



CREATING COMPREHENSIVE AND INDIVIDUALIZED TREATMENT PROGRAMS FOR CHILDREN WITH ASD

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Today's Presentations

- What is Autism: A whole body condition
- Overview of Treatments for Autism

- What is ABA (Applied Behavior Analysis)
- The CARD Method
 - Overview
 - Assessment
 - Curriculum



What is Autism?

- **Pervasive Developmental Disorders**
 - Impairments in two or more areas of development
- **Autism**
 - Impaired Social Interaction,
 - Impaired Communication
 - Restricted, Repetitive Behaviors
 - 6 or more symptoms
- **Asperger's Disorder**
 - Impaired Social Interaction
 - No Language delay
 - No Cognitive delay
- **PDDNOS**
 - Delays in all three areas (Social, Communication and Stereotypy)
 - Fewer than 6 symptoms

What is Autism?



- Communication:
 - My child is delayed in language
 - My child has no eye contact
- Social Behavior:
 - My child doesn't interact with anyone
 - My child doesn't play with others
- Stereotypy:
 - My child does repetitive behaviors (lining up objects, opening closing door, turning on and off the lights)
 - My child is inflexible and needs routines
- Anything else?
- Challenging Behaviors?
- Sensory Sensitivities?
- Medical Illnesses?

AUTISM



*Reduce/Eliminate
Symptoms*

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Te

Stereotypy



Teach New Learning Patterns

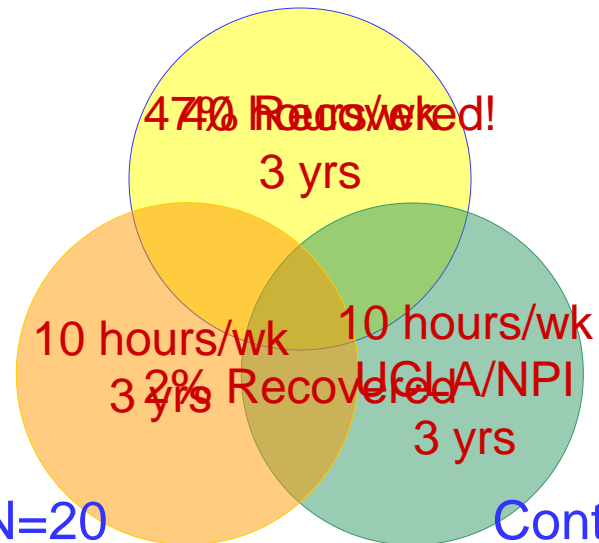
- ABA: Applied Behavior Analysis
 - “30 years of research demonstrated the efficacy of Applied Behavioral methods in reducing inappropriate behavior and in increasing communication, learning and appropriate social behavior”

Surgeon General, 1999



1987: Behavioral Treatment and Normal Educational and Intellectual Functioning in Young Autistic Children

Experimental Group: N=19



Control Group 1: N=20

Control Group 2: N=20



Retrospective Analysis of Clinical Records in 39 Cases of Recovery from Autism

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Introduction

- 20 years of research on early intensive applied behavior analytic (ABA) treatment for children with autism has consistently produced robust treatment effects (Eikeseth, 2006; Myers, 2007).
- A subset of children respond best to intensive ABA treatments, including achieving a level of functioning that is indistinguishable from typically developing peers.
- Little previous research has attempted to describe the characteristics of the children who achieve developmentally average functioning following ABA treatment.

Purpose

- To describe the characteristics, duration and intensity of treatment, and outcome for a group of children previously diagnosed with an ASD, who received ABA treatment and subsequently achieved a level of functioning indistinguishable from typically developing peers.

Method

Initial Participant Selection

- All participants were past clients of CARD.
- We asked senior clinical staff to identify every client whom, in their opinion, between 1990 and 2007, achieved age-appropriate functioning and no longer required supports of any kind after discharge.

Chart Review

- All available clinical records were obtained for all clients identified in the Participant Selection phase of the study.
- All records were searched for the following information:
 - Intake and discharge evaluation reports
 - All standardized testing results
- Billing data for all clients were retrieved, in order to identify the following:
 - Start and stop date of treatment
 - Monthly hours of therapy for entire duration of treatment

Final Clinician Interview

- All children whose charts contained pretest and posttest were included for the final clinician interview.
- Clinicians who treated each child at the time of discharge were asked to recall any indication of a residual ASD, thereby excluding participants.

Results

- The Participant Selection phase of the study yielded 204 names.
- The Chart Review phase of the study yielded 39 participants with both pretest and posttest IQ scores present in their charts.
- Figure 1 depicts pre and post scores, with IQ score depicted on the vertical axis and individual participants on the horizontal axis.
- Figure 2 depicts the IQ at intake and IQ change scores for each participant.
- Figure 3 depicts pre and post adaptive scores.
- Figure 4 depicts the average number of treatment hours per participant, from the first month of treatment to the 60th.
- Figure 5 depicts the distribution of IQ change scores.
- Table 1 depicts statistics for the age at intake, pre and post IQ scores, pre and post VABS scores, and change in IQ and VABS scores.

Figure 1: Pre and Post Treatment IQ Scores

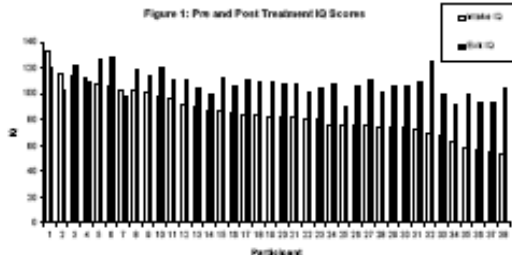


Figure 2: Intake IQ and Change in IQ

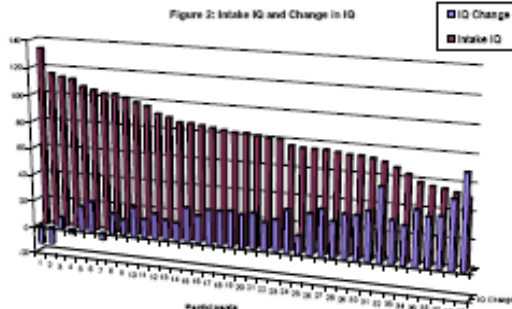


Figure 3: Individual Adaptive Scores

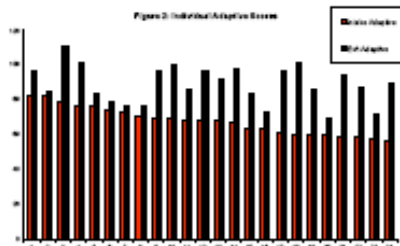


Figure 4: Average Treatment Hours per Month

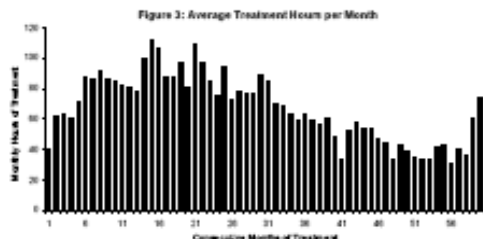


Figure 5: Distribution of IQ Change Scores

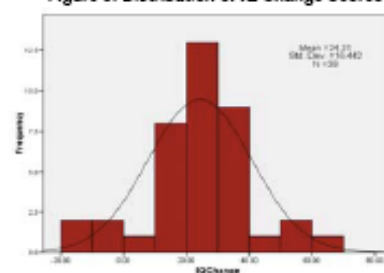


Table 1: Mean IQ and Adaptive Scores

	Mean	SD	Range	
Age at Intake	40.37	7.18	24-55	
Start IQ	83.6	18.9	50-133	IQ Change
Exit IQ	107.9	9.5	89-126	24.31
Start Adaptive	67.71	7.79	57-82	Adaptive Change
Exit Adaptive	88.75	10.79	69-111	21.04

