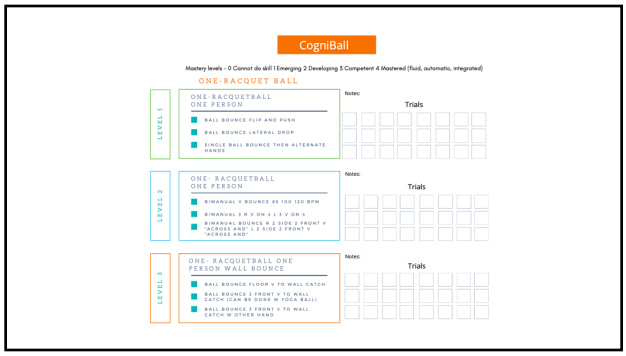
101

Let's Experience Self-Regulation, Attention, Memory, & Response Inhibition

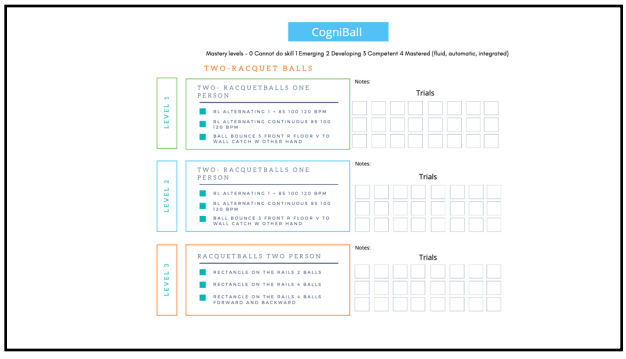
102


CogniBall

103


CogniBall
Mastery levels - 0 Cannot do skill 1 Emerging 2 Developing 3 Competent 4 Mastered (fluid, automatic, integrated)
ONE-RACQUET BALL
LEVEL 1
ONE-RACQUETBALL ONE PERSON
BALL BOUNCE FLIP AND PUSH
BALL BOUNCE LATERAL DROP
SINGLE BALL BOUNCE THEN ALTERNATE HANDS
Notes:
Trials
LEVEL 2
ONE- RACQUETBALL ONE PERSON
BIMANUAL V BOUNCE 85 100 120 BPM
BIMANUAL 2 IN V ON 4 1 3 V ON 4
BIMANUAL BOUNCE R 2 SIDE 2 FRONT V "ACROSS AND" L 2 SIDE 2 FRONT V "ACROSS AND"
Notes:
Trials
LEVEL 3
ONE- RACQUETBALL ONE PERSON WALL BOUNCE
BALL BOUNCE FLOOR V TO WALL CATCH
BALL BOUNCE 2 FRONT V TO WALL CATCH (CAN BE DONE W YOGA BALL)
BALL BOUNCE 2 FRONT V TO WALL CATCH W OTHER HAND
Notes:
Trials

104


CogniBall
Mastery levels - 0 Cannot do skill 1 Emerging 2 Developing 3 Competent 4 Mastered (fluid, automatic, integrated)
TWO-RACQUET BALLS
LEVEL 1
TWO- RACQUETBALLS ONE PERSON
RL ALTERNATING 1 - 85 100 120 BPM
RL ALTERNATING CONTINUOUS 85 100 120 BPM
BALL BOUNCE 2 FRONT R FLOOR V TO WALL CATCH W OTHER HAND
Notes:
Trials
LEVEL 2
TWO- RACQUETBALLS ONE PERSON
RL ALTERNATING 1 - 85 100 120 BPM
RL ALTERNATING CONTINUOUS 85 100 120 BPM
BALL BOUNCE 2 FRONT R FLOOR V TO WALL CATCH W OTHER HAND
Notes:
Trials
LEVEL 3
RACQUETBALLS TWO PERSON
RECTANGLE ON THE RAILS 2 BALLS
RECTANGLE ON THE RAILS 4 BALLS
RECTANGLE ON THE RAILS 4 BALLS FORWARD AND BACKWARD
Notes:
Trials

105

The Cognitive Classroom

106

Previewing

What activities are ahead of us today? (Simultaneous Processing - BIG Picture)
What are we about to do?
What will we need?
What is expected of us?
How will we know we are staying on track?

Where have we been?
What did we do?
How does what we have completed relate to our next activity?

107

Planning

Teach children to approach their work and interactions with a PLAN.
A PLAN is the way you do something.
PLANS have steps like beginning, middle and end - 1 2 3.
When you PLAN you do things in a specific order.
What is YOUR PLAN?
What will you need to complete your plan?
What will you do in what order?
How will you know that you followed your PLAN?

108

Attending

We focus on one thing at a time.
What are we focusing on?
How will we know we are focusing on important details?
What is a distraction?
How will we ignore distractions?
How will you know you are alert and focusing on what is important?
What will you do to sustain your focus over time?
If you lose focus, what will you do?