Discussion

Implications

- Our findings appear to corroborate the general finding from previous literature that some children with an ASD who receive early intensive ABA treatment achieve typical functioning.
- Participants in this study began treatment with relatively high IQ (i.e., 84) and it is possible that this fact contributed to recovery.
 - However, Figure 2 demonstrates a negative relation between the magnitude of IQ gain and IQ at intake.
- Similarly, participants in this study began treatment at a relatively young age and this may have contributed to the optimal outcomes obtained.
- Our data provide the first relatively large scale description of the characteristics of individuals who achieve an optimal outcome.
- Our data provide a description of recovery from autism produced by ABA treatment provided in a community-based setting, not a university-based center.

Limitations

- Retrospective chart review is perhaps the least rigorous form of treatment research.
- Because our study lacks an experimental design, it is possible that the participants in this study would have recovered from autism without ABA treatment. This seems unlikely, however, given that no previous study has reported the spontaneous recovery of a substantial number of children with autism.
- Future research should include more rigorous measurement of client functioning level, including language, social skills, and rigorous diagnostic instruments (e.g., ADOS, etc.)



What is Applied Behavior Analysis

- ABA is based on the principles of

Operant Conditioning Theory:

“Human Behavior is affected by events that precede it (antecedents) and events that follow it (consequences)”

Change these events...change Behavior!



What behavior do we want to change?

● Deficits

- Language
- Play
- Social Skills
- Theory of Mind
- Executive Functions

● Excesses

- Self Stimulatory Behs
- Maladaptive Behs
 - Tantrums
 - Aggression
 - Noncompliance

Skill Repertoire Instruction

Give rewards for these

Behavior Management

Remove rewards for these



Why does my child do these things?

- Everything we do is to
 - Get good stuff (Rewards)
 - Avoid bad stuff (Punishment)
- Challenging Behavior is your child's way of telling you what he wants
- He may not have the skills to tell you the appropriate way!



Some Good things kids want...

Attention

good or bad

Tangibles

our favorite foods

fun activities

toys

sensory stimulation



Seeking Attention

4



Some things kids want to avoid...

- Having to work
- Classroom
- Listening to people telling them what to do
- Giving up something they want to keep doing
- Taking a bath
- Getting ready in the morning



Most of the time...

- We have to give up something we really want AND do something we really don't want
 - Stop Playing and come inside to eat dinner
 - Wake up and get ready for school
 - Come in and take a bath
 - Get off the phone and go clean up your room
 - Stop doing anything self stimulatory and interact!!!



Challenging Behavior

Example: getting good stuff

Jenny is playing with her favorite toy. Parent says “okay, time to put away the toy”



Jenny starts protesting and crying



Jenny gets to have the toy a little longer

What is Jenny communicating by crying? How about “I don’t want to put my toy away, can I play a little longer?”

Can we teach her to say that?



Challenging Behavior

Example: avoiding bad stuff

Jacob hates baths. Parent says "Time to take a bath"



Jacob cries and throws himself on the floor



Jacob gets to avoid the bath for five more minutes

What is Jacob saying by crying and throwing himself on the floor? How about "Can I have five more minutes Mom?" Can we teach him to ask for more time?



How do we change behavior?

- Change behavior by changing the antecedent or the consequence or both!

Teach Todd to ask when he wants toy



Todd will not hit sibling



Todd does not get toy

Jon learns skills so he likes school



Jon will not scream



Jon is not sent home

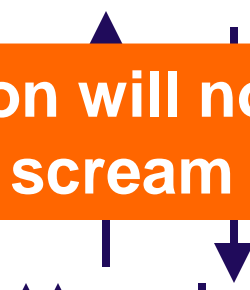
Teach Mark to do something appropriate



Mark does something appropriate



Mark gets attention



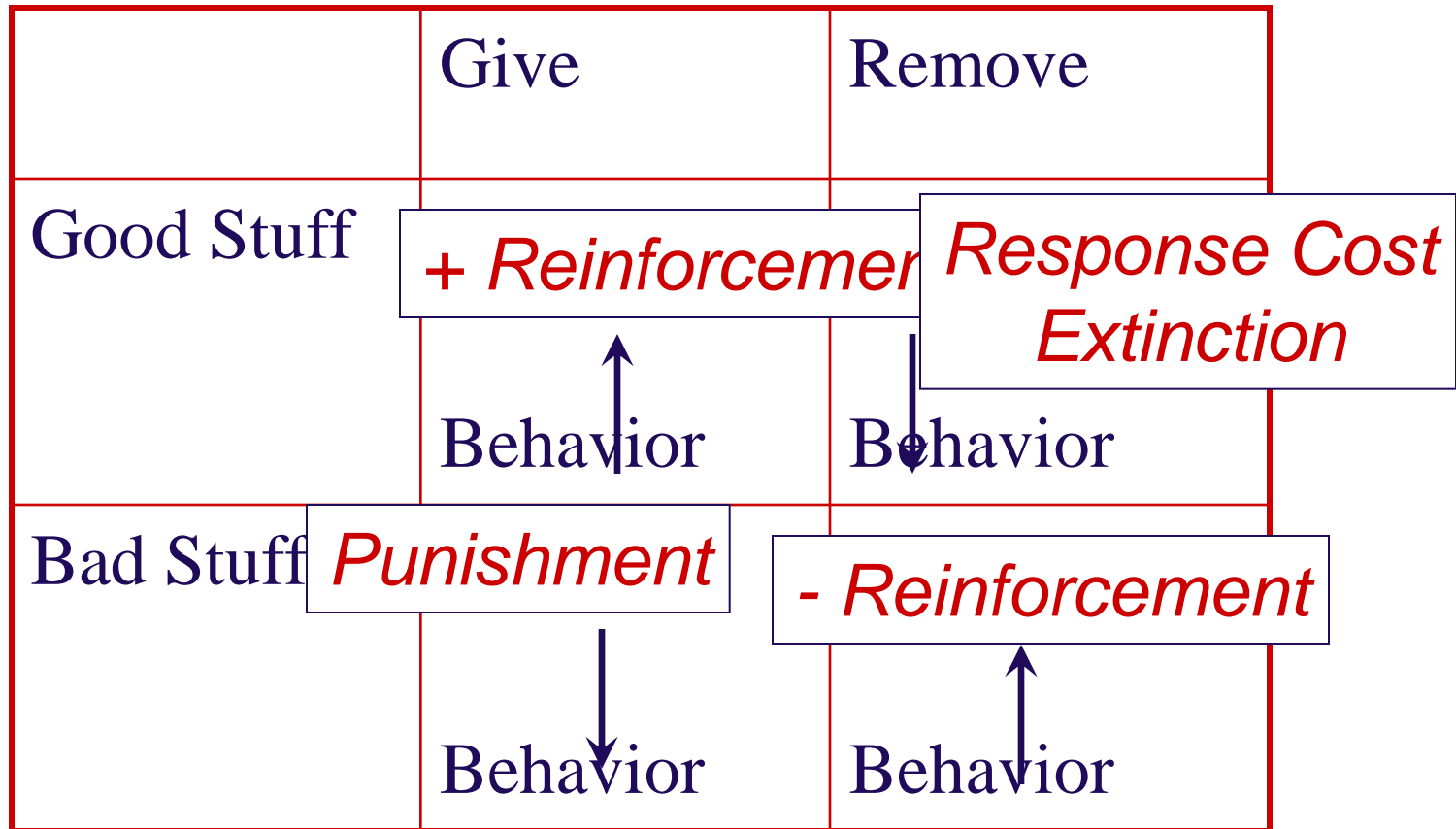


Summary

- Identify the behavior you want to change
- Identify why it is happening
 - What is your child trying to communicate?
 - What does he want to have or avoid?
- Now that you know the function, you can change the behavior
- How?
- By changing either the antecedent or the consequence...or both!
- The **FUNCTION** of the behavior tells you what to do!