109

Active Listening

Active listening is paying full attention to the person, place, thing or activity.
Listen to understand not to repond.
Tell yourself (or write down) what is important.
Focus on relevant information.
Show interest by looking at the speaker or the task.
Ask yourself "Do I need to change something to be able to listen better? "

110

Using Prior Knowledge

What am I learning now?
What do I already know about this topic?
How does what I know relate to the new information?
How can I use what I know to remember this new information?
How do the pieces of this new knowledge fit together with what I already know?
What questions do I have?

111

Self-Monitoring

Self-Monitoring is paying attention to what I am saying, thinking or doing.
Am I taking my time and doing my work carefully?
Am I rushing?
Am I being accurate?
Am I staying on task?
Am I doing as expected?
What feelings am I having about this task?
Is there something I want to change about my approach to this task?
Do I need help?

112

Task Completion

What is the task?
How long will this task take?
What materials or supplies do I need to complete this task?
How will I approach the task?
What will I do in what order?
How will I know I have completed the task?
Did I break the task into sequential steps?
Did I do one step at a time?
Have I done each step correctly?
Am I understanding the parts of the task?
Do I need help?

113

THE COGNITIVE CONVERSATION

ATTENTION

114

Prompts for the "Cognitive Conversation" in NEW THINKING Skill Development

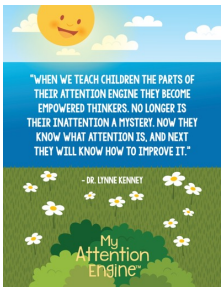
- Let's THINK this out.
- Let's make a plan.
- Let's take our time with this one.
- We can slow down for this part.

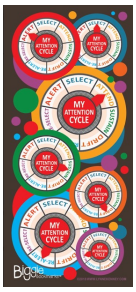
- What are we trying TO DO?
- What are we trying NOT TO DO?
- What will we do in what order?

- What do we usually do?
- What's our habit here?
- How do we want this time to be different?
- What will we say to ourselves?
- What will we THINK?

- How will we know we accomplished our goal?
- How will we know when our task is done?
- When will we know we have done a 'great job'?
- How will we compliment ourselves?

115





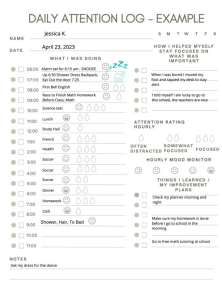
116

- **Alerting** - Moving to a state of cognitive readiness.
- **Selecting** - Moving one's attention and focus to a specific target stimulus.
- **Attending** - Directing meaningful energy and attention to a specific target stimulus.
- **Sustaining** - Maintaining attention on a specific target stimulus, long enough to take action on it.
- **Monitoring Drift** - Observing the mind becoming off-task.
- **Re-alerting** - Bringing attention back online.
- **Re-Selecting** - Shifting attention from one stimulus to another with purpose or intent.

117

- What is attention?
- What makes it easy to pay attention?
- What makes it difficult to pay attention?
- What are the parts of the attention cycle?
- How do you turn on your attention engine?
- What helps your attention engine run smoothly?
- What does it mean to be alert?
- When does your attention need a break?
- What makes your brain drift?
- When you drift where do you go?
- What distracts you?
- What helps you remain focused?
- What do you tell yourself when you brain needs a break?
- How long do you think a brain breather should last?
- How do you re-alert your attention?
- What do you say to yourself to re-alert your attention?
- Are there ways we, as a class, can help one another remain alert?

118



119

What is the difference between FOCUSED attention and SUSTAINED attention?

120

THE COGNITIVE CONVERSATION

MEMORY

121

WORKING Memory is...

A cognitive system with the ability to hold information temporarily for brief periods of time (10-15 seconds).

- ✓ Working memory can be dependent on FOCUS and PERSISTENCE.
- ✓ Working memory has limited capacity often holding less than 10 pieces of information at a time.

122

Memory

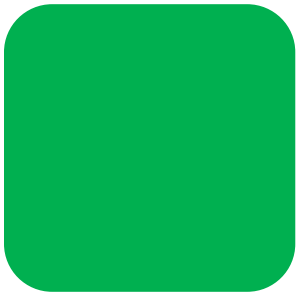
- Auditory Working Memory
- Visual Working Memory
- Short-Term Memory
- Long-Term Memory

123

Ways to Engage Working Memory

- Develop visualization skills, the "vortex of working memory"
- Play N-Back Games - In the N-Back task, participants are presented a sequence of stimuli one-by-one. For each stimulus, they need to decide if the current stimulus is the same as the one presented *N* trials ago
- Be Multi-Sensory, see it, say it, draw it, move it, teach it - REPEAT
- Play UNO FLIP
- Do a motor activity sequence forward then backward, alternating sides - Step R Clap Pat Pat; Pat Pat, Clap Step L; Step L Clap Pat Pat; Pat Pat Clap Step R
- Put things into your memory and pull them out again