Changing Behavior





Extinction for Tangible Function





Example of DRA

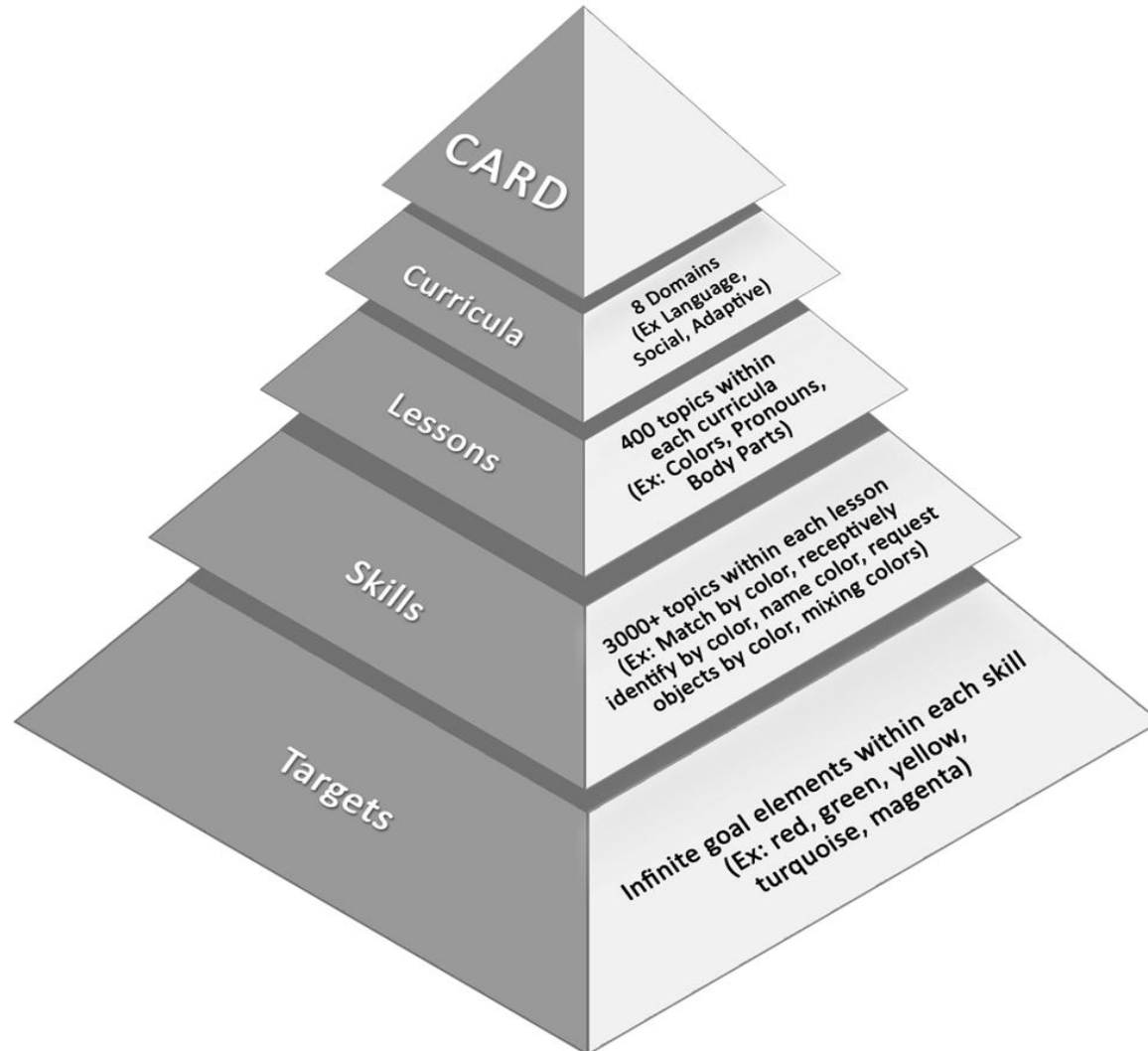




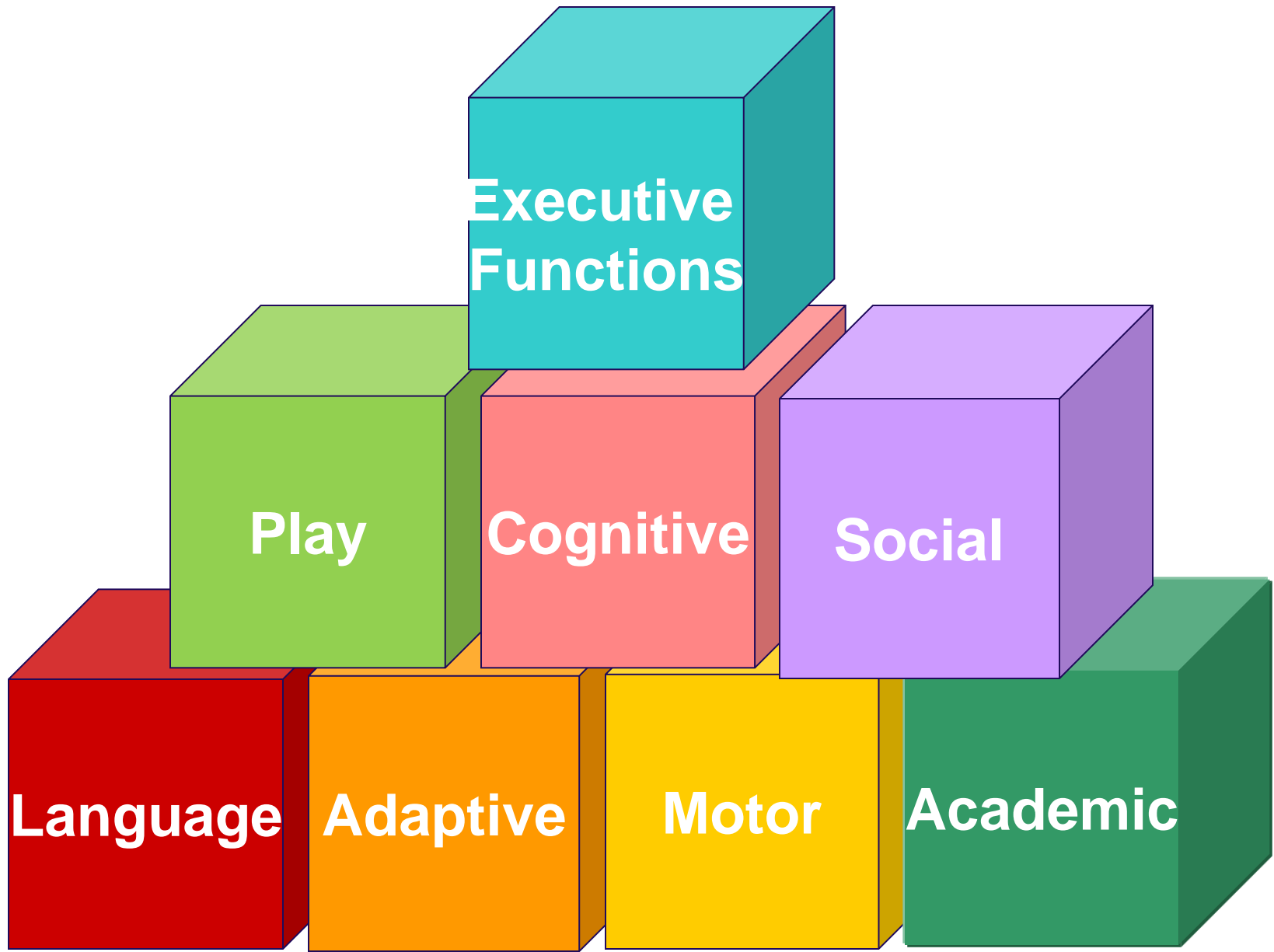
The Secret to successful ABA

- The key is to teach appropriate skills!
- If a child has appropriate skills, and they are easy to do, he will not engage in challenging behaviors!
- We cannot simply “extinguish” challenging behaviors without replacing them first, with appropriate skills!

Organization of C.A.R.D. Curriculum



The CARD Curriculum





The CARD Curriculum

Language

By Emerging Age and Verbal Operant:

0-11 mos.

- Body Parts
- Following Instructions
- Gestures
- Making Requests
- People
- Sound Discrimination
- Verbal Imitation
- Yes/No

1:0 – 1:11 yrs.

- Actions
- Asking for Information
- Categories

- Choices
- Fast Mapping
- Functions
- Objects
- Opposites
- Prepositions
- Pronouns

2:0-2:11 yrs.

- Adverbs
- Attribute-Object
- Conditionality

- Deliver a Message
- Features
- Gender
- I Have/ISee

- Listen to/Tell a Story
- Locations
- Negation
- Plurals
- Recalling Events
- Sound Speed & Duration
- Syllable Segmentation
- Wh-Discrimination

3:0-3:11 yrs.

- Minimal Pairs
- Same/Different
- Sequences
- Sound Changes

- Statement-Statement

4:0-4:11 yrs.

- Describe by Category/Feature/Function
- Phonic Same/Different
- Statement-Question
- What Goes With

5:0-5:11 yrs.

- Observational Learning
- Syntax



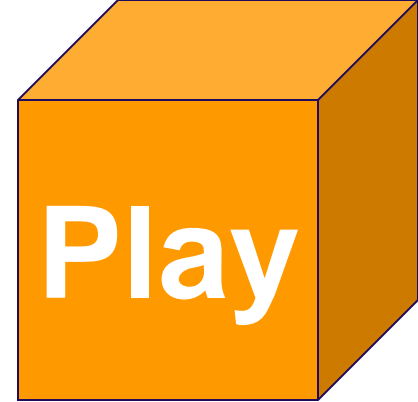
Mixed Operants





Play Curriculum

Domains



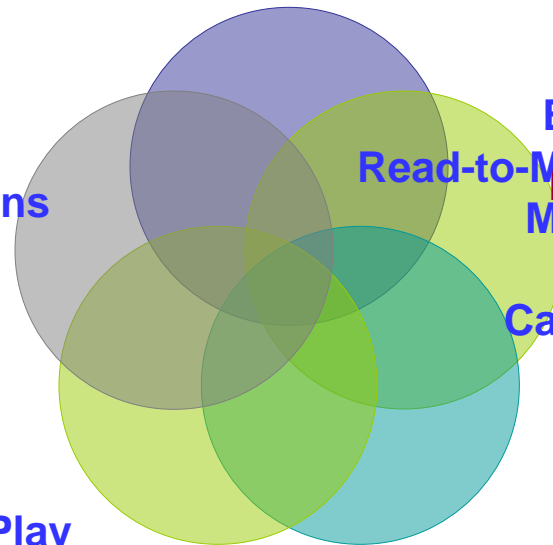
Sensorimotor Play
 Task Completion Play
Beginning Play
 Initiating and Sustaining Play

Block Imitation
 Structure Building
Constructive Play
 Sand and Water Constructions
 Clay Constructions
 Arts and Crafts

Early Social Games
 Read-to-Me Books & Nursery Rhym
Interactive Play
 Music and Movement
 Treasure Hunt
 Card and Board Games
 Locomotor Play
 Peer Play

Audio and Video Play
Electronic Play
 Video Games

Pretend Play
 Functional Pretend Play
 Symbolic Play
 Imaginary Play
 Sociodramatic Play





Interactive Play: Nursery Rhymes





Social Skills Curriculum

Social Skills





Responding to Social Cues





Telling Jokes





The CARD Curriculum

What is Executive Function?

- *Process that underlies goal directed behavior*

Goal Directed Behavior Involves...

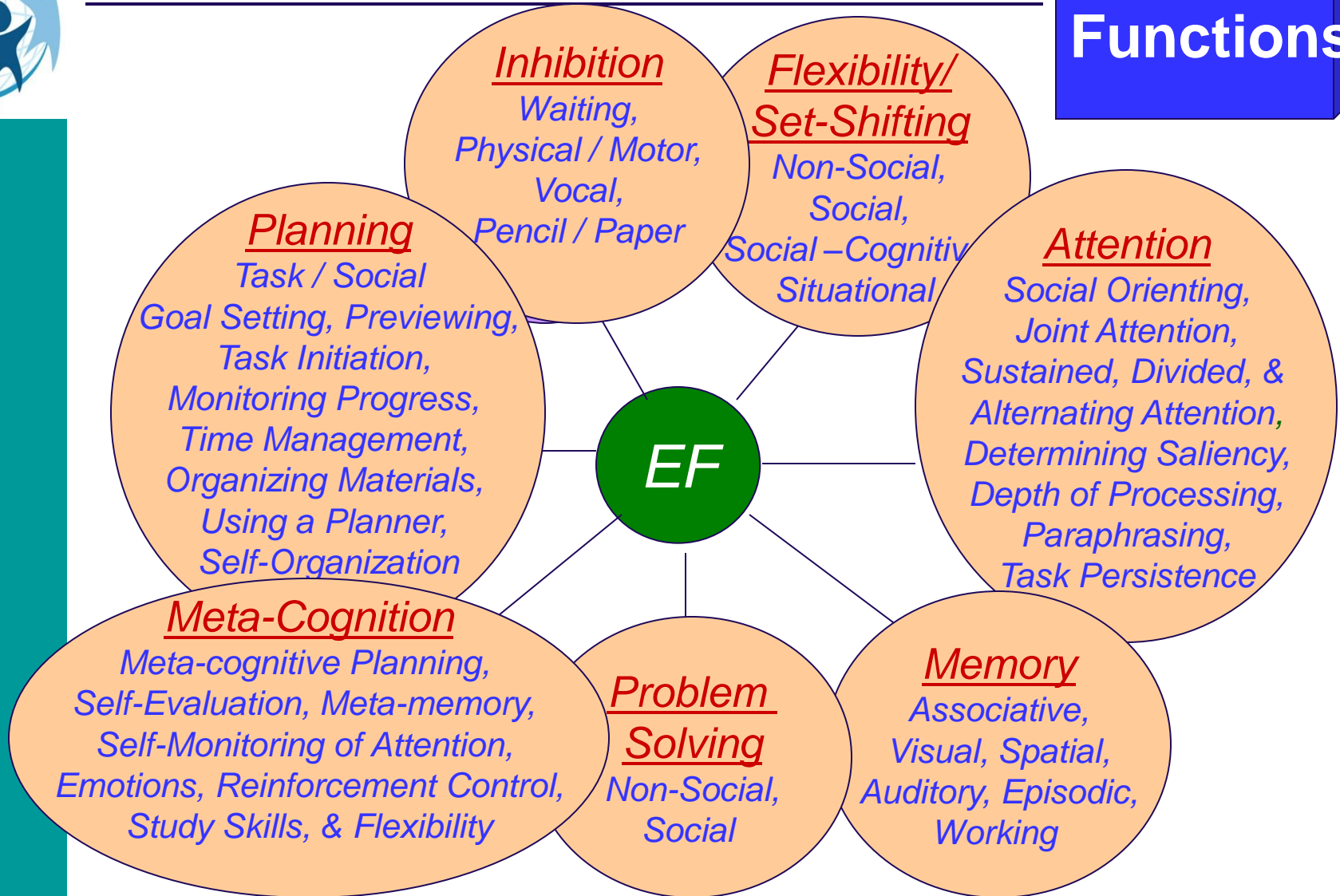
- *Visualizing situation*
- *Identifying desired objective*
- *Determining plan to meet objective*
- *Monitoring progress to goal*
- *Inhibiting distractions*



Executive
Functions

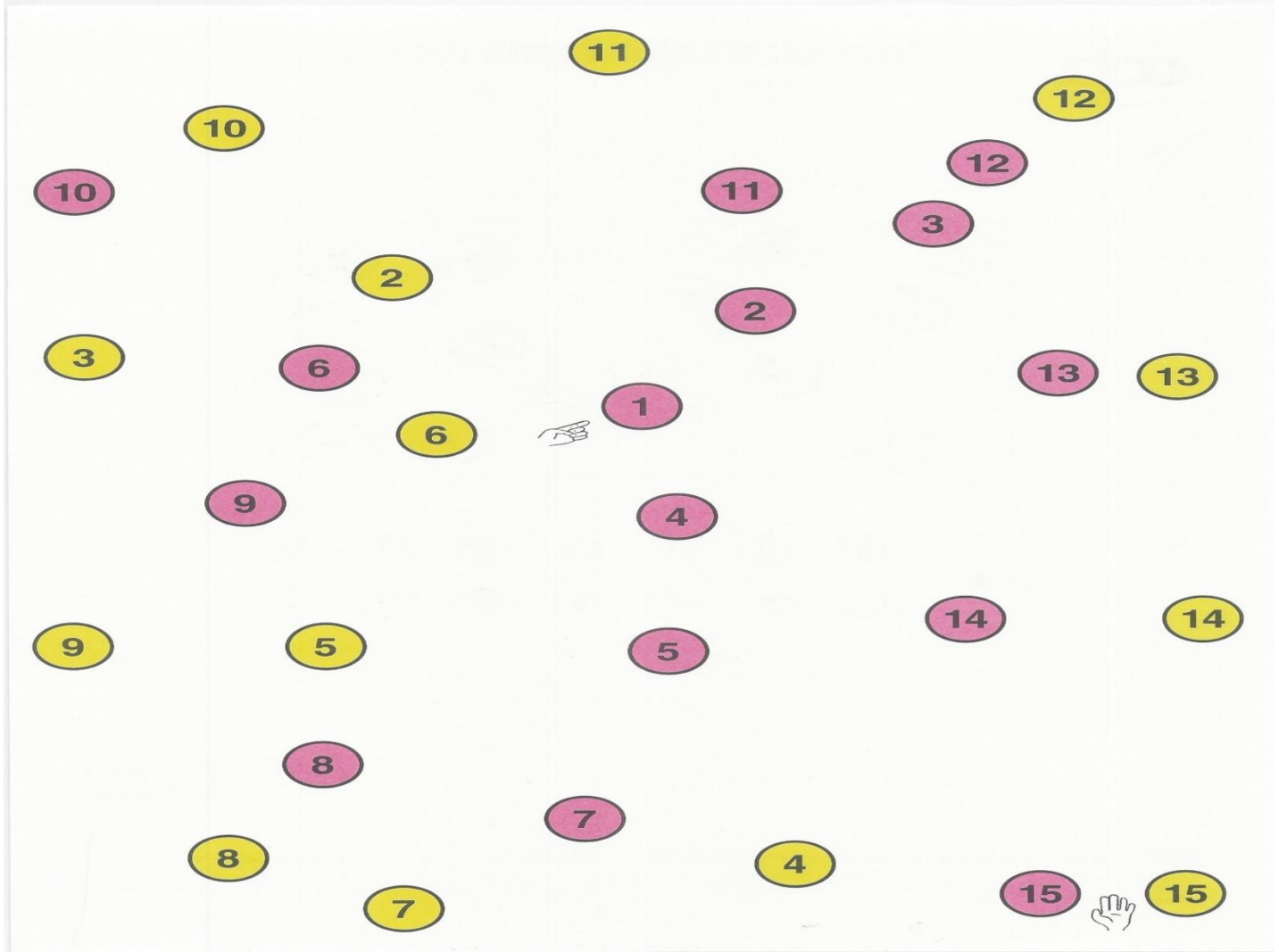
Executive Functions Curriculum

Executive Functions





Children's Color Trail Test





Stroop Activities

red blue orange purple
orange blue green red
blue purple green red
orange blue red green
purple orange red blue
green red blue purple
orange blue red green
green purple orange red



Problem Solving: clarification





The CARD Curriculum

Cognition

● *Cognition:*

- *Meta-cognition: Identifying your own ...*
- *Social Cognition: Inferring others'...*