124



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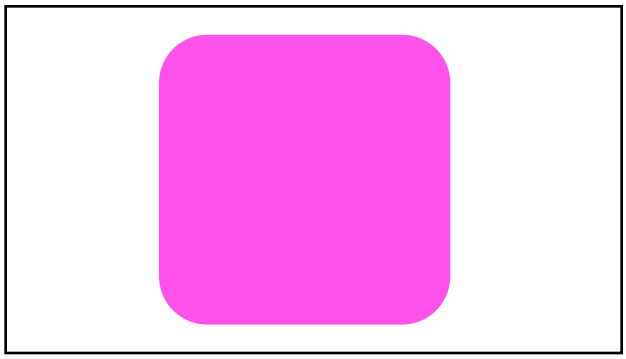

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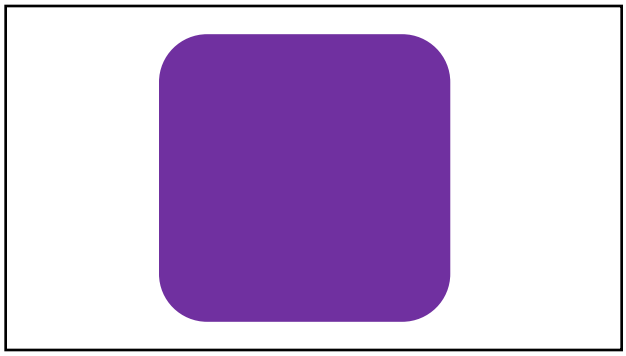

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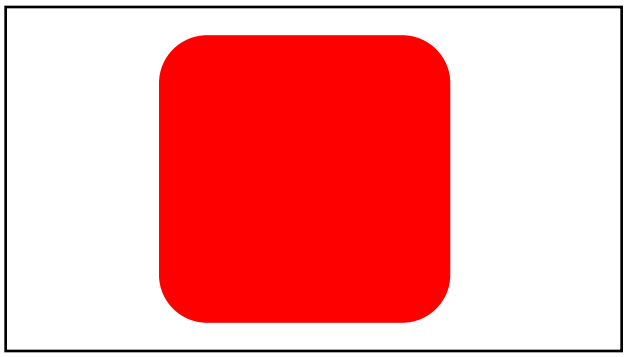
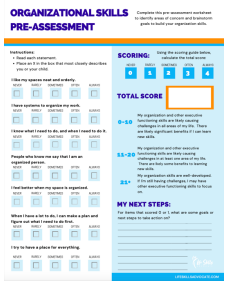


129

G
Y
P
P
R

- **MNEMONIC**
- **VISUALIZATION**
- **VERBAL REHEARSAL**

130


ORGANIZATIONAL SKILLS
PRE-ASSESSMENT

Complete this pre-assessment worksheet to identify areas of concern and brainstorm goals to build your organization skills.

Instructions:
- Read each statement.
- Place an X in the box that most closely describes you or your child.

I like my spaces neat and orderly.
NEVER | RARELY | SOMETIMES | OFTEN | ALWAYS

I have systems to organize my work.
NEVER | RARELY | SOMETIMES | OFTEN | ALWAYS

I know what I need to do, and when I need to do it.
NEVER | RARELY | SOMETIMES | OFTEN | ALWAYS

People who know me say that I am an organized person.
NEVER | RARELY | SOMETIMES | OFTEN | ALWAYS

I feel better when my space is organized.
NEVER | RARELY | SOMETIMES | OFTEN | ALWAYS

When I have a lot to do, I can make a plan and figure out what I need to do first.
NEVER | RARELY | SOMETIMES | OFTEN | ALWAYS

I try to have a place for everything.
NEVER | RARELY | SOMETIMES | OFTEN | ALWAYS

SCORING:
Using the scoring guide below, calculate the total score.
NEVER 0 | RARELY 1 | SOMETIMES 2 | OFTEN 3 | ALWAYS 4

TOTAL SCORE

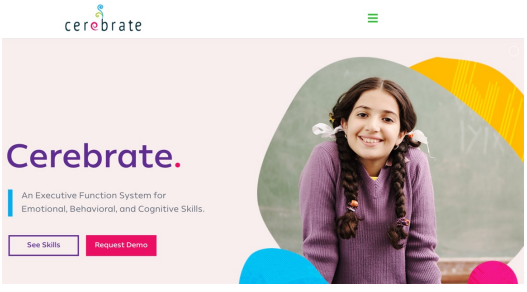
0-10 My organization and other executive functioning skills are likely causing challenges in my life. There are likely significant benefits if I can learn new skills.

11-20 My organization and other executive functioning skills are likely causing challenges in at least one area of my life. There are likely some benefits to learning new skills.

21+ My organization skills are well-developed. If I'm still having challenges, I may have other executive functioning skills to focus on.

MY NEXT STEPS:
For items that scored 2 or 1, what are some goals or next steps to take action on?