Emotions

Thoughts

Knowledge

Desires

Beliefs

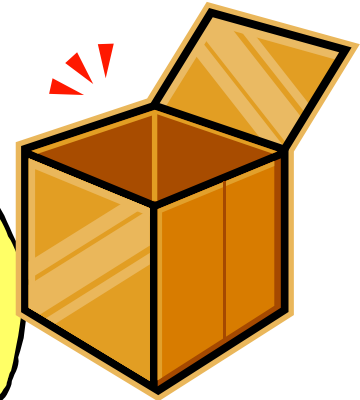
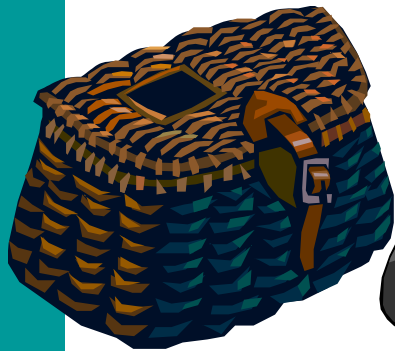
Intentions

Classic Test of Social Cognition



“Sally-Anne” or False-Belief Task

Cognition



Where will Sally look for her ball?

Where does she think her ball is?



“Typical” Meta and Social Cognitive Development

Cognition

First few months: Sense of Self

9 months: Joint Attention / Social Referencing

15 months: Pretence

18 months: Desire / Intention

2 years: Emotion

3 years: Knowing / Thinking

4 years: Belief / False-Belief

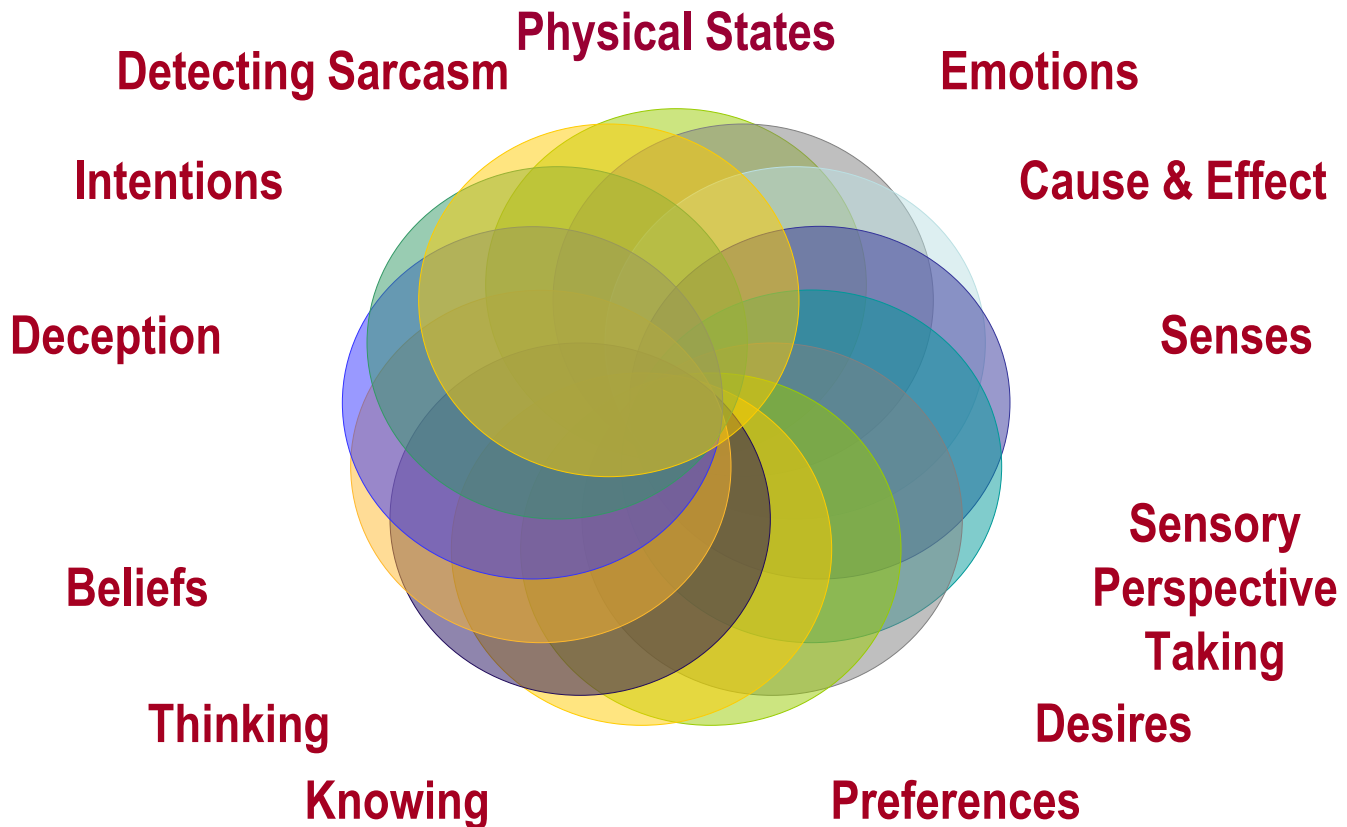
5 years: Intention – Accident vs. Purpose



Cognition Curriculum

Cognition

13 Lessons



Senses: Blindfold Task





Adaptive Curriculum

Personal

- Feeding
- Toileting
- Undressing
- Unfastening
- Dressing
- Preventing Spread of Germs
- Bathing
- Fastening
- Teeth Care
- Hair Care
- Nail Care
- Health Care

Domestic Adaptive

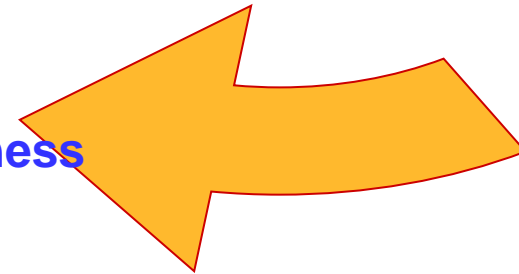
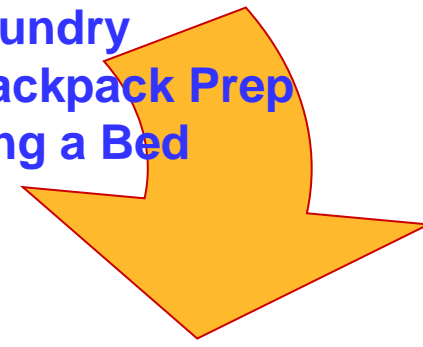
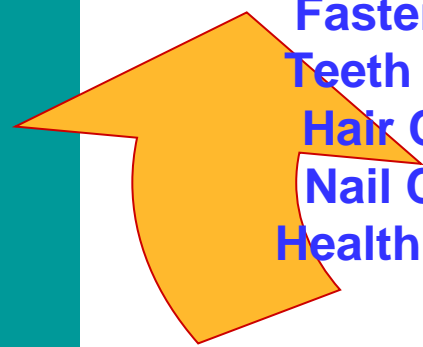
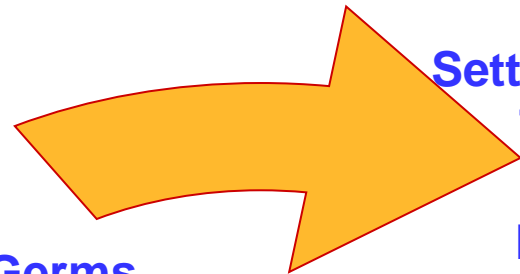
- Pet Care
- Setting & Clearing Table
- Telephone Skills
- Tidying
- Meal Preparation
- Cleaning
- Gardening
- Laundry
- School Backpack Prep
- Making a Bed