131



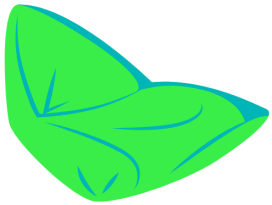
132

CogniBags

133

Two Person One Bag

- 1. Practice Form and Posture
- 2. Two Person One Bag 8 Count Switch
- "AND" is the Pause to Prepare Position
- 3. Define Across Over Diagonal
- 4. Pass & Pause
- 5. 1-2 Behind the back, over, 5-6 behind the back person B
- 6. Combine forward square and behind the back
- 7. Add heels forward
- 8. Add marching



134

Across

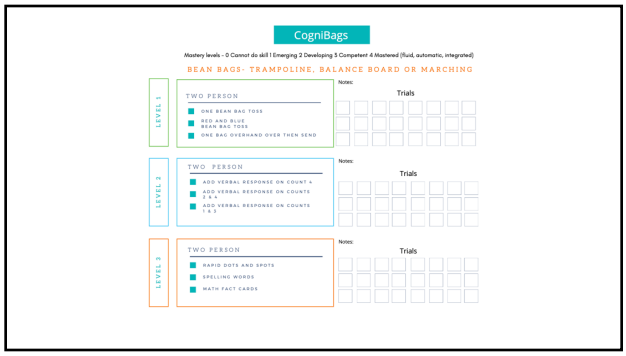
Over

Diagonal

135

COGNiBAGS

136



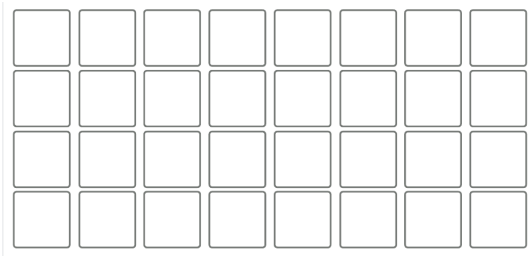
137

PATTERNS

138

SEQUENCES

139



140

DIMINISH THE STRESS RESPONSE with LANGUAGE

141

When Stressed

We may be experiencing…

Hypervigilance
Feeling Afraid
Feeling Anxious
Feeling Defensive
Over-responding
Polarization
Retreating
Seeking reassurance

142

Declarative Language

Declarative language is a communication style that involves sharing information or making statements out loud to prompt someone to think of a solution. It's different from imperative language, which requires a response. Declarative language can be used to support goals in many areas, including social competency, stress management, and self-awareness. It can also help children develop executive functioning skills and become independent thinkers.

143

Declarative Language Examples

I see we are
Shall we now
Is it time to
It feels like time to
I'm feeling like
I'm noticing
I'm wondering
It seems like
Perhaps it's
Shall we
Let's think about
May we

12

144

Imperative Language

Imperative language is a type of communication that uses commands to require a specific response from the listener. Imperative language is often used in education to achieve a desired behavior. The challenge is that if a child has a skill deficit, this may set off a limbic response.

145

Imperative Language Examples

Do X Then Y
First you X then you Y
Give me
Take your X out and do Y
Pick up your X
Look at X
Don't forget to
Now we will
It's time to
I need you to

10

146

Front Load to Increase Mastery & Reduce Anxiety

Front Loading is a previewing strategy that provides children with information, expectations, or skills before they encounter the upcoming situation, task, or learning experience.

1. **Enhances Understanding**: By introducing concepts or expectations in advance, children have the opportunity to process and understand information at their own pace, reducing anxiety and increasing comprehension.
2. **Promotes Confidence and Independence**: When children know what to expect and how to approach a situation, they're more likely to feel confident and act independently, creating a sense of achievement and self-efficacy.
3. **Facilitates Smooth Transitions**: Front Loading can be particularly beneficial in helping children prepare for transitions, such as moving between activities or adjusting to new routines, which can often be sources of stress.
4. **Supports Behavioral Management**: By setting clear expectations in advance, Front Loading helps children understand the expected behaviors, reducing the likelihood of behavioral issues and enhancing the overall learning environment.

Source: Playright.com Occupational Therapy Clinic

147

Visual Stimuli for Better Self-Regulation, Attention, Memory

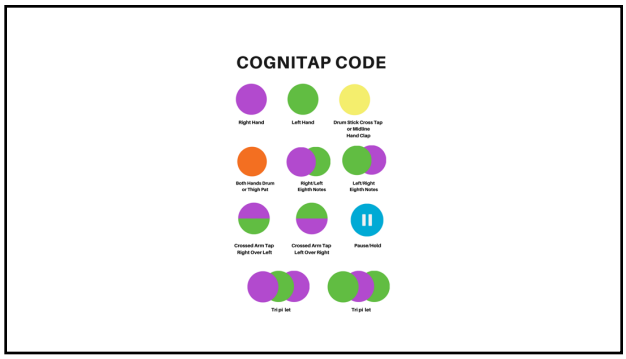
148

CogniTap

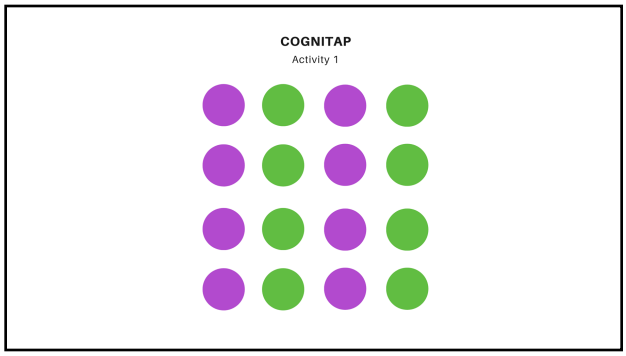
149

COGNiTAP

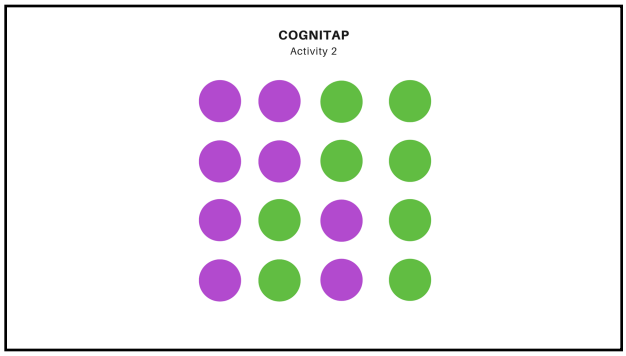
150


COGNITAP CODE
Right Hand
Left Hand
Drum Stick Cross Tap or Midline Hand Clap
Both Hands Drum or Thigh Pat
Right Left Eighth Notes
Left Right Eighth Notes
Crossed Arm Tap Right Over Left
Crossed Arm Tap Left Over Right
Pause Hold
Triplet
Triplet