Community

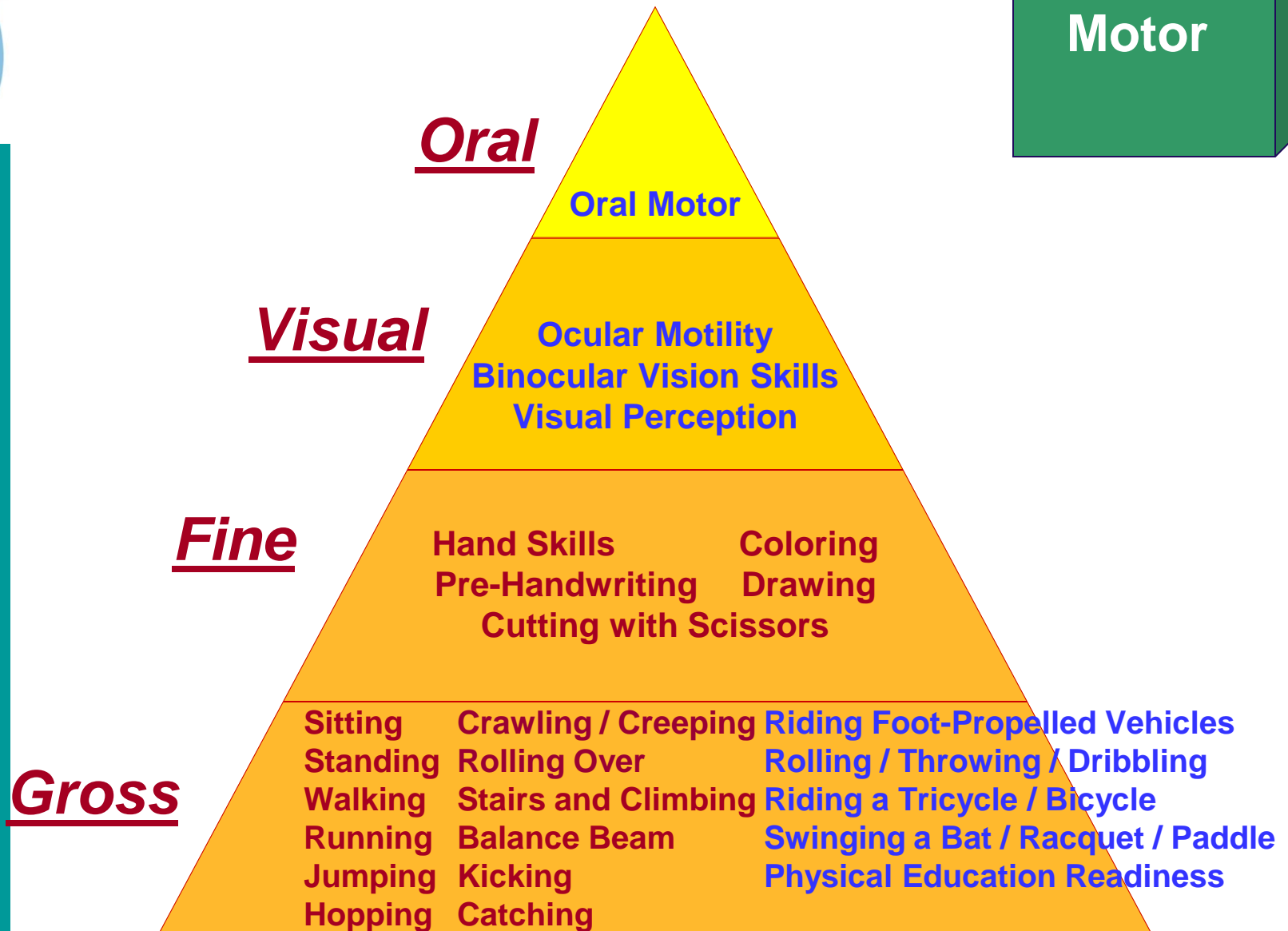
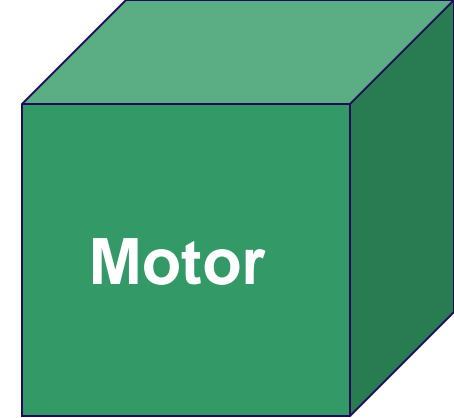
- Shopping
- Restaurant Readiness