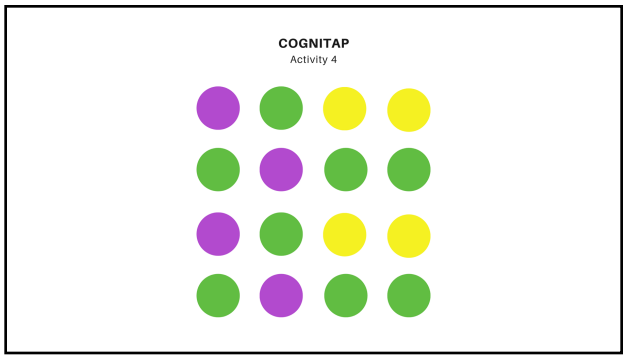
151


COGNITAP
Activity 1

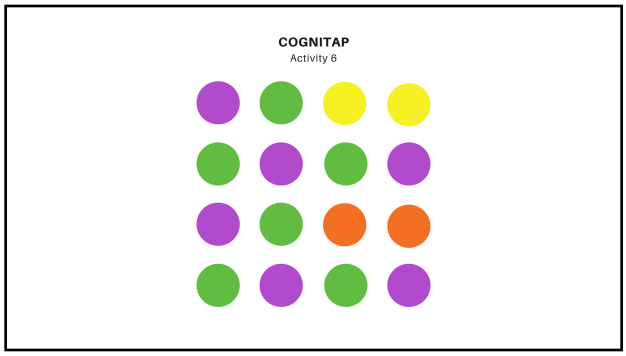
152


COGNITAP
Activity 2

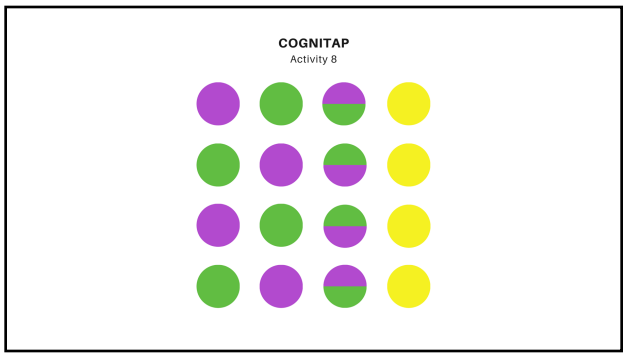
153


COGNITAP
Activity 4

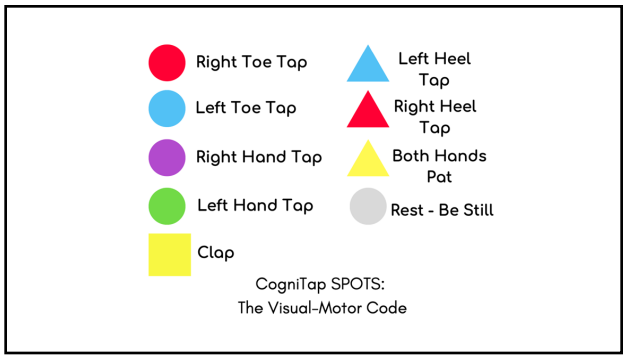
154


COGNITAP
Activity 6

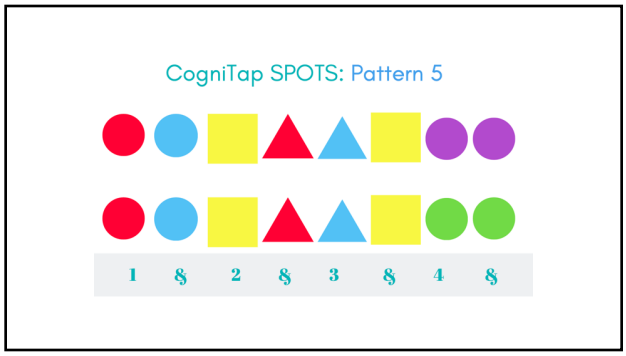
155


COGNITAP
Activity 8

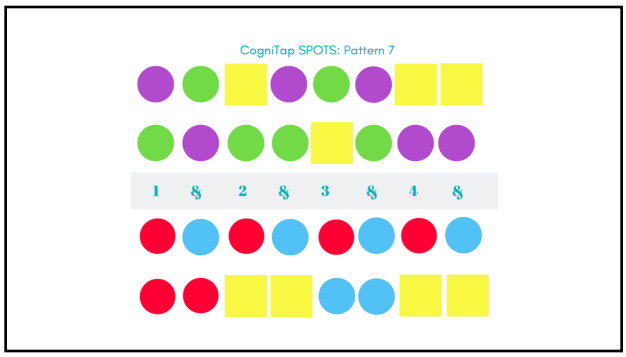
156


Right Toe Tap
Left Toe Tap
Right Hand Tap
Left Hand Tap
Clap
Left Heel Tap
Right Heel Tap
Both Hands Pat
Rest - Be Still
CogniTap SPOTS:
The Visual-Motor Code

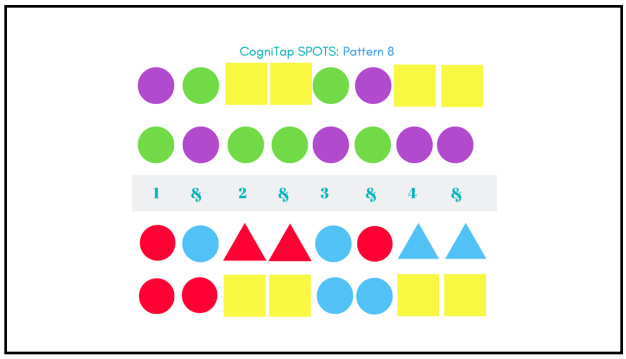
157


CogniTap SPOTS: Pattern 5
1 & 2 & 3 & 4 &

158


CogniTap SPOTS: Pattern 7
1 & 2 & 3 & 4 &

159



160

A systematic review of the research suggests that short bursts of fine and gross motor coordinated bilateral physical activity may improve attention, processing speed, and focus, van der Fels et al. 2015.

In a systematic review of research studies on the impact of physical activity on attention, deSousa et al. 2018 observed that continuous exercises that required greater cognitive involvement like activities with coordination and balance were related to a better performance during attention-demanding tasks than continuous exercises with fewer or no cognitive challenges (Budde et al., 2008; Palmer et al., 2013).

Bonacina et al. 2019 reported the use of clapping in time training as a way to possibly affect a broad spectrum of rhythmic abilities that are linked to language and literacy processes.

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Researchers found positive associations between rhythmic abilities and different cognitive abilities such as language, motor function, or executive functions with some even suggesting potential causal links. It has been shown that music training that is highly based on rhythm processing cannot only improve rhythmic, but also benefit language abilities in typical developing children and children with developmental dyslexia. Additionally, it has been revealed that rhythm-based music training can improve executive functions in preschoolers.

Frischen, U., Degé, F., & Schwarzer, G. (2022). The relation between rhythm processing and cognitive abilities during child development: The role of prediction. Frontiers in psychology, 13, 972055. https://doi.org/10.3389/fpsyg.2022.972055

Research is starting to identify the relationship between non-linguistic skills such as rhythm, beat perception, and timing, and phonological awareness. In a study of children with ASD, results revealed a statistically significant large positive correlation between phonological awareness skills and overall beat perception.

Rimmer, C., Dahary, H., & Quentin, E. M. (2025). Links between musical beat perception and phonological skills for autistic children. Child neuropsychology : a journal on normal and abnormal development in childhood and adolescence, 1-25. Advance online publication. https://doi.org/10.1080/09297049.2025.2502902

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I Can Rev-Up
CREATE PATTERNS & SEQUENCES
Brain Primers (Kuzcala & Kenney, 2020)
Cognibags
Cognitap
Cogniteap Spots
Dance Rhythmically to Music with a strong beat
Jump on a mini-trampoline
Jump rope
Rhythmic Ball Bouncing (4/4 time vary tempo and patterns)
Mixed Physical Activities (combine 2-3 in a sequence doing each player for 8 counts, repeat 2-3 times)
Burpees
High-Heels
High-Knees
Inchworms
Jumping Jacks
Push-ups
Run in place
Russian twists
Squat-jacks
Squats
Star Jumps
Tricep Dips
Think-Ups
MY REV-UP TOOLS
I Can Calm Down
CHOOSE AN ACTIVITY
Bouncing Balls
Bean Bags
Books
Bottle of Blowing Bubbles
Bubble Wrap
Coloring Pages
Drawing
Etch-A-Sketch
Eye Mask
Finger Paints
Four Square Breathing
Hour Glass
Kaleidoscope
Legos
Magnadoodle
Mandalas for Coloring
Noise Cancelling Headphones
Origami
Painting
Personalized Photo Album
Picture Books
Pinwheels
Play Doh
Puzzles
Relaxing Music
Resistance Bands
Rubiks Cube
Scratch and Sniff Stickers
Silk Scarves
Spinning Top
Squishy Balls
Swing
Unifix Cubes
Weighted Lap Cushion
Wobble Chair
MY CALM DOWN BOX
I Can Calm Down Movement Activities
MOVE RHYTHMICALLY SLOWLY
Bouncy Bands
Bounce a ball off a wall
Cognibags
Cogniteap
Body Percussion
Drum on a yoga ball
Drumming Patterns
Hum
Rhythmic Ball Bouncing
Repetitive movement in 3/4 time (waltz, lunge, sway, rock)
Simple Ballet Patterns
Swaddle
Sway
Swing
Think-Ups
MY CALM MOTION TOOLS

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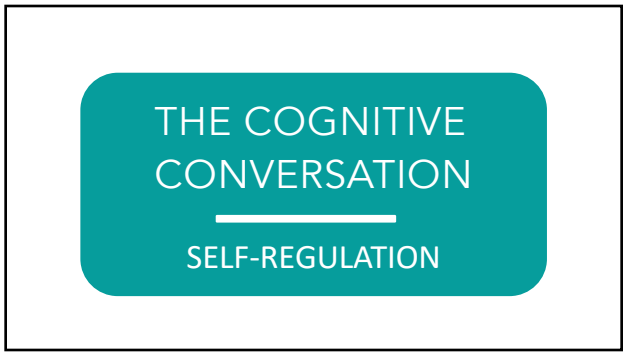
THE COGNITIVE CONVERSATION
SELF-REGULATION

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Self-Regulation
The ability to manage one's internal energy to support goal-directed purposeful pro-social behavior.

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The process of developing the ability to soothe and manage one's emotions and sensations often in synchrony with another person.

Co-Regulation

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Self-regulated learners are more engaged in the learning process and demonstrate better academic performance. They exhibit increased focus, attention, and persistence in completing tasks, Wang, 2021. Self-regulation skills are positively correlated with improved reading and math achievement, as well as higher grades in various academic subjects, Zimmerman & Schunk, 2011.

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Self-regulation has been established as a key mechanism associated with a variety of outcomes including school readiness (Blair and Razza, 2007; McClelland et al., 2007a; Morrison et al., 2010), academic achievement during childhood and adolescence (Mc Clelland et al., 2006; Cameron Ponitz et al.,2009; Duckworth et al., 2010; Li-Grining et al., 2010), and long-term health and educational outcomes (Moffitt et al., 2011; McClelland et al., 2013).

The behavioral aspects of self-regulation may be especially important for academic and school success (McClelland et al., 2007a; Cameron-Ponitz et al., 2009; McClelland and Cameron, 2012).

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- In practice, self-regulation can be seen as one's ability to manage their physiological state to maintain balanced internal energy, appropriate motor tempo, and modulated rate of verbalizations.
- When self-regulated, children use their cognition to keep themselves calm, emotionally even, and able to effectively respond to expectations and task demands in the moment.
- Educators who teach learners self-regulation are more successful at fostering educational success, engagement, and continuous learning, Brenner, 2022.

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TEMPO

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Self-Regulation and Response Inhibition are about Learning the "Felt-Sense" of Slowing Down

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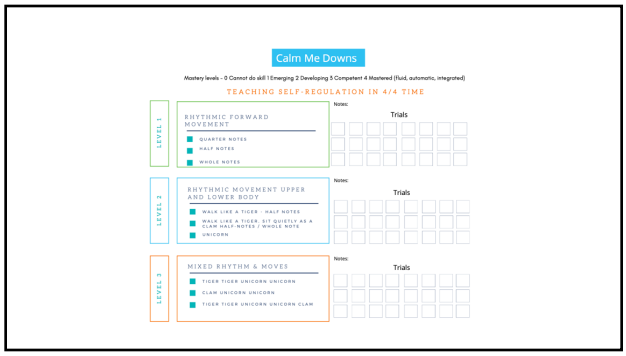

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Actions

Breathe
Cold Press to the Face
Drum/Body Percussion
Hum
Pull
Push
Pressure
Sing
Swaddle
Sway
Swing
Voice

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THINK-UPS

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THINK UPS

Cogni Suite

Rhythmic Push-Ups (Wall, Floor, Chair, Desk)

4-Count	4-Count	8-Count
Push-up 1 2 (down) 3 4 (up). Repeat 3-4 sets.	Push-up 1 2 (down) 3 4 (up). Hold (up) 2 3 4. Repeat 3-4 sets.	Push-up 1 (down) hold 2 3 4. Half-way up on 5 6 all the way up on 7 8. Repeat 3-4 sets.