Safety

- Safety Awareness
- Safety Equipment

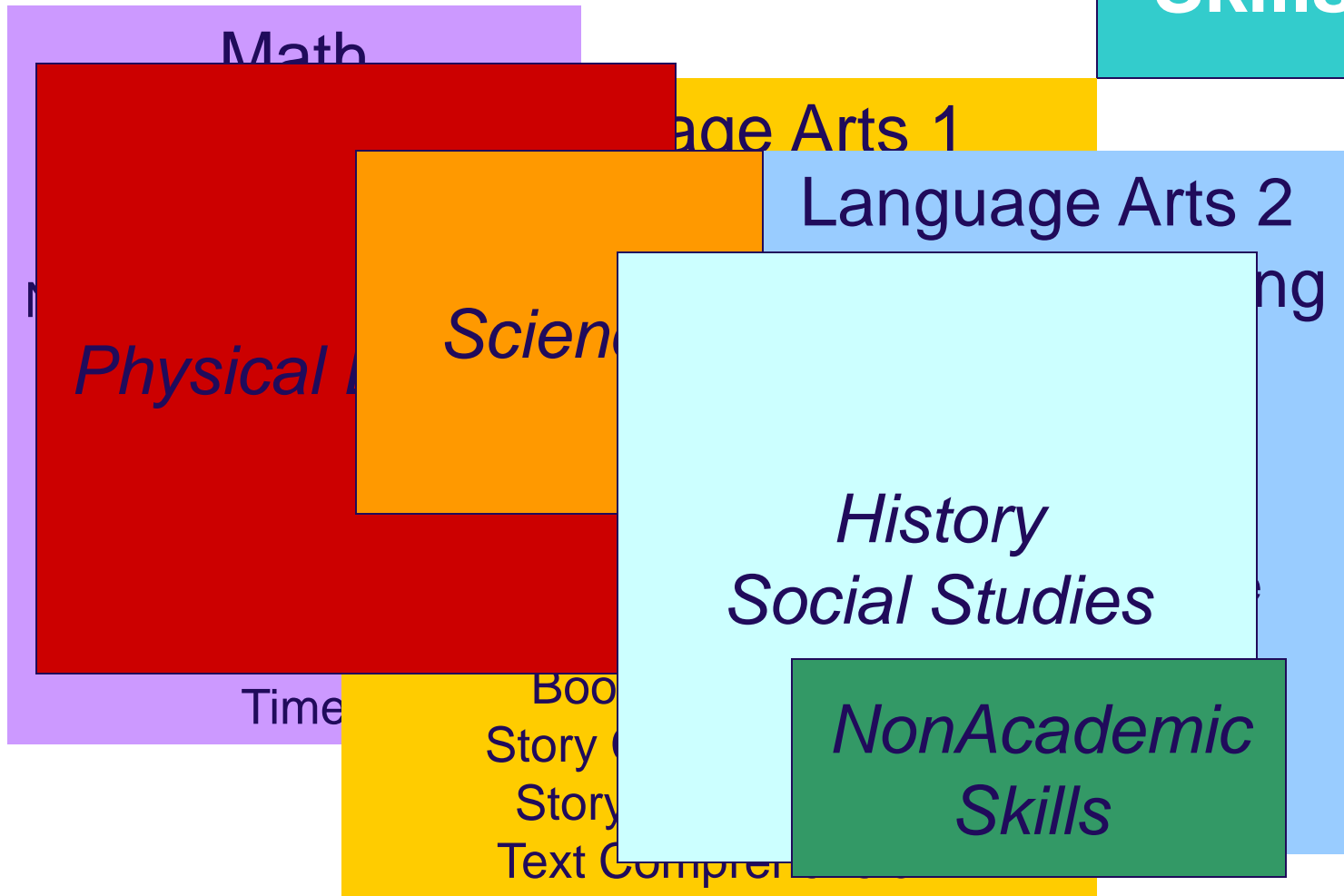


Motor Curriculum





The CARD Curriculum



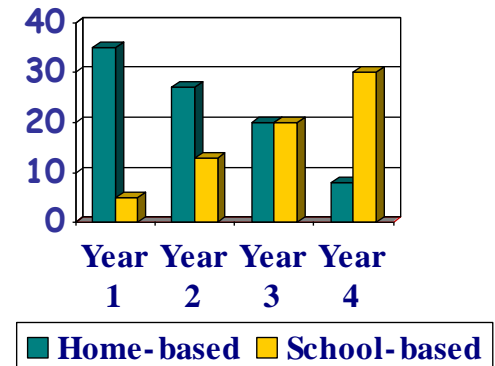


A 4 year progression

● Year 1:

- Child entering at age 2-3
- 25 hours per week building to 40 hours
- Emphasis on
 - Building a relationship with child
 - Replacing challenging behaviors with functional communication
 - Mands (Requests)
 - Tacts (labels)
 - Receptive identification (objects, actions, body parts, colors, shapes)
 - Receptive instructions
 - Verbal and Non-verbal Imitation
 - Identical Matching
 - Play Skills (toy play)
 - Adaptive Skills (toilet training)
 - Fine and Gross Motor
 - Dietary restrictions/medical compliance

Allocation of Hours



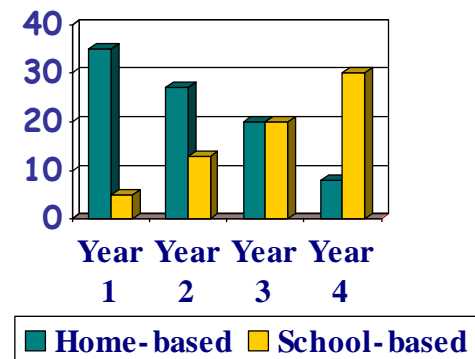
A 4 year progression



● Year 2:

- Child age 3-4
- 40 hours (in home with partial transition to school)
- Emphasis on
 - Building Expressive Language
 - Objects, Actions, Attributes, Prepositions, Pronouns
 - Categories, Functions, Occupations, Locations
 - Beginning Conversation
 - Intraverbals
 - Reciprocal Statements
 - Asking Questions
 - Developing Observational Learning
 - I See
 - Sequences
 - Tell me about/Describe
 - Emotion Recognition
 - Inferring others desires
 - Play Skills (functional pretend, symbolic, imaginary)
 - Adaptive Skills (dressing, grooming, feeding)
 - Fine and Gross Motor
 - Sharing and Turn taking
 - Attention (dual and divided)

Allocation of Hours



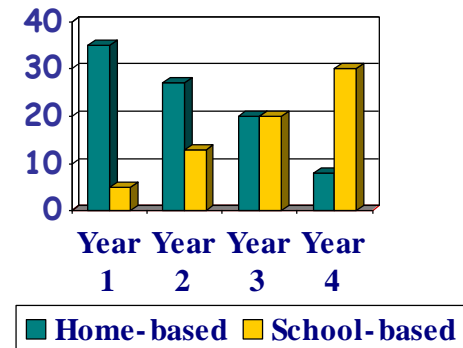
A 4 year progression



● Year 3:

- Child age 4-5
- 40 hours (20 hours at home; 20 hours at school)
- Sample Programs
 - Advanced Language Concepts
 - Pragmatic Language
 - Maintaining Conversation (topic initiation, repair, maintenance)
 - Meta and Social Cognition
 - Identifying and Managing own emotions
 - Understanding other's Perspectives, Knowledge and Beliefs
 - Inferences
 - Executive Function
 - Attention Saliency
 - Flexibility with Routines
 - Inhibition and Self Monitoring
 - Planning
 - Social Skills
 - Levels of Friendship
 - Recognizing Social Cues
 - Problem Solving
 - Play Skills (peer play dates)
 - Adaptive Skills
 - Fine and Gross Motor

Allocation of Hours



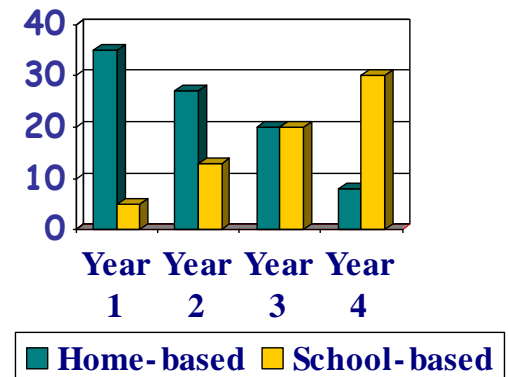


A 4 year progression

● Year 4:

- Child age 5-6
- 40 hours (10 hours at home; 30 hours in school and fading services)
- Emphasis on
 - Teacher and Parent training
 - School Skills
 - Listening and Reading comprehension
 - Math and Problem Solving
 - Advanced Social Skills
 - Detecting Sarcasm
 - Understanding Deception
 - Group Skills
 - Continued Self Regulation
 - Self Esteem and Confidence
 - Task and Social Planning

Allocation of Hours





Summary

- A good ABA program requires good assessment to determine exactly what your child needs to learn!
- A good ABA program needs a lot of hours!
- Don't do 5 hours of ABA when 40 hours are recommended! This is like taking 5 mgs of a drug that has shown to be effective at 40 mgs! It wont work!