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THINK UPS

Cogni Suite

SuperMans (Floor or Wall)

8-Count	8-Count	16-Count
Face Down on Floor Right arm "up 2 3 down", Left arm "up 2 3 down". Repeat 3-4 sets.	Face Down on Floor Right leg "up 2 3 down", Left leg "up 2 3 down". Repeat 3-4 sets.	Face Down on Floor Right arm "up 2 3 down", Left arm "up 2 3 down". Right leg "up 2 3 down", Left leg "up 2 3 down". Repeat 3-4 sets.

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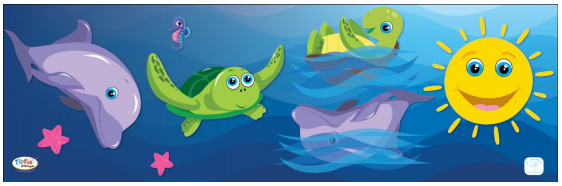

179

Creating Your Own Cognitive Skill Coaching & Physical Activity Combinations

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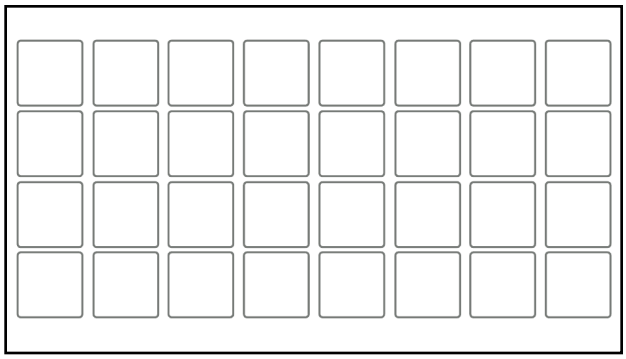

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Conclusion: Integrate Research Across Disciplines Incorporating Cognitive-Motor Movement To Strengthen Precursor Skills To Learning

- In the science of reading studies cite the relationships between phonological awareness, oral-language skills, and morphology yet, they do not mention the importance of balance, coordination, posture, tempo, timing and rhythm in reading.
- Up to 80% of children with neurodevelopmental diagnoses experience motor-coordination, vestibular, and/ or visual-tracking deficits.
- Co-existing diagnoses range from 50-80% in Dyslexia, ADHD, Developmental Coordination Disorder & ASD.
- All children can benefit from cognitive-motor movement through more music, art, and play.

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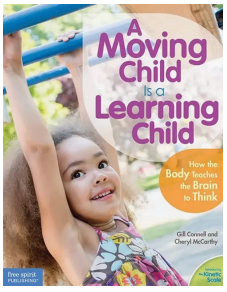

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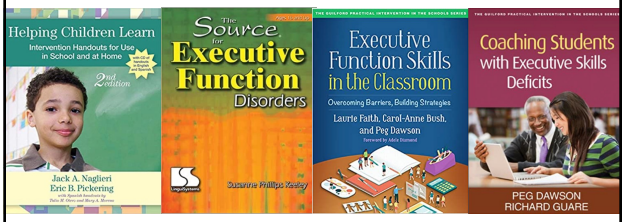

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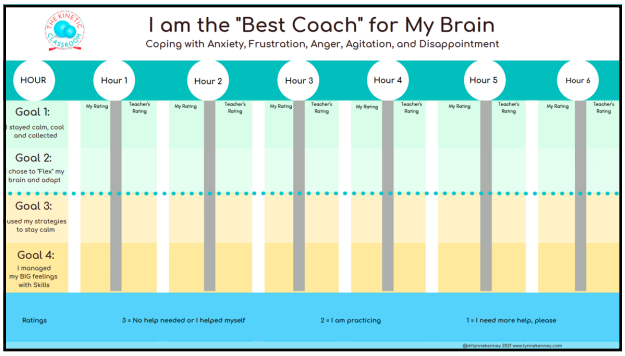

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COGNIMOVES

- Suite of 5-minute animated videos
- Universal Tier 1 MTSS
- Developmentally progressive
- Incrementally challenging cognitive & motor demands
- Rhythmic cognitive-physical movements
- Reading intervention support

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BRAIN PRIMERS
BLOOM
YOUR ROOM
70
PLAY
Activities
For Better Thinking, Self-Regulation, Learning & Behavior
BLOOM
50
LYNNE KENNEY, PsyD
WENDY YOUNG, LMSW, BCD

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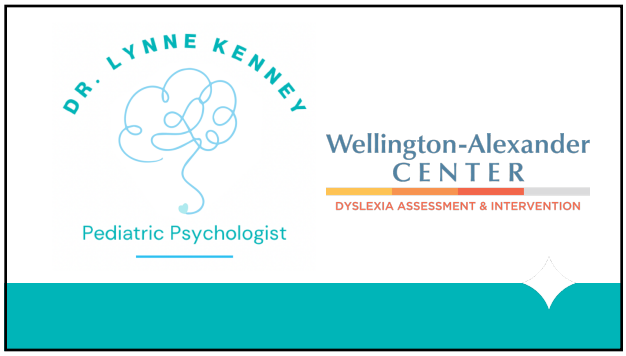
DR. LYNNE KENNEY
Pediatric Psychologist
Wellington-Alexander
CENTER
DYSLEXIA ASSESSMENT & INTERVENTION

